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DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION
REMEDIATION DIVISION
LEAKING UNDERGROUND STORAGE TANK COORDINATION PROGRAM
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Part I: Primary Recipient*: Remediation Program (* required)

For Remediation documents:	For LUST documents:
Primary Program*: Brownfield Program	UST Facility ID:
Rem ID*: 14420 & 14793	Spill Case Number:

Part II: Site Information

Site Name*: RLI Park Project (RLI Property & Portion of WMSP)

Site Address*: Leibert Road / Meadow Road

City/Town*: Hartford/Windsor State: CT Zip Code: 06120

Secondary Programs (complete as many as applicable for this document):

Program: Voluntary Remediation	Project ID: 14420
Program: Voluntary Remediation	Project ID: 14793
Program: Select Secondary Program	Project ID:
Program: Select Secondary Program	Project ID:

Provide Project ID for each secondary program if it is known.
Each program has a unique ID (i.e. Rem ID, Spill Case #, UST Facility ID, etc.)

Part III: Document Information (document type required for appropriate program[s] only)

Remediation*: Remedial Action Plan (RAP)

LUST*: LUST Document Type

Date of Document*: 7/11/2025 Version: Final

Part IV: Submitter Information

Name*: Dan Jahne, LEP

E-mail*: Daniel.jahne@fando.com

Name of company/business this document is being submitted on behalf of: *

Riverfront Recapture, Inc.

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Remedial Action Plan

Riverfront Land Future Park

Riverfront Land Inc. Property &
Portion of Windsor Meadows State Park
Liebert Road, Hartford, CT & Meadow Road, Windsor, CT
DEEP Remediation No.: 14420 & 14793

April 2022
Revised July 2025

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July 11, 2025

Ms. Jade Barber
Remediation Division
Bureau of Water Protection and Land Reuse
Department of Energy & Environmental Protection
79 Elm Street
Hartford, Connecticut 06106

RE: Remedial Action Plan
Riverfront Land Future Park
Liebert Road & Meadow Road
Hartford/Windsor, Connecticut
DEEP Remediation No.: 14420 & 14793

Dear Ms. Barber:

We are pleased to submit this revised Remedial Action Plan (RAP) on behalf of Riverfront Recapture, Inc. (RRI) for the Riverfront Land Future Park Project at the above-referenced properties (herein, the "Site").

This RAP presents the remedial strategy proposed to meet the clean-up objectives in the Connecticut Department of Energy and Environmental Protection's (DEEP's) Remediation Standard Regulations (RSRs) and requests the following DEEP approvals:

- **Approval of Widespread Polluted Fill Variance Request (Section 22a-133k-2(f)) –** Historical fill material across the Site exceeds the residential direct exposure criteria and GB pollutant mobility criteria. The proposed remedial solution includes using the widespread polluted fill variance exemption from the PMC, discussed in *Section 6.4* and detailed within *Appendix B*.

- **Approval for Reuse of Soil Polluted with Substances At Concentrations Exceeding RSR Direct Exposure Criteria (Section 22a-133k-2(h)(3)(B))** – As detailed in the enclosed report, excavation and grading activities are proposed during redevelopment and construction of the proposed park. Soil and fill material with concentrations of fill constituents of concern exceeding the applicable direct exposure criteria from select areas will be excavated, moved to the upland sediment and soil reuse area and rendered inaccessible pursuant to 22a-133k-2(b)(3) or an engineered control pursuant to 22a-133k-2(f)(2)(C).

We respectfully request your review of the attached document and approval of the aforementioned requests, in accordance with the proposed schedule (*Section 8.5*). Please contact the undersigned if we can be of further assistance.

Sincerely,

Daniel R. Jahne, LEP
Associate

c: Marc Nicol, Riverfront Recapture, Inc.

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Riverfront Land, Inc. Property &
Portion of Windsor Meadows State Park
Hartford & Windsor, Connecticut

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Appendix B	Widespread Polluted Fill Variance Request
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1 Introduction

Fuss & O'Neill, Inc. (Fuss & O'Neill) has prepared this *Remedial Action Plan* (RAP) for the proposed Riverfront Land Future Park project in Hartford and Windsor, Connecticut (hereinafter, the "Site").

The park project is the proposed redevelopment plan for two properties, one identified as the Riverfront Land, Inc (RLI) owned properties, and an adjacent portion of the Windsor Meadows State Park (WMSP) located along the Connecticut River spanning the Hartford/Windsor town lines.

The RLI property consists of approximately 60-acres across 6 smaller parcels, with four located in Hartford, Connecticut and two in Windsor, Connecticut. The WMSP portion of the Site is an approximately 16-acre portion of the park property located at 73 Meadow Road in Windsor, Connecticut.

A portion of a United States Geological Survey (USGS) topographic map showing the Site location is provided as *Figure 1* and a Site Plan depicting the current Site layout and sampling locations is provided as *Figure 2*.

1.1 Redevelopment Overview

Current redevelopment plans for the Site include extending an approximate two-mile portion of RRI's Riverwalk trail system (originating from Hartford's Riverside Park to Meadow Brook on the southern edge of the RLI property) across a pedestrian bridge over Meadow Brook and across the RLI property, continuing north across the portion of the WMSP property and a pedestrian bridge over Decker's Brook; ultimately connecting the Riverwalk trail system with the existing Windsor Riverwalk to the north.

Additionally, portions of the RLI property will be developed into public recreation space to provide access to Windsor Meadows State Park (to the north) and to the adjacent Connecticut River. It is currently anticipated that a cove will be created through the excavation and dredging of approximately 410,000 cubic yards of alluvial deposits, expanding the floodplain's storage capacity. The cove will be home to a new paddle sport and outdoors center, featuring community rowing, kayaking, canoeing and standup paddle boarding. Overall, the development of the park is anticipated to support recreation, youth programs including STEM education, large scale community events and festivals. An approximate 13-acre portion of the Site in the western upland will be reserved for future commercial development.

In general, aside from the cove expansion and trail construction, proposed Site redevelopment plans will create riparian buffers, habitat restoration and enhancement areas, and plant communities. Expansive areas in the northern portion along Deckers Brook, and the eastern portion along the Connecticut River will remain generally undisturbed in their existing, natural conditions (ie a vegetated meadow and riverbank).

The Site redevelopment activities are being completed as part of the Abandoned Brownfield Cleanup (ABC) Program and Voluntary Cleanup Program (Connecticut General Statutes [CGS] Section 22a-133x), with funding sources provided through both public and private sources, which includes remediation grants received from the Connecticut Department of Economic and Community Development (DECD) and the United States Environmental Protection Agency (EPA).

A Preliminary Design Master Plan is provided as *Appendix A*. The park master plan will be constructed in phases as further described herein as RLI's project funding allows.

1.2 Remedial Strategy Overview

A 2020 Environmental Conditions Assessment Form (ECAF) noted the RLI Property's entry into the Voluntary Remediation Program pursuant to CGS 22a-133x, following Connecticut's DECD acceptance of the Site into the ABC Program. Subsequently, a November 2021 ECAF referenced the portion of WMSP's entry into the Voluntary Remediation Program CGS 22a-133x. Therefore, the project Site is subject to complying with Connecticut's RSRs, as discussed further in *Section 2* below.

Based on the redevelopment concept described in *Section 1.1* and depicted on the plans in *Appendix A,* and regulatory requirements described above, the remedial strategy for the Site will include the following elements:

1. Public notification of remediation
2. Preparation of necessary plans and obtaining necessary permits
3. Application of approved variances and exemptions from the DEC and/or PMC
4. Onsite handling of soil and materials handling plan (i.e., soil management plan)
5. Excavation and on-Site relocation of excess materials (both non-impacted and polluted materials)
6. Rendering soil and fill inaccessible or use of an engineered control
7. Public notification and filing of an environmental land use restriction (ELUR)

The excavated material from the cove will be used, in part, as non-impacted cover material in select portions of the property and raising grades along the western portion of the property to bring the elevation out of the floodplain and allow for future commercial development supporting the recreational Site use

The applicable regulatory programs and proposed remedial strategy are discussed in further detail in *Sections 3 & 6*, respectively.

2 Site Overview

2.1 Physical Description

The RLI-owned properties are located along the south and east sides of Meadow Road, east of the Amtrak Railroad, and west of the Connecticut River in Hartford and Windsor, Connecticut (Hartford County). The Hartford Landfill is located directly to the south, across Meadow Brook. The 16-acre portion of the WMSP parcel is bounded by Decker's Brook and associated Windsor Meadows State Park trails/access road to the north, the Connecticut River to the east, privately owned parcels along Meadow Road to the west, and the RLI property to the south. A portion of a United States Geological Survey (USGS) topographic map showing the Site location is provided as *Figure 1* (USGS, 2019).

The RLI property consists of 6 parcels, which encompass a total of approximately 60 acres of land west of the Connecticut River (*Figure 2*). These parcels have been owned by RLI since September 2019 and prior to that, were previously owned by the Russo family since at least 1969. The acreage of each parcel, based on Assessor's mapping and property cards is listed in the table below.

Address	Acreage	Owner	Sale Date
228 Leibert Road, Hartford	14 Acres	Riverfront Land, Inc.	9/19/2019
590 Leibert Road, Hartford	9.15 Acres		
600 Leibert Road, Hartford	36.2 Acres		
610 Leibert Road, Hartford	0.423 Acres		
100 Meadow Road, Windsor	1.8 Acres		
120 Meadow Road, Windsor	0.1 Acres		

The WMSP portion of the Site is an approximately 16-acre portion of WMSP, located at 73 Meadow Road within an agricultural zone of Windsor, Connecticut. The State of Connecticut has owned the Site since 1968 and, in 2020, entered into a short-term land use agreement with RRI, permitting them to occupy, maintain, and perform due diligence activities necessary for Site investigation and design planning the Site. In addition, a 25-year land lease for the 16 acres has been signed by Riverfront Recapture and will be executed by the State later this year.

2.2 Site History

RLI Property

The RLI property was historically used for agricultural purposes dating back to 1934, at which time a residential dwelling, farming "barracks" and several greenhouses were located on the northern portion of the property, while the remainder of the parcels appeared to be cultivated farmland. A cinder block building, located on the 100 Meadow Road parcel, was constructed circa 1952. This building was reportedly used as a produce washing and refrigeration storage facility.

Based on information obtained from the DEEP Land and Water Resources Division, permitting for earth excavation activities at the RLI property was obtained in the early 1970s, with the first evidence of excavation activities appearing in the 1985 aerial photo, where several piles of excavated materials were staged along the western portion of the property. A depression along the eastern portion of the Site, likely due to excavation activities, and a long berm along the Connecticut River are also visible in the 1985 aerial photo. Since that time, excavating and fill activities appear to have regularly occurred along the southern portion of the RLI property as the previous owner excavated sand and fine-grained material for processing and sale. Larger excavation areas, including a small pond in the west central portion of the property, and storage piles became visible in later aerial photographs and by approximately 1992 the pond appeared to have been filled. As excavation voids were created from commercial earth excavation activities, the voids were subsequently backfilled with material imported from off-site. The practice resulted in non-native fill material comprising a 21-acre portion of the Site. Otherwise, the Site remained relatively unchanged from 1989 through 2005, at which time the farmer "barracks" and greenhouses are no longer present in the aerial images.

The RLI property is currently vacant and unused, but was occupied until 2019 by tenants who used the Site for truck parking (on the northwest portion of the Site) and farming (primarily on the central and eastern portions of the Site). Additionally, Russo Brothers Inc. used the Site to excavate and process sand, silt, and clay for sale as ice control sand, recreational infield mix, screened topsoil, and clay. In 2018, a portion of the Site (primarily along the western boundary of the Site), was also used as a contractor laydown area for construction equipment related to railroad construction activities for the rail line that abuts the Site to the west.

Prior to or during the 2020-2021 Phase II/III investigations, the single-family residence, former produce wash building, and sediment storage structures were abated and demolished, and a number of material stockpiles were removed or used to grade select portions of the western side of the RLI property.

WMSP
Of the 16-acre portion of the WMSP parcel, approximately 9 acres in the center of the Site was also historically used as agricultural land. The central portion of the parcel has not been used for agricultural purposes since approximately 2019. Approximately 6 acres of land along the western, northern and eastern Site boundaries are wooded, and the remaining 1 acre in the northwest portion of the Site is a lawn that appears to be maintained by the adjacent 51 Meadow Road parcel.

Refer to *Table 1* for a summary of environmental areas of concern identified across the Site and investigation results from previous environmental site assessments.

2.3 Environmental Setting

2.3.1 Topography

The topography of the Site is generally flat, while the regional topography slopes gently down to the east towards the Connecticut River (USGS, 2019), which makes up the eastern boundary of the Site (*Figure 1*).

2.3.2 Geology

Surficial Geology

Surficial material at the site is mapped as alluvium overlying fines, which consist of natural, postglacial materials (Stone, 1992). Surficial materials consistent with these were identified throughout the central portions of the Site during previous Site investigations.

Test pits advanced within the river estuary in the eastern portion of the RLI property, identified native material consisting of medium to fine grain sand and silt to depths of approximately 10 feet below grade, with little clay identified between 6.5 to 8 feet in select locations.

Urban Fill

Urban fill material overlaying the natural surficial deposits was identified across large portions of the Site. Specifically, fill containing gravel, concrete, brick, asphalt, and wood was identified ranging from approximately 7 to 11 feet below grade (fbg) along the riverbank extending from Decker's Brook to north down to Meadow Brook to the south. Fill material identified along the berm on the eastern portion of the RLI property was also observed to contain coal and metal slag and is estimated that fill thickness may extend to depths up 15 fbg based on observation of the eastern bank of the berm.

Fill materials were also identified along the southwest corner of the WMSP parcel and in the vicinity of the former produce wash building on the RLI property at thicknesses ranging from approximately 1-4 fbg. Fill materials in the western portions of the Site were generally consistent with fill material identified on the riverbank along eastern portions of the Site and contained asphalt, wood, coal, metal slag, metal fragments, brick, and/or concrete. Fill

thicknesses along the western boundary of the WMSP parcel and western portions of the RLI property extended from approximately 7-11.5 feet below grade.

In general, urban fill materials were identified at varying thickness in sampling locations from most Site AOCs, across approximately 21 acres (approximately one third) of the Site. Refer to the Widespread Polluted Fill Variance Request (*Appendix B*) and *Section 6.4* below for additional details pertaining to the fill identified across the Site.

Bedrock Geology

Bedrock beneath the site is mapped as Portland Arkose, which consists of reddish-brown arkose (Rodgers, 1985). Depth to bedrock is estimated to be approximately 50-100 feet below grade throughout the majority of the Site. Depth to bedrock is estimated to be shallower (approximately 10-50 feet below grade) along the western portions of the RLI property (USGS, 2017). During 2018 Phase II investigation activities, the advancement of a soil boring located on the southwestern portion of the RLI property, met refusal on suspected bedrock at approximately 14 feet bgs.

Additionally, as part of geotechnical evaluations conducted by Fuss & O'Neill in 2020 and 2021, bedrock was encountered at approximately 34-45 feet below grade in geotechnical borings advanced along the proposed trail in the northcentral portion of the Site on the WMSP parcel (adjacent to the proposed Decker's Brook crossing) and at approximately 57 to 59 feet below grade in the southeastern portion of the RLI property (at the proposed Meadow Brook crossing).

2.3.3 Hydrogeology

Depth to groundwater at the Site ranges from approximately 5-8 fbg (along the northwestern portion of the WMSP parcel and southwestern portion of the RLI property) to approximately 19 feet below grade in central and eastern portions of the Site. Groundwater elevation data indicates that groundwater at the Site generally flows to the east toward the Connecticut River.

Monitoring well construction detail and groundwater elevation measurements are summarized on *Table 2* and a groundwater elevation contour map is provided as *Figure 3*.

It is noted that mapped wetlands exist in the southeastern portion of the RLI property (within the river estuary) and Meadow Brook, which directly abuts the Site to the south, both of which may influence the general groundwater flow direction across the Site.

2.3.4 Water Quality Classifications

Groundwater Classification

The quality of groundwater beneath the subject site is classified by the DEEP as GB (DEEP, 2022). Such groundwater is presumed not to be suitable for human consumption without treatment and is used for industrial process water and cooling waters (CTDEP, 2011).

Surface Water Classification

The nearest surface water bodies to the Site include the Connecticut River, which directly abuts the Site to the east, Decker's Brook, which directly abuts the Site to the north, and Meadow Brook, which directly abuts the Site to the south.

Both the Connecticut River and Meadow Brook are classified by the State of Connecticut as SB (DEEP, 2022). Designated uses of such coastal and marine surface waters are for marine fish, shellfish, and wildlife habitat, shellfish harvesting for transfer to approved areas for purification prior to human consumption, recreation, industrial and other legitimate uses including navigation (CTDEP, 2011).

Decker's Brook is classified by the State of Connecticut as A (DEEP, 2022). Designated uses of such coastal and marine surface waters are for habitat for fish and other aquatic life and wildlife, potential drinking water supplies, recreation, navigation, and water supply for industry and agriculture.

2.3.5 Potential Receptors

An assessment was conducted to evaluate whether sensitive human health or ecological receptors are present at or directly downgradient of the Site. The results of this evaluation are presented below:

- **Endangered Species –** State and Federal listed species and significant natural communities are mapped on and adjacent to the Site (DEEP, 2022). The maps are intended to be a pre-screening tool to identify potential impacts to state-listed species. Based on identification of protected species, Fuss & O'Neill submitted a *Request for Natural Diversity Data Base (NDDB) State Listed Species Review Form* to DEEP in February 2020. The DEEP identified several species of freshwater mussels, fish, and birds, the eastern box turtle, and the riverine clubtail dragonfly as living in or around the Site. Subsequent mussel and odonate surveys were conducted and supplemental NDDB information has been submitted in accordance with the park master plan preparation and regulatory permitting process.
- **Ecological Receptors –** An ecological risk assessment has not been conducted; however, the Site is located in a developed area of Hartford and Windsor. The Site is bounded by a mix of residential, commercial, and recreational vacant land to the north, agricultural land use and the Metro north Railroad to the west, the Connecticut River to the east, and the Hartford Landfill to the south. The park master plan provides for ecological habitat enhancements as part of project construction activities.
- **Wetlands –** Mapping (DEEP, 2022) indicates that state wetlands, distinguished by alluvial/floodplain soils, are located along eastern portions of the Site. National Wetland Inventory wetlands and wetland soils are also located on the central, southeast and northern portions of the Site. Additionally, the Site is located entirely within the 100-year flood zone. Wetland delineation has been performed by Fuss & O'Neill as a step in the process of Site redevelopment design, which aims to raise portions of the Site out from the 100-year flood zone. The park master plan provides for wetland enhancement and wetland creation as part of project construction activities.
- **Aquifer Protection Areas –** Aquifer protection areas were not identified within a 0.5-mile radius of the Site (DEEP, 2022).
- **Public Water Supply Wells –** The Atlas of Public Water Supply Sources and Drainage Basins of Connecticut (CTDEEP, 1982) shows no public water supply wells within 0.5-mile radius of the Site.

- **Private Water Supply Wells –** In August 2019, a private water supply well was installed on the 51 Meadow Road property, located northwest (upgradient) of the Site. The 51 Meadow Road property had previously been connected to the water supply on the Site's 100 Meadow Road parcel. The Site is located in an urbanized area where municipal water is available to the Site and the surrounding area.
- **Physical Contact with Soil –** Currently, the potential exists for site occupants and visitors to be exposed to impacted soil or fill. This will be mitigated following completion of Site redevelopment.
- **Potential for Vapor Intrusion –** Based on three rounds of groundwater sampling at the Site, VOCs were not detected in Site groundwater.

3 Regulatory Framework

Both the RLI property and the portion of WMSP that make up the Site are entered in state cleanup programs as separate parcels. The regulatory programs, applicable RSR criteria, and DEEP approvals relevant to the Site are discussed in more detail in the following subsections.

3.1 Regulatory Programs

RLI Property
On June 4, 2020 Fuss & O'Neill filed an Environmental Condition Assessment Form (ECAF) with the DEEP on behalf of Riverfront Recapture, Inc. to enter the RLI property into the Voluntary Remediation program pursuant to CGS 22a-133x as part of the obligations associated with acceptance into the ABC Program under CGS §32-768. This program requires that the certifying party investigate and remediate the parcel in accordance with prevailing standards and guidelines, including the RSRs.

On September 10, 2020, the DEEP acknowledged receipt of a complete ECAF and notified Riverfront Recapture that delegation of verification of investigation and remediation of the Site to an environmental professional licensed pursuant to CGS 22a-133v (LEP) was automatic unless the DEEP provided written notification of their intent to retain oversight with 30 days of the acknowledgment letter. The RLI property was assigned Remediation ID number 14420.

WMSP Parcel
An ECAF for the approximately 16-acre portion of the WMSP parcel was filed with the DEEP on November 24, 2021, on behalf of the State of Connecticut and RRI, which entered the Site into the Voluntary Remediation program pursuant to CGS Section 22a-133x and the Connecticut RSRs. This program, administered by the Remediation Division of the Bureau of Water Protection and Land Reuse, is an elective program so any interested party can expedite the investigation and remediation of any contaminated property. A letter of acknowledgement from DEEP received on December 9, 2021 acknowledged the receipt of the ECAF and designated Remediation ID number 14793 for the WMSP portion.

The current LEP of record for the Site is Mr. Daniel R. Jahne (LEP License No. 399) of Fuss & O'Neill, Inc.

3.2 Applicable RSR Soil Criteria

The RSRs are the clean-up standards in the State of Connecticut. In addition to numeric criteria, they contain procedures to evaluate whether actions (e.g., remediation or institutional controls) will be required to address identified releases of hazardous substances. The RSRs require that the nature and extent of release areas be fully characterized prior to making a final determination of compliance with the RSRs.

Soil remediation is regulated by substance and release area. A release area is defined as the land area at, and beneath which polluted soil is located as a result of a release. The RSR Soil Remediation Standards (RCSA Section 22a-133k-2) require polluted soil at a release area to be remediated to the following criteria.

RSR Soil Criteria	Description	
Direct Exposure Criteria (DEC)	In general, DEC are applicable to soil within 15 feet of the ground surface. Each constituent of concern identified in soil impacted by a release must be remediated to concentrations that are equal to or less than the Res DEC (i.e., default criteria), unless alternatives or variances are applied. For constituents of concern other than polychlorinated biphenyls (PCBs), compliance with the DEC can also be demonstrated by comparing the 95 percent upper confidence limit (UCL) of the mean of all samples within the release area to the default criteria.	
Pollutant Mobility Criteria (PMC)	The PMC protect groundwater from constituents leaching out of impacted soil and are dependent upon the groundwater quality classification of a Site. Since the Site is located in a GB designated area, the GB PMC applies. The GB PMC applies only to soil located above the seasonal-high water table (SHWT). For constituents of concern other than PCBs, compliance with the PMC can also be demonstrated by comparing the 95 percent UCL of the mean of all samples within the release area to the default criteria.	

3.2.1 Direct Exposure Criteria Alternatives

The RSRs provide several variances and alternatives to compliance with the Res DEC, which applies based on the future recreational use of the Site. The variances and alternatives that will be considered as part of the remedial strategy for the Site are discussed below.

Inaccessible Soil

The DEC for soil can be waived if the soil is considered inaccessible and an environmental use restriction (EUR) is recorded on the land records prohibiting disturbance/exposure of such soil. The inaccessibility of soil is dependent on its depth below various surface features such as asphalt pavement, reinforced concrete, buildings, and landscaping. Inaccessible soil is soil that meets at least one of the following conditions:

- Beneath more than four feet of non-impacted/RSR compliant material(s)
- Beneath more than two feet of non-impacted/RSR compliant material(s), overlain with a paved surface consisting of at least three inches of bituminous concrete or at least four inches of reinforced concrete, which two feet may include the pavement sub-base
- Contaminated fill beneath a paved surface consisting of at least three-inches of bituminous concrete or at least four inches of reinforced concrete, if such fill meets the following criteria:
    - Semi-volatile compounds or petroleum hydrocarbons in the fill exceeding the DEC are normal constituents of bituminous concrete
    - Metals in the fill do not exceed two times the applicable DEC
    - No other compounds exceed the DEC
- Beneath a building or DEEP-approved permanent structure

Commissioner Approval of An Engineered Control

Section 22a-133k-2(f)(2)(C) of the RSRs provides a variance from compliance with the direct exposure criteria when an engineered control is used at a release area, provided the request demonstrates to the commissioner's satisfaction that the eligibility requirements have been met.

LEP Certification of an Engineered Control Variance

Section 22a-133k-2(f)(2)(B) of the RSRs provides a variance from compliance with the direct exposure criteria when an engineered control is used and an LEP certifies to the commissioner that the eligibility requirements of the subsection are met.

95% Upper Confidence Level (UCL)

The ninety-five percent upper confidence level of the arithmetic mean (95% UCL) may be used to demonstrate compliance with the RSRs, in accordance with RCSA Section 22a-133k-2(e)(1)(B). The 95% UCL can be used to demonstrate compliance with the applicable DEC; if the 95% UCL of all soil sample results from the subject release area is equal to or less than the applicable DEC. It is our opinion that the Site-wide fill has been fully and accurately characterized, and, following removal of select impacted areas, the 95% UCL can be used as a method to demonstrate compliance with the DEC.

Conditional Exemption for Incidental Sources

Section 22a-133k-2(b)(5)(A) provides an exemption to the DEC for releases from incidental sources. Specifically, soil at a release area polluted with metals, petroleum hydrocarbons, or semi-volatile organic substances is not required to be remediated to the direct exposure criteria for those substances, provided that such pollution is the result of: An incidental release due to the normal operation of motor vehicles, not including refueling, repair or maintenance of a motor vehicle.

3.2.2 Pollutant Mobility Criteria Alternatives

The RSRs also provide several variances and alternatives to compliance with the GB PMC. Variances and alternatives that will be considered as part of the remedial strategy for the Site are discussed below.

Conditional Exemption for Soil Polluted with Pesticides

Section 22a-133k-2(c)(5)(E) provides an exemption to the PMC for soils polluted with pesticides as the result of the routine application of pesticides. Specifically, the exemption indicates that "*soil polluted with pesticides at a release area as a result of the application of pesticides at such release area is not required to be remediated to the pollutant mobility criteria, provided that a determination has been made that such pesticides are present soley as a result of the application of pesticides and*:

i. Compliance with the direct exposure has been achieved
ii. Compliance with the groundwater standards of the RSR has been achieved

Widespread Polluted Fill Variance

Section 22a-133k-2(f)(1) of the RSRs states that the geographically extensive polluted fill present at a site may be eligible for a variance from compliance with the PMC, provided that the site meets all the following conditions:

i. The fill for which a variance is sought does not contain volatile organic substances in excess of pollutant mobility criteria
ii. Such fill is not affecting and will not affect the quality of an existing or potential public water supply resource or an existing private drinking water supply
iii. For each substance in such fill, compliance with the direct exposure criteria has been achieved
iv. Any substances released into such fill subsequent to the placement of such fill that exceed the pollutant mobility criteria shall be remediated to concentrations equal to or less than the concentrations of those substances already within such fill
v. The placement of such fill was not prohibited by law at the time of placement
vi. Such fill shall remain on the parcel within the area for which such variance has been certified by an LEP in accordance with RCSA Section 22a-133k-2(f)(1)(B) or approved in writing by the commissioner in accordance with RCSA Section 22a-133k-2(f)(1)(C); and
vii. The owner of the parcel for which a variance is sought acknowledges and consents to such variance and the EUR required by RCSA Section 22a-133k-2(f)(1)(D)

The Site is consistent with the conditions pursuant to the February 2021 revisions to Section 22a-133k-2(f)(1)(A) and (B) of the RSRs, as described above and discussed in further sections of this document. Therefore, Fuss & O'Neill has prepared and submitted a *Widespread Polluted Fill Variance Request* (herein the "WPFV") as part of the proposed Site redevelopment and remediation activities, attached herein as *Appendix B.*

Conditional Exemption for Incidental Sources

Similar to the DEC exemption, Section 22a-133k-2(c)(5)(D) provides an exemption to the PMC for releases from incidental sources. Specifically, soil at a release area polluted with metals, petroleum hydrocarbons, or semi-volatile organic substances is not required to be remediated to the pollutant mobility criteria for those substances, provided that such pollution is the result of: An incidental release due to the normal operation of motor vehicles, not including refueling, repair or maintenance of a motor vehicle.

3.3 Applicable RSR Groundwater Criteria

The RSR Groundwater Remediation Standards (RCSA Section 22a-133k-3) require that remediation of a groundwater plume in a GB area result in the attainment of background conditions for each substance or meet the SWPC and volatilization criteria (VC), provided that any groundwater plume does not interfere with any existing use of the groundwater.

RSR Groundwater Criteria	Description
Surface Water Protection Criteria (SWPC)	The SWPC ensure that surface water quality will not be impaired by the discharge of contaminated groundwater into a surface water body at constituent concentrations above the Water Quality Standards (WQS). The RSRs specify the following methods for determining compliance with the SWPC: • The 95 UCL of the arithmetic mean of all sample results representative of the groundwater plume is equal to or less than the SWPC. • The concentration of such substance in that portion of such plume which is immediately upgradient of the point at which such groundwater discharges to the receiving surface water body is equal to or less than the applicable SWPC. In instances where a surface water body is not located adjacent to the Site, the downgradient property boundary can be considered the "point of discharge" for the Site.
Volatilization Criteria (VC)	Volatilization criteria protect human health from volatile substances in shallow groundwater that may migrate into overlying buildings and apply to: • Volatile organic substances, other than volatile petroleum substances, within thirty (30) feet or less of the ground surface and within thirty (30) feet or less of the lowest portion of a building under which groundwater is polluted with such substances; and • Volatile petroleum substances, within ten (10) feet or less of the ground surface and within ten (10) feet or less of the lowest portion of a building under which groundwater is polluted with such substances

3.4 Applicable RSR Additional Polluting Substances Criteria

A number of substances have been detected at the Site for which the DEEP has not established RSR criteria. However, in December 2015 DEEP released a "Technical Support Document: Recommended Numeric Criteria

for Common Additional Polluting Substances and Certain Alternative Criteria" which includes pre-evaluated alternative criteria for several additional polluting substances for which no promulgated criteria exist.
As part of this document, DEEP created a "Request for Approval of Criteria for Additional Polluting Substances and certain Alternative Criteria" fast-track form for requesting approval for use of the 2015 criteria. Therefore, we are requesting DEEP approval of the fast-track criteria for the following constituents detected at the Site:

Additional Polluting Substances Requiring DEEP Approval	
Pesticides	**Semi-Volatile Organic Compounds**
4,4'-DDD	2-Methylnaphthalene
4,4'-DDE	Acenaphthene
4,4'-DDT	Benzo(ghi)perylene
Endosulfan I	Chrysene
	Dibenzo(a,h)anthracene
	Indeno (1,2,3-cd)pyrene
	Phenanthrene
Petroleum Hydrocarbons	**Metals**
ETPH	Barium

A *Request for Approval of Criteria for Additional Polluting Substances and Certain Alternative Criteria* form was submitted to DEEP on April 1, 2022. An approval of the APS request was issued by DEEP on May 24, 2022 and attached as *Appendix C*.

4 Previous Investigations

Several previous environmental investigations and assessments were complete for both the RLI property and WMSP portion of the Site. The previously prepared documents describing investigation and remediation activities conducted at the Site are listed below.

Date/Consultant	Document Title and Content Description
RLI Property	
February 2019 Fuss & O'Neill	*Phase I Environmental Site Assessment, Russo Family Properties, Hartford & Windsor Connecticut*
October 2020 Fuss & O'Neill	*Draft Phase II/III Environmental Site Assessment, Russo Family Properties, Hartford & Windsor, Connecticut*
October 2020 Fuss & O'Neill	*Underground Storage Tank Removal & Closure Sampling, 100 Meadow Road, Windsor, Connecticut*
December 2021 Fuss & O'Neill	*Phase III Environmental Site Assessment, Riverfront Land Inc. Properties, Hartford & Windsor, Connecticut*
April 2022 Fuss & O'Neill	*Remedial Action Plan, Riverfront Land Inc. Property & Portion of Windsor Meadows State Park Liebert Road, Hartford, CT & Meadow Road, Windsor, CT*

Portion of WMSP Parcel	
April 2020 Fuss & O'Neill	*Phase I Environmental Site Assessment, Portion of Windsor Meadows State Park, 73 Meadow Road, Windsor, Connecticut*
November 2021 Fuss & O'Neill	*Phase II/III Environmental Site Assessment, Portion of Windsor Meadows State Park, 73 Meadow Road, Windsor, Connecticut*
April 2022 Fuss & O'Neill	*Remedial Action Plan, Riverfront Land Inc. Property & Portion of Windsor Meadows State Park Liebert Road, Hartford, CT & Meadow Road, Windsor, CT*

These previously prepared documents were provided under separate covers, and results from these investigations are summarized briefly in the subsections below.

4.1 Areas of Concern With Identified Releases

The RLI Property 2019 Phase I ESA identified eight recognized environmental concerns (RECs), also referred to as AOCs, associated with the Site. Additionally, the 2020 Phase I ESA conducted for the portion of WMSP identified four AOCs.

Of the twelve total AOCs identified across both parcels associated with the Site, releases were identified at nine AOCs. These AOCs are listed below, with designations of which portion of the Site they were identified on and are described in detail on *Table 1*. Locations of each of these AOCs are shown on *Figure 2*.

- RLI AOC-01 - Berm Along the River
- RLI AOC-02 - Fill Material on Western Portion of the Site
- RLI AOC-03 - Material Stockpiles
- RLI AOC-05 - Pesticide Use (Site Wide)
- RLI AOC-06 - Drums & Miscellaneous Containers/Surficial Oil Staining

- WMSP AOC-01 Pesticide Use (Agricultural Field/Site-Wide)
- WMSP AOC-02 Riverbank Berm
- WMSP AOC-03 Western Soil Stockpile/Earthen Berm
- WMSP AOC-04 Former Sewer Overflow Branch Manholes/Debris Area

Site redevelopment plans include the creation of a cove on the RLI Property (*Appendix A*). This will be created through the dredging, excavation and relocation of sediment and soils from the existing estuary depression located adjacent to the Connecticut River. The cove excavation and grading process will generate a large volume of non-impacted, native soil which will be relocated to the upland reuse area, along the western portion of the RLI Property, and used to raise grades in the area designated for future commercial development. This project component, which is necessary for development of the future park, is an essential part of Site remediation and redevelopment, as further detailed in *Sections 4.2.2 and 7*.

4.2 Soil Investigation Summary

Soil investigation activities were conducted as part of the Phase II/III investigations across the Site (on both the RLI property and the portion of the WMSP parcel) between 2018 and 2021. These investigation activities included

the excavation and sampling of test pits, stockpile sampling, surficial/hand soil sampling in the former agricultural fields, and the advancement of soil borings in select locations across the Site. General findings from the soil investigation activities per AOC are detailed in *Table 1* and are summarized below.

4.2.1 RLI Property

Over 100 soil samples were collected from select locations across the RLI property and submitted for laboratory analysis of one or more of the following: Resource Conservation Recovery Act (RCRA) 8 metals, extractable total petroleum hydrocarbons (ETPH), polynuclear aromatic hydrocarbons (PAHs), polychlorinated biphenyl's (PCBs), volatile organic compounds (VOCs), and pesticides. An overview of findings from AOC-specific investigation activities compared to applicable RSR criteria is summarized briefly below. For a complete summary of the previously completed soil investigation activities, refer to Fuss & O'Neill's previously provided December 2021 *Phase II/III Environmental Site Assessment* report.

- **RLI AOC-01 Riverbank Berm**
  In general, urban fill was observed along the riverbank berm at depths ranging from less than 1 fbg to greater than 11 fbg. Based on the observations along the eastern edge of the riverbank, the estimated fill thickness along the berm could extend up to approximately 15 feet below grade. Soil sampling results generally indicated concentrations of ETPH and PAHs in soil consistent with urban fill material containing asphalt fragments and metal slag.

  Two distinct areas along the riverbank were identified to contain elevated concentrations of PAHs greater than the applicable RSR criteria (Res DEC and/or GB PMC) at levels triggering a significant environmental hazard (SEH). Notification of the SEH was provided to DEEP per CGS Section 22a-6u(d)(3) in September 2021. Soil remediation activities will be implemented within the specific areas along the northern portion of the riverbank/berm and along the southern peninsula.

- **RLI AOC-02 Fill Material on Western Portion of Site**
  Fill material was observed throughout the western portion of the Site, at thicknesses ranging from approximately 1 fbg to approximately 11.5 fbg between the former cinder block structure and the former residence. In general, the fill was observed to have asphalt, brick, coal, concrete, glass, metal fragments/slag, plastic fragments, and/or wood mixed within the sand. Concentrations of metals, PAHs, ETPH, and pesticides were detected in soil samples collected from this AOC.

  ETPH was reported at a concentration greater than the Res DEC at one sample location (TP-06) and PAHs were reported above the Res DEC and/or GB PMC at other select sampling locations. Arsenic and/or lead were also reported at three sampling locations at concentrations above the Res DEC.

  Concentrations of ETPH, PAHs and metals above RSRs are likely associated with the fill material containing asphalt and coal. Similar to the above AOC, soils containing the observed fill materials may yield exceedances of RSRs.

  In addition, pesticides were reported at varying concentrations in excess of the GB PMC in samples collected from the vicinity of the barracks and greenhouse. Similar to other pesticide concentrations reported across the Site, these concentrations are likely associated with historical agricultural activities.

A concentration of dieldrin was reported at one sample location (SB-15[0-0.5']) above the Res DEC which will require remedial action.

- **RLI AOC-03 Material Stockpiles**

  During initial Site investigations, 23 material stockpiles were identified along the western portion of the RLI property. Between 2018 and 2021 Site investigations, the stockpiles were sampled and based on sampling results, several of the stockpiles were removed. Additionally, several of the former stockpiles consisting of native materials were used to grade select portions of the western side of the RLI property, in preparation for Site development activities.

  As of April 2025, there were approximately 7 remaining material stockpiles on Site, including Stockpiles A, B, C, D, H/I, K and W. These stockpiles were observed to contain soil mixed with concrete and asphalt fragments, shingles, brick fragments, and wood chips. Composite samples from these piles identified concentrations of fill related constituents of concern, such as arsenic, lead, PAHs. The stockpile samples also had concentrations of pesticides reported.

  A general summary of the stockpiles remaining on Site, their contents, sampling results compared to RSR criteria, and their current status is provided in the table below.

Stockpile ID	Contents	Sampling Results	Status (as of April 2025)
A	Fill (asphalt, gravel, metal slag, cobbles, brick, and concrete)	Arsenic > DEC Other Metals < RSRs PAHs < RSRs	Present - southwest portion of Site
B*	Asphalt, gravel, peastone	PCBs - ND	Present - southwest portion of Site
C	Peastone / Gravel	No Sample	Present - southwest portion of Site
D	Peastone, gravel, cobbles	No Sample	Present - southwest portion of Site
H/I	Fill (asphalt, gravel, metal slag, cobbles, brick, plastic, cloth and concrete)	Lead > DEC PAHs > DEC & PMC Pesticides > DEC & PMC Other Metals < RSRs	Present – northwest portion of Site
K	Fill (asphalt, gravel, metal slag, cobbles, brick, plastic, cloth, and concrete)	Metals < RSRs PAHs < RSRs	Present – northwest portion of Site
W	Aged Native Material (overgrown with grass, brush & vegetation) with trace fill (asphalt, general debris)	PAHs>DEC & PMC Pesticides > DEC & PMC	Present – northwest portion of the Site

** Due to the nature of material present, Stockpile B was only sampled for PCBs.*

Based on observed fill material within the remaining stockpiles and a review of the sampling results, it was determined that Stockpiles H/I, K, and W will require removal and off-Site disposal at an appropriately licensed waste facility.

Stockpiles B, C and D, which consist of materials containing primarily peastone, and washed river rock, may be reused on Site as sub-base material beneath parking areas, driveways, etc. Stockpile A will be relocated to the impacted soil reuse area as described in *Section 6.3.2*.

- **RLI AOC-05 Pesticide Use (Site Wide)**
  Pesticide concentrations were reported in samples collected from across the RLI property (at all AOCs) at levels consistent with industry standard application for agricultural purposes.

  Specifically, pesticides were analyzed in 60 shallow soil samples (approximately 0 to 2 fbg) collected from across the RLI property. Of these samples, 35 were collected from the former agricultural field located in the central portion of the RLI property. Concentrations of pesticides were reported in each shallow soil sample at concentrations that exceeded the GB PMC, but below the Res DEC; with the exception of one sample (SB-15 [0-1]) where dieldrin was reported slightly over the DEC.

  In general, per RCSA 22a-133k-2(c)(5)(E), if concentrations do not exceed the Res DEC and compliance in groundwater has been demonstrated, the PMC does not apply to residual pesticide concentrations associated with industry standard applications.

- **RLI AOC-06 Drums and Miscellaneous Containers/Surficial Oil Staining**
  Several areas of slight petroleum staining were observed in the vicinity of former drums and miscellaneous containers and vehicle/equipment storage areas. Concentrations of PAHs exceeding RSR criteria were identified in two sampling locations (SB-11 [0.25-1] and SB-12 [0-1]), located within former vehicle & equipment storage areas. The PAH concentrations were associated with incidental petroleum releases from the former equipment, and field observations did not identify deeper impacts to subsurface soils in these areas. The PAH-impacted soil is limited to the top foot of soil in the two approximately 60-square foot areas where surficial staining was observed, and a review of groundwater analytical results indicated that Site groundwater was not impacted by this release.

  Per RCSA 22a-133k-2(b)(5)(A) and 22a-133k-2(c)(5)(D)(i), soil at a release area polluted with petroleum hydrocarbons or semi-volatile organic substances is not required to be remediated to the direct exposure criteria or pollutant mobility criteria, provided such pollution is the result of an incidental release due to normal operation of motor vehicles, not including refueling, repair or maintenance.

  Additionally, future development plans include raising grades in the areas of these detections by greater than four feet; rendering these materials inaccessible per Section 22a-133k-1(39). Therefore, additional remedial actions is not warranted to address these areas.

Refer to *Table 1* for AOC-specific conceptual models and investigation results for these AOCs.

4.2.2 RLI Estuary Depression / Future Cove

As depicted on *Figure 2*, an estuary depression exists in the eastern portion of the RLI property along the Connecticut River, created by historical earth excavation activities. Previous Site owners excavated the natural

riverine stratified drift material, consisting of sand, silt, and clay, which were processed for commercial sale. To evaluate the environmental quality of materials to be disturbed in this area as part of future Site redevelopment activities and to assist with bathymetric and hydraulic analysis, test pits were excavated in the vicinity of the estuary depression and sediment samples were collected. The samples were analyzed for COCs associated with the nearby RLI AOC-01 (Riverbank Berm), in addition to the sediment samples being analyzed for grain size and gradation analyses for the hydraulic evaluation associated with future redevelopment plans.

Observations made during test pit excavation indicated native unconsolidated materials consisting of medium to fine grain sands and silt were present to depths of approximately 10 feet below grade. A thin clay layer was observed between approximately 6 to 8 feet below grade in one test pit advanced in the northern portion of the estuary depression.

The soil samples and sediment samples collected from this area did not identify concentrations of contaminants at levels above the applicable RSR criteria. Investigation activities confirmed material within the estuary depression is not impacted and material generated as part of the future cove creation can be used as cover material in the on-Site upland reuse area, as discussed further in *Section 7* below.

4.2.3 WMSP Parcel

Phase II and III investigations identified releases at each of the four AOCs as summarized below.

- **WMSP AOC-01 Pesticide Use (Agricultural Field/ Site-Wide)**
  Similar to RLI AOC-05, pesticides were reported in samples collected from across the portion of WMSP at concentrations consistent with industry standard application for agricultural purposes.

  Although pesticide concentrations exceed the GB PMC, considering concentrations are consistent with industry standard application, below Res DEC, and groundwater has not been impacted, the PMC does not apply.

- **WMSP AOC-02 Riverbank Berm**
  A raised berm, measuring approximately 50' by 600', was observed along the riverbank on the WMSP portion of the Site. Based on field observations and analytical results from samples collected within the berm, it appears the berm consists of native soil, likely created from excess soil generated during historical agricultural processes. Debris and fill material however were observed along the southern end of the riverbank berm, likely associated with the fill events along the riverbank on the RLI property.

  Soil sampling results identified pesticide concentrations at levels consistent with industry standard application for agricultural purposes, and PAHs were identified along the southern end at concentrations generally consistent with urban fill material containing asphalt fragments and coal ash. Pesticides and PAHs were reported at select locations at concentrations greater than GB PMC or Res DEC (PAHs only).

- **WMSP AOC-03 Western Soil Stockpile/ Earthen Berm**
  Fill material (including building material debris and general household debris) was identified in the test pits excavated in this area to depths between approximately 7-11 feet below grade. Soil samples collected from this area identified pesticides at concentrations primarily consistent with industry standard applications, and PAHs identified at concentrations consistent with fill material. Pesticides and PAHs were

reported in samples from the fill material at concentrations greater than GB PMC or Res DEC (PAHs only).

A 'hot spot' with PAHs reported approximately 2 orders of magnitude higher compared to other samples collected from the AOC was identified at TP-01 (0-2). This area, measuring approximately 25 x 25 feet, to a depth of approximately 2 feet, will require remedial action.

- **WMSP AOC-04 Former Sewer Overflow Branch Manholes/Debris Area**
  Visual observation indicated the presence of fill to approximately 4 feet below grade along the western and central portions of this AOC and surficial debris at the eastern side of this AOC.

  Samples collected from TP-03 (western side), excavated in an area where surface debris had been identified, had elevated concentrations of pesticides above RSRs to approximately 4 feet below grade. Concentrations of PAHs also exceeded RSR criteria in SB-02 and SB-04 in this area, at concentrations consistent with impacted fill material identified across the Site.

Refer to *Table 1* for AOC-specific conceptual models and investigation results for these AOCs.

4.3 Groundwater Investigation Summary

Between 2018 and 2021, three rounds of groundwater sampling were conducted from up to nine monitoring wells across the Site (up to 6 on the RLI property and 3 on the WMSP parcel). The groundwater samples collected from the sampling events were submitted for laboratory analysis of metals, VOCs, PAHs, pesticides, and herbicides.

Groundwater analytical results indicate that a significant release to groundwater from Site operations has not occurred. Low concentrations of metals and PAHs detected in Site groundwater are likely associated with fill observed across the Site, rather than indicative of releases to groundwater. VOCs, pesticides, and herbicides were not detected in any of the monitoring wells during any of the groundwater sampling events.

5 Previous Remediation & UST Removal

As part of building demolition activities conducted on the RLI property in 2020, a remedial action was previously implemented at RLI AOC-07 (Former Produce Wash Building & Truck Storage). A small area of concrete, measuring approximately 25 square feet, was identified to contain concentrations of PCBs slightly above baseline regulatory criteria, however PCBs were not detected in sub-slab soil samples collected from beneath the stained area. Therefore, during building demolition activities completed in August 2020, the small area of stained concrete was removed and disposed of off-Site separate from the remaining demolition debris. Since the release was limited to the concrete and no release was identified in sub slab soil, no further remedial actions were warranted at that time.

Additionally, during the demolition of the former produce wash and storage building, an abandoned 1,000-gallon fuel oil underground storage tank (UST) was identified beneath the floor slab (RLI AOC-08). The UST was inspected and no evidence of leaking or damage to the tank was observed. Approximately 300 gallons of water and residual No. 2 heating oil was removed from the UST on October 1, 2020 and transported off-Site for disposal.

Following removal of the UST, Fuss & O'Neill conducted confirmatory tank grave soil sampling which did not identify any evidence of a release to the subsurface. Specific details of the UST removal activities, including the results of confirmatory soil sampling, were previously provided in the *UST Removal and Closure Sampling Letter* dated October 30, 2020 and appended to the December 2021 *Phase II/III ESA Report*.

6 Remedial Approach

This section summarizes the proposed remedial approach for the Site. The remedial approach for the Site will include the following elements:

1. Public notification of remediation
2. Preparation of necessary plans and obtaining of necessary permits
3. Application of approved variances and exemptions from the DEC and/or PMC
4. Onsite handling of soil and materials handling plan (i.e., soil management plan)
5. Excavation and on-Site relocation of excess materials (both non-impacted and polluted materials)
6. Rendering soil and fill inaccessible or use of an engineered control
7. Public notification and filing of an environmental land use restriction (ELUR)

The specific remedial approach for each remediation area across the Site is discussed further in the subsections below.

6.1 Public Notice

Public notice of the intent to remediate the Site will be conducted in accordance with Connecticut's RSRs and RCSA 22a-133k-1(d)(1)(A).

1. A notice of remediation will be published in the local newspaper, the Hartford Courant (a newspaper having widespread distribution in Hartford and the surrounding area)
2. A sign, measuring 6' by 4' will be posted at the Site, in a location clearly visible from the public roadway, for at least 30 days; or mailing notice of remediation letters to owners of abutting properties
3. Copies of the notice of remediation will be sent to the chief elected municipal official and the local director of health

There shall be a public comment period on the proposed remediation for thirty days after publication of the newspaper notice. If comments are received, a written summary of all comments and proposed response to each will be prepared and submitted to the DEEP within 30 days after the close of the public comment period. Based on the summary of comments and proposed responses, the commissioner may direct the proposed response to be sent to each person who submitted comments within thirty days after the direction is given or revise the written summary and response document and direct the revised summary and response document to be sent within 30 days. The commissioner may also determine that if there is substantial public interest and direct the person responsible for the remediation to hold a public meeting regarding the proposed remediation. Notice of any such meeting shall be published in a newspaper of substantial circulation in the area of the proposed remediation.

If, after commencing remediation, a substantial change to the proposed remedial actions detailed herein occurs, the public notice requirements shall apply and will be conducted prior to undertaking any change of the remedial actions.

Additionally, if after providing public notice of remediation, the remediation is not substantially initiated within three years of publication of such notice, the public notice requirements shall be undertaken again before remediation can commence.

6.2 Plans and Permits

Select plans and permits that are anticipated to be necessary for the implementation of the remedial strategy and overall Site redevelopment activities are summarized below:

Plan/Permit	Description
Plans	
Health & Safety Plan	The *Health & Safety Plan* (HASP) for the Site will be updated to reflect planned construction, anticipated hazards, and health & safety measures to be implemented.
Materials Handling Plan	The *Materials Handling Plan* (i.e., soil management plan) will provide guidelines for soil and groundwater management during site redevelopment and remediation.
Construction Stormwater Pollution Control Plan	A *Stormwater Pollution Control Plan* will be prepared for the Site. The plan will specify procedures to prevent the movement of sediments off the construction site into nearby water bodies and to address the impacts of stormwater discharges from the project after construction is complete.
Anticipated Permits	
General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities	Registration for this general permit will be required for a total disturbance of one acre or more of land; it is assumed that an area greater than 15 acres will be disturbed at the Site and a third-party review will be necessary. This permit also requires the implementation of a *Stormwater Pollution Control Plan* (see above).
DEEP Flood Management Certificate	This certification is required if proposed Site activities occur within the floodplain and state funding is provided.
DEEP Structures, Dredging and Fill Permit	This permit application will support the proposed cove dredging activities. Pre-consultation package for this permit submitted to USACE and DEEP LWRD on March 9, 2022.
USACE Section 404 Individual Permit	This permit program regulates the discharge of dredged or fill material into navigable waters and impacts to tidal wetlands.
DEEP 401 Water Quality Certification	This Certification is required if proposed activities may result in a discharge into navigable waters.

Plan/Permit	Description
DEEP State Wetlands Permit	This permit is required for work performed within State delineated wetlands on State of Connecticut owned land, and/or under state funding.
DEEP LWRD Non Consumptive Diversion Permit	This permit allows water from the Connecticut River to fill the future cove that will be created by construction activities.

In addition to the above listed permits, local inland wetland permit applications and coordination with the Town of Windsor Inland Wetlands and Watercourses Commission (IWWC) and the City of Hartford's Planning and Zoning Commission is also anticipated. The regulatory permitting process described above is currently underway. RRI has engaged the DEEP's Client Concierge Service to facilitate permitting reviews and engage a coordinated permitting review process among the various local, state, and federal regulatory agencies.

At this time, the DEEP's *General Permit for Contaminated Soil and/or Sediment Management (Staging and Transfer)* has not yet been renewed (expired September 2018). However, should the stockpiling of contaminated soil be necessary during Site remedial and redevelopment activities, the resultant stockpiles will not exceed 10,000 cubic yards in size, which did not require approval under the previous *Staging and Transfer* general permit, and a clear separation between stockpiles will be maintained. Prior to any excavation, the Construction Contractor will contact the Environmental Engineer to determine if a new *Staging and Transfer* general permit has been promulgated and what conditions apply to the Site.

6.3 Use of Polluted Soil Section 22a-133k-2(h)(3)(DEEP Approval Required)

The remedial approach includes excavation and relocation of polluted soil on the Site from one parcel to another parcel. Polluted soil from the Site release area may be reused on the same parcel from which it was excavated, on a different parcel from which it was excavated affected by the same release, or on an abutting parcel affected by a release of similar substances. The purpose of this section is to identify that reuse of excess polluted fill, in lieu of off-site disposal at a permitted facility, on the Site is a key component of cost-effectively achieving remediation objectives. Per the Soil Management Plans described in Section 7, RRI is requesting a reuse approval from DEEP per Section 22a-133k-2(h)(3)(B)(ii) to implement soil management activities as described in the soil management plan.

6.4 Park Master Plan Construction Sequencing

Funding limitations and regulatory permitting conditional approvals pertaining to ecological mitigation activities and wetland creation require that the park construction occur in a series of phases over a period of time. A site remediation and mitigation sequencing phasing plan is provided as *Appendix D*. A description of the sequencing phasing is described below.

- Phase 1A – Removal and off-site disposal at a permitted facility of the polluted soil stockpiles described in *Section 4.2.1*.

- Phase 1B – Excavation and relocation to an upland impacted soil consolidation area polluted fill described in *Section 4.2.1* located on the RLI and WMSP riverbank berm, RLI AOC 02 Fill Material Western Portion of Site, WMSP AOC-04 Former Sewer Overflow Manhole and Debris Area.
- Phase 2A – Cove excavation portion required for tidal wetland creation and pygmyweed habitat creation.
- Phase 2B – Cove excavation portion required for pygmyweed and tidal wetland planting.
- Phase 2C – Cove excavation portion required to achieve full build out master plan objectives.

RRI plans to proceed with Phase 1A, Phase 1B, and Phase 2A as the initial steps of the remediation and park construction process. Phase 2B and Phase 2C will be completed at a later date as funding allows and following pending regulatory permitting approvals. A design plan set for the phases depicting site preparation and grading serving as the Remedial Soil Management Plan is provided in *Appendix E*. Further discussion of the sequencing as it relates to the remedial approach is discussed in the sections below.

6.5 Riverbank Berm

As detailed in the previous sections, select areas across the riverbank and berm, extending from the northeast portion of the WMSP parcel down the Connecticut River to the southeast corner of the RLI property, require remedial action to bring this area into compliance with the CT RSRs and achieve Site redevelopment goals (RLI AOC-01 and WMSP AOC-02) (*Figure 2*).

The riverbank and berm extending the length of the eastern Site boundary is well established with thick vegetation and no evidence of erosion. The berm is comprised of fill materials to depths of greater than 11 feet below grade consisting of varying proportions of asphalt, brick, coal, concrete, gravel, metal slag, and wood. Following the identification of Significant Environmental Hazard Conditions in the select areas in the northern and southern portions of the riverbank berm on the RLI property, additional sampling efforts identified specific areas of soil impacted with elevated concentrations of PAHs exceeding the Res DEC. An area of impacted fill material (containing elevated concentrations of PAHs and pesticides) was also identified along the southern end of the riverbank berm on the portion of the WMSP parcel (adjacent to the impacted areas along the northern portion of the riverbank berm on the RLI property).

It is noted that since the source of PAHs has been determined to be impacted urban fill materials, using the Widespread Polluted Fill Variance exempts this material from the PMC, as discussed further in *Section 6.4*.

Therefore, remedial efforts in this area include the excavation and relocation of approximately 1,500 cubic yards of soil impacted with elevated PAH concentrations exceeding the Res DEC (discussed further below).

Additionally, a 95% UCL statistical evaluation of remaining concentrations of fill related constituents from all fill areas across the Site will also be conducted to demonstrate compliance of remaining widespread polluted fill areas across the Site (discussed further in *Section 6.4)*.

6.5.1 Impacted Soil Excavation / Relocation

Northern End of Riverbank Berm (RLI Property)

To comply with the Res DEC, a total of approximately 600 cubic yards of PAH-impacted fill will be excavated from the area, as depicted on *Figure 4 in Phase 1B as further described in Section 7*. This area is adjacent to the impacted fill material in the southeastern corner of WMSP parcel and measures approximately 50 by 50 feet, extending to approximately 4-6 feet below grade.

Due to varying depths of impacted materials, two excavation areas have been identified in the RLI northern portion of the Riverbank berm on the RLI property, as detailed below:

- An area measuring approximately 50 feet by 25 feet will be excavated to a depth of 6 feet below grade, identified by previous RLI soil borings SB-30C, SB-30I and SB-30F.
- An area measuring approximately 45 feet by 25 feet (located immediately east of the above excavation area) will be excavated to a depth of 5 feet below grade, identified by previous RLI soil borings SB-30, SB-30A, SB-30B, SB-30D, SB-30E, SB-30G, and SB-30H.

Excavated materials from these areas will be placed in the polluted soil impacted area within the Phase 2B Fill Area (*Appendix E – CP-101*) and ultimately capped by approximately 4 feet of non-impacted cover material generated from cove construction activities or a landscaped engineered control, as discussed below.

Southern End of Riverbank Berm (RLI Property)

Similar to the northern end of the riverbank berm on the RLI property, an area of soil impacted with elevated PAHs (exceeding Res DEC) was identified in the southern portion of the riverbank berm. This area measures approximately 75 by 80 feet and extends to approximately 3-6 feet below grade (*Figure 5)*. To comply with DEC, an estimated total of approximately 800 cubic yards of PAH-impacted fill will be excavated from this area in Phase 1B as further described in *Section 7*.

Due to varying depths of impacted materials, four excavation areas have been identified in the RLI southern portion of the Riverbank berm, as detailed below:

- An area measuring approximately 40 feet by 25 feet will be excavated to a depth of 3 fbg, identified by previous RLI soil borings SB-36J and SB-36K (approximately 115 cy).
- An area measuring approximately 60 feet by 25 feet will be excavated to a depth of 5 fbg, identified by previous RLI soil borings SB-36, SB-36A, SB-36B, SB-36C, SB-36D, SB-36E, SB-36G, SB-36M and SB-36P (approximately 280 cy).
- An area measuring approximately 40 feet by 30 feet, located immediately east of the above excavation areas, will be excavated to a depth of 6 fbg, identified by previous RLI soil borings SB-36F, SB-36I, SB-36N, SB-36O and SB-36Q (approximately 270 cy).
- An area measuring approximately 20 feet by 20 feet, will be excavated to a depth of 6 fbg, identified by previous RLI soil boring SB-38 (approximately 90 cy).

Excavated materials from these areas will be placed in the Phase 2B Fill Area (*Appendix E CP-101*) and ultimately capped by approximately 4 feet of non-impacted cover material, generated from cove construction activities or a landscaped engineered control, as discussed below.

6.5.2 Rendering Impacted Soils Inaccessible

As previously discussed, soil and fill impacted with PAHs that exceed the Res DEC will be excavated from two select areas along the northern end and southern peninsula of the RLI Property Riverbank berm.

Approximately 1,400 cubic yards of impacted material from the two areas will be relocated to the upland sediment and soil reuse area in Phase 1B as further described in *Section 7* and rendered inaccessible by approximately 4 or more feet of cover material, in accordance with Section 22a-133k-1(a)(39)(A) of the RSRs or an LEP Certification of an Engineered Control Variance in accordance with Section 22a-133k-2(f)(2)(B) for shallow rooted vegetation comprised of 12 inches of compliant soil underlain with a demarcation fabric.

As detailed on *Appendix E Sheet CP-101 & Sheet CP-102*, the impacted material will be relocated to the upland in a designated temporary stockpile 'impacted soil reuse area' approximately 0.28 acres in size. The impacted material will be placed in the upland area denoted as the Phase 2B Fill Area (*Appendix E Sheet CP-101*). This area will be rendered inaccessible with 4 or more feet of the non-impacted, native soil that will be excavated from the cove expansion (*Section 7*). The non-impacted cover profiles prepared in accordance with self-implementing inaccessible procedures will meet those described in RCSA Section 22a-133k-1(a)(39) or an LEP Certification of an Engineered Control Variance in accordance with Section 22a-133k-2(f)(2)(B) for shallow rooted vegetation comprised of 12 inches of compliant soil underlain with a demarcation fabric.

An EUR (*Section 8.3*) will ultimately be necessary to prohibit unauthorized disturbance of the cover profiles.

6.5.3 Confirmation Sampling for Phase 1B

Following impacted soil excavation and relocation, confirmatory soil sampling will be conducted to determine that soils remaining in these remedial areas comply with the DEC. Confirmation samples will be collected from the sidewalls, at a frequency of 1 sample per approximately 20 linear feet and up to two bottom samples from each excavation area.

Currently it is anticipated that up to 10 confirmation samples will be collected from the excavation area in the northern end of the riverbank berm on the RLI property and approximately 18 confirmation samples will be collected from the excavation areas in the southern end of the riverbank berm.

Soil samples will be submitted to a state-certified laboratory for analysis of PAHs. Additionally, due to the heterogeneity of the unconsolidated deposits that comprise the riverbank berm, materials being generated from these areas have the potential to yield detections of metals (particularly lead) and extractable total petroleum hydrocarbons (ETPH). Therefore, select confirmation samples will also be analyzed for metals and ETPH.

The analytical results from the confirmation samples, will either be below the Res DEC or will be incorporated into the 95% UCL evaluation of remaining fill material to demonstrate final compliance with the Res DEC.

Refer to *Figures 4 & 5* for proposed confirmation sampling locations in each remedial area.

6.6 Site-Wide Fill Material

Widespread urban fill material was identified across the Site during previous Phase II/III investigations in Site AOCs including RLI AOC-01, RLI AOC-02, WMSP AOC-02, and WMSP AOC-03, encompassing a total of approximately 21 acres (approximately one third) of the Site. The fill material is identifiable primarily by three distinct areas:

- Riverbank berm fill along the eastern portions of the Site
- Fill material along the western portions of the RLI property
- Fill material along the western portion of the WMSP parcel

The areas of identified fill material across the Site are depicted on the *Figure* included in the WPFV requested in *Appendix B* and are discussed further below.

RLI/WMSP Eastern Riverbank Fill

As discussed above, previous property owners of the RLI property were historically permitted to import fill to the Site and place it along the Connecticut riverbank on the eastern side of the RLI property to construct a berm for erosion control and protection purposes. The fill sequences along the riverbank extended from the triangular peninsula located on the southeastern-most corner of the RLI property, north onto the southern portion of the WMSP parcel. Currently the riverbank and berm extending the length of the eastern Site boundary is well established with thick vegetation and no evidence of erosion observed into either the RLI estuary or the adjacent Connecticut River.

Fill along the riverbank was identified at varying depth thicknesses of up to 15 feet, consisting of asphalt, brick, coal, concrete, gravel, metal slag, and wood. Additionally, an apparent earthen ridge/berm was observed along the eastern boundary of the WMSP parcel, consisting of primarily native material, but likely placed concurrently with the fill sequences as a flood and erosion control measure for the adjacent agricultural fields.

As discussed in the prior section, to demonstrate compliance with the DEC, polluted fill from select areas along the RLI riverbank will be excavated as Phase 1B, relocated on Site and rendered inaccessible or use of an engineered control. The remedial approach for the remaining concentrations of fill constituents from this area will include regulatory exemptions and variances as detailed in the sections below.

RLI Western Fill

Previous Site investigations identified a sequence of filling events occurred on the western portion of the RLI property between the 1800's through the 2000's, beginning with the construction of the adjacent Amtrak Railroad. Sometime in the mid-1970s, agricultural activities on the western portion of the Site were discontinued and the area was used for material processing and excavation of earth materials; including importing material from off-Site to fill excavation areas and raising elevation grades over time.

During the Phase II and III investigation activities, fill material consisting of varying proportions of asphalt, brick, coal, concrete, glass fragments, gravel, metal fragments, metal slag, plastic fragments, and/or wood was identified in test pits and soil borings advanced on the western portion of the RLI property ranging in thickness from approximately 1 foot to greater than 11 feet.

Varying concentrations of metals, PAHs and ETPH were detected in soil containing fill, with concentrations of arsenic, lead, pesticides and several PAHs reported above applicable RSR criteria in select sampling locations.

In general, the remedial approach for the concentrations reported in fill from across the Site will include regulatory exemptions and variances as detailed in the sections below.

WMSP Western Fill

An overgrown fill pile, approximately 150 feet in length and approximately 25 feet wide, was identified along the southwestern portion of the WMSP parcel. This area was identified to consist of discarded building material debris and general household debris (empty 5-gallon buckets, plastic furniture, etc.), concrete, brick, and asphalt during previous Site investigations. Large debris and empty containers were subsequently removed and disposed of prior to implementation of the subsurface investigation activities. In general, observations made during the Phase II/III investigations identified fill and general debris in this area at thicknesses between approximately 7 feet (TP-01) to approximately 11 feet (TP-11).

Analytical results from previous Phase II/III investigation activities indicated metals were detected in the fill from this area at varying concentrations that were below applicable RSR criteria, and generally consistent with inferred Site and State background concentrations. PAHs were also reported in samples collected from this material with select concentrations exceeding the Res DEC and GB PMC.

It is noted that concentrations of PAHs reported in the shallow soil sample collected from test pit TP-01 (0-2') were generally higher than those reported in the other samples from across the AOC.

In general, the remedial approach for the concentrations reported in fill from across the Site will include regulatory exemptions and variances as detailed in the sections below. The material at one location (test pit TP-01) will be addressed in Phase 1B by relocating the impacted material and rendering it inaccessible within the upland sediment and soil reuse area, discussed below.

6.6.1 Widespread Polluted Fill Variance

Section 22a-133k-2(f)(1) of the RSRs states that the geographically extensive polluted fill present at a site may be eligible for a variance from compliance with the PMC, provided that the site meets specific conditions.

Following an evaluation of Site conditions and the findings of previous environmental investigations, it has been determined that the Site meets the conditions pursuant to the February 2021 revisions to Section 22a-133k-2(f)(1)(A) and (B) of the RSRs, as described above and within *Widespread Polluted Fill Variance Request* included as *Appendix B.*

Upon DEEP approval of the variance request, the fill material at the Site will be exempt from the PMC. Remaining DEC exceedances of fill constituents in samples from the fill material across the Site will be addressed via excavation and relocation on Site to the upland sediment and soil reuse area where it will be capped and rendered inaccessible, as well as an evaluation of the 95% UCL, as detailed in the sections below.

6.6.2 Rendering Impacted Soils Inaccessible

WMSP Western Fill

As previously discussed, fill impacted with PAHs exceeding the Res DEC was identified in a shallow soil sample from test pit TP-01 located on the southwestern corner of the 16-acre portion of the WMSP parcel (*Figure 6)*.

In Phase 1B an area of impacted fill measuring approximately 25 feet by 25 feet will be excavated to a depth of 2 feet below grade (approximately 50 cubic yards) and relocated to the Phase 2B Fill Area to be rendered inaccessible per Section 22a-133k-1(a)(39)(A) of the RSRs or use of a landscaped engineered control.

Following removal and relocation of the impacted material from this area, confirmatory soil sampling will be conducted to determine that remaining soils in this area comply with the DEC. Confirmation samples will be collected from the four sidewalls and one bottom sample from the excavation area. Soil samples will be submitted to a state-certified laboratory for analysis of PAHs, metals and/or ETPH.

The analytical results from the confirmation samples, will either be below the Res DEC or will be incorporated into the 95% UCL evaluation of remaining fill material to demonstrate final compliance with the Res DEC. Additionally, it is noted that test pit TP-11 advanced in this area, along the northern end of the overgrown material pile, also identified the presence of fill material (including building material debris and general household debris). This material will be removed from the surface and disposed off-site at a permitted facility.

RLI Western Fill & Incidental Petroleum Releases

During previous Site investigations, containers (two 55-gallon drums and a 5-gallon bucket) of unknown substances were observed near the former covered storage structure and off the northeast corner of the former residential structure. Additionally, several vehicles and earth material processing equipment were staged west of the former covered storage structure on the western portion of the Site. All storage containers and equipment have since been removed from the Site. Small areas of stained surficial soil were observed adjacent to the storage containers and former equipment storage.

During Phase II/III investigation activities, soil borings (SB-03, SB-04, SB-11 through SB-13) were advanced in the vicinity of the stained areas and shallow soil samples were collected and analyzed for Site constituents of concern. PAHs were detected at varying concentrations in the samples collected from these soil borings, with the concentrations in samples from SB-11 and SB-12 exceeding the applicable RSR criteria.

Based on analytical results and field observations, identified petroleum releases were surficial in nature and no evidence of deeper subsurface releases were identified. While fill material was observed at these boring locations, the concentrations of PAHs detected in shallow soil appear to be characteristic of incidental petroleum releases from former equipment storage.

Soil samples collected from soil borings advanced in the stained areas following removal of staged vehicles and equipment indicated elevated concentrations of PAHs in shallow soil, likely associated with incidental petroleum releases from the former equipment. Per RCSA 22a-133k-2(b)(5)(A) and 22a-133k-2(c)(5)(D)(i), soil at a release area polluted with petroleum hydrocarbons or semi-volatile organic substances is not required to be remediated to the direct exposure criteria or pollutant mobility criteria, provided such pollution is the result of an incidental

release due to normal operation of motor vehicles, not including refueling, repair or maintenance. The area of the incidental petroleum release is located in the Phase 2A Fill Area denoted on *Sheet CP-101 in Appendix E.*

Additionally, concentrations of PAHs, consistent with those typical of urban fill material containing asphalt and/or coal ash, were reported in a shallow soil sample collected from RLI MW-03, advanced near the railroad line on the southwestern portion of the RLI property. Approximately 30 cubic yards of fill material from this location (from an area measuring approximately 15 feet by 15 feet, to a depth of 2 fbg) will be excavated and moved to the Phase 2B Fill Area

6.6.3 95% UCL Evaluation

Following the Phase 1B, Phase 2A, and Phase 2B removal and relocation of elevated PAH-impacted soil from the northern and southern ends of the riverbank berm on the RLI property, and from the southwest corner of the portion of the WMSP parcel (discussed above), a 95 percent upper confidence limit (95% UCL) evaluation will be completed. An initial 95% UCL evaluation was performed using the existing data set as described below.

The conceptual Site model determined that urban fill material present across approximately 21 acres of the Site was impacted with varying concentrations of PAHs, ETPH and select metals above applicable RSR criteria. Therefore, the data set included in the 95% UCL evaluation consisted of all PAH, ETPH and select metals (arsenic and lead) analytical results from soil samples collected from fill material across both the RLI property and portion of the WMSP parcel, not associated with a Site-related release.

Data Set Exclusions

It is noted that select samples from the RLI property (soil borings SB-03, SB-04, SB-11, SB-12, and SB-13) were collected in areas of de-minimis surficial petroleum staining in the western portion of the RLI property. PAH and ETPH analytical results from these locations were not included within the 95% UCL data set. PAH and ETPH analytical results from the two areas along the northern and southern portions of the RLI Riverbank (RLI AOC-01) were also excluded from the 95% UCL given that these area will be excavated and relocated to the Phase 2B Fill Area.

Additionally, the analytical results from the shallow soil sample collected from previous RLI MW-03 were also excluded from the statistical evaluation. Results from this sample location were not included within the statistical evaluation due to the fact that this fill sample was collected from an area with slight surficial staining likely associated with equipment staged within the former leased contractor laydown area and material from this location will be excavated and relocated to the impacted soil reuse area, as discussed in *Section 6.5.2* above.

Statistical Evaluation

Evaluations of the 95% UCL were conducted using ProUCL software and the CT DEEP Guidance for Calculating the 95% UCL for Demonstrating Compliance with the RSRs (dated May 2014) for remaining PAH constituents, ETPH, arsenic and lead detected within the fill material across the Site at concentrations that exceeded the Res DEC. A 95% UCL statistical evaluation was performed on the data set to determine if the arithmetic mean of all results from the Site is less than the Res DEC.

In general, the 95% UCL data set consisted of concentrations of PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene), ETPH and select metals reported from up to 86 samples analyzed from across the Site (including both the RLI Property and the 16-acre portion of the WMSP parcel), as broken down in the table below.

95% UCL Data Set		
Constituents	**# of Samples**	**# of Detects / # of DEC Exceedances**
Benzo(a)anthracene	62	26 / 5
Benzo(b)pyrene	62	27 / 6
Benzo(b)fluoranthene	62	23 / 5
Indeno(1,2,3-cd)pyrene	62	23 / 5
ETPH	49	5 / 2
Arsenic	86	85 / 2
Lead	86	85 / 3

Based on the statistical evaluation, the 95% UCL is below the Res DEC for all fill related constituents of concern, thereby demonstrating compliance with the DEC, as summarized in the table below.

Parameter	CT DEEP Res DEC	95% UCL
Arsenic	10 milligrams per kilogram (mg/kg)	5.56 mg/kg
Lead	400 mg/kg	173.5 mg/kg
ETPH	500 mg/kg	111.8 mg/kg
PAHs		
Benzo(a)anthracene	1 mg/kg	0.8174 mg/kg
Benzo(a)pyrene	1 mg/kg	0.5414 mg/kg
Benzo(b)fluoranthene	1 mg/kg	0.4521 mg/kg
Indeno(1,2,3-cd)pyrene	1 mg/kg	0.4107 mg/kg

The 95% UCL result output tables from the initial ProUCL evaluation for each compound are included in *Appendix F.* As further described in *Section 7*, a revised 95% UCL evaluation will be completed following confirmatory sampling as part of Phase 1B, Phase 2A, and Phase 2B excavation activities.

6.7 Site-Wide Pesticide Use

As previously discussed, the majority of the Site has been used for agricultural purposes dating back to prior to 1934 (RLI AOC-05 and WMSP AOC-01). Given the historic cultivation activities, it was likely that pesticides were regularly applied to the agricultural fields through at least approximately 2018, thus resulting in varying concentrations of residual pesticides present in shallow soils across the Site.

During Phase II/III investigations across both the RLI property and portion of the WMSP parcel, numerous soil samples were collected and analyzed for pesticides. Specifically, 35 shallow soil samples were collected by hand from a sampling grid across the RLI property agricultural field and 45 shallow soil samples (from depths varying between approximately 0-2 fbg) were collected from the WMSP former agricultural field.

Analytical results indicated that pesticides, including DDE, DDT, chlordane, dieldrin, and heptachlor epoxide were detected at varying concentrations above the GB PMC, but primarily below the Res DEC, at numerous sampling locations collected from the former agricultural fields across the Site. It is noted that chlordane and heptachlor epoxide were reported at concentrations greater than or equal to the Res DEC in two sample locations on the WMSP parcel (WMSP TP-04 [0-2'] and WMSP TP-03 [2-4']), and dieldrin was reported in one sample slightly over the Res DEC from the RLI property (RLI SB-15 [0-0.5). Based on a review of historical Site documentation, field observation and analytical results from supplemental sampling locations, no evidence of a pesticide release outside of the industry standard use was identified in these areas; therefore, this data is representative of Site-wide pesticide use and these concentrations were included in the 95% UCL evaluation, discussed below.

While concentrations of DDE and DDT in the majority of samples and concentrations of chlordane, dieldrin, and heptachlor epoxide from select samples exceeded the GB PMC with select concentrations of pesticides exceeding the Res DEC, the detected concentrations and distribution indicate the presence of pesticides associated with past applications of uniformly distributed pesticides associated with accepted industry practices. As previously mentioned, through several phases of environmental assessment and investigation at the Site between 2018 and 2021, no evidence of a pesticide releases, outside of the industry standard use, were identified at the Site. Therefore, the pesticide analytical data set is representative of industry standard, Site-wide pesticide use and the 95% UCL evaluation is appropriate.

6.7.1 95% UCL Evaluation

Concentrations of pesticides reported in the approximately 145 samples analyzed from across the Site were below the Res DEC, with the exception of two WMSP sample locations where chlordane was reported at or above the Res DEC, two WMSP sample locations where heptachlor epoxide exceeded the Res DEC, and one RLI sample location where dieldrin exceeded the Res DEC. Therefore, a 95 percent Upper Confidence Level (95% UCL) statistical evaluation was performed on the data set from across the Site to determine if the arithmetic mean of all chlordane, heptachlor epoxide and dieldrin results from the Site was less than the Res DEC.

The results from the 95% UCL statistical evaluation indicate a UCL value of 65.87 micrograms per kilogram (ug/kg) for chlordane, which is below the promulgated Res DEC of 490 ug/kg; a UCL value of 10.87 ug/kg for heptachlor epoxide, which is below the promulgated Res DEC of 67 ug/kg, and a UCL value of 3.551 ug/kg for dieldrin, which is below the promulgated Res DEC of 38 ug/kg.

Based on this evaluation, residual pesticide concentrations in shallow soil across the Site comply with DEC and therefore, achieve the conditions of RCSA 22a-133k-2(c)(5)(E), as discussed further below.

6.7.2 Conditional Exemption for Soil Polluted with Pesticides

In general, the reported concentration range of pesticides across the Site appear consistent with decades of industry standard application of pesticides for agricultural use. The historic application of pesticides at the Site has resulted in residual concentrations of pesticide constituents (primarily 4,4'-DDD, 4,4'-DDE, 4,4'-DDT and

Chlordane; and to a lesser degree, Dieldrin and Heptachlor Epoxide) in shallow soil at levels exceeding the GB PMC.

Section 22a-133k-2(c)(5)(E) of the RSRs provides an exemption to the PMC for soils polluted with pesticides as the result of the routine application of pesticides. Specifically, the exemption indicates that "*soil polluted with pesticides at a release area as a result of the application of pesticides at such release area is not required to be remediated to the pollutant mobility criteria, provided that a determination has been made that such pesticides are present soley as a result of the application of pesticides and*:

i. *Compliance with the direct exposure has been achieved*
ii. *Compliance with the groundwater standards of the RSR has been achieved*

Compliance with DEC has been demonstrated following the results of the 95% UCL statistical evaluation discussed above. Additionally, the absence of pesticides in representative groundwater samples collected over 5 sampling events, following decades of surficial pesticide application demonstrate that the application of pesticides at the Site is limited to shallow soils and has not negatively impacted the groundwater. Therefore, confirming the residual pesticide concentrations remaining at the Site are exempt from the PMC.

6.8 Material Stockpile Removal

As part of Phase 1A activities, the existing material stockpiles remaining on the RLI property (RLI AOC-03) will either be reused appropriately on Site or will be removed and disposed off-Site.

Based on previously conducted characterization sampling, discussed in *Section 4.2.1* above, stockpiles containing fill materials will need to be removed from the Site and disposed of appropriately. These include Stockpiles H/I, K and W (depicted on *Figure 2*). A total of approximately 1,000 tons of material from these piles will be direct loaded and transported off-Site to an appropriately licensed waste facility for disposal.

Stockpile A will be placed in the upland polluted soil impacted area within the Phase 2B Fill area, which is further described in *Section 6.5.1*. Remaining stockpiles B, C and D were previously determined to consist of peastone, gravel, and asphalt; and therefore may be reused on Site as sub-base for paved driving or parking areas.

6.9 Potential Orphan Tanks

Although the Site has been extensively investigated in accordance with the Connecticut Site Characterization Guidance Document (SCGD), it is possible that previously unknown subsurface features will be encountered during construction activities in the upland area where former structures associated with past operations were located. If identified, these previously unknown subsurface features will be investigated in accordance with the Connecticut SCGD and remediated in accordance with the RSRs.

As detailed in *Section 5*, one UST was identified and subsequently removed from the Site in October 2020. No additional USTs were identified during the previous investigations; however, there is the potential for previously unknown USTs to be encountered during redevelopment activities. Should USTs be encountered during Site redevelopment, their removal and assessment will be conducted in accordance with the National Fire Protection Association (NFPA) 70, using the following approach:

- Any remaining liquid will be pumped out of the USTs prior to removal from the ground; the liquid will be managed for off-site disposal at an approved facility
- Once the UST(s) is removed, the tank grave will be inspected for evidence of a release
- Any obviously contaminated soil will be excavated and managed in accordance with the MHP
- The UST can be recycled/disposed of as municipal waste following decontamination

In order to confirm that soil above the SHWT remaining in the tank graves meets the GB PMC, confirmatory soil samples will be collected as follows:

Tank Grave Sampling Approach

Tank Grave Sample Location	Sampling Approach	Required Analyses
Side-Wall Samples	1 per 25 linear feet of sidewall, collected near the base of the tank grave, with a minimum of 1 sample per sidewall.	Varies depending on petroleum product, see DEEP Suggested Analytical Methods for Evaluation of Petroleum Releases
Bottom Samples	1 per 25-foot x 25-foot area with a minimum of 1 sample beneath each end of the tank (in the case of a 500-gallon UST or smaller, one sample may suffice)	
Bottom of Excavation below Water Table	1 sample of groundwater will be collected and the sidewall samples will be collected at the water table.	
Pipe Trench	1 per 20 linear feet of piping	

7 Soil Management Plan

The park master plan provides for recreational use for the majority of the Site; however, an approximate 13-acre commercial area is proposed in the western upland area (*Appendix A*). Construction of a recreational trail from the proposed Meadow Brook crossing across the Site to the proposed Decker's Brook crossing to the north, will connect the Hartford-Windsor Riverwalk trail to the existing Windsor Meadow State Park trail system. Additionally, Site redevelopment plans also include the expansion of the existing cove on the eastern portion of the RLI property and raising grades along the western portion of the Site out of the floodplain in preparation for future commercial development to support the overall future recreational use of the Site. As described previously, park construction will occur as a phased process currently anticipated by RRI to occur over the next two to four year period based on current expectations of anticipated receipt of regulatory permit approvals and project funding. Development of the future commercial area in the upland will occur following completion of park construction. Design of the future commercial area will include the creation of "clean" utility corridors through the upland area underlain with widespread polluted fill.

Significant excavation and grading activities will occur during construction of the full park master plan. The earthwork grading analysis indicates an approximate total cut of 410,000 cubic yards (CY) and a total fill of approximately 265,000 CY. A net excess of approximately 145,000 CY is currently estimated. The net excess material will consist of native soil derived from the excavation of the cove. The Soil Management Plan provided as *Appendix E* has been prepared for implementation of the following anticipated phases described as Phase 1A, Phase 1B, Phase 2A, Phase 2B, and Phase 2C. A general summary of the activities to be performed in these phases is described below.

- Phase 1A: Excavation and disposal at an off-site permitted facility of soil piles H/I, K, and W.
- Phase 1B: Excavation, temporary stockpiling, and eventual reuse in the Phase 2B Fill Area of approximately 1,500 CY of polluted fill obtained from the following areas:
    - 600 cubic yards from the Northern End of Riverbank Berm (RLI Property)(*Figure 4*).
    - 800 cubic yards from the Southern End of Riverbank Berm (RLI Property)(*Figure 5*).
    - 50 cubic yards from the Western Fill Area (WMSP Property)(*Figure 6*).
    - 17 cubic yards from the Western Fill Area (RLI Property).

- Phase 2A: Phase 2A will occur in two parts. The first part will be excavation of the cove along the Northern End of Riverbank Berm comprised of polluted fill. The excavation of the cove in this area will generate approximately 7,779 cubic yards of polluted fill comprising the Northern End of Riverbank Berm and 858 cubic yards of sediment from deepening the cove. Refer to *Appendix E Sheet CP-101* orange and purple-colored areas identified as Cove Excavation Area and Cove Dredge Area, respectively. This material will be temporarily stockpiled and eventually reused in the Phase 2B Fill Area as show on *Sheet CP-101* in *Appendix E*.

  The second part will be excavation of the remaining cove area defined in Phase 2A. The top 12 inches of organic soil in the former meadow area containing residual pesticides will be stripped for future on-site reuse. The soil generated from the Phase 2A Cove Excavation will be used in the Phase 2A Fill Area to raise grades in that area out of the flood plain and prepare the future upland commercial use area. Excess surplus native soil from excavation of the cove in Phase 2A will be used on other properties owned by RRI or sold.

- Phase 2B: Phase 2B will occur in two parts. The first part will be excavation of the cove along the Riverbank Berm comprised of polluted fill. The excavation of the cove in this area will generate 11,348 cubic yards of polluted fill comprising the Southern and Northern Riverbank Berm and 5,153 cubic yards of sediment from deepening the cove. Refer to *Appendix E Sheet CP-102* orange and purple-colored areas identified as Cove Excavation Area #1, #2 and Cove Dredge Area, respectively. This material will be temporarily stockpiled and eventually reused in the Phase 2B Fill Area as show on *Sheet CP-102* in *Appendix E*.

  The second part will be excavation of the remaining cove area defined in Phase 2B. The top 12 inches of organic soil in the former meadow area containing residual pesticides will be stripped for future on-site reuse. The remaining native soil generated from the excavation of the cove in Phase 2B will be used as capping material to raise grades in the upland commercial area at the Phase 2B Fill area. Excess surplus native soil from excavation of the cove in Phase 2B will be used on other properties owned by RRI or sold.

- Phase 2C: Phase 2C consists primarily of excavation of the remaining cove area across the existing meadow. A total of approximately 184,000 cubic yards of topsoil and native material will be generated from the final cove excavation phase. Refer to *Appendix E Sheet CE-103.* The top 12 inches of organic soil in the former meadow area containing residual pesticides will be stripped for future on-site reuse. The remaining native soil generated from the excavation of the cove in Phase 2C will be used as capping material in the upland commercial area, raising grades across the park, reused on other properties owned by RRI, or sold.

7.1 Phase 2A Fill Area

The Phase 2A Fill Area is approximately 4.97 acres and comprises a portion of the future area that will be developed into a commercial use. The upland future commercial use area was the location of a sequence of fill events, beginning with the construction of the Amtrack Railroad in the 1800's through the 2000's. Current Site redevelopment plans include raising grades in this portion of the Site by approximately 3 to 7 feet (*Appendix E Sheet CP-102*)) to bring this area out of the floodplain and ultimately prepare it as a development area.

Specifically, an estimate of approximately 35,000 cubic yards of soil will be relocated to this area to bring the existing grade to acceptable elevations for future development.

7.2 Phase 2B Fill Area

The Phase 2B Fill Area is approximately 8.34 acres and comprises a portion of the future area that will be developed into a commercial use. The upland future commercial use area was the location of a sequence of fill events, beginning with the construction of the Amtrack Railroad in the 1800's through the 2000's. Current Site redevelopment plans include raising grades in this portion of the Site by approximately 2 to 4 feet (*Appendix E Sheet CP-103*) to bring this area out of the floodplain and ultimately prepare it as a development area.

The polluted soil excavated from the riverbank berm, cove, and previously identified fill areas will be consolidated into a 197,823 square feet area (*Appendix E Sheet CP-102*). The area has a capacity for reuse of polluted fill of approximately 29,307 cubic yards to then allow subsequent filling of at least four additional feet with native material.

7.3 Phase 2A Post Excavation Confirmatory Sampling

As previously discussed, Phase 2A cove construction requires excavation of an 8.85 acre area. In this phase an approximate 1.26 acre area will be excavated from the northern end of the riverbank berm (Cove Excavation Area & Cove Dredge Area) containing polluted fill as identified on *Sheet CP-101 in Appendix E*. Following excavation activities confirmatory soil samples will be collected for laboratory analysis from the 1.26 acre area on a 70 foot grid spacing resulting in the collection of 16 samples submitted to the laboratory for analysis of PAHs, ETPH, and metals. The data will be incorporated into an updated 95% UCL analysis as described in *Section 6.5.3*. On review of analytical results additional excavation may be required to achieve target compliance objectives using a 95% UCL approach.

7.4 Phase 2B Post Excavation Confirmatory Sampling

As previously discussed, Phase 2B cove construction requires earthwork activities of an 14.5 acre area. In this phase earthwork activities will occur in an approximate 6.8 acre area of the southern and northern riverbank berm (Cove Excavation Areas 1, 2, & Cove Dredge Area) containing polluted fill as identified on *Sheet CP-102 in Appendix E*. Following excavation activities confirmatory soil samples will be collected for laboratory analysis from the 6.8 acre area on a 120 feet grid spacing resulting in the collection of 45 samples submitted to the laboratory for analysis of PAHs, ETPH, and metals. The data will be incorporated into an updated 95% UCL analysis as described in *Section 6.5.3*. On review of analytical results additional excavation may be required to achieve target compliance objectives using a 95% UCL approach.

8 Post-Remediation Requirements

Post-remediation tasks to be conducted at the Site include:

- Preparation of a Remedial Action Report (RAR)
- Groundwater monitoring (including monitoring well installation)
- Record the EUR
- Preparation of an LEP Verification Report and Filing an LEP Verification

These tasks are discussed in the following subsections.

8.1 Remedial Action Report

Following Site redevelopment activities, a summary reports documenting the construction and remedial activities will be prepared. The report will include the following elements:

- Site background
- An overview of remedial objectives
- A summary of construction activities and documentation of any activities undertaken to achieve the remedial objectives
- Figures depicting the Site layout and locations and implemented remedies
- Supporting documentation

Electronic copies of the final remedial action report will be provided to Riverfront Recapture, Inc. representatives and DEEP.

8.2 Groundwater Monitoring

Groundwater monitoring will be required at the Site, following Site redevelopment, to determine the effectiveness of soil remediation. A minimum of four sampling events that meet applicable RSR criteria and reflect seasonal variability on a quarterly basis is necessary to demonstrate that groundwater complies with the RSRs. All sampling events used to demonstrate compliance must be conducted after the completion of remediation and within two years of the most recent event used to demonstrate compliance.

Groundwater samples will be collected and submitted to a state-certified laboratory for analysis of Site constituents of concern including one or more of the following:

- Polynuclear aromatic hydrocarbons (PAHs)
- Extractable total petroleum hydrocarbons (ETPH)
- Metals (arsenic, barium, cadmium, chromium, mercury, lead, selenium and silver)
- Pesticides

A groundwater monitoring plan will be prepared under a separate cover following commencement of Site redevelopment and remedial activities.

8.3 Conceptual EUR

Following Site redevelopment, an EUR will be recorded for the Site to prohibit actions that would expose impacted soil remaining at the Site. The restrictions to be established in the EUR include:

1. No disturbance of inaccessible soil
2. No unauthorized disturbance of the engineered controls or underlying polluted soil because such soil poses an unacceptable risk to human health
3. Per the Widespread Polluted Fill Variance, prohibit movement or reuse of Site fill in a manner that does not comply with the RSRs and require compliance with any condition imposed by the commissioner with respect to the widespread polluted fill variance

The EUR will be prepared in accordance with the latest version of the DEEP's *Environmental Land Use Restriction Guidance Document*. The process of recording an EUR includes the following:

1. Public notice the intent to record an EUR
2. Prepare and submit to the DEEP for administrative and technical review the Application for Environmental Land Use Restriction, including: the Declaration, Decision Document, Class A-2 survey, certified copy of public notice, municipal zoning information, descriptions of the engineered controls, interests in the property and subordination waiver requests, and the Signatory Responsibility Form
3. Review title documents and obtain any necessary subordination agreements
4. Receive DEEP approvals
5. Record the EUR on the City of Hartford and Town of Windsor land records
6. Submit to the Commissioner a certificate of title that certifies that each holder of an interest in the property subject to the EUR has irrevocably subordinated such interest to the EUR or the Commissioner has waived the requirement for interests that are so minor as to not affect the EUR.
7. Send a copy of the EUR by certified mail, return receipt requested, to the chief administrative officer of the City of Hartford and Town of Windsor, the chairman of the municipal planning, zoning, or planning and zoning commission, the local Director of Health, and any person who submitted comments on the EUR during the public notice period. Submit copies of these letters to the DEEP.

8.4 LEP Verification Report

A Verification Report must be submitted to DEEP to support a verification rendered by an LEP that a site has been investigated in accordance with prevailing standards and guidelines and that pollution on such property has been remediated in accordance with the RSRs.

An Interim Verification can be filed if investigation and remediation of the property has been completed, with the exception that a selected remedy for groundwater pollution is in operation (if necessary) but has not achieved the remediation standards for groundwater. The purpose of a Verification Report is to present the necessary documentation to support a verification rendered by a LEP. The Verification Report is used by DEEP to assess the applicability and adequacy of the verification.

8.5 Schedule for Implementation

A proposed schedule for Site remediation is as follows:

Date*	Remediation Milestone
July 2025	Issue public notice
August 2025	Begin construction
September 2027	Complete construction
September 2027	Implement groundwater compliance monitoring
December 2027	Prepare remedial action report
March 2028	Prepare a draft EUR for DEEP review
September 2029	Record EUR on the city land records
March 2029	Prepare final verification report

*Schedule is dependent on regulatory approvals, project sequencing, and funding availability.

It should be noted that the actual completion dates may vary dependent upon state/federal permitting approvals, weather, contractor performance, and conditions encountered in the field. DEEP will be notified of any changes to the schedule.

9 References

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10 Limitations of Work Product

This document was prepared for the sole use of Riverfront Recapture, Inc., and CT DEEP, and their identified subsidiaries, the only intended beneficiaries of our work. Those who may use or rely upon the report and the services (hereafter "work product") performed by Fuss & O'Neill and/or its subsidiaries or independent professional associates, subconsultants and subcontractors (collectively the "Consultant") expressly accept the work product upon the following specific conditions.

1. Consultant represents that it prepared the work product in accordance with the professional and industry standards prevailing at the time such services were rendered.

2. The work product may contain information that is time sensitive. The work product was prepared by Consultant to the particular scope limitations, budgetary and time constraints and business objectives of the Client which are detailed therein or in the contract between Consultant and Client. Changes in use, tenants, work practices, storage, Federal, state or local laws, rules or regulations may affect the work product.

3. The observations described and upon which the work product was based were made under the conditions stated therein. Any conclusions presented in the work product were based solely upon the services described therein, and not on scientific or engineering tasks or procedures beyond the scope of described services.

4. In preparing its work product, Consultant may have relied on certain information provided by state and local officials and information and representations made by other parties referenced therein, and on information contained in the files of state and/or local agencies made available at the time of the project. To the extent that such files which may affect the conclusions of the work product are missing, incomplete, inaccurate or not provided, Consultant is not responsible. Although there may have been some degree of overlap in the information provided by these various sources, Consultant did not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this project. Consultant assumes no responsibility or liability to discover or determine any defects in such information which could result in failure to identify contamination or other defect in, at or near the site. Unless specifically stated in the work product, Consultant assumes no responsibility or liability for the accuracy of drawings and reports obtained, received or reviewed.

5. If the purpose of this project was to assess the physical characteristics of the site with respect to the presence in the environment of hazardous substances, waste or petroleum and chemical products and wastes as defined in the work product, unless otherwise noted, no specific attempt was made to check the compliance of present or past owners or operators of the site with Federal, state, or local laws and regulations, environmental or otherwise.

6. If water level readings have been made, these observations were made at the times and under the conditions stated in the report. However, it must be noted that fluctuations in water levels may occur due to variations in rainfall, passage of time and other factors and such fluctuations may effect the conclusions and recommendations presented herein.

7. Except as noted in the work product, no quantitative laboratory testing was performed as part of the project. Where such analyses have been conducted by an outside laboratory, Consultant has relied upon the data

provided, and unless otherwise described in the work product has not conducted an independent evaluation of the reliability of these tests.

8. If the conclusions and recommendations contained in the work product are based, in part, upon various types of chemical data, then the conclusions and recommendations are contingent upon the validity of such data. These data (if obtained) have been reviewed and interpretations made by Consultant. If indicated in the work product, some of these data may be preliminary or screening-level data and should be confirmed with quantitative analyses if more specific information is necessary. Moreover, it should be noted that variations in the types and concentrations of contaminants and variations in their flow paths may occur due to seasonal water table fluctuations, past disposal practices, the passage of time and other factors.

9. Chemical analyses may have been performed for specific parameters during the course of this project, as described in the work product. However, it should be noted that additional chemical constituents not included in the analyses conducted for the project may be present in soil, groundwater, surface water, sediments or building materials at the site.

10. Ownership and property interests of all documents, including reports, electronic media, drawings and specifications, prepared or furnished by Consultant pursuant to this project are to the terms and conditions specified in the contract between the Consultant and Client, whether or not the project is completed.

11. Unless otherwise specifically noted in the work product or a requirement of the contract between the Consultant and Client, any reuse, modification or disbursement of documents to third parties will be at the sole risk of the third party and without liability or legal exposure to Consultant.

12. In the event that any questions arise with respect to the scope or meaning of Consultant's work product, immediately contact Consultant for clarification, explanation or to update the work product. In addition, Consultant has the right to verify, at the party's expense, the accuracy of the information contained in the work product, as deemed necessary by Consultant, based upon the passage of time or other material change in conditions since conducting the work.

13. Any use of or reliance on the work product shall constitute acceptance of the terms hereof.

Tables

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Table 1
Summary of Areas of Concern
RLI Park Project
RLI Properties & Portion of Windsor Meadows State Park
Hartford and Windsor, Connecticut

AOC	Description	Constituents of Concern (Bold=Release)	Sampling Locations	Phase II Release Determination	Phase III Characterization Summary	RSR Exceedances	Soil			GW			Proposed Remedial Actions
							Res Dec	I/C DEC	GB PMC	SWPC	Res VC	I/C VC	
RLI-AOC-01 Riverbank Berm	The DEEP issued a series of permits to the Russo family permitting them to fill the riverbank on the eastern portion of the Site for erosion protection purposes. The approvals allowed for armoring of the shoreline with rock and masonry material. Subsequently, an approximately 1,100-foot long berm was created (from unknown fill material) along the Connecticut River.	RCRA 8 Metals ETPH PCBs VOCs PAHs Pesticides	*Soil* TP-02 TP-03 TP-09 SB-30 – SB-40 SB-30B – SB-30I SS-34 thru SS-36	Release Identified In general, fill material consisting of asphalt, brick, coal, concrete, gravel, metal slag and/or wood was observed in sampling locations across the berm to total depths up to 15 feet below grade. Concentrations of constituents associated with fill material were detected in samples collected across the riverbank berm. PAHs and/or ETPH were reported at concentrations above RSR criteria in select locations. During supplemental sampling events, soil borings SB-30 thru SB-33 were advanced along the berm on the eastern-most portion of the Site and borings SB-34 thru SB-37 were advanced on the southeastern-most portion of the Site to further characterize the fill material comprising the berm. ETPH was detected below applicable RSR criteria at SB-30 and several PAHs were detected above applicable RSR criteria at SB-30 and SB-36. PAHs were detected below applicable RSR criteria at borings SB-32 thru SB-34 and SB-37.	To further define elevated PAH concentrations reported in SB-30 and SB-36, supplemental borings were advanced in June 2021 in these areas. Supplemental sampling results identified elevated concentrations of PAHs at select locations within each area, indicative of a significant environmental hazard. Following the completion of the required SEH notification to DEEP, supplemental sampling in these areas conducted in September 2021 further defined the impacted areas as follows: <u>SB-30 Area (northern end of Riverbank)</u> An area measuring approximately 50' by 50' was identified to be impacted with elevated PAH concentrations to a depth between approximately 4-6 fbg. <u>SB-36 Area (southern end of Riverbank)</u> An area measuring approximately 75' by 80' was identified to be impacted with elevated PAH concentrations to a depth between approximately 3-6 fbg. Surficial samples SS-34 thru SS-36 were collected from the riverbank and analyzed for PAHs, which were reported well below applicable RSR criteria.	ETPH PAHs	■ ■	- -	- ■	- -	- -	- -	Excavation & Rendering Inaccessible Remedial excavation activities are proposed to address soil located within select areas on the northern portion of the RLI riverbank berm and the southern peninsula to address the elevated concentrations of PAHs and/or ETPH. Soil generated from the remedial activities will be transported to the impacted soil reuse area located in the western portion of the Site and placed beneath over 4 feet of clean materials, achieving compliance with the RSRs. See Figures 4, 6, & 7 for reference.

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							Res Dec	I/C DEC	GB PMC	SWPC	Res VC	I/C VC	
RLI-AOC-02 Fill Material on Western Portion of the Site	Aerial photographs and historical topographic maps indicate that a sequence of filling on the western portion of the Site was ongoing from the 1800's through the 2000's beginning with the construction of the Metro North Railroad. From the 1950's onward, agricultural activities on the western portion of the Site were discontinued and the area was used for material processing and excavation of earth materials. The environmental quality of the material used to backfill excavations and to raise grades was unknown.	RCRA 8 Metals ETPH PCBs VOCs (Naphthalene) PAHs Pesticides Herbicides	<u>Soil</u> TP-04 thru TP-08 TP-13 thru TP-18 MW-02-MW-03 SB-09/MW-05 SB-14, SB-15/15R & SB-16 <u>Groundwater</u> MW-02 MW-03 MW-05	Release Identified Fill material consisting of asphalt, brick, metal slag, concrete, gravel and/or wood was identified in borings and test pits located across the western portion of the Site at thicknesses ranging from 1 to greater than 10 feet. ETPH was reported in samples from TP-04, TP-06, and TP-07, with concentrations exceeding baseline RSR criteria in the sample from TP-06. The VOC naphthalene was also detected below RSRs in the sample from TP-06. Metals and PAHs were detected in several samples, including at TP-06, TP-07, and MW-03, at which metals and/or PAHs exceeded applicable RSR criteria. Pesticides were detected below RSRs at TP-04, TP-06, and MW-03. Pesticides were detected above the GB PMC at TP-07, attributable to the industry standard application of pesticides across the Site (discusses further in AOC-05).	Elevated concentrations of metals, PAHs, and/or ETPH are generally associated with the presence of asphalt-containing fill materials. Due to the heterogeneity of the fill, samples collected from any location on the western portion of the Site may yield detections of arsenic, lead, ETPH, PAHs, and/or pesticides above the laboratory reporting limit or the applicable RSR criteria. Test pits TP-13 through TP-16 and soil borings SB-14, SB-15, and SB-15 were sampled to characterize the area in the vicinity of TP-07, located amidst debris from the former barracks and greenhouses. Additional sampling confirmed a release of arsenic, lead, PAHs, and/or pesticides to depths of greater than one fbg in this area. In addition, the concentration of dieldrin reported at one sample location (SB-15[0-0.5']) was above the Res DEC. Trace concentrations of metals and PAHs were reported in samples from select monitoring wells over three groundwater sampling events, indicating a significant release to groundwater has not occurred.	Arsenic Lead ETPH PAHs Pesticides	■ ■ ■ ■ ■	- - - - -	- - - ■ ■	- - - - -	- - - - -	- - - - -	Widespread Fill Exemption & 95% UCL Concentrations of fill related constituents from this AOC will be exempt from the PMC via the use of a Widespread Polluted Fill Variance (WPFV) as detailed in Section 22a-133k-2(f)(1) of the RSRs. Compliance with the DEC will be achieved via the use of a 95% upper confidence limit (95% UCL). The data set used for the 95% UCL will include all soil samples collected from areas of widespread fill across both the RLI and WMSP properties; excluding those associated with RLI-AOC-03 and RLI-AOC-06 and select soil hotspot areas where soil excavation/relocation is proposed.

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							Res Dec	I/C DEC	GB PMC	SWPC	Res VC	I/C VC	
RLI-AOC-03 Material Stockpiles	Several material stockpiles were observed on the western portion of the Site during the 2018 Phase I assessment. The stockpiles were labelled as Stockpiles A through W. Stockpiles were observed to contain soil mixed with concrete and asphalt fragments, shingles, brick fragments, and wood chips. Between the time of the initial Phase II investigation and Phase III investigation activities conducted in 2021, several of the previously identified stockpiles had been removed and/or used to grade select areas on Site.	RCRA 8 Metals ETPH PCBs VOCs PAHs Pesticides Herbicides	SS-01 SS-03 Stockpile A Stockpile B Stockpile H/I Stockpile K Stockpile L Stockpile N through P Stockpile R through T Stockpile V Stockpile W	Release Identified Numerous samples were collected from the Site stockpiles, observed to contain fill materials, including asphalt, brick, concrete, and metals slag. Analytical results from these samples indicated the presence of arsenic, lead, PAHs, and/or pesticides above applicable RSR criteria. As of March 2021, eight of the remaining stockpiles (A, B, C, D, H/I, K, V, and Stockpile W) were observed to contain suspected fill materials, including asphalt, gravel, metal slag, cobbles, brick, and concrete.	Based on the observations made and the results of the stockpile sampling performed during the Phase II and Phase III investigation activities, soil associated with any of the stockpiles with observed fill materials may yield detections of metals, PAHs, and/or pesticides above the laboratory reporting limit, and have the potential to exceed applicable RSR criteria. Furthermore, stockpiles comprised of native soil may contain pesticides at concentrations above the GB PMC due to the widespread site use associated with former agricultural activities.	Arsenic Lead ETPH PAHs Pesticides	■ ■ ■ ■ -	- - - - -	- - - ■ ■	- - - - -	- - - - -	- - - - -	Stockpile Removal Remaining Stockpiles containing fill materials (A, D, H/I, and K) should be removed and disposed off-Site. Additional soil management activities may be required to determine the best on-site reuse of the stockpiles containing native material and the stockpiles containing peastone, gravel, and asphalt (Stockpiles B, C, and W).
RLI-AOC-04 Historical Fill Material	Since quarrying/excavation activities began at the Site in the early 1970's, multiple excavation and fill events have occurred across the eastern and western portions of the Site. The presence of fill in the central portion of the Site (the former agricultural field) was not previously been confirmed.	RCRA 8 Metals PAHs Pesticides Herbicides	<u>Soil</u> TP-00 MW-04 SB-10/MW-06 <u>Groundwater</u> MW-04 MW-06	No Release No evidence of fill material was observed in the central portion of the Site. Metals were detected at concentrations consistent with inferred background conditions and below baseline RSR criteria. Pesticides were detected but are attributable to historic agricultural activities (AOC-05) rather than fill.	Additional sampling was conducted off the southeastern corner of the former agricultural field. No evidence of fill material was identified. Arsenic and lead were detected at concentrations consistent with inferred background conditions and below baseline RSR criteria.	---	-	-	-	-	-	-	None Required No releases or fill were identified in this AOC, therefore no remedial actions are warranted.

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							Res Dec	I/C DEC	GB PMC	SWPC	Res VC	I/C VC	
RLI-AOC-05 Pesticide Use (Site-Wide)	The majority of the Site has been used for agricultural purposes dating back to prior to 1934. Given the historic cultivation activities, it was likely that pesticides were regularly applied to the agricultural fields, and thus likely that varying concentrations of residual pesticides are present in shallow soils across the Site.	Arsenic Lead Pesticides Herbicides	SS-04 through SS-06 SS-07 through SS-26 SS-30 thru SS-33 SS-37 SS-38 MW-04 SB-10/MW-06	Release Identified Pesticides were detected above the GB PMC in shallow soil samples collected from across the former agricultural field. Arsenic and lead were detected at concentrations consistent with inferred background conditions and below baseline RSR criteria.	Consistent with data collected from the adjacent Windsor Meadow State Park parcel to the north, pesticides, including DDE, DDT, chlordane, dieldrin, and heptachlor epoxide were detected at varying concentrations above the GB PMC at numerous sampling locations collected from the former agricultural field and across the Site. The pesticides 4,4-DDE, 4,4-DDT, and chlordane were the predominant constituents detected, with fewer detects of 4,4-DDD and heptachlor epoxide. Each constituent detected were reported within similar orders of magnitude and no 'hot spot' areas were identified across the agricultural field. Per RCSA 22a-133k-2(c)(5)(E) "*soil that is polluted with pesticides at a release area as a result of the application of pesticides at the release area is not required to be remediated to the pollutant mobility criteria provided that a determination has been made that such pesticides are present soley as a result of the application of pesticides and*: *i. Compliance with the direct exposure has been achieved* *ii. Compliance with the groundwater standards of the RSR has been achieved* Three rounds of groundwater monitoring from 2018 to 2020 yielded no detections of pesticides in groundwater, indicating that the release of pesticides has not negatively impacted groundwater quality at the Site.	Pesticides	-	-	■	-	-	-	95% UCL & Conditional Exemption Similar to the remedial approach for RLI-AOC-02 exceedances of the DEC will be addressed using a 95% UCL. Exceedances of the PMC will be addressed using the conditional exemption detailed in RCSA 22a-133k-2(c)(5)(E).

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AOC	Description	Constituents of Concern (Bold=Release)	Sampling Locations	Phase II Release Determination	Phase III Characterization Summary	RSR Exceedances	Soil			GW			Proposed Remedial Actions
							Res Dec	I/C DEC	GB PMC	SWPC	Res VC	I/C VC	
RLI-AOC-06 Drums & Miscellaneous Containers/ Surficial Oil Staining	During the 2018 Phase I ESA, two 55-gallon drums of unknown substances were observed in poor condition near the former covered storage structure and a 5-gallon bucket full of an unknown substance was observed off the northeast corner of the vacant residential structure surrounded by an approximately 4 foot by 6 foot area stained with oil. During subsequent investigations, the 55-gallon drums and 5-gallon containers had reportedly been removed by the previous Site occupant. Additionally, several vehicles and earth material processing equipment were staged west of the former covered storage structure on the western portion of the Site. Similarly, during the 2018 Phase III investigation, the equipment had been removed from the Site by the previous occupant. Observations of the area in 2018 revealed evidence of incidental staining beneath the equipment.	RCRA 8 Metals ETPH PCBs VOCs PAHs Pesticides	<u>Drums/Containers:</u> SB-03 SB-04 <u>Surficial Oil Staining:</u> SB-11 SB-12 SB-13	<u>Drums/Containers</u> - No Release Metals were detected at concentrations laboratory reporting limits but below baseline RSR criteria at SB-03 and SB-04. PAHs were detected above laboratory detection limits but below baseline RSR criteria at SB-04. However, no evidence of a release was observed beneath the drums or containers and based on fill identified in soil collected from both locations and the soil analytical results, the elevated concentrations of metals and PAHs were attributed to fill (AOC-02) rather than to a release. <u>Surficial Oil Staining</u> - Release Identified By the time of the 2019 Phase I ESA, the vehicles and earth material processing equipment previously staged in front of the former covered storage structure had been remove and surficial oil staining had been identified in the area where the equipment had previously been located.	<u>Drums & Misc. Containers:</u> Based on visual observation of the ground beneath the containers, the Phase II soil results, and the removal of the drums and containers from the Site, no Phase III sampling was warranted. <u>Surficial Oil Staining:</u> Two soil borings (SB-11 and SB-12) were advanced in each of two approximately 60-square foot areas of surficial staining and one boring (SB-13) was advanced just west of SB-12, outside of the stained areas. Several PAHs were detected at concentrations above the GB PMC and/or Res DEC to depths of one ftbg at soil borings SB-11 and SB-12. Several PAHs were detected at SB-13, but were below baseline RSR criteria. No PAHs were detected above baseline RSR criteria in groundwater in any of the three groundwater sampling events conducted between 2018 and 2020.	<u>Drum/ Containers:</u> None <u>Surficial Oil Staining:</u> PAHs	- ■	- -	- ■	- -	- -	- -	Conditional Exemption for Incidental Sources Sections 22a-133k-2(b)(5)(A) and 22a-133k-2(c)(5)(D) of the RSRs provide conditional exemptions to the DEC and PMC, which will be used to demonstrate compliance. This material will also be rendered inaccessible, beneath at least four feet of cover material, following construction activities to raise grades within the western portion of the Site.

FUSS & O'NEILL

Table 1
Summary of Areas of Concern
RLI Park Project
RLI Properties & Portion of Windsor Meadows State Park
Hartford and Windsor, Connecticut

AOC	Description	Constituents of Concern (Bold=Release)	Sampling Locations	Phase II Release Determination	Phase III Characterization Summary	RSR Exceedances	Soil			GW			Proposed Remedial Actions
							Res Dec	I/C DEC	GB PMC	SWPC	Res VC	I/C VC	
RLI-AOC-07 Former Produce Wash Building & Truck Storage	Reportedly, the southern wing of the former produce wash building located on the northwest portion of the Site was historically used as a truck storage area. During the initial Phase I ESA, two vehicles were observed in this portion of the building, as well as several surficial oil stains, sections of pitted concrete, and a floor drain.	RCRA 8 Metals ETPH PCBs VOCs PAHs Pesticides	<u>Soil</u> SB-01 SB-02 SB-05 through SB-08 MW-01 <u>Groundwater</u> MW-01 <u>Concrete</u> CS-01 through CS-04	Release Identified Staining was observed on the concrete floor beneath the trucks stored inside the western garage bay. Additionally, metals were detected above laboratory reporting limits at SB-01, SB-02 and MW-01 and PAHs were detected above laboratory reporting limits but below baseline RSR criteria in soil collected from MW-01.	Four concrete chip samples (CS-01 through CS-04) and four soil samples (SB-05 through SB-08) were collected from the same four locations upon removal of the vehicle located within the building. Samples CS-03 and SB-07 were collected from within the 25-square foot stained area in the former vehicle storage bay, while the remaining samples were collected outside the footprint of the stained area. PCBs were detected above the Res DEC in CS-03, but no PCBs were detected in any of the concrete chip samples located outside of the stained areas or in the soil samples collected from beneath the concrete chip samples. The concrete slab was subsequently removed during building demolition activities and the PCB impacted portion was transported and disposed off-Site. Metals detected in all of the soil samples were consistent with background conditions and PAHs detected in soil from MW-01 were attributed to fill material (AOC-02).	PCBs (Concrete)	■	-	-	-	-	-	None Required Impacted concrete has been removed and no further actions are required for this AOC.
RLI-AOC-8 Historical Underground Storage Tanks	Based on information obtained regarding historical Site structures, there was potential for previously unidentified fuel oil USTs to be present on the 100 & 120 Meadow Road parcels. No evidence of abandoned former USTs was identified during several GPR surveys completed in this portion of the Site; however, during the demolition of the former produce wash/storage building in August 2020, an abandoned 1,000-gallon fuel oil UST was identified beneath the floor slab.	ETPH VOCs PAHs	*B-E* *B-W* *S-N* *S-S* *S-W* *S-E*	No Release GPR surveys conducted during the 2018 Phase II, 2018 Phase III, and 2020 Phase III investigations identified no evidence of a UST near the former Site structures. However, the rear (western) portion of the former cinder block produce wash building was inaccessible during the GPR surveys.	At the time of the UST discovery, the tank was inspected and no evidence of leaking or damage to the tank was observed. The tank contained approximately 300 gallons of water and residual No. 2 heating oil, which was removed by Tank Works CT, (Manchester, Connecticut) on October 1, 2020. Following tank removal, Fuss & O'Neill conducted confirmatory tank grave soil sampling and identified no evidence of a release to the subsurface.	---	-	-	-	-	-	-	None Required No release was identified during removal of this UST. Given the history of the Site, the potential that additional abandoned USTs may be present on the 100 & 120 Meadow Road parcels still exists.

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Table 1
Summary of Areas of Concern
RLI Park Project
RLI Properties & Portion of Windsor Meadows State Park
Hartford and Windsor, Connecticut

AOC	Description	Constituents of Concern (Bold=Release)	Sampling Locations	Phase II Release Determination	Phase III Characterization Summary	RSR Exceedances	Soil			GW			Proposed Remedial Actions
							Res Dec	I/C DEC	GB PMC	SWPC	Res VC	I/C VC	
WMSP-AOC-01 Pesticide Use (Agricultural Field/Site-Wide)	The potential exists that pesticides were used across the Site and could remain at varying concentrations in shallow soil, considering that the Site had been used for agricultural purposes since prior to 1934.	Pesticides	*Soil* SS-01 - SS-18 SS-39 - SS-43 SB-05 SB-06/MW-03 TP-09 TP-10 *Groundwater* MW-03	Release Identified Varying concentrations of pesticides (including DDE, DDT, Chlordane, Dieldrin and Heptachlor Epoxide) were reported in each of the 45 shallow soil samples collected from this AOC, with concentrations of DDE and DDT detected above the GB PMC in each sample. Concentrations of Chlordane exceeded the GB PMC in 4 samples and Dieldrin was reported above the GBPMC in one soil sample. Pesticides were not detected in Site groundwater.	While concentrations of select pesticides exceed the GB PMC, they are consistent with industry standard application of pesticides for agricultural purposes. Pesticides were not reported in groundwater across the Site over three rounds of groundwater sampling events conducted in 2020 and 2021. This indicates that groundwater has not been negatively impacted by the historical pesticide use at the Site. Considering soil concentrations do not exceed the Res DEC and have not impacted groundwater, the release area is therefore not required to be remediated to the PMC.	4,4'-DDE 4,4'-DDT Chlordane Dieldrin Heptachlor Epoxide	- - - - -	- - - - -	■ ■ - ■ -	- - - - -	- - - - -	- - - - -	Conditional Exemption Similar to RLI-AOC-05, pesticide exceedances of the PMC will be addressed using the conditional exemption detailed in RCSA 22a-133k-2(c)(5)(E).

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Table 1
Summary of Areas of Concern
RLI Park Project
RLI Properties & Portion of Windsor Meadows State Park
Hartford and Windsor, Connecticut

AOC	Description	Constituents of Concern (Bold=Release)	Sampling Locations	Phase II Release Determination	Phase III Characterization Summary	RSR Exceedances	Soil			GW			Proposed Remedial Actions
							Res Dec	I/C DEC	GB PMC	SWPC	Res VC	I/C VC	
WMSP-AOC-02 Riverbank Berm	An apparent non-native earthen ridge/berm was observed along the eastern boundary of the Site, along the Connecticut Riverbank. Fragments of brick, concrete and debris were observed in the southern end of the berm/riverbank. This material appears consistent with the fill material observed in the berm along the river on the adjacent southern property owned and operated by RLI. It is likely that the same fill material used for the construction of the riverbank berm on the adjacent property to the south (600 Leibert Road parcel) may have been used to construct the earthen ridge for flood and erosion control at the Site. It is noted that two manholes were observed along the north/central portion of the riverbank which reportedly served as the discharge point for the former sewer overflow branch, identified in AOC-04. These manholes reportedly will be abandoned and removed by MDC in the future.	RCRA 8 Metals PAHs Pesticides	*Soil* SS-19 SS-20 HS-03 - HS-06 SB-07 TP-04 - TP-08 *Groundwater* MW-03	Release Identified Non-native fill material was observed in soil boring SB-07 to a depth of approximately 2 feet below grade, consistent with observations of debris in this area of the AOC. Varying concentrations of pesticides (including DDD, DDE, DDT, Chlordane, Dieldrin, Endrin Ketone and/or Heptachlor Epoxide) were reported in 10 of the 12 soil samples collected from this AOC. Concentrations of DDD, DDE, DDT, Chlordane, Dieldrin and/or Heptachlor epoxide exceeded the GB PMC in 7 of the 12 soil samples. Elevated concentrations of PAHs, exceeding the Res DEC, were reported in one sample from SB-07 (collected from the southern end of the riverbank berm). PAHs were also detected (below RSR criteria) in 6 other samples collected from this AOC. Shallow samples collected from along the top of the riverbank indicate concentrations of PAHs below RSR criteria. Varying levels of metals have been detected in soil samples collected from this AOC at concentrations consistent with background conditions. While concentrations of pesticides and PAHs have been reported above RSR criteria in soil, neither pesticides nor PAHs have been detected in Site groundwater.	Based on visual observations and evaluation of material within test pits and sampling locations, the berm along the riverbank measures approximately 50 x 600 feet and appears to be primarily overgrown native material, likely sourced from excess soil generated on Site. Concentrations of select pesticides exceed the GB PMC in the majority of samples collected from this AOC (10 out of 12), consistent with findings of pesticide impact across other areas of the Site. These concentrations are likely the result of several decades of industry standard application of pesticides across the Site for agricultural purposes. The varying concentrations of PAHs reported in soil appear generally consistent with those detected in the non-native impacted urban fill material encountered in other areas of the Site.	PAHs 4,4'-DDD 4,4'-DDE 4,4'-DDT Chlordane Dieldrin Heptachlor Epoxide	■ - - - - - -	- - - - - - -	■ ■ ■ ■ ■ ■ ■	- - - - - - -	- - - - - - -	- - - - - - -	Widespread Fill Exemption & 95% UCL Exceedances from this AOC will be exempt from the PMC via the use of a Widespread Polluted Fill Variance (WPFV) as detailed in Section 22a-133k-2(f)(1) of the RSRs. Compliance with the DEC will be achieved via the use of a 95% upper confidence limit (95% UCL). The data set used for the 95% UCL will include all soil samples collected from areas of widespread fill across both the RLI and WMSP properties, excluding those associated with RLI-AOC-03 and RLI-AOC-06 and select soil hotspot areas where soil excavation/relocation is proposed.

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Table 1
Summary of Areas of Concern
RLI Park Project
RLI Properties & Portion of Windsor Meadows State Park
Hartford and Windsor, Connecticut

AOC	Description	Constituents of Concern (Bold=Release)	Sampling Locations	Phase II Release Determination	Phase III Characterization Summary	RSR Exceedances	Soil			GW			Proposed Remedial Actions
							Res Dec	I/C DEC	GB PMC	SWPC	Res VC	I/C VC	
WMSP-AOC-03 Western Soil Stockpile/ Earthen Berm	An overgrown stockpile/earthen berm, approximately 150 feet in length, was observed along the southwestern boundary of the Site, which may have historically been used to control flooding from Decker's Brook. Building material debris and general household debris (including empty 5-gallon buckets, plastic furniture, concrete, brick, and asphalt) were identified in and around the stockpile.	RCRA 8 Metals ETPH PCBs VOCs PAHs Pesticides	*Soil* SS-21 HS-01 HS-02 TP-01 TP-11	Release Identified Fill material was observed at thicknesses between 7-11 feet in test pits TP-01 and TP-11, advanced at the southern and northern ends of the stockpile, respectively. Varying concentrations of pesticides were reported in all of the soil samples collected from this AOC; with concentrations of DDD, DDE, DDT, Chlordane, and/or Dieldrin exceeding the GB PMC in each sample. While pesticide concentrations reported from this area primarily appear consistent with industry standard application, the concentrations of DDT and DDE in HS-01 were reported at levels higher than the average reported across the Site. Elevated concentrations of PAHs (greater than 10x the Res DEC) were detected at the soil sample collected from TP-01 (0-2 fbg). The concentration of benzo(a)pyrene reported in HS-02 also slightly exceeded RSR criteria. PAHs detected in all other samples from this area were below applicable RSR criteria. Varying concentrations of metals were detected in the soil samples from this AOC at levels consistent with background conditions. ETPH, PCBs, and VOCs were not detected in soil samples collected from this AOC.	With the exception of TP-01, the varying concentrations of PAHs reported in soil appear consistent with those detected in the non-native impacted urban fill material encountered in other areas of the Site. PAHs reported in TP-01 appear indicative of a 'hot spot' within the fill material (approximately 25 x 40 feet) which should be addressed through remedial action.	PAHs 4,4'-DDD 4,4'-DDE 4,4'-DDT Chlordane Dieldrin	■ - - - - -	- - - - - -	■ ■ ■ ■ ■ ■	- - - - - -	- - - - - -	- - - - - -	Excavation, Widespread Fill Exemption & 95% UCL A select area in the vicinity of test pit TP-01 will be excavated and relocated to the upland soil and sediment reuse area, where it will be rendered inaccessible as detailed above in RLI-AOC-01. Remaining exceedances from this AOC will be exempt from the PMC via the use of a Widespread Polluted Fill Variance (WPFV) as detailed in Section 22a-133k-2(f)(1) of the RSRs. Compliance with the DEC will be achieved via the use of a 95% upper confidence limit (95% UCL). The data set used for the 95% UCL will include all soil samples collected from areas of widespread fill across both the RLI and WMSP properties, excluding those associated with RLI-AOC-03 and RLI-AOC-06 and select soil hotspot areas where active soil excavation is proposed.

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Table 1
Summary of Areas of Concern
RLI Park Project
RLI Properties & Portion of Windsor Meadows State Park
Hartford and Windsor, Connecticut

AOC	Description	Constituents of Concern (Bold=Release)	Sampling Locations	Phase II Release Determination	Phase III Characterization Summary	RSR Exceedances	Soil			GW			Proposed Remedial Actions
							Res Dec	I/C DEC	GB PMC	SWPC	Res VC	I/C VC	
WMSP-AOC -04 Former Sewer Overflow Branch Manholes/ Debris Area	An area of accumulated debris was observed in eastern portion of this AOC. Debris identified included discarded tires, building material (concrete, brick and asphalt) and general household debris. An uncovered manhole was also observed in the southwestern corner of the Site, filled with dirt and woody debris. The manhole was reportedly associated with the former sewer overflow branch formerly connected to the MDC sewer main. A second open manhole, also associated with the former sewer overflow branch, was located in the former agricultural field in the central portion of the Site, with a catch basin grate observed nearby. Two final manholes, adjacent to the Connecticut River served as the discharge point for the former sewer overflow branch. The manholes along the southwestern corner of the Site and in the former agricultural field have since been abandoned and removed by MDC. The two manholes along the CT River will be abandoned and removed in the future. It is noted that these manholes along the CT River were evaluated as part of AOC-02.	RCRA 8 Metals ETPH PCBs VOCs PAHs Pesticides	*Soil* SB-02 SB-03/MW-02 SB-04 TP-02 TP-03 *Groundwater* MW-02	Release Identified Fill material was identified in borings SB-02 – SB-04 to depths of approximately 4-5 feet below grade. Varying concentrations of pesticides were reported in each soil sample collected from this AOC with the exception of the sample from SB-02. Concentrations of DDD, DDE, DDT, and/or Chlordane were reported at concentrations exceeding RSR criteria in samples from SB-03/MW-02 and SB-04. Pesticides were reported below RSR criteria in the sample submitted from TP-02. Elevated concentrations of pesticides were reported in the two samples from TP-03. The highest concentrations were reported in the sample from 2-4 feet below grade at this location. PAHs were reported in each sample analyzed with concentrations above RSR criteria in the samples SB-02 (0.2-1') and SB-04 (1-2.5'). PAHs were reported at concentrations below RSR criteria in the remaining samples from SB-03/MW-02, TP-02 and TP-03. ETPH was detected at a low concentration, below RSR criteria, in sample TP-03 (0-2'). VOCs were primarily not detected in any sample analyzed with the exception of naphthalene, which was detected at a trace concentration, below applicable criteria, in the sample collected from SB-02. Varying concentrations of metals were detected in the soil samples from this AOC at levels consistent with background conditions.	The reported concentrations of pesticides from this area appear generally consistent with the industry standard application of pesticides for agricultural purposes, with slightly elevated concentrations reported in samples from test pit TP-03. The varying concentrations of PAHs reported in soil appear consistent with those detected in the non-native impacted urban fill material encountered in other areas of the Site. While concentrations of pesticides and PAHs have been reported above RSR criteria in soil, neither pesticides nor PAHs have been detected in Site groundwater.	PAHs 4,4'-DDD 4,4'-DDE 4,4'-DDT Chlordane Dieldrin Endrin Heptachlor Heptachlor Epoxide	■ - - - ■ - - - -	- - - - - - - - -	■ ■ ■ ■ ■ ■ ■ ■ ■	- - - - - - - - -	- - - - - - - - -	- - - - - - - - -	Widespread Fill Exemption, Pesticide Use Conditional Exemption & 95% UCL Exceedances of PAHs from this AOC will be exempt from the PMC via the use of a Widespread Polluted Fill Variance (WPFV) as detailed in Section 22a-133k-2(f)(1) of the RSRs. Exceedances of pesticides from this AOC will be exempt from the PMC using the conditional exemption detailed in RCSA 22a-133k-2(c)(5)(E). Compliance with the DEC will be achieved via the use of a 95% upper confidence limit (95% UCL). The data set used for the 95% UCL will include all soil samples collected from areas of widespread fill across both the RLI and WMSP properties, excluding those associated with RLI-AOC-03 and RLI-AOC-06 and select soil hotspot areas where active soil excavation is proposed.

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Table 1
Summary of Areas of Concern
RLI Park Project
RLI Properties & Portion of Windsor Meadows State Park
Hartford and Windsor, Connecticut

Notes:

Bold text = release
VOCs = volatile organic compounds
ETPH = extractable total petroleum hydrocarbons
PAHs = polycyclic aromatic hydrocarbons
PCBs = polychlorinated biphenyls
RCRA 8 metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver)
fbg = feet below grade

---- = no RSR exceedance identified
DEC = direct exposure criteria
Res = residential
I/C = industrial/commercial
PMC = pollutant mobility criteria
SWPC = surface water protection criteria
Res VC = residential volatilization criteria

Table 2
Monitoring Well Construction Details and Groundwater Elevation Data

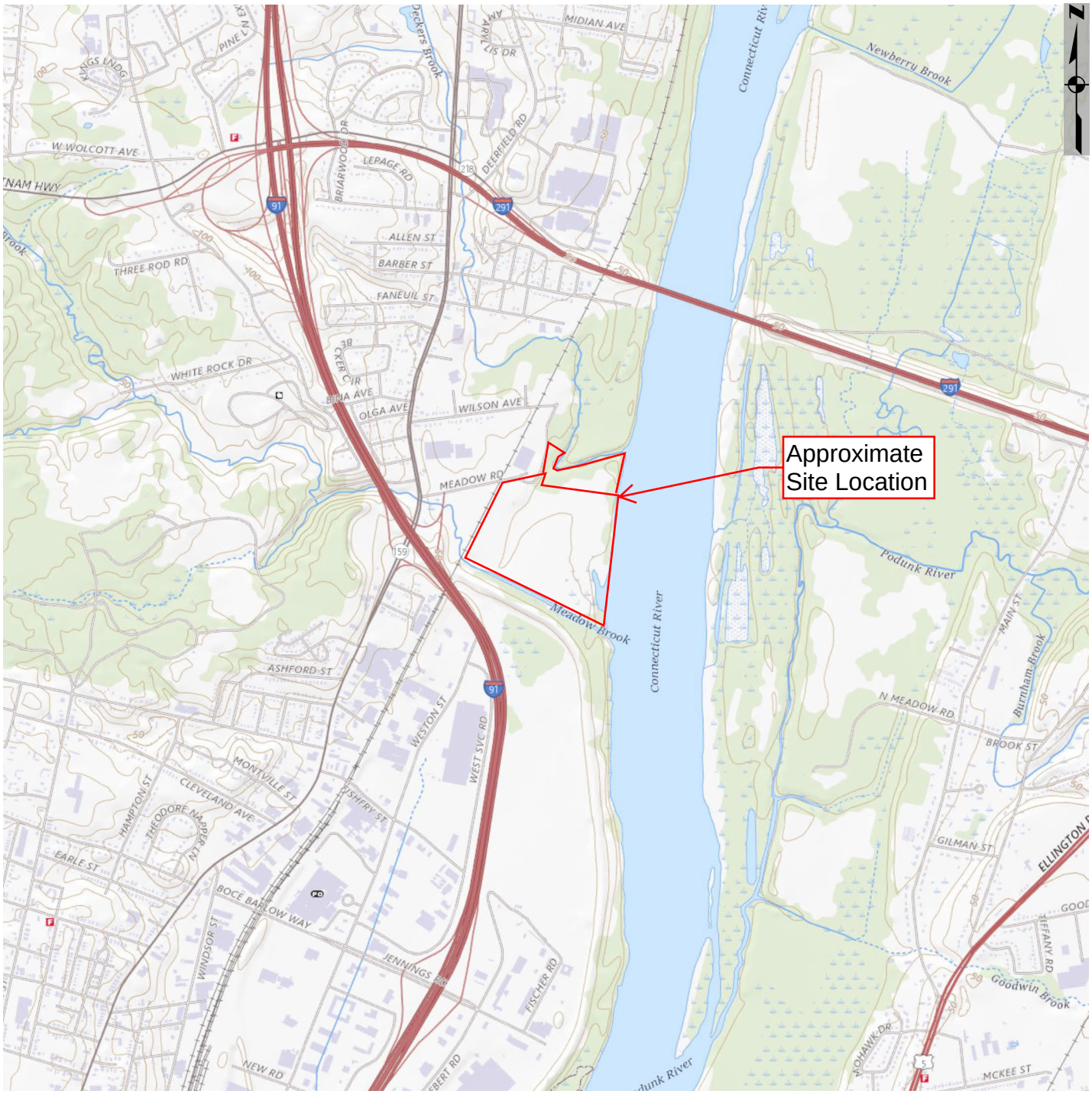
RLI Park Project
Riverfront Land Inc. Property and
Portion of Windsor Meadows State Park
Hartford Windsor, CT

Site Location	Monitoring Well ID	Completion Date	Well Diameter (in)	Well Depth (fbg)	Screened Interval (fbg)	Measuring Point Elevation (ft)	Gauging Date	Depth to Water (fbg)	Groundwater Elevation (ft)
WMSP Parcel	MW-01	8/18/2020	1.5	13	13-3	19.83	8/26/2020	13.44	6.39
							3/1/2021	5.56	14.27
							10/8/2021	6.00	13.83
	MW-02	8/18/2020	1.5	20	20-10	22.40	8/26/2020	18.91	3.49
							3/1/2021	14.49	7.91
							10/8/2021	16.01	6.39
	MW-03	8/18/2020	1.5	20	20-10	20.72	8/26/2020	19.55	1.17
							3/1/2021	16.93	3.79
							10/8/2021	15.72	5.00
RLI Property	MW-01	4/6/2018	1	20	20-10	24.28	4/6/2018	11.12	13.16
							4/12/2018	10.99	13.29
							10/29/2018	11.81	12.47
							8/26/2020	13.07	11.21
	MW-02	4/6/0218	1	20	20-10	24.16	4/6/2018	12.17	11.99
							4/12/2018	12.19	11.97
							10/29/2018	NM	NM
							8/26/2020	NM	NM
	MW-03	4/6/2018	1	12	12-2	28.66	4/12/2018	7.43	21.23
							10/29/2018	7.46	21.20
							8/26/2020	NM	NM
	MW-04	4/6/2018	1	19	19-9	21.14	4/6/2018	12.26	8.88
							4/12/2018	13.87	7.27
							10/29/2018	16.22	4.92
							8/26/2020	19.03	2.11
	MW-05	10/25/2018	2	19	19-9	27.92	10/25/2018	17.20	10.72
							10/29/2018	17.30	10.62
							8/26/2020	19.30	8.62
	MW-06	10/25/2018	2	15	15-5	19.53	10/25/2018	12.78	6.75
							10/29/2018	14.67	4.86
							8/26/2020	17.23	2.30

Notes:

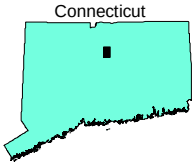
Monitoring well measuring point elevations for the Windsor Meadows State Park and RLI Property wells are based on vertical datum NAVD88.
Monitoring well measuring point elevations and depth to water measurements are based on measurements to top of the PVC riser
NM indicates "not measured" due to the wells being inaccessible
in - inch, ft - feet
fbg - feet below grade

Figures



MAP REFRENCE: USGS Topo
Accessed on : 1/25/2022
From: https://basemap.nationalmap.gov/arcgis/rest/services/USGSTopo/MapServer

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed August, 2021.



Map Reference Location

0 1,000 2,000
GRAPHIC SCALE

SCALE: 1" = 2,000'

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RIVERFRONT RECAPTURE, INC.
SITE LOCATION MAP
Riverfront Land Future Park Project
Windsor & Hartford CT

PROJ No.: 20170277.A40
DATE: July 2025

FIGURE 1

Folder: C:\Users\Sflaherty\AppData\Local\Temp\ArcGISProTemp36452\a19fc28d-d1ac-4cfb-af6c-486a97ebcd84\ Project: Untitled Layout: clsc_8.5x11_Portrait_Bottom Map: Main Data Frame Map Frame
Date Exported: User: sflaherty Date Saved: 1/25/2022 10:08 AM

APPROXIMATE WMSP
SITE BOUNDARY

PROPOSED DECKER'S
BROOK CROSSING

DECKER'S BROOK

CONNECTICUT RIVER

AREAS OF CONCERN - RLI PROPERTY

AOC-01.....RIVERBANK BERM
AOC-02.....FILL MATERIAL ON WESTERN PORTION OF SITE
AOC-03.....MATERIAL STOCKPILES
AOC-04.....HISTORICAL FILL MATERIAL
AOC-05.....PESTICIDE USE (SITE WIDE)
AOC-06.....DRUMS & MISCELLANEOUS CONTAINERS/SURFICIAL OIL STAINING
AOC-07.....FORMER PRODUCE WASH BUILDING & TRUCK STORAGE
AOC-08.....HISTORICAL UNDERGROUND STORAGE TANKS

AREAS OF CONCERN - WMSP PROPERTY

AOC-01.....PESTICIDE USE (SITE WIDE)
AOC-02.....HISTORICAL FILL MATERIAL
AOC-03.....STOCKPILE/EARTHEN BERM
AOC-04.....SUSPECT MANHOLE/STORMWATER GRATE AND FILL MATERIAL

LEGEND

- SOIL BORING LOCATION – RLI
- SOIL BORING LOCATION – WMSP
- SURFICIAL SOIL SAMPLE LOCATION – RLI
- SURFICIAL SOIL SAMPLE LOCATION – WMSP
- MONITORING WELL LOCATION – RLI (WELLS SHOWN IN GRAY WERE DESTROYED)
- MONITORING WELL LOCATION – WMSP
- TEST PIT LOCATION – RLI
- TEST PIT LOCATION – WMSP
- HAND SAMPLE LOCATION – WMSP
- [K] STOCKPILE LOCATION AND IDENTIFICATION – RLI
- AREA OF CONCERN – RLI
- AREA OF CONCERN – WMSP

WMSP-AOC-01
WMSP-AOC-02
WMSP-AOC-03
WMSP-AOC-04
RLI-AOC-01
RLI-AOC-02
RLI-AOC-03
RLI-AOC-04 & RLI-AOC-05
RLI-AOC-06
RLI-AOC-07 & RLI-AOC-08

NORTHERN END OF RIVERBANK BERM (SEE FIGURE 6)

SOUTHERN END OF RIVERBANK BERM (SEE FIGURE 7)

APPROXIMATE RLI SITE BOUNDARY

PROPOSED WALKING TRAIL

PROPOSED MEADOW BROOK CROSSING

(APPROXIMATE TOWN LINE)

WINDSOR
HARTFORD

FORMER PRODUCE WASH & STORAGE BUILDING

FORMER SINGLE FAMILY RESIDENCE

FORMER STORAGE STRUCTURE

APPROXIMATE LOCATION OF FORMER SEWER OVERFLOW BRANCH LINE (UNDERGROUND CLAY PIPE)

APPROXIMATE LOCATION OF HARTFORD SEWER RIGHT OF WAY

APPROXIMATE LOCATION OF FORMER SANITARY MANHOLE

MEADOW BROOK

GAS

BRAINARD ROAD

File Path: J:\DWG\P2017\02771A30\Environmental\Plan\20170277A30_STP02_aocs full site.dwg Layout: FIGURE 2 - AOCS Plotted: Mon, March 14, 2022 - 2:08 PM User: sflaherty
Plotter: DWG TO PDF.PC3 CTB File: FO HALF.STB
LAYER STATE:
MS VIEW:

PROJ. No.:	20170277A40
DATE:	July 2025

FIGURE 2

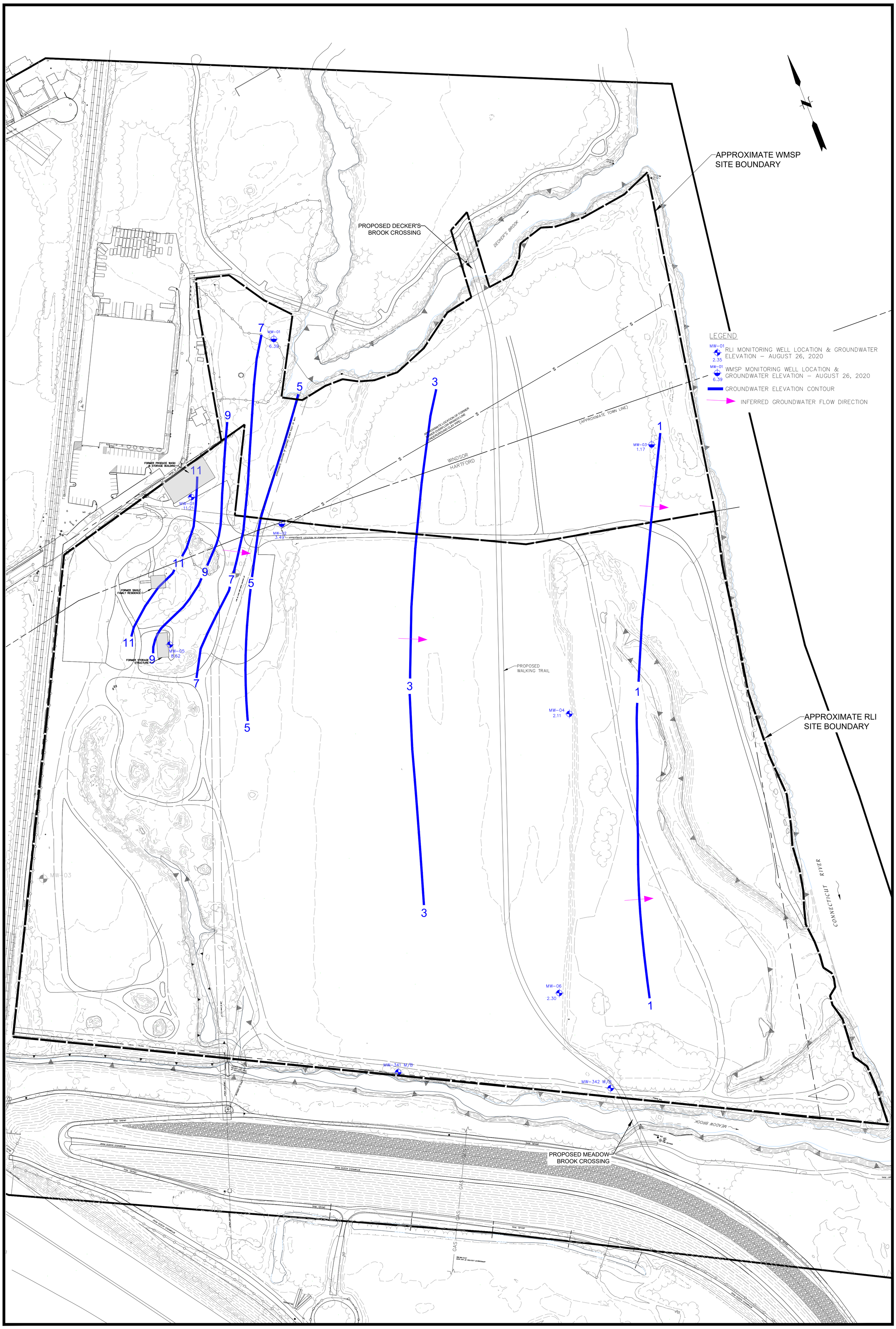
SITE PLAN - AREAS OF CONCERN & SAMPLING LOCATIONS

HARTFORD & WINDSOR CONNECTICUT

FUSS & O'NEILL
146 HARTFORD ROAD
MANCHESTER, CONNECTICUT 06040
860.646.2469
www.fando.com

SCALE:
HORZ.: 1" = 100'
VERT.:
DATUM:
HORZ.:
VERT.:
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GRAPHIC SCALE

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

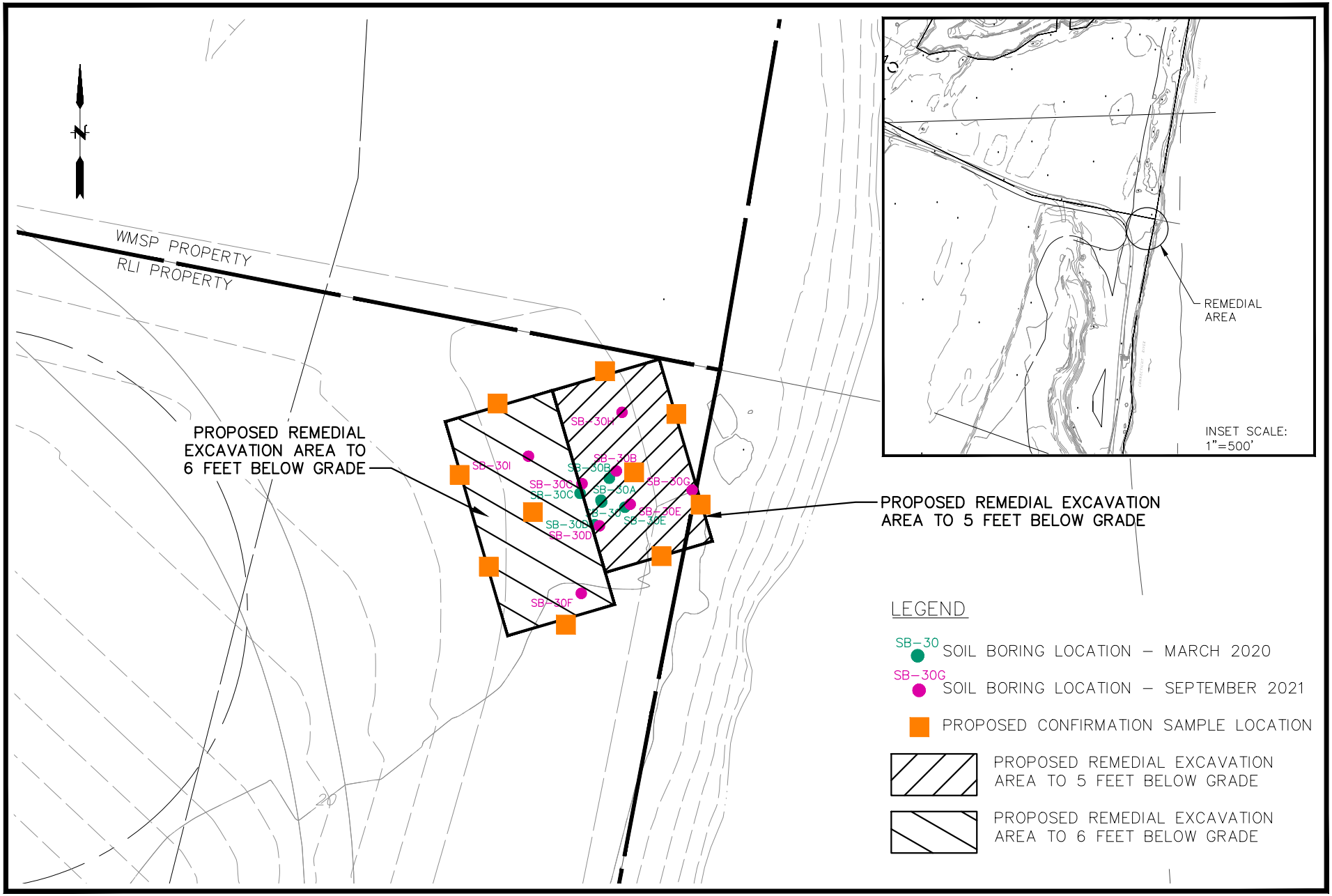


PROJ. No.: 20170277A40		GROUNDWATER CONTOUR MAP AUGUST 2020 RIVERFRONT FUTURE PARK PROJECT HARTFORD & WINDSOR CONNECTICUT	SCALE: HORZ.: 1" = 100' VERT.: DATUM: HORZ.: VERT.: 50 100 0 50 GRAPHIC SCALE	
DATE: July 2025				
FIGURE3				

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www.fando.com

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

File Path: J:\DWG\P2017\0277\A30\Environmental\Plan\20170277A30_STP02_aocs full site.dwg Layout: FIGURE 5 - GWC Plotted: Fri, February 25, 2022 - 12:25 PM User: sflaherty
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LAYER STATE:
MS VIEW:



File Path: J:\DWG\P2017\0277A30\Environmental\Plan\20170277A30_SAM02_SB-30 and SB-36.dwg Layout: FIG-6 Plotted: Thu, July 10, 2025 - 10:54 AM User: nicholas.roy
Plotter: AUTOCAD PDF (GENERAL DOCUMENTATION).PC3 CTB File: FO HALF.STB
LAYER STATE:
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SCALE:	
HORZ.: 1" = 30'	
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DATUM:	
HORZ.:	
VERT.:	

0 15 30
GRAPHIC SCALE

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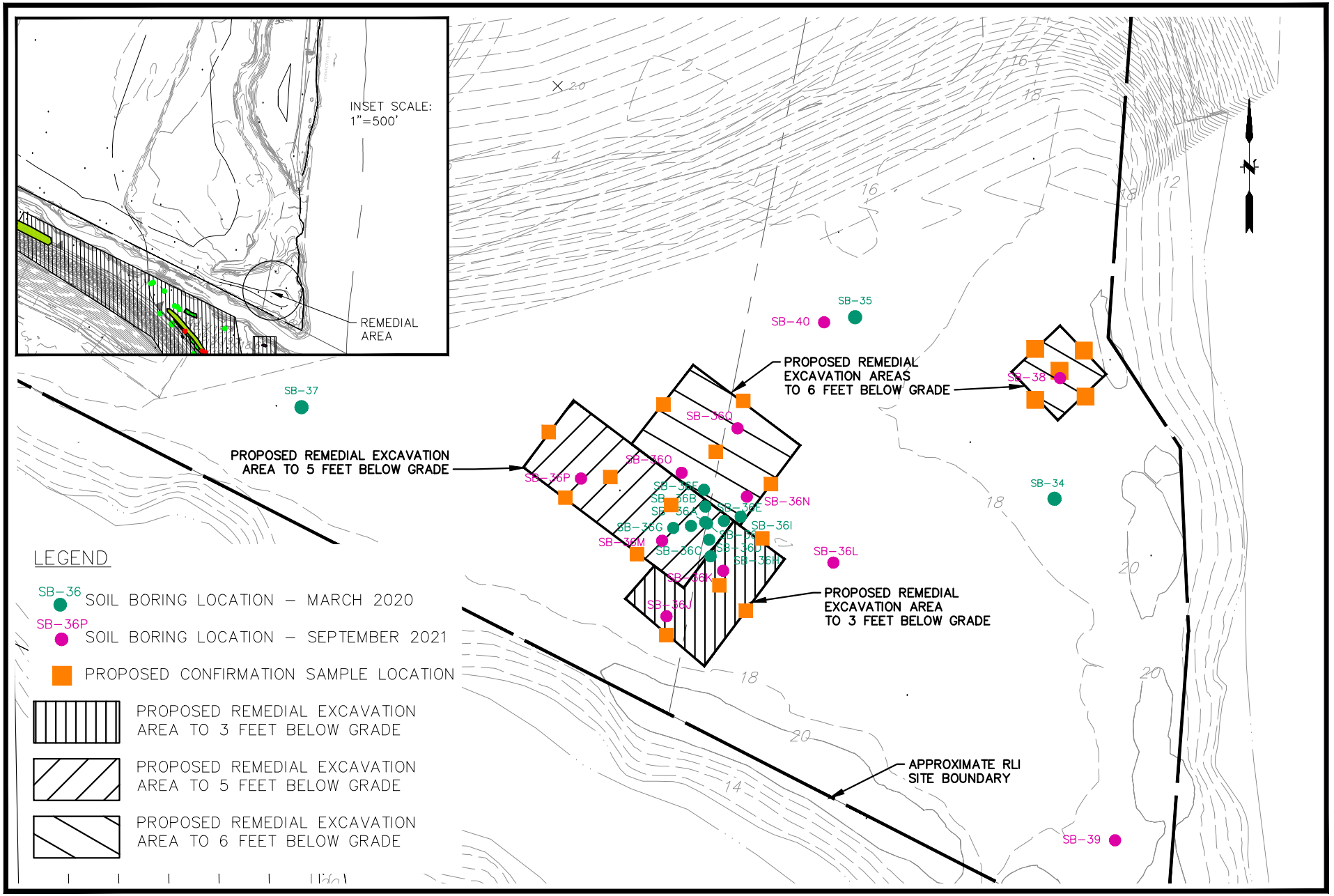
REMEDIAL AREA - NORTHERN END OF RIVERBANK BERM

RLI PROPERTY - RLI PARK PROJECT

HARTFORD CONNECTICUT

PROJ. No.: 20170277.A40
DATE: July 2025

FIGURE 4



File Path: J:\DWG\P2017\0277A30\EnvironmentalPlan\20170277A30_SAM02_SB-30 and SB-36.dwg Layout: FIG-7 Plotted: Thu, July 10, 2025 - 10:56 AM User: nicholas.roy
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LAYER STATE:
MS VIEW:

SCALE:	
HORZ.:	1" = 40'
VERT.:	
DATUM:	
HORZ.:	
VERT.:	

0 20 40
GRAPHIC SCALE

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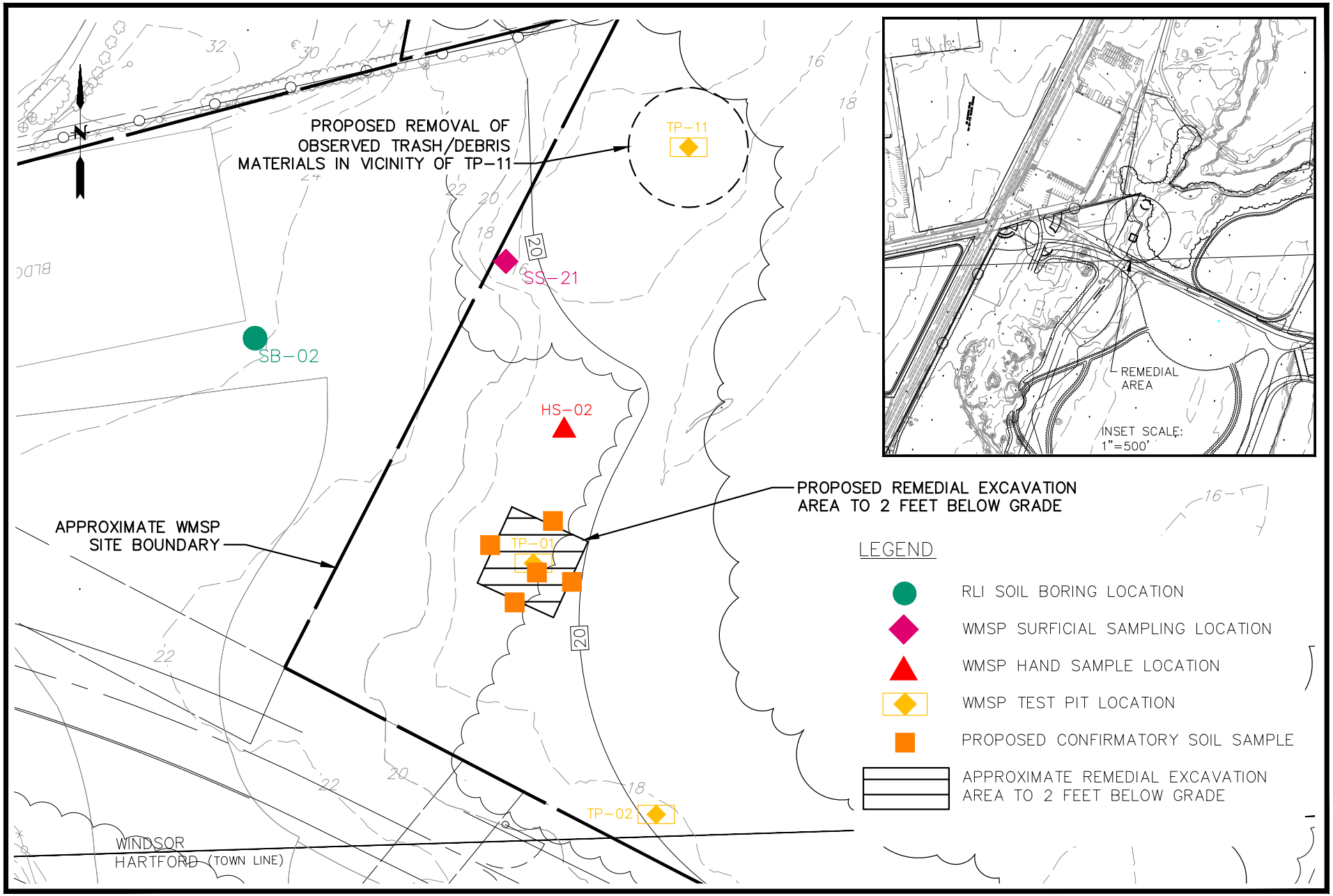
REMEDIAL AREA - SOUTHERN END OF RIVERBANK BERM

RLI PROPERTY - RLI PARK PROJECT

HARTFORD CONNECTICUT

PROJ. No.: 20170277.A40
DATE: July 2025

FIGURE 5



File Path: J:\DWG\P2017\0277A30\Environmental\Plan\20170277A30_SAM02_SB-30 and SB-36.dwg Layout: FIG-8 Plotted: Sat, March 26, 2022 - 8:57 AM User: sflaherty
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LAYER STATE:
MS VIEW:

SCALE:
HORZ.: 1" = 40'
VERT.:
DATUM:
HORZ.:
VERT.:

0 20 40
GRAPHIC SCALE

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REMEDIAL AREA - WMSP FILL AREA

WMSP PROPERTY - RLI PARK PROJECT

HARTFORD & WINDSOR CONNECTICUT

PROJ. No.: 20170277.A40
DATE: July 2025

FIGURE 6

Appendix A

Park Master Plan

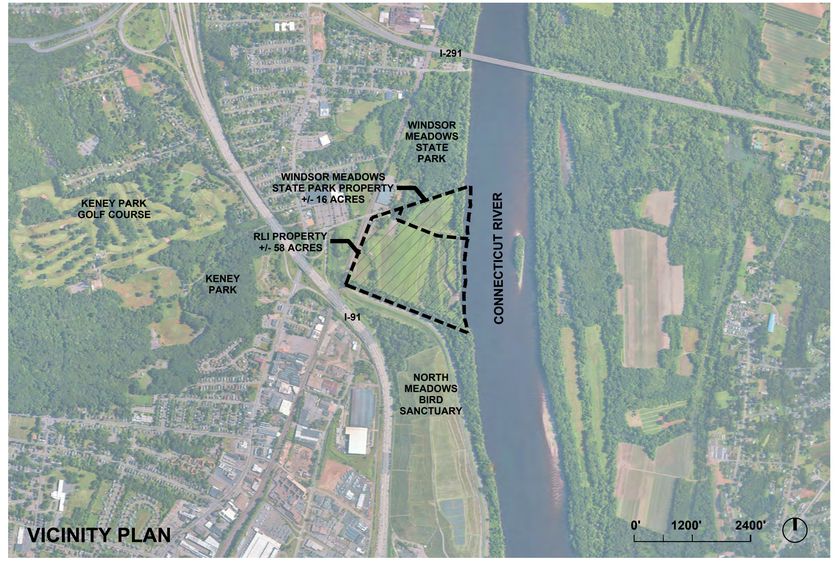
CITY OF HARTFORD & TOWN OF WINDSOR, CONNECTICUT

RIVERFRONT RECAPTURE FUTURE PARK



SHEET INDEX

GENERAL, LANDSCAPE ARCHITECTURE, & CIVIL ENGINEERING			
G-001	COVER SHEET	HARGREAVES JONES	AS SHOWN
G-002	GENERAL EXISTING CONDITIONS	HARGREAVES JONES	1" = 100'
G-003	GENERAL ORIENTATION PLAN	HARGREAVES JONES	1" = 100'
G-004	HABITAT INITIATIVE PLAN	HARGREAVES JONES	1" = 100'
L-111	LANDSCAPE GRADING PLAN	HARGREAVES JONES	1" = 100'
L-131	LANDSCAPE MATERIALS PLAN	HARGREAVES JONES	1" = 100'
L-111	LANDSCAPE PLANTING PLAN	HARGREAVES JONES	1" = 100'
C-101	EXISTING UTILITIES PLAN	FUSS & O'NEILL	1" = 100'
C-102	SITE UTILITIES PLAN	FUSS & O'NEILL	1" = 100'



Permit Set

JUNE 5, 2025

PROJECT INFORMATION

RIVERFRONT RECAPTURE FUTURE PARK

CITY OF HARTFORD & TOWN OF WINDSOR, CONNECTICUT

Owner
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50 Columbus Boulevard, First Floor Hartford, CT 06106
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KEY MAP



SHEET INFORMATION

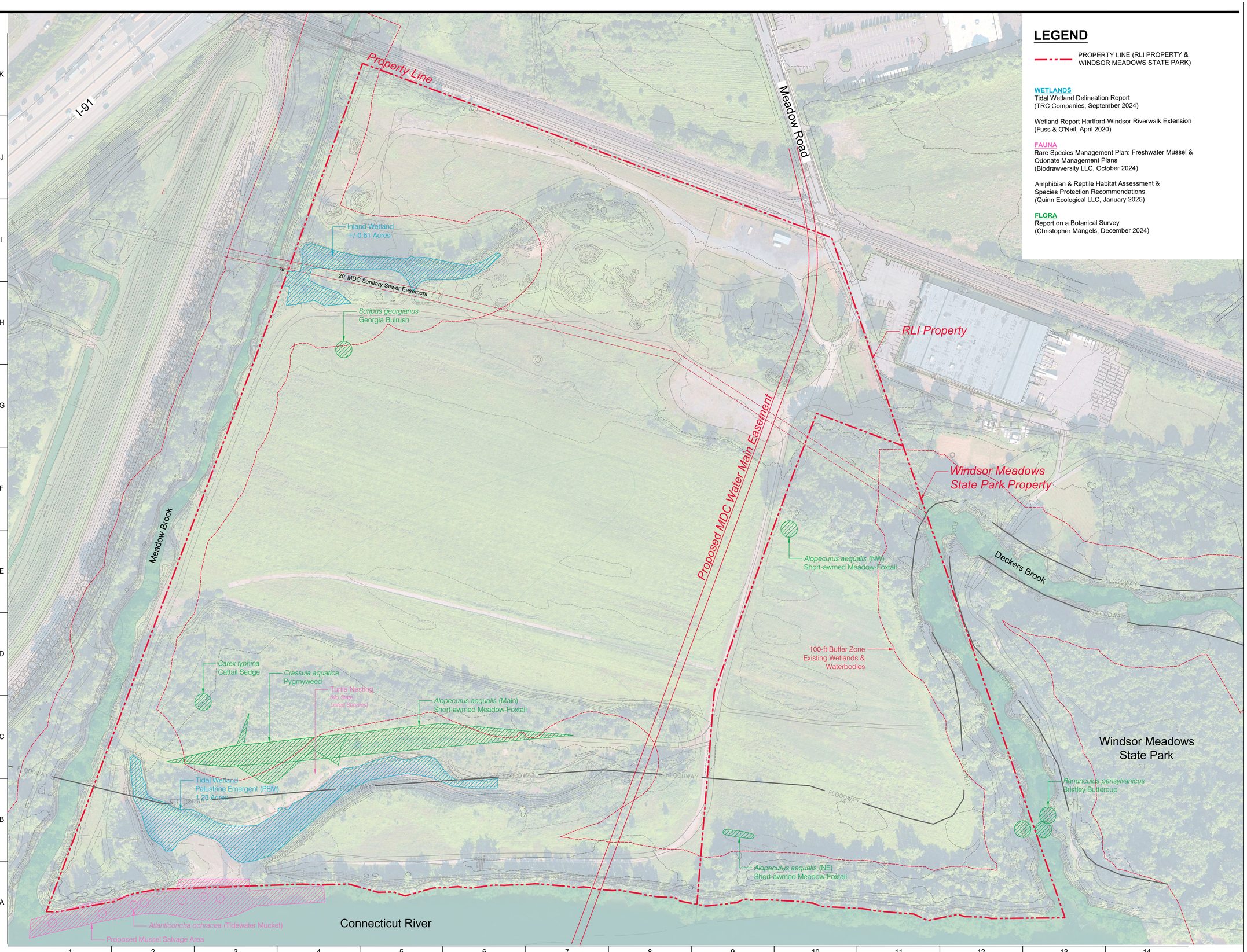
Project No.: RRP 2301
Drawn By: JM
Checked By: ML
Date: 6/5/2025
Scale: AS SHOWN

SHEET TITLE

COVER SHEET

SHEET NO.

G-001



LEGEND

PROPERTY LINE (RLI PROPERTY & WINDSOR MEADOWS STATE PARK)

WETLANDS
Tidal Wetland Delineation Report
(TRC Companies, September 2024)

Wetland Report Hartford-Windsor Riverwalk Extension
(Fuss & O'Neil, April 2020)

FAUNA
Rare Species Management Plan: Freshwater Mussel & Odonate Management Plans
(Biodrawversity LLC, October 2024)

Amphibian & Reptile Habitat Assessment & Species Protection Recommendations
(Quinn Ecological LLC, January 2025)

FLORA
Report on a Botanical Survey
(Christopher Mangels, December 2024)

PROJECT INFORMATION

RIVERFRONT RECAPTURE FUTURE PARK

CITY OF HARTFORD & TOWN OF WINDSOR, CONNECTICUT

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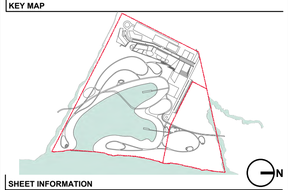
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KEY MAP



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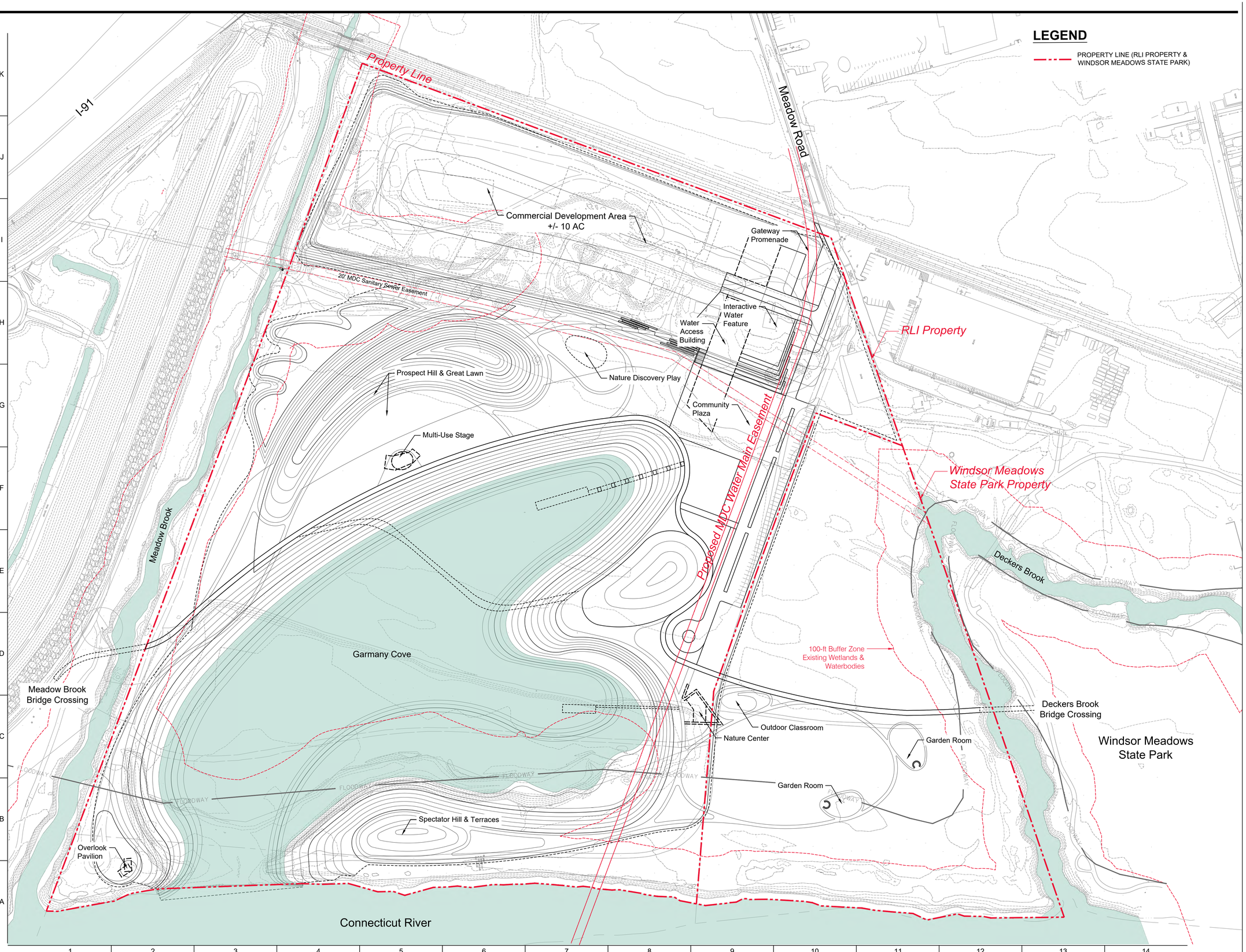
Project No.: RRP 2301
Drawn By: JM
Checked By: ML
Date: 6/5/2025
Scale: 1" = 100'

SHEET TITLE

GENERAL EXISTING CONDITIONS

SHEET NO.

G-002



PROJECT INFORMATION

RIVERFRONT RECAPTURE FUTURE PARK

CITY OF HARTFORD & TOWN OF WINDSOR, CONNECTICUT

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KEY MAP



SHEET INFORMATION

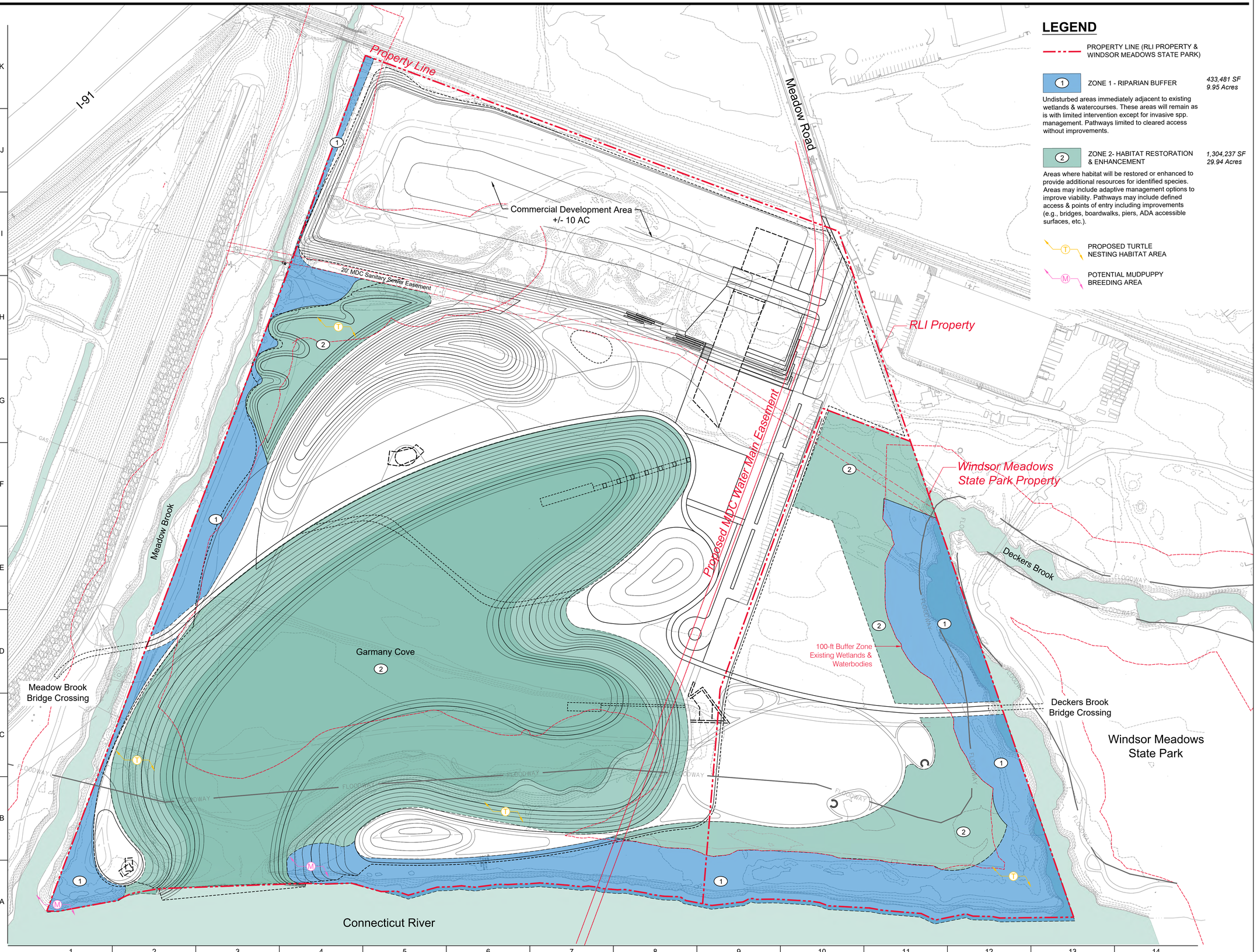
Project No.: RRP 2301
Drawn By: JM
Checked By: ML
Date: 6/5/2025
Scale: 1" = 100'

SHEET TITLE

GENERAL ORIENTATION PLAN

SHEET NO.

G-003



LEGEND

PROPERTY LINE (RLI PROPERTY & WINDSOR MEADOWS STATE PARK)

(1) ZONE 1 - RIPARIAN BUFFER — *433,481 SF 9.95 Acres*

Undisturbed areas immediately adjacent to existing wetlands & watercourses. These areas will remain as is with limited intervention except for invasive spp. management. Pathways limited to cleared access without improvements.

(2) ZONE 2- HABITAT RESTORATION & ENHANCEMENT — *1,304,237 SF 29.94 Acres*

Areas where habitat will be restored or enhanced to provide additional resources for identified species. Areas may include adaptive management options to improve viability. Pathways may include defined access & points of entry including improvements (e.g., bridges, boardwalks, piers, ADA accessible surfaces, etc.).

(T) PROPOSED TURTLE NESTING HABITAT AREA

(M) POTENTIAL MUDPUPPY BREEDING AREA

PROJECT INFORMATION

RIVERFRONT RECAPTURE FUTURE PARK

CITY OF HARTFORD & TOWN OF WINDSOR, CONNECTICUT

Owner
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KEY MAP



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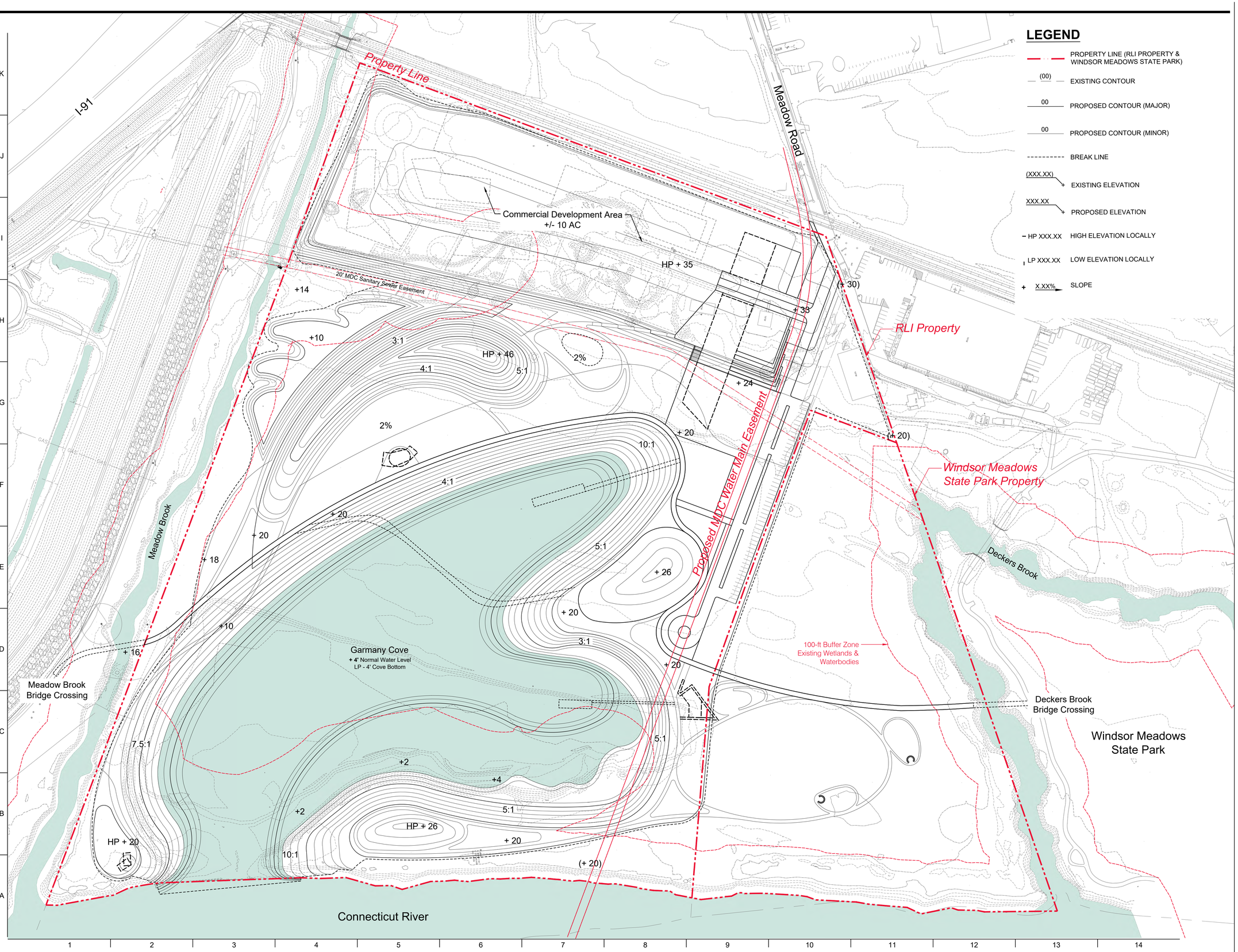
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Drawn By: JM
Checked By: ML
Date: 6/5/2025
Scale: 1" = 100'

SHEET TITLE

HABITAT INITIATIVE PLAN

SHEET NO.

G-004



PROJECT INFORMATION

RIVERFRONT RECAPTURE FUTURE PARK

CITY OF HARTFORD & TOWN OF WINDSOR, CONNECTICUT

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RIVERFRONT RECAPTURE
50 Columbus Boulevard, First Floor Hartford, CT 06106
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KEY MAP

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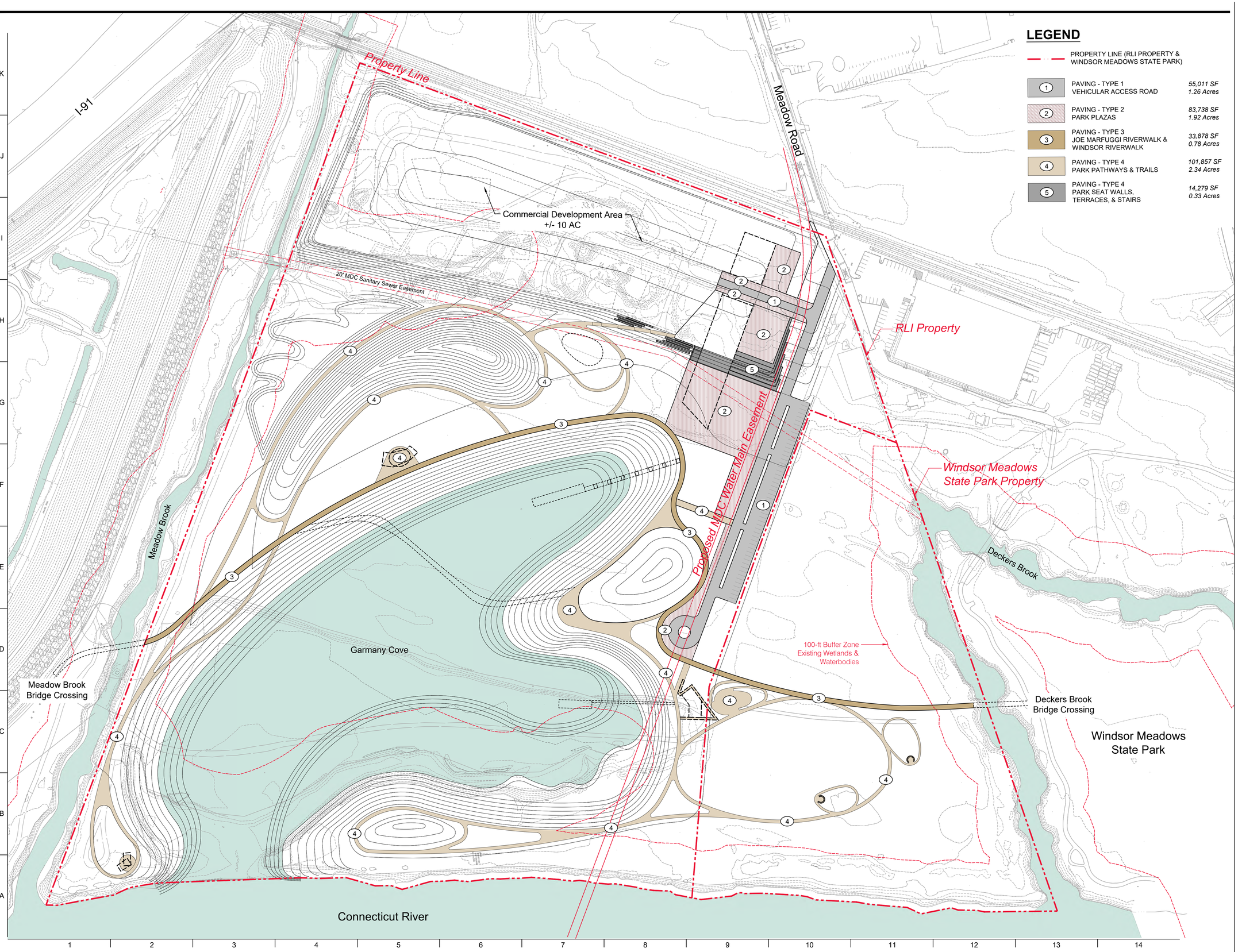
Project No.: RRP 2301
Drawn By: JM
Checked By: ML
Date: 6/5/2025
Scale: 1" = 100'

SHEET TITLE

LANDSCAPE GRADING PLAN

SHEET NO.

L-111



PROJECT INFORMATION

RIVERFRONT RECAPTURE FUTURE PARK

CITY OF HARTFORD & TOWN OF WINDSOR, CONNECTICUT

Owner
RIVERFRONT RECAPTURE
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KEY MAP



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Date: 6/5/2025
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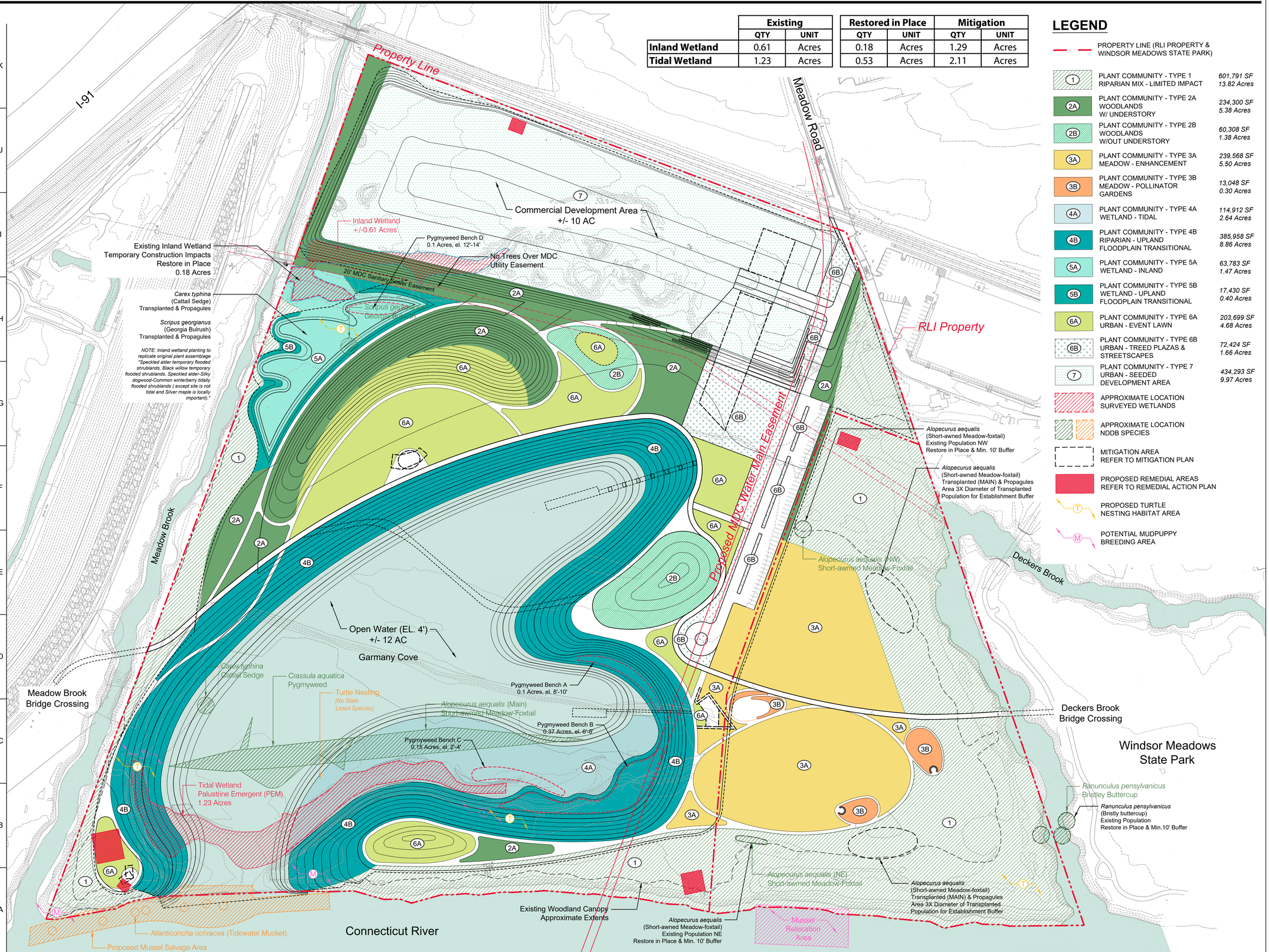
SHEET TITLE

LANDSCAPE MATERIALS PLAN

SHEET NO.

L-131

	Existing		Restored in Place		Mitigation	
	QTY	UNIT	QTY	UNIT	QTY	UNIT
Inland Wetland	0.61	Acres	0.18	Acres	1.29	Acres
Tidal Wetland	1.23	Acres	0.53	Acres	2.11	Acres



LEGEND

- PROPERTY LINE (RLI PROPERTY & WINDSOR MEADOWS STATE PARK)
- PLANT COMMUNITY - TYPE 1 RIPARIAN MIX - LIMITED IMPACT — *601,791 SF, 13.82 Acres*
- PLANT COMMUNITY - TYPE 2A WOODLANDS W/ UNDERSTORY — *234,300 SF, 5.38 Acres*
- PLANT COMMUNITY - TYPE 2B WOODLANDS W/OUT UNDERSTORY — *60,308 SF, 1.38 Acres*
- PLANT COMMUNITY - TYPE 3A MEADOW - ENHANCEMENT — *239,568 SF, 5.50 Acres*
- PLANT COMMUNITY - TYPE 3B MEADOW - POLLINATOR GARDENS — *13,048 SF, 0.30 Acres*
- PLANT COMMUNITY - TYPE 4A WETLAND - TIDAL — *114,912 SF, 2.64 Acres*
- PLANT COMMUNITY - TYPE 4B RIPARIAN - UPLAND FLOODPLAIN TRANSITIONAL — *385,958 SF, 8.86 Acres*
- PLANT COMMUNITY - TYPE 5A WETLAND - INLAND — *63,783 SF, 1.47 Acres*
- PLANT COMMUNITY - TYPE 5B WETLAND - UPLAND FLOODPLAIN TRANSITIONAL — *17,430 SF, 0.40 Acres*
- PLANT COMMUNITY - TYPE 6A URBAN - EVENT LAWN — *203,699 SF, 4.68 Acres*
- PLANT COMMUNITY - TYPE 6B URBAN - TREED PLAZAS & STREETSCAPES — *72,424 SF, 1.66 Acres*
- PLANT COMMUNITY - TYPE 7 URBAN - SEEDED DEVELOPMENT AREA — *434,293 SF, 9.97 Acres*
- APPROXIMATE LOCATION SURVEYED WETLANDS
- APPROXIMATE LOCATION NDDB SPECIES
- MITIGATION AREA REFER TO MITIGATION PLAN
- PROPOSED REMEDIAL AREAS REFER TO REMEDIAL ACTION PLAN
- PROPOSED TURTLE NESTING HABITAT AREA
- POTENTIAL MUDPUPPY BREEDING AREA

PROJECT INFORMATION

RIVERFRONT RECAPTURE FUTURE PARK

CITY OF HARTFORD & TOWN OF WINDSOR, CONNECTICUT

Owner
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KEY MAP



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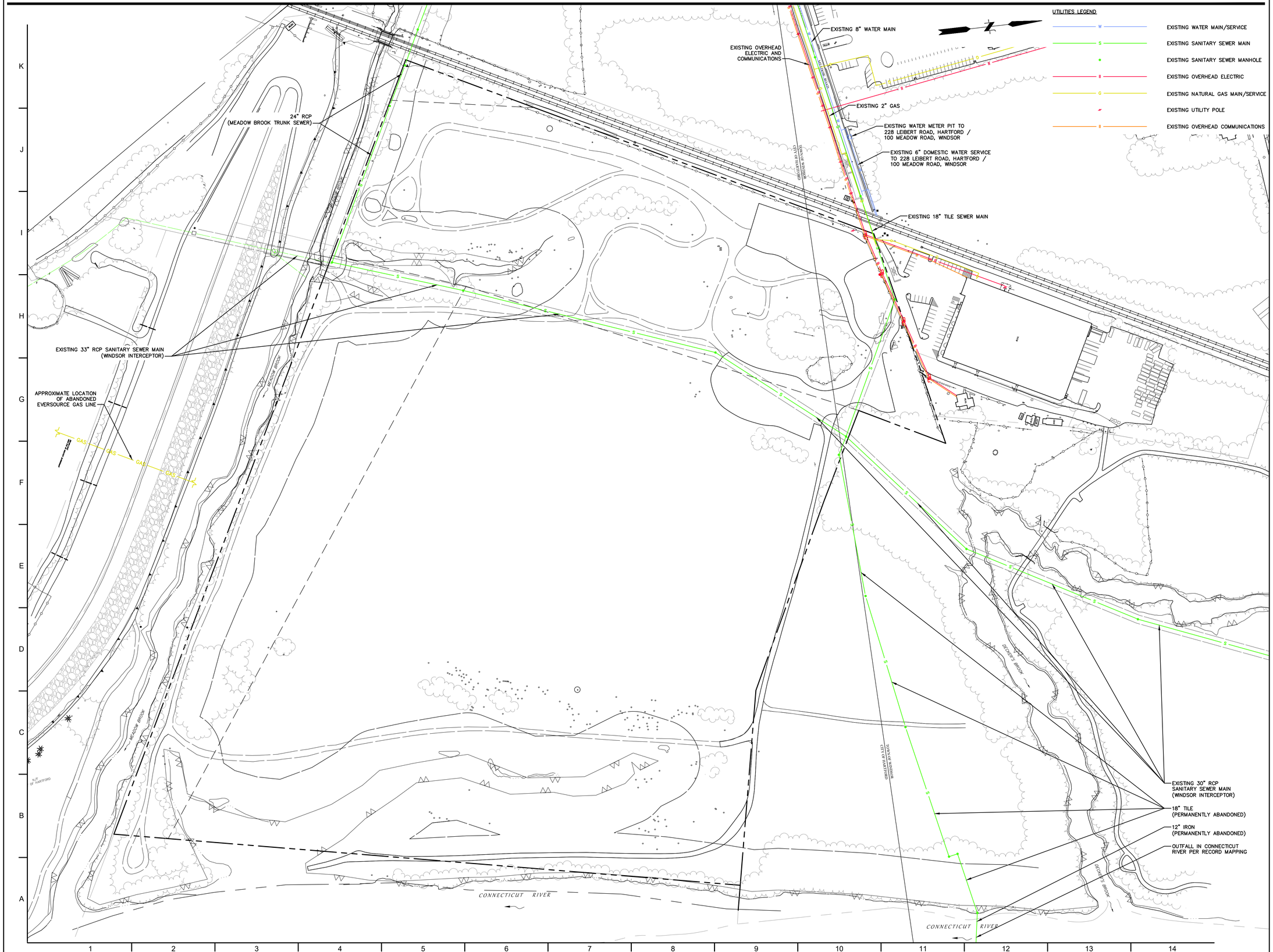
Project No.: RRP 2301
Drawn By: JM
Checked By: ML
Date: 6/5/2025
Scale: 1" = 100'

SHEET TITLE

LANDSCAPE PLANTING PLAN

SHEET NO.

L-161



PROJECT INFORMATION

RIVERFRONT RECAPTURE FUTURE PARK

CITY OF HARTFORD & TOWN OF WINDSOR, CONNECTICUT

Owner
RIVERFRONT RECAPTURE
50 Columbus Boulevard, First Floor Hartford, CT 06106
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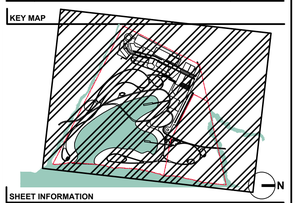
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KEY MAP



SHEET INFORMATION

Project No.: 20170277.S10
Drawn By: TD
Checked By: NR
Date: 06/05/2025
Scale: 1" = 100'

SHEET TITLE

EXISTING UTILITIES PLAN

SHEET NO.

C-101



PROJECT INFORMATION

RIVERFRONT RECAPTURE FUTURE PARK

CITY OF HARTFORD & TOWN OF WINDSOR, CONNECTICUT

Owner
RIVERFRONT RECAPTURE
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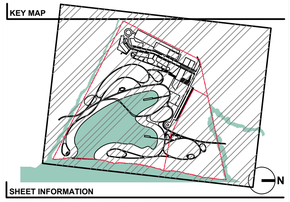
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	PERMIT SET	06/05/2025

KEY MAP



SHEET INFORMATION

Project No.: 20170277.S10
Drawn By: TD
Checked By: NR
Date: 06/05/2025
Scale: 1" = 100'

SHEET TITLE

SITE UTILITIES PLAN

SHEET NO.

C-102

Appendix B

Widespread Polluted Fill Variance Request

FUSS & O'NEILL
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Hartford, CT 06103
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July 11, 2025

Ms. Jade Barber
Bureau of Water Protection and Land Reuse
Remediation Division
Department of Energy & Environmental Protection
79 Elm Street
Hartford, Connecticut 06106

RE: Widespread Polluted Fill - Pollutant Mobility Criteria Variance Request
RLI Park Project
Liebert Road & Meadow Road
Hartford/Windsor, Connecticut
DEEP Remediation No.: 14420 & 14793

Dear Ms. Barber:

Fuss & O'Neill, Inc. was retained by Riverfront Recapture, Inc. (RRI), to prepare a remedial action plan for the Riverfront Land, Inc (RLI) Park Project at the above-referenced properties. As part of the remedial approach, we are requesting a variance from the Pollutant Mobility Criteria (Section 22a-133k-2(c) of the Remediation Standard Regulations (RSRs)) pursuant to Section 22a-133k-2(f)(1) Widespread Polluted Fill, based on the presence of historically deposited fill located across the Site.

The RLI Park project is the proposed redevelopment plan for two properties, one identified as the RLI property and another approximately 16-acre portion of the Windsor Meadows State Park (WMSP) located along the Connecticut River between the Hartford/Windsor town lines.
The RLI property consists of approximately 6 smaller parcels identified as 228, 690, 610 and 600 Leibert Road in Hartford, Connecticut and 100 and 120 Meadow Road in Windsor, Connecticut. The Windsor Meadows State Park (WMSP) portion of the Site is an approximately 16-acre portion of the park property located at 73 Meadow Road in Windsor, CT.

In total, the Site comprises approximately 76-acre, irregularly-shaped parcel located north of Meadow Brook in Hartford and south of Decker's Brook in Windsor in an industrial district zone of Hartford and an agricultural zone of Windsor, Connecticut. A portion of a United States Geological Survey (USGS) topographic map showing the Site location is provided as *Figure 1* (USGS, 2019).

The following sections outline our rationale for the variance request.

Scope of Requested Variance

As part of the remedial approach, we are requesting a variance from the Pollutant Mobility Criteria pursuant to Section 22a-133k-2(f)(1) Widespread Polluted Fill, based on the presence of historically deposited fill located

across the Site. Per the RSRs, the requested variance for widespread polluted fill at the Site will only apply to the non-native fill.

Fill History

Surficial material at the site is mapped as alluvium overlying fines, which consist of natural, postglacial materials (Stone, 1992). Surficial materials consistent with those described above were identified throughout the central portion of the Site during previous Site investigations, with urban fill, at thicknesses varying between 1 to 11 feet thick, identified in areas along the eastern riverbank and western portions of the Site. The non-native urban fill was identified to consist of asphalt, wood, coal, metal slag, metal fragments, brick, and/or concrete.

Based on a review of historical aerial photographs and documents, it was identified that DEEP issued a series of permits to the former property owner of the RLI property, allowing them to fill the riverbank on the eastern portion of the Site for erosion protection purposes. The approvals allowed for armoring of the shoreline with rock and masonry material. Subsequently, an approximately 1,100-foot long berm was created (from unknown fill material source) along the Connecticut River.

Following review of historical information, previous Site investigations identified a sequence of filling events occurred on the western portion of the RLI property between the 1800's through the 2000's, beginning with the construction of the adjacent Metro North Railroad. In approximately the mid-1970s, agricultural activities on the western portion of the Site were discontinued and the area was used for material processing and excavation of earth materials; including importing material from off-Site to fill excavation areas and raising elevation grades over time. Additionally, the presence of a former pond was noted along the northwest portion of the RLI property, which appeared to be filled in approximately the late 1990s.

In total, non-native fill material makes up approximately 21 acres (approximately one third) of the Site. Refer to the *Attachment* for historical aerial photographs and mapping depicting historic conditions and filling along the riverbank and western portions of the Site.

Results from previous Site investigations have identified the fill across the Site as a source of varying concentrations of polynuclear aromatic hydrocarbons (PAHs), extractable total petroleum hydrocarbons (ETPH), arsenic and lead. Volatile organic compounds (VOCs) were not identified within samples collected from the widespread fill material at the Site.

Minimum Requirements for Eligibility to Obtain a Variance

Section 22a-133k-2(f)(1)(A) of the RSRs states that the geographically extensive polluted fill present at a site may be eligible for a variance from compliance with the PMC, provided that the site meets <u>all</u> the following conditions:

i. The fill for which a variance is sought does not contain volatile organic substances in excess of pollutant mobility criteria;

ii. Such fill is not affecting and will not affect the quality of an existing or potential public water supply resource or an existing private drinking water supply;

iii. For each substance in such fill, compliance with the direct exposure criteria has been achieved;

iv. Any substances released into such fill subsequent to the placement of such fill that exceed the pollutant mobility criteria shall be remediated to concentrations equal to or less than the concentrations of those substances already within such fill;

v. The placement of such fill was not prohibited by law at the time of placement;

vi. Such fill shall remain on the parcel within the area for which such variance has been certified by an LEP in accordance with RCSA Section 22a-133k-2(f)(1)(B) or approved in writing by the commissioner in accordance with RCSA Section 22a-133k-2(f)(1)(C); and

vii. The owner of the parcel for which a variance is sought acknowledges and consents to such variance and the EUR required by RCSA Section 22a-133k-2(f)(1)(D)

Each of these conditions and the manner in which it is met are discussed in more detail below.

(i) No VOCs in Fill

Such fill is not polluted with volatile organic substances in excess of the pollutant mobility criteria

As previously detailed within the Phase III ESA for the 16-acre portion of the WMSP parcel (dated November 2021) and the Phase III ESA for the RLI property (dated January 2022), the fill material identified at the Site is not a source of VOCs. Laboratory analysis of samples from the fill has indicated that it is impacted primarily by PAHs and ETPH.

Trace concentrations of the VOC constituent naphthalene were reported in 3 of over 30 samples collected from across the Site analyzed for VOCs, well below applicable RSR criteria (as further described in the previously submitted Phase III ESA reports).

(ii) No Effect on Drinking Water Supplies

Such fill is not affecting and will not affect the quality of an existing or potential public water supply resource or an existing private drinking water supply

The groundwater at the site is classified as “GB” by DEEP, which may only be used for industrial purposes and cooling water and is not considered suitable for human consumption, and the Site is located in an urbanized area where municipal water is available to the Site and the surrounding area.

However, a private water supply well was reportedly installed on the 51 Meadow Road property, located northwest (upgradient) of the Site in August 2019. Formerly this parcel had been connected to the water supply on the Site’s 100 Meadow Road parcel. Previous Site investigations have indicated that the Site groundwater is not impacted, and groundwater flow direction is to the east, towards the Connecticut River (downgradient of the 51 Meadow Road property).

In addition, there are no public water supply wells identified within 0.5 mile of the Site as detailed in previously provided environmental site assessment reports for the Site.

(iii) Compliance with Direct Exposure Criteria

The concentration of each substance in such fill is consistent with subsection (b) [direct exposure criteria] of this section [22a-133k-2]

To meet the objectives of 22a-133k-2(b), compliance with the direct exposure criteria must be demonstrated for each substance identified in the fill. Remediation of the Site will be conducted in accordance with the Remedial Action Plan (RAP), prepared by Fuss & O'Neill, Inc. and dated March 2022.

The remedial approach and strategies that will be used to ensure compliance with the direct exposure criteria are described in detail within the RAP and include excavation of impacted material, relocation and capping on Site, rendering it inaccessible.

(iv) Compliance with Pollutant Mobility Criteria

The concentration of any substance released into such fill subsequent to the placement of the fill that exceeds the pollutant mobility criteria shall be remediated to concentrations equal to or less than those substances already within such fill

Several phases of environmental investigations have been conducted at the Site between 2018-2021. Based on the results of these investigations, which included the collection and laboratory analysis of over 100 soil samples, did not identify significant releases of substances to the fill material. De-minimis surficial petroleum releases were identified in select locations along the western portion of the RLI property, for which DEC and PMC compliance will be demonstrated via Section 22a-133k-2(b)(5)(A) exemptions for releases from incidental sources. These minor release areas will also be rendered inaccessible following completion of Site redevelopment activities.

(v) Placement of Fill was not Prohibited

The placement of such fill was not prohibited by law at the time of placement

Based on previous investigations for the Site and in the area, as well as historic aerial photographs and topographic maps, fill appears to have been placed on the Site between the late 1800s and 1990s, pre-dating known regulations for placement of fill materials. Additionally, permits issued by the DEEP in the 1970s authorized the property owner to place fill along the riverbank to develop erosion control and protection measures.

(vi) Fill Shall Remain in Place

Such fill shall remain on the parcel within the area for which the variance has been approved by the commissioner

The fill material identified on Site will remain on Site, following Site redevelopment actions. Any material removed during Site construction will be relocated on Site as allowed in various sections of the RSRs.

(vii) Owner acknowledges and consents to EUR

The owner of the parcel consents to the variance and the EUR required by 22a-133k-2(f)(1)(D)

In accordance with Section 22a-133k-2(f)(1)(D), the owner/lessee of the Site (RLI) acknowledges and consents to submit a request for an environmental use agreement (EUR) which shall prohibit any movement or reuse of Site fill in a manner that does not comply with the RSRs and require compliance with any condition imposed by the commissioner with respect to this variance.

Requirements for Commissioner Approval of Widespread Polluted Fill Variance

Following the demonstration that the Site meets the eligibility requirements of Section 22a-133k-2(f)(1)(A) (discussed above), the commissioner approval of the variance request also depends on the satisfaction of the requirements of Section 22a-133k-2(f)(1)(C), detailed below:

i. Information demonstrating that a public water supply distribution system is available to all areas between the groundwater plume and the downgradient surface water discharge area
ii. The comparable cost of achieving compliance with pollutant mobility criteria without such variance
iii. The degree to which such fill exceeds pollutant mobility criteria
iv. The extent of such fill on the subject parcel that extends below the water table
v. The three-dimensional extent of such fill and the percentage of such fill on the subject parcel
vi. Information demonstrating that the person requesting the variance or the owner of the parcel subject to the variance did not place such fill on the subject parcel or is not affiliated with any person responsible for the placement of such fill through any direct or indirect familial relationship or any contractual, corporate or financial relationship other than that by which such person's or such owner's interest in such parcel is to be conveyed or financed.

(i) Public Water Supply is Available

Information demonstrating that a public water supply distribution system is available to all areas between the groundwater plume and the downgradient surface water discharge area.

Previous Site investigations have indicated that the Site groundwater is not impacted, and groundwater flow direction is to the east, towards the Connecticut River. The Site directly abuts the Connecticut River (the surface water discharge area) and therefore no off-Site parcels are located between the Site and the downgradient surface water discharge area.

Regardless, the Site is located in an urbanized area where municipal water has been confirmed to be available, to the Site and the surrounding area.

(ii) Comparable Cost of PMC Compliance

The comparable cost of achieving compliance with the pollutant mobility criteria without a widespread polluted fill variance.

The cost of achieving compliance with the pollutant mobility criteria without a widespread polluted fill variance would be significant. RRI has received approximately $1.9 million in public sources cleanup funding. In lieu of a widespread polluted fill variance options for achieving compliance with the PMC would consist of excavation and off-site disposal or design and construction of a PMC engineered control.

Assuming 21 acres of fill at an average thickness of 5 feet depth would result in the excavation and off-site disposal of approximately 170,000 cubic yards (255,000 tons) of soil. Using an assumed industry standard disposal cost of $60/ton would cost over $15 million. Similarly, assuming construction of a 21 acre engineered control comprised of an impermeable liner, geotextile, and drainage network at an industry standard cost of $10/square foot would cost over $9.0 million in materials. The feasibility of constructing an impermeable liner engineered control at the Site would be questionable given extensive required construction that would need to occur in the flood plain.

(iii) Extent of Fill Exceeding PMC

The degree to which such fill exceeds pollutant mobility criteria.

Several phases of environmental investigations have been conducted at the Site between 2018-2021. The results of these investigations identified concentrations of fill related constituents of concern, including various PAHs, ETPH, arsenic and lead at levels that exceeded the applicable RSR numeric criteria, including the GB PMC. A summary of fill-associated samples, detects and PMC exceedances area summarized below.

Constituents	# of Samples from Fill-Related AOCs	# of Detects / # of PMC Exceedances
PAHs (varies)	126	91 / 51
ETPH	53	7 / 0
Arsenic	68	67 / NA
Lead	68	67 / NA

It is noted that this sample evaluation of fill samples from across the Site includes all samples collected from fill related areas of concern AOCs, including the select remedial areas identified in the March 2022 Remedial Action Plan.

Data tables from the Phase III ESA are provided.

(iv) Extent of Fill Below Water Table

The extent of such fill that extends below the water table.

Depth to groundwater at the Site ranges from approximately 5-8 fbg (along the northwestern portion of the WMSP parcel and southwestern portion of the RLI property) to approximately 19 feet below grade in central and eastern portions of the Site. Considering fill was identified primarily between 1-5 feet below grade (with some locations having fill identified to 7-8 fbg) in the western portions of the Site and between 1-11 feet below grade in the eastern portion of the Site, it is expected that limited quantities of fill exists below the water table, primarily within the western portions of the Site.

(v) Extent and Percentage of Such Fill

The three-dimensional extent of such fill and the percentage of such fill on the subject parcel.

Several phases of environmental investigations have been conducted at the Site between 2018-2021. The results of these investigations have identified widespread urban fill material overlaying the natural surficial deposits across large portions of the Site at thicknesses ranging from approximately 1 to 15 feet.

- fill containing gravel, concrete, brick, asphalt, and wood was identified ranging from approximately 7 to 11 feet below grade along the riverbank extending from Decker's Brook to north down to Meadow Brook to the south. Fill material identified along the berm on the eastern portion of the RLI property was also observed to contain coal and metal slag and is estimated that fill thickness may extend to depths up 15 feet below grade based on observation of the eastern bank of the berm.
- fill materials containing asphalt, wood, coal, metal slag, metal fragments, brick, and/or concrete were also identified along the southwest corner of the WMSP parcel and in the vicinity of the former produce wash building on the RLI property at thicknesses ranging from approximately 1-4 feet.
- fill thicknesses along the western boundary of the WMSP parcel and western portions of the RLI property extended from approximately 7-11.5 feet below grade.

In general, urban fill materials were identified at varying thicknesses in sampling locations from most Site AOCs, across approximately 21 acres (approximately one third, or 26%) of the Site.

(vi) Responsibility for Fill Placement

The person requesting the variance did not place the fill on the subject parcel and is not affiliated with any person responsible for placement of such fill.

Riverfront Land Inc. (RLI) became the owner of the approximately 60-acre portion of the Site, along Liebert Road in Hartford and Meadow Road in Windsor, subject Site in September 2019. RLI also entered a long-term lease agreement with the State of Connecticut for the due diligence and redevelopment of a portion of the Windsor Meadows State Park associated with the Site in 2020.

Placement of imported polluted fill at the Site occurred prior to the 1990s and has not occurred under the ownership or lease RLI, nor is RLI affiliated with any person responsible for the historical placement of such fill.

Request for Variance

Based on information provided herein, the Site meets the criteria for widespread polluted fill required by Section 22a-133k-2(f)(1). Therefore, we respectfully request your approval for the variance to the Pollutant Mobility Criteria.

Please contact either of the undersigned if you have any questions or comments.

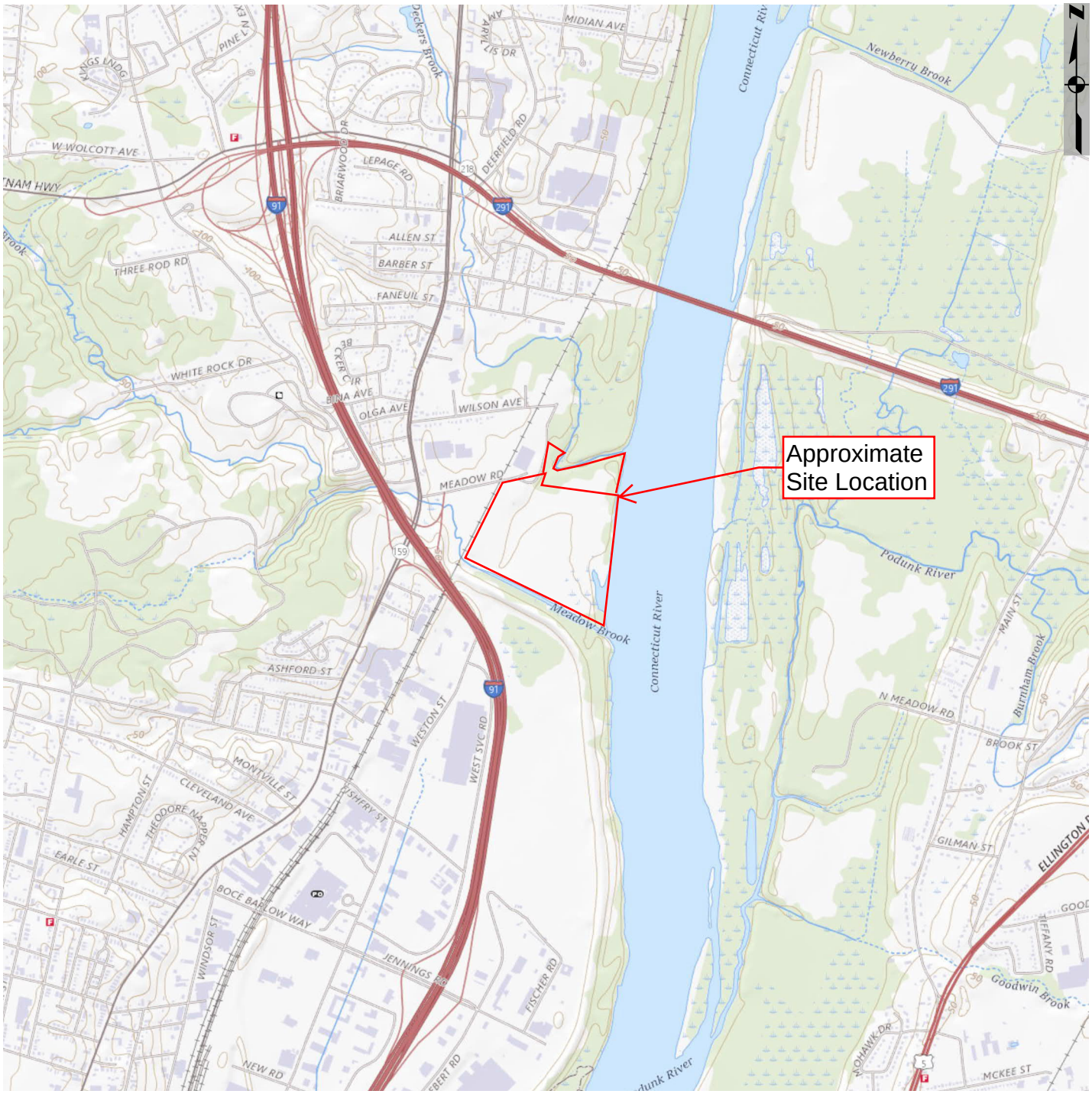
Sincerely,

Daniel R Jahne

Daniel R. Jahne, LEP
Associate
djahne@fando.com

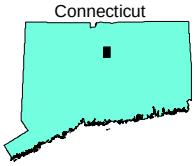
Attachments: Figure 1 – Site Location Map
Figure 2 – Site Plan, Sampling Locations & Fill
Soil Tables from Phase III ESA
Attachment – Historical Aerial Photographs & Maps

c: Marc Nicol, Riverfront Recapture, Inc.



MAP REFRENCE: USGS Topo
Accessed on : 1/25/2022
From: https://basemap.nationalmap.gov/arcgis/rest/services/USGSTopo/MapServer

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed August, 2021.



Map Reference Location

0 1,000 2,000
GRAPHIC SCALE

SCALE: 1" = 2,000'

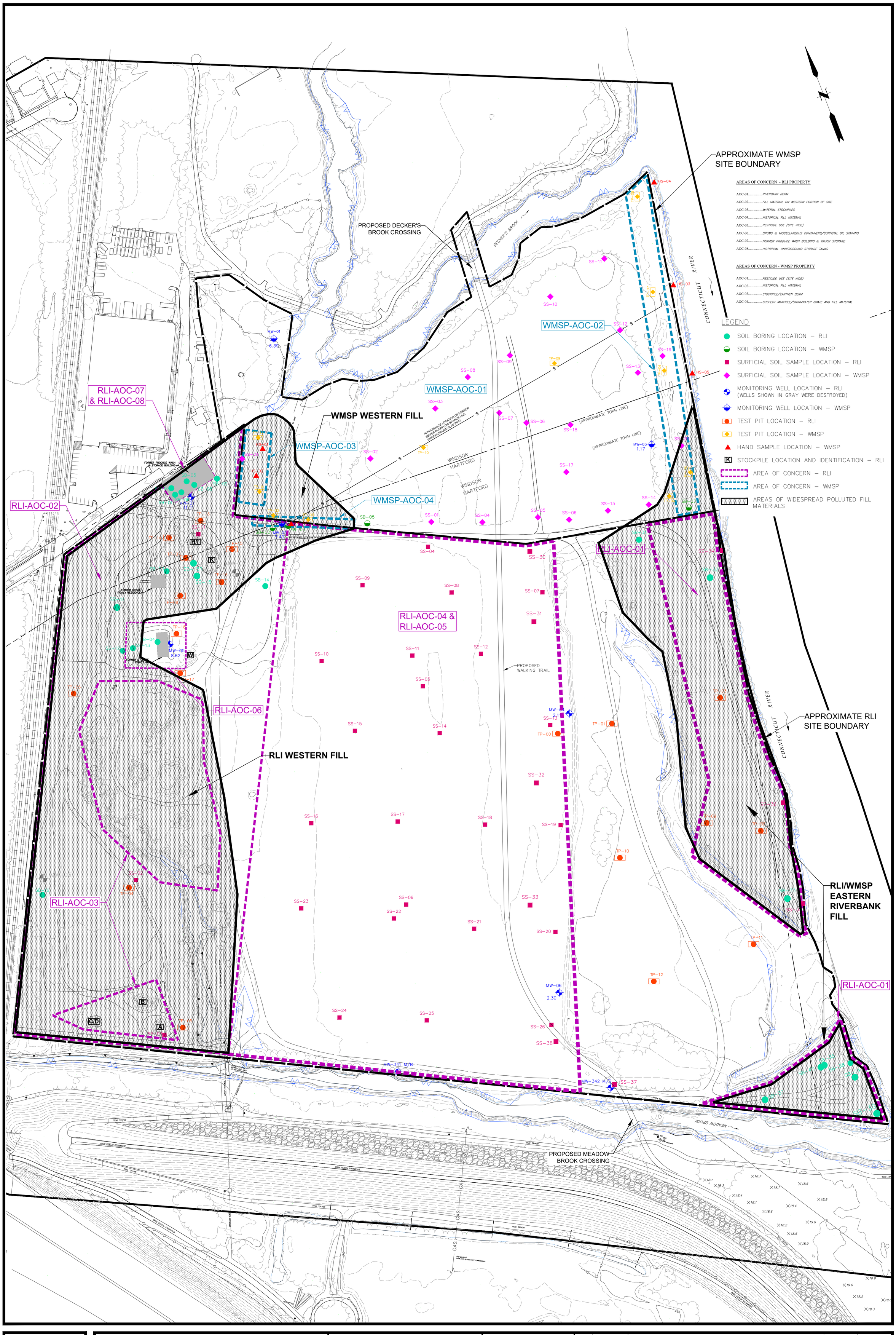
FUSS & O'NEILL

RIVERFRONT RECAPTURE, INC.
SITE LOCATION MAP
RLI Park Project
Windsor & Hartford CT

PROJ No.: 20170277.A40
DATE: July 2025

FIGURE 1

Folder: C:\Users\Sflaherty\AppData\Local\Temp\ArcGISProTemp36452\a19fc28d-d1ac-4cfb-af6c-486a97ebcd84\ Project: Untitled Layout: clsc_8.5x11_Portrait_Bottom Map: Main Data Frame Map Frame
Date Exported: User: sflaherty Date Saved: 1/25/2022 10:08 AM



PROJ. No.:	20170277A40
DATE:	July 2025

FIGURE 2

SITE PLAN - WIDESPREAD POLLUTED FILL MATERIALS

RLI PARK PROJECT

HARTFORD & WINDSOR CONNECTICUT

FUSS & O'NEILL
146 HARTFORD ROAD
MANCHESTER, CONNECTICUT 06040
860.646.2469
www.fando.com

SCALE:
HORZ.: 1" = 100'
VERT.:
DATUM:
HORZ.:
VERT.:
50 100 0 50
GRAPHIC SCALE

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

File Path: J:\DWG\P20170277A30\Environmental\Plan\20170277A30_STP02_aocs full site.dwg Layout: FIGURE 2 - WSPF APP Plotted: Fri, April 01, 2022 - 11:11 AM User: sflaherty
Plotter: DWG TO PDF.PC3 CTB File: FO HALF.STB
MS VIEW: LAYER STATE:

Tables

Table 3A
Summary of Soil Analytical Results
AOC-01 - Former Agricultural Field

Portion of Windsor Meadows State Park
Riverfront Recapture, LLC
Windsor, Connecticut

CONSTITUENTS	CT DEEP RSRs DEC RES	CT DEEP RSRs GB PMC	SS-01 0-0.25 7/23/2020 1622200723-01	SS-01 1-1.5 7/23/2020 1622200723-29	SS-02 0-0.25 7/23/2020 1622200723-02	SS-02 1-1.5 7/23/2020 1622200723-30	SS-03 0-0.25 7/23/2020 1622200723-03	SS-03 1-1.5 7/23/2020 1622200723-31	SS-04 0-0.25 7/23/2020 1622200723-04	SS-04 1-1.5 7/23/2020 1622200723-32	SS-05 0-0.25 7/23/2020 1622200723-05	SS-05 1-1.5 7/23/2020 1622200723-33	SS-06 0-0.25 7/23/2020 1622200723-06	SS-06 1-1.5 7/23/2020 1622200723-34	SS-07 0-0.25 7/23/2020 1622200723-07	SS-07 1-1.5 7/23/2020 1622200723-35	SS-08 0-0.25 7/23/2020 1622200723-08	SS-08 1-1.5 7/23/2020 1622200723-36	SS-09 0-0.25 7/23/2020 1622200723-09	SS-09 1-1.5 7/23/2020 1622200723-37
Pesticides (ug/kg)																				
4,4' -DDD	[1,800]	[20]	< 11	< 9.2	< 8.4	< 7.3	< 7.4	< 9.2	< 7.0	8.1	< 7.2	< 7.0	< 7.1	< 7.2	< 7.5	< 7.4	< 6.9	< 6.9	< 7.2	< 7.4
4,4' -DDE	[1,800]	[20]	100	110	58	51	110	160	66	120	57	75	91	170	73	170	93	140	48	64
4,4' -DDT	[1,800]	[20]	89	93	31	36	100	130	59	100	45	57	82	120	72	150	110	150	32	49
a-BHC	340	10	< 7.2	< 7.2	< 7.1	< 7.3	< 6.9	< 7.2	< 7.0	< 7.1	< 7.2	< 7.0	< 7.1	< 7.2	< 7.5	< 7.4	< 6.9	< 6.9	< 7.2	< 7.4
Alachlor	7,700	400	< 7.2	< 7.2	< 7.1	< 7.3	< 6.9	< 7.2	< 7.0	< 7.1	< 7.2	< 7.0	< 7.1	< 7.2	< 7.5	< 7.4	< 6.9	< 6.9	< 7.2	< 7.4
Aldrin	40	10	< 3.6	< 3.6	< 3.6	< 3.6	< 3.5	< 3.6	< 3.5	< 3.5	< 3.6	< 3.5	< 3.5	< 3.6	< 3.7	< 3.7	< 3.5	< 3.5	< 3.6	< 3.7
b-BHC	340	10	< 7.2	< 7.2	< 7.1	< 7.3	< 6.9	< 7.2	< 7.0	< 7.1	< 7.2	< 7.0	< 7.1	< 7.2	< 7.5	< 7.4	< 6.9	< 6.9	< 7.2	< 7.4
Chlordane	490	66	46	58	< 36	< 36	< 35	43	< 35	72	< 36	< 35	45	74	< 37	41	< 35	52	< 36	49
d-BHC	340	10	< 7.2	< 7.2	< 7.1	< 7.3	< 6.9	< 7.2	< 7.0	< 7.1	< 7.2	< 7.0	< 7.1	< 7.2	< 7.5	< 7.4	< 6.9	< 6.9	< 7.2	< 7.4
Dieldrin	38	7	< 3.6	< 3.6	5.7	6.3	< 3.5	< 3.6	< 3.5	< 3.5	< 3.6	< 3.5	< 3.5	< 3.6	< 3.7	< 3.7	< 3.5	< 3.5	< 3.6	< 3.7
Endosulfan I	[41,000]	[840]	< 7.2	< 7.2	< 7.1	< 7.3	< 6.9	< 7.2	< 7.0	< 7.1	< 7.2	< 7.0	< 7.1	< 7.2	< 7.5	< 7.4	< 6.9	< 6.9	< 7.2	< 7.4
Endosulfan II	41,000	840	< 7.2	< 7.2	< 7.1	< 7.3	< 6.9	< 7.2	< 7.0	< 7.1	< 7.2	< 7.0	< 7.1	< 7.2	< 7.5	< 7.4	< 6.9	< 6.9	< 7.2	< 7.4
Endosulfan sulfate	41,000	840	< 7.2	< 7.2	< 7.1	< 7.3	< 6.9	< 7.2	< 7.0	< 7.1	< 7.2	< 7.0	< 7.1	< 7.2	< 7.5	< 7.4	< 6.9	< 6.9	< 7.2	< 7.4
Endrin	20,000	400	< 7.2	< 7.2	< 7.1	< 7.3	< 6.9	< 7.2	< 7.0	< 7.1	< 7.2	< 7.0	< 7.1	< 7.2	< 7.5	< 7.4	< 6.9	< 6.9	< 7.2	< 7.4
Endrin aldehyde	20,000	400	< 7.2	< 7.2	< 7.1	< 7.3	< 6.9	< 7.2	< 7.0	< 7.1	< 7.2	< 7.0	< 7.1	< 7.2	< 7.5	< 7.4	< 6.9	< 6.9	< 7.2	< 7.4
Endrin ketone	20,000	400	< 7.2	< 7.2	< 7.1	< 7.3	< 6.9	< 7.2	< 7.0	< 7.1	< 7.2	< 7.0	< 7.1	< 7.2	< 7.5	< 7.4	< 6.9	< 6.9	< 7.2	< 7.4
g-BHC	20,000	40	< 1.4	< 6.1	< 1.4	< 1.5	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.5	< 1.5	< 1.4	< 1.4	< 1.4	< 1.5
Heptachlor	140	13	< 7.2	< 7.2	< 7.1	< 7.3	< 6.9	< 7.2	< 7.0	< 7.1	< 7.2	< 7.0	< 7.1	< 7.2	< 7.5	< 7.4	< 6.9	< 6.9	< 7.2	< 7.4
Heptachlor epoxide	67	20	9.2	9.7	< 7.1	< 7.3	< 6.9	< 8.9	< 7.0	12	< 7.2	< 7.3	8.8	11	< 7.5	< 9.6	< 6.9	9.4	< 7.2	< 7.4
Methoxychlor	340,000	8,000	< 36	< 36	< 36	< 36	< 35	< 36	< 35	< 35	< 36	< 35	< 35	< 36	< 37	< 37	< 35	< 35	< 36	< 37
Toxaphene	560	600	< 140	< 140	< 140	< 150	< 140	< 140	< 140	< 140	< 140	< 140	< 140	< 140	< 150	< 150	< 140	< 140	< 140	< 150

CONSTITUENTS	CT DEEP RSRs DEC RES	CT DEEP RSRs GB PMC	SS-10 0-0.25 7/23/2020 1622200723-10	SS-10 1-1.5 7/23/2020 1622200723-11	SS-11 0-0.25 7/23/2020 1622200723-12	SS-11 1-1.5 7/23/2020 1622200723-13	SS-12 0-0.25 7/23/2020 1622200723-14	SS-12 1-1.5 7/23/2020 1622200723-15	SS-13 0-0.25 7/23/2020 1622200723-16	SS-13 1-1.5 7/23/2020 1622200723-17	SS-14 0-0.25 7/23/2020 1622200723-18	SS-14 1-1.5 7/23/2020 1622200723-19	SS-15 0-0.25 7/23/2020 1622200723-20	SS-15 1-1.5 7/23/2020 1622200723-21	SS-16 0-0.25 7/23/2020 1622200723-22	SS-16 1-1.5 7/23/2020 1622200723-23	SS-17 0-0.25 7/23/2020 1622200723-24	SS-17 1-1.5 7/23/2020 1622200723-25	SS-18 0-0.25[D] 7/23/2020 1622200723-26/-28	SS-18 1-1.5 7/23/2020 1622200723-27
Pesticides (ug/kg)																				
4,4' -DDD	[1,800]	[20]	< 7.1	< 7.3	< 6.7	< 6.9	< 6.8	< 7.0	< 7.0	< 7.2	< 7.0	< 9.0	< 8.0	< 7.6	< 7.1	< 7.2	< 7.5	< 7.2	< 7.4	< 7.0
4,4' -DDE	[1,800]	[20]	34	73	51	52	66	77	37	42	55	66	74	73	65	70	44	42	77	70
4,4' -DDT	[1,800]	[20]	39	71	40	51	64	76	27	31	39	49	70	71	44	56	46	40	71	63
a-BHC	340	10	< 7.1	< 7.3	< 6.7	< 6.9	< 6.8	< 7.0	< 7.0	< 7.2	< 7.0	< 7.2	< 7.3	< 7.2	< 6.7	< 7.2	< 7.5	< 7.2	< 7.4	< 7.0
Alachlor	7,700	400	< 7.1	< 7.3	< 6.7	< 6.9	< 6.8	< 7.0	< 7.0	< 7.2	< 7.0	< 7.2	< 7.3	< 7.2	< 6.7	< 7.2	< 7.5	< 7.2	< 7.4	< 7.0
Aldrin	40	10	< 3.5	< 3.7	< 3.3	< 3.4	< 3.4	< 3.5	< 3.5	< 3.6	< 3.5	< 3.6	< 3.6	< 3.6	< 3.3	< 3.6	< 3.7	< 3.6	< 3.7	< 3.5
b-BHC	340	10	< 7.1	< 7.3	< 6.7	< 6.9	< 6.8	< 7.0	< 7.0	< 7.2	< 7.0	< 7.2	< 7.3	< 7.2	< 6.7	< 7.2	< 7.5	< 7.2	< 7.4	< 7.0
Chlordane	490	66	< 35	39	< 33	< 34	50	55	< 35	< 36	< 35	50	49	51	< 33	< 36	< 37	< 36	43	< 35
d-BHC	340	10	< 7.1	< 7.3	< 6.7	< 6.9	< 6.8	< 7.0	< 7.0	< 7.2	< 7.0	< 7.2	< 7.3	< 7.2	< 6.7	< 7.2	< 7.5	< 7.2	< 7.4	< 7.0
Dieldrin	38	7	< 3.5	< 3.7	< 3.3	< 3.4	< 3.4	< 3.5	< 3.5	< 3.6	< 3.5	< 3.6	< 3.6	< 3.6	< 3.3	< 3.6	< 3.7	< 3.6	< 6.0	< 3.5
Endosulfan I	[41,000]	[840]	< 7.1	< 7.3	< 6.7	< 6.9	< 6.8	< 7.0	< 7.0	< 7.2	< 7.0	< 7.2	< 7.3	< 7.2	< 6.7	< 7.2	< 7.5	< 7.2	< 7.4	< 7.0
Endosulfan II	41,000	840	< 7.1	< 7.3	< 6.7	< 6.9	< 6.8	< 7.0	< 7.0	< 7.2	< 7.0	< 7.2	< 7.3	< 7.2	< 6.7	< 7.2	< 7.5	< 7.2	< 7.4	< 7.0
Endosulfan sulfate	41,000	840	< 7.1	< 7.3	< 6.7	< 6.9	< 6.8	< 7.0	< 7.0	< 7.2	< 7.0	< 7.2	< 7.3	< 7.2	< 6.7	< 7.2	< 7.5	< 7.2	< 7.4	< 7.0
Endrin	20,000	400	< 7.1	< 7.3	< 6.7	< 6.9	< 6.8	< 7.0	< 7.0	< 7.2	< 7.0	< 7.2	< 7.3	< 7.2	< 6.7	< 7.2	< 7.5	< 7.2	< 7.4	< 7.0
Endrin aldehyde	20,000	400	< 7.1	< 7.3	< 6.7	< 6.9	< 6.8	< 7.0	< 7.0	< 7.2	< 7.0	< 7.2	< 7.3	< 7.2	< 6.7	< 7.2	< 7.5	< 7.2	< 7.4	< 7.0
Endrin ketone	20,000	400	< 7.1	< 7.3	< 6.7	< 6.9	< 6.8	< 7.0	< 7.0	< 7.2	< 7.0	< 7.2	< 7.3	< 7.2	< 6.7	< 7.2	< 7.5	< 7.2	< 7.4	< 7.0
g-BHC	20,000	40	< 1.4	< 1.5	< 1.3	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.5	< 1.4	< 1.3	< 1.4	< 1.5	< 1.4	< 3.0	< 1.4
Heptachlor	140	13	< 7.1	< 7.3	< 6.7	< 6.9	< 6.8	< 7.0	< 7.0	< 7.2	< 7.0	< 7.2	< 7.3	< 7.2	< 6.7	< 7.2	< 7.5	< 7.2	< 7.4	< 7.0
Heptachlor epoxide	67	20	< 7.1	< 7.3	< 6.7	< 6.9	7.6	12	< 7.0	< 7.2	< 7.0	< 7.3	8.1	7.6	< 6.7	8.6	< 7.5	< 7.2	9	< 7.0
Methoxychlor	340,000	8,000	< 35	< 37	< 33	< 34	< 34	< 35	< 35	< 36	< 35	< 36	< 36	< 36	< 33	< 36	< 37	< 36	< 37	< 35
Toxaphene	560	600	< 140	< 150	< 130	< 140	< 140	< 140	< 140	< 140	< 140	< 140	< 150	< 140	< 130	< 140	< 150	< 140	< 150	< 140

CONSTITUENTS	CT DEEP RSRs DEC RES	CT DEEP RSRs GB PMC	SS-39 0-0.5 3/5/2021 1305210305-19	SS-40 0-0.5 3/5/2021 1305210305-21	SS-41 0-0.5 3/5/2021 1305210305-23	SS-42 0-0.5 3/5/2021 1305210305-25	SS-43 0-0.5 3/5/2021 1305210305-27	SB-05 0-0.5 8/17/2020 1305200817-07	SB-06/MW-03 0-0.75 8/17/2020 1305200817-11	TP-09 0.5-1 10/15/2021 1643211015-18	TP-09 4-6 10/15/2021 1643211015-20	TP-10 0-2 10/15/2021 1643211015-21	TP-10 4-6 10/15/2021 1643211015-23
Pesticides (ug/kg)													
4,4' -DDD	[1,800]	[20]	<8.3	<8.3	<7.8	<8.6	<7.8	<7.0	<7.3	< 1.6	< 1.9	< 1.6	< 1.9
4,4' -DDE	[1,800]	[20]	61	87	110	97	78	170	69	97	< 1.9	100	< 1.9
4,4' -DDT	[1,800]	[20]	46	67	77	61	52	210	71	83	< 1.9	90	< 1.9
a-BHC	340	10	<8.3	<8.3	<7.8	<8.6	<7.8	<7.0	<6.8	< 1.6	< 1.9	< 1.6	< 1.9
Alachlor	7,700	400	<8.3	<8.3	<7.8	<8.6	<7.8	<7.0	<6.8	< 8.0	< 9.4	< 8.2	< 9.4
Aldrin	40	10	<4.2	<4.1	<3.9	<4.3	<3.9	<3.5	<3.4	< 1.6	< 1.9	< 1.6	< 1.9
b-BHC	340	10	<8.3	<8.3	<7.8	<8.6	<7.8	<7.0	<6.8	< 1.6	< 1.9	< 1.6	< 1.9
Chlordane	490	66	<42	49	66	54	<39	120	70	< 40	< 47	< 41	< 47
d-BHC	340	10	<8.3	<8.3	<7.8	<8.6	<7.8	<7.0	<6.8	< 1.6	< 1.9	< 1.6	< 1.9
Dieldrin	38	7	<4.2	<4.1	<3.9	<4.3	<3.9	20	<3.4	< 4.0	< 4.7	< 4.1	< 4.7
Endosulfan I	[41,000]	[840]	<8.3	<8.3	<7.8	<8.6	<7.8	<7.0	<6.8	< 8.0	< 9.4	< 8.2	< 9.4
Endosulfan II	41,000	840	<8.3	<8.3	<7.8	<8.6	<7.8	<7.0	<6.8	< 8.0	< 9.4	< 8.2	< 9.4
Endosulfan sulfate	41,000	840	<8.3	<8.3	<7.8	<8.6	<7.8	<7.0	<6.8	< 8.0	< 9.4	< 8.2	< 9.4
Endrin	20,000	400	<8.3	<8.3	<7.8	<8.6	<7.8	<7.0	<6.8	< 8.0	< 9.4	< 8.2	< 9.4
Endrin aldehyde	20,000	400	<8.3	<8.3	<7.8	<8.6	<7.8	<7.0	<6.8	< 8.0	< 9.4	< 8.2	< 9.4
Endrin ketone	20,000	400	<8.3	<8.3	<7.8	<8.6	<7.8	<7.0	<6.8	< 8.0	< 9.4	< 8.2	< 9.4
g-BHC	20,000	40	<1.7	<1.7	<1.6	<1.7	<1.6	<1.4	<1.4	< 1.6	< 1.9	< 1.6	< 1.9
Heptachlor	140	13	<8.3	<8.3	<7.8	<8.6	<7.8	<7.0	<6.8	< 8.0	< 9.4	< 8.2	< 9.4
Heptachlor epoxide	67	20	<8.3	<8.3	11	10	<7.8	14	11	< 8.0	< 9.4	< 8.2	< 9.4
Methoxychlor	340,000	8,000	<42	<41	<39	<43	<39	<35	<34	< 160	< 190	< 160	< 190
Toxaphene	560	600	<170	<170	<160	<170	<160	<140	<140	< 160	< 190	< 160	< 190

Notes:
Bold indicates a detection above applicable RSR criteria
Bold and Shaded cells indicate an exceedance of one or more of the applicable criteria
ug/kg = microgram per kilogram
DEC RES = Residental Direct Exposure Criteria
GB PMC = GB Pollutant Mobility Criteria
[Green Text] = DEEP fast-track approveable additional polluting substances; DEEP approval required
0-0.25[D] = indicates duplicate sample collected; the higher of the two results is reported

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Table 3
Summary of Constituents Detected in Soil - AOC-01

Riverfront Land, Inc. (RLI) Properties
Riverfront Recapture, Inc.
Hartford Windsor, CT

			AOC-01 Riverbank Berm																											
	Sample Location		TP-01		TP-02	TP-03	TP-09	TP-10	TP-11	TP-12	SB-30	SB-31	SB-32	SB-33	SB-34	SB-35	SB-36	SB-37	SB-38			SB-39			SB-40		SS-34	SS-35	SS-36
	Sample Depth (feet)		0-0.3	6.7-5	5-6	5-7	5-7	5-7	4-5	5-6	0-2	0.4-2.4	0-2	5.4-6.2	0-1.6	0-2	0.3-2.3	0-2	2-4	4-6	0-2	2-4	0-2	2-4	0-2	2-4	0-0.5	0-0.5	0-0.5
	Sample Date		4/5/2018	4/5/2018	4/5/2018	4/5/2018	10/23/2018	10/23/2018	10/25/2018	10/25/2018	3/5/2021	3/5/2021	3/5/2021	3/5/2021	3/5/2021	3/5/2021	3/5/2021	3/5/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	3/1/2021	3/1/2021	3/1/2021
	Sample Number		1305180405-06	1305180405-03	1305180405-05	1305180405-04	1534181023-01	1534181023-02	1534181023-03	1534181023-04	1305210305-01	1305210305-02	1305210305-03	1305210305-05	1305210305-06	1305210305-07	1305210305-08	1305210305-09	1643210914-37	1643210914-38	1643210914-39	1643210914-40	1643210914-41	1643210914-34	1643210914-35	1643210914-36	1305210301-06	1305210301-07	1305210301-08
CONSTITUENTS	CT DEEP RSRs: Res DEC	GB PMC																												
Metals, Total (mg/Kg)																														
Arsenic	10	N/A	---	2.15	4.73	3.69	3.13	2.4	1.49	1.88	3.65	2.56	4.47	1.9	3.43	2.52	4.16	4.12	5.23	6.18	---	2.89	3.49	4.53	3.37	---	---	---
Barium	4,700	N/A	---	22.4	278	185	79.4	32.3	21.3	16.3	103	74	191	68.4	179	33.2	148	97.6	117	228	---	145	151	104	137	---	---	---
Cadmium	34	N/A	---	<0.46	<0.43	<0.49	0.57	< 0.36	< 0.43	< 0.34	1.23	0.8	1.48	0.7	1.12	0.74	1.32	1.17	1.23	8.34	---	1.5	1.3	1.41	1.08	---	---	---
Chromium	100	N/A	---	12.0	32.6	38.8	17.1	13.9	10.4	10.2	21.9	18.9	29.7	15.5	24.9	16.6	24.3	25.3	20.1	35.4	---	31.9	26.9	24.9	22	---	---	---
Lead	400	N/A	---	2.46	220	18.1	26.9	2.92	2.13	2.32	68.7	10.1	126	26.2	17.9	4.53	41.6	36	160	179	---	24.8	13.2	28.6	9.28	---	---	---
Mercury	20	N/A	<0.03	0.29	<0.04	0.04	< 0.03	< 0.04	< 0.03	0.18	<0.07	0.2	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	0.6	< 0.03	---	0.04	< 0.03	0.04	< 0.03	---	---	---
Selenium	340	N/A	<1.9	<1.7	<2.0	< 1.6	< 1.5	< 1.7	< 1.3	<1.4	<1.5	<1.6	<1.6	<1.4	<1.5	<1.6	<1.5	<1.4	< 1.4	< 1.6	---	< 1.4	< 1.5	< 1.6	< 1.5	---	---	---
Silver	340	N/A	---	<0.46	<0.43	<0.49	< 0.39	< 0.36	< 0.43	< 0.34	<0.36	<0.38	<0.39	<0.34	<0.37	<0.39	<0.39	<0.37	< 0.36	< 0.41	---	< 0.35	< 0.38	< 0.41	< 0.38	---	---	---
Metals, SPLP (mg/L)																														
Arsenic	N/A	0.5	---	---	0.004	<0.004	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Barium	N/A	10	---	---	0.117	0.028	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Cadmium	N/A	0.05	---	---	<0.005	<0.005	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Chromium	N/A	0.5	---	---	0.017	<0.010	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Lead	N/A	0.02	---	---	<0.0005	<0.0005	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Mercury	N/A	0.15	---	---	0.094	<0.010	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Selenium	N/A	0.5	---	---	<0.020	<0.020	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Silver	N/A	0.36	---	---	<0.010	<0.010	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
CT ETPH (mg/Kg)																														
Ext. Petroleum H.C. (C9-C36)	500	2,500	---	<65	<62	<69	570	< 59	< 65	< 52	330	<280	<290	<270	<260	<54	<270	<270	< 61	1,300	---	< 53	< 56	< 280	< 270	---	---	---
MA EPH (mg/Kg)																														
C11-C22 Aromatic Hydrocarbons 1,2*	*500*	*35*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	150	---	---	---	---	---	---	---	---	---	---
C11-C22 Aromatic Hydrocarbons Unadj	*500*	*35*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	170	---	---	---	---	---	---	---	---	---	---
C19-C36 Aliphatic Hydrocarbons 1*	*1,000*	*200*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	180	---	---	---	---	---	---	---	---	---	---
C9-C18 Aliphatic Hydrocarbons 1*	*500*	*140*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	< 78	---	---	---	---	---	---	---	---	---	---
Total TPH 1,2*	NE	NE	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	350	---	---	---	---	---	---	---	---	---	---
PCBs (ug/Kg)																														
Total PCBs	1,000	5**	---	---	<420	<460	---	---	---	---	<360	<370	<390	<370	<360	<370	<360	<360	<400	<390	---	---	---	---	---	---	---	---	---	---
VOCs (ug/Kg)																														
Total VOCs	Varies	Varies	---	---	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
PAHs (ug/Kg)																														
2-Methylnaphthalene	[270,000]	[5,600]	---	<170	<300	<180	< 270	< 280	< 300	< 250	<250	<750	<270	<260	<250	<250	<2,500	<250	< 280	< 270	730	< 250	< 250	< 260	< 260	< 340	<370	<330
Acenaphthene	[1,000,000]	[94,000]	---	<170	<300	<180	< 270	< 280	< 300	< 250	620	<750	<270	<260	<250	<250	<2,500	<250	< 280	590	2,900	< 250	< 250	< 260	< 260	< 340	<370	<330
Acenaphthylene	1,000,000	84,000	---	<170	<300	<180	< 270	< 280	< 300	< 250	450	<750	<270	<260	<250	<250	<2,500	<250	< 280	< 270	290	< 250	< 250	260	< 260	< 340	<370	<330
Anthracene	1,000,000	400,000	---	<170	<300	<180	280	< 280	< 300	< 250	890	<750	290	<260	<250	<250	<2,500	<250	< 280	800	7,700	< 250	< 250	< 260	< 260	< 340	<370	<330
Benz(a)anthracene	1,000	1,000	---	<170	370	<180	800	< 280	< 300	< 250	4,800	840	710	460	520	<250	13,000	360	870	1,600	12,000	360	< 250	400	< 260	< 340	<370	<330
Benzo(a)pyrene	1,000	1,000	---	<170	<300	<180	820	< 280	< 300	< 250	4,900	730	800	540	570	<250	16,000	470	950	1,800	10,000	610	< 250	510	< 260	340	<370	<330
Benzo(b)fluoranthene	1,000	1,000	---	<170	<300	<180	710	< 280	< 300	< 250	4,300	<750	660	400	470	<250	14,000	350	1,000	2,600	9,000	530	< 250	530	< 260	< 340	<370	<330
Benzo(ghi)perylene	[8,400]	[1,000]	---	<170	<300	<180	550	< 280	< 300	< 250	2,700	<750	500	260	340	<250	10,000	320	550	700	3,100	410	< 250	360	< 260	< 340	<370	<330
Benzo(k)fluoranthene	8,400	1,000	---	<170	<300	<180	640	< 280	< 300	< 250	3,100	710	590	400	440	<250	12,000	380	660	1,300	5,800	490	< 250	350	< 260	< 340	<370	<330
Chrysene	[84,000]	[1,000]	---	<170	370	<180	850	< 280	< 300	< 250	4,700	780	720	460	520	<250	14,000	400	940	1,450	11,000	380	< 250	480	< 260	< 340	<370	<330
Dibenz(a,h)anthracene	[1,000]	[1,000]	---	<170	<300	<180	< 270	< 280	< 300	< 250	700	<750	<270	<260	<250	<250	<2,500	<250	< 280	< 270	1,200	< 250	< 250	< 260	< 260	< 340	<370	<330
Fluoranthene	1,000,000	56,000	---	<170	830	<180	1,600	< 280	< 300	< 250	13,000	1,500	1,400	840	1,100	<250	24,000	710	2,000	5,300	35,000	860	< 250	730	280	380	<370	<330
Fluorene	1,000,000	56,000	---	<170	<300	<180	< 270	< 280	< 300	< 250	590	<750	<270	<260	<250	<250	<2,500	<250	< 280	570	3,900	< 250	< 250	< 260	< 260	< 340	<370	<330
Indeno(1,2,3-cd)pyrene	[1,000]	[1,000]	---	<170	<300	<180	580	< 280	< 300	< 250	3,000	<750	580	360	380	<250	12,000	320	560	790	3,800	440	< 250	360	< 260	< 340	<370	<330
Naphthalene	1,000,000	56,000	---	<170	<300	<180	< 270	< 280	< 300	< 250	<250	<750	<270	<260	<250	<250	<2,500	<250	< 280	< 270	1,800	< 250	< 250	< 260	< 260	< 340	<370	<330
Phenanthrene	1,000,000	40,000	---	<170	770	<180	910	< 280	< 300	< 250	2,800	<750	950	400	730	<250	8,100	320	560	3,100	28,000	460	< 250	300	< 260	410	<370	<330
Pyrene	1,000,000	40,000	---	<170	800	<180	1,600	< 280	< 300	< 250	11,000	1,300	1,200	830	950	<250	22,000	660	1,900	5,000	28,000	820	< 250	820	270	< 340	<370	<330
Pesticides (ug/Kg)																														
4,4'-DDD	[1,800]	[20]	<8.5	---	<4.2	<4.6	< 7.7	< 7.8	< 8.7	< 7.1	<7.2	<7.5	<7.9	<7.3	<7.1	<7.3	<7.1	<7.3	---	---	---	---	---	---	---	---	---	---	---	---	---
4,4'-DDE	[1,800]	[20]	<8.5	---	<4.2	<4.6	< 7.7	< 7.8	< 8.7	< 7.1	<7.2	<7.5	<7.9	<7.3	<7.1	<7.3	8.5	<7.3	---	---	---	---	---	---	---	---	---	---	---	---	---
4,4'-DDT	[1,800]	[20]	<8.5	---	<4.2	<4.6	< 7.7	< 7.8	< 8.7	< 7.1	8	8.2	<7.9	<7.3	<7.1	<7.3	<7.1	<7.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Chlordane	490	66	<42	---	<21	<23	< 38	< 39	< 43	< 35	<36	<37	<39	<37	<36	<37	<36	<36	---	---	---	---	---	---	---	---	---	---	---	---	---
Dieldrin	38	7	<4.2	---	<2.1	<2.3	< 3.8	< 3.9	< 4.3	< 3.5	<3.6	<3.7	<3.9	<3.7	<3.6	<3.7	<3.6	<3.6	---	---	---	---	---	---	---	---	---	---	---	---	---
Heptachlor epoxide	87	20	<8.5	---	<4.2	<4.6	< 7.7	< 7.8	< 8.7	< 7.1	<7.2	<7.5	<7.9	<7.3	<7.1	<7.3	<7.1	<7.3	---	---	---	---	---	---	---	---	---	---	---	---	---

Notes:
mg = milligram; kg = kilogram; L = Liter; ug = microgram
Res DEC = Residential Direct Exposure Criteria
GB PMC = GB Pollutant Mobility Criteria
NE = Not established
ND = Not detected
[Green Text] = DEEP fast-track approvable additional polluting substances; DEEP approval required
*"Value" = DEEP EPH/VPH expedited approval values using DEEP-provided form; DEEP approval required
0.25-2**** - indicates a duplicate sample was collected; the higher results of the two samples was reported
Bold indicates a detection
Bold and highlighted cells indicates an exceedance of one or more of the listed criteria
VOCs = Volatile Organic Compounds; PAHs = Polynuclear Aromatic Hydrocarbons; PCBs = Polychlorinated Biphenyls
** Pollutant Mobility Criteria units for PCBs are mg/L

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Table 3a
Summary of Constituents Detected in Soil - SB-30 Area (AOC-01)

Riverfront Land, Inc. (RLI) Properties
Riverfront Recapture, Inc.
Hartford Windsor, CT

			Soil Boring	SB-30	SB-30B			SB-30C			SB-30D			SB-30E			SB-30F			SB-30G			SB-30H			SB-30I		
			Sample Date	3/5/2021	6/3/2021	9/14/2021	6/3/2021	9/14/2021	9/14/2021	6/3/2021	9/14/2021	9/14/2021	6/3/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021
			Sample Number	1305210305-01	1643210603-01	1643210914-53	1643210603-03	1643210914-55	1643210914-56	1643210603-02	1643210914-46	1643210914-47	1643210603-04	1643210914-51	1643210914-52	1643210914-43	1643210914-44	1643210914-45	1643210914-48	1643210914-49	1643210914-50	1643210914-57	1643210914-58	1643210914-60	1643210914-61	1643210914-62
			Sample Depth (feet)	0-2	1-2	2-4	1-2	2-4	4-6	1-2	0-2	2-4	1-2	2-4	4-6	0-2	2-4	4-6	0-2	2-4	4-6	0-2	2-4	0-2	2-4	4-6
CONSTITUENTS	CT DEEP RSR CRITERIA																											
	GA PMC	Res DEC	Res SEH (15xDEC)																									
PAHs (ug/kg)																												
2-Methylnaphthalene	[560]	[270,000]	4050000	<250	< 280	< 250	5,700	< 260	< 2900	300	< 260	< 2400	< 300	2,800	< 2700	290	< 250	< 260	< 260	< 250	< 290	< 250	< 350	< 270	< 2400	< 2500
Acenaphthene	[8,400]	[1,000,000]	15000000	620	480	< 250	20,000	380	< 2900	1,500	< 260	< 2400	< 300	7,000	< 2700	1,000	< 250	< 260	< 260	340	< 290	420	< 350	380	< 2400	< 2500
Acenaphthylene	8,400	1,000,000	15000000	450	550	< 250	5,800	1,000	< 2900	1,100	< 260	< 2400	550	3,900	< 2700	2,400	2,100	620	850	1,600	< 290	6,000	470	1,300	9,300	30,000
Anthracene	40,000	1,000,000	15000000	890	1,600	< 250	45,000	1,600	5,000	3,800	< 260	1,400	640	12,000	< 2700	4,400	1,400	750	460	2,100	< 290	4,400	< 350	1,300	5,900	20,000
Benz(a)anthracene	1,000	1,000	15000	4,600	5,400	< 250	140,000	4,000	12,000	16,000	370	3,800	2,400	8,000	< 1000	17,000	6,600	1,700	1,700	5,400	< 290	8,900	400	4,600	15,000	69,000
Benzo(a)pyrene	1,000	1,000	15000	4,900	5,100	< 250	230,000	4,000	11,000	18,000	580	5,700	2,700	5,200	< 1000	18,000	8,800	1,500	2,000	5,200	< 290	11,000	390	4,900	14,000	60,000
Benzo(b)fluoranthene	1,000	1,000	15000	4,300	5,000	< 250	230,000	3,300	9,500	15,000	470	4,100	2,600	4,000	< 1000	18,000	7,800	1,300	1,900	4,500	< 290	12,000	< 350	4,500	13,000	56,000
Benzo(ghi)perylene	[1,000]	[8,400]	126000	2,700	2,700	< 250	67,000	2,200	6,000	5,900	520	5,000	1,400	3,700	< 1000	6,300	3,700	900	1,100	2,600	< 290	8,000	< 350	2,700	9,500	35,000
Benzo(k)fluoranthene	1,000	8,400	126000	3,100	4,300	< 250	200,000	3,000	10,000	17,000	410	4,600	2,200	4,600	< 1000	13,000	5,700	1,400	1,700	3,600	< 290	6,600	< 350	3,700	12,000	46,000
Chrysene	[1,000]	[84,000]	1260000	4,700	6,100	< 250	150,000	3,900	13,000	18,000	380	3,800	2,400	7,700	< 1000	20,000	6,800	1,800	1,700	5,200	< 290	9,900	450	5,100	14,000	71,000
Dibenz(a,h)anthracene	[1,000]	[1,000]	15000	700	1,100	< 250	26,000	700	1,800	2,700	< 260	1,300	320	< 1000	< 1000	2,300	1,100	260	< 260	750	< 290	2,600	< 350	890	2,200	12,000
Fluoranthene	5,600	1,000,000	15000000	13,000	13,000	< 250	350,000	6,800	26,000	33,000	650	10,000	4,800	27,000	< 2700	49,000	16,000	3,700	3,400	7,000	< 290	16,000	760	12,000	37,000	280,000
Fluorene	5,600	1,000,000	15000000	580	730	< 250	30,000	600	< 2900	2,200	< 260	< 2400	350	11,000	< 2700	1,800	460	500	< 260	1,000	< 290	1,100	< 350	590	2,300	9,000
Indeno(1,2,3-cd)pyrene	[1,000]	[1,000]	15000	3,100	3,200	< 250	140,000	2,300	6,500	7,100	490	4,800	1,500	3,400	< 1000	11,000	4,000	940	1,200	2,900	< 290	8,100	350	3,000	9,500	39,000
Naphthalene	5,600	1,000,000	15000000	<250	< 280	390	15,000	< 260	< 2900	560	< 260	< 2400	< 300	2,500	< 2700	540	< 250	< 260	< 260	370	< 290	340	< 350	< 270	< 2400	< 2500
Phenanthrene	4,000	1,000,000	15000000	2,800	6,200	370	260,000	6,300	19,000	23,000	< 260	4,200	2,900	54,000	< 2700	23,000	4,300	3,100	1,000	6,800	< 290	5,000	460	5,500	21,000	71,000
Pyrene	4,000	1,000,000	15000000	11,000	7,800	< 250	270,000	6,400	23,000	28,000	650	8,900	4,200	21,000	< 2700	43,000	15,000	3,400	3,600	6,200	< 290	15,000	810	7,400	29,000	220,000
SPLP PAHs (ug/L)	*10xGWPC*																											
2-Methylnaphthalene	280	N/A	N/A	---	---	---	---	< 0.51	---	---	---	---	---	< 0.47	---	< 0.50	---	---	< 0.52	---	---	---	---	---	< 0.49	---
Acenaphthene	4,200	N/A	N/A	---	---	---	---	< 0.51	---	---	---	---	---	6.8	---	< 0.50	---	---	< 0.52	---	---	---	---	---	< 0.49	---
Acenaphthylene	4,200	N/A	N/A	---	---	---	---	< 0.31	---	---	---	---	---	0.57	---	< 0.30	---	---	< 0.31	---	---	---	---	---	< 0.29	---
Anthracene	20,000	N/A	N/A	---	---	---	---	< 0.51	---	---	---	---	---	2.3	---	< 0.50	---	---	< 0.52	---	---	---	---	---	0.52	---
Benz(a)anthracene	0.6	N/A	N/A	---	---	---	---	0.05	---	---	---	---	---	0.07	---	0.05	---	---	< 0.05	---	---	---	---	---	0.15	---
Benzo(a)pyrene	2	N/A	N/A	---	---	---	---	< 0.20	---	---	---	---	---	< 0.19	---	< 0.20	---	---	< 0.21	---	---	---	---	---	< 0.20	---
Benzo(b)fluoranthene	0.8	N/A	N/A	---	---	---	---	< 0.07	---	---	---	---	---	< 0.07	---	< 0.07	---	---	< 0.07	---	---	---	---	---	0.11	---
Benzo(ghi)perylene	4.8	N/A	N/A	---	---	---	---	< 0.49	---	---	---	---	---	< 0.45	---	< 0.48	---	---	< 0.50	---	---	---	---	---	< 0.47	---
Benzo(k)fluoranthene	5	N/A	N/A	---	---	---	---	< 0.31	---	---	---	---	---	< 0.28	---	< 0.30	---	---	< 0.31	---	---	---	---	---	< 0.29	---
Chrysene	48	N/A	N/A	---	---	---	---	< 0.51	---	---	---	---	---	< 0.47	---	< 0.50	---	---	< 0.52	---	---	---	---	---	< 0.49	---
Dibenz(a,h)anthracene	1	N/A	N/A	---	---	---	---	< 0.10	---	---	---	---	---	< 0.09	---	< 0.10	---	---	< 0.10	---	---	---	---	---	< 0.10	---
Fluoranthene	2,800	N/A	N/A	---	---	---	---	0.55	---	---	---	---	---	1.4	---	< 0.50	---	---	< 0.52	---	---	---	---	---	1.4	---
Fluorene	2,800	N/A	N/A	---	---	---	---	< 0.51	---	---	---	---	---	4.9	---	< 0.50	---	---	< 0.52	---	---	---	---	---	0.7	---
Indeno(1,2,3-cd)pyrene	1	N/A	N/A	---	---	---	---	< 0.10	---	---	---	---	---	< 0.09	---	< 0.10	---	---	< 0.10	---	---	---	---	---	< 0.10	---
Naphthalene	2,800	N/A	N/A	---	---	---	---	< 0.51	---	---	---	---	---	< 0.47	---	< 0.50	---	---	< 0.52	---	---	---	---	---	< 0.49	---
Phenanthrene	2,000	N/A	N/A	---	---	---	---	0.42	---	---	---	---	---	6.6	---	0.15	---	---	< 0.06	---	---	---	---	---	0.59	---
Pyrene	2,000	N/A	N/A	---	---	---	---	< 0.51	---	---	---	---	---	0.91	---	< 0.50	---	---	< 0.52	---	---	---	---	---	0.72	---

Notes:
Bold and Grey shaded cells indicates an exceedance of one or more of the listed standard RSR criteria
Bold and Orange shaded cells indicates a Residential Significant Environmental Hazard condition (15x Res DEC)

Res DEC = Residential Direct Exposure Criteria
I/C DEC = Industrial/Commercial Residential Direct Exposure Criteria
GA PMC = GA Pollutant Mobility Criteria
SEH = Significant Environmental Hazard
[Green Text] = DEEP fast-track approveable additional polluting substances; DEEP approval required

< #= Not detected above given laboratory reporting limit / Italics indicates laboratory reporting limit exceeds applicable RSR criteria
PAHs = Polynuclear Aromatic Hydrocarbons
ug/kg = micrograms per kilogram
ug/L = micrograms per liter

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Table 3b
Summary of Constituents Detected in Soil - SB-36 Area (AOC-01)

Riverfront Land, Inc. (RLI) Properties
Riverfront Recapture, LLC
Hartford and Windsor, CT

CONSTITUENTS	CT DEEP RSR CRITERIA GA PMC	CT DEEP RSR CRITERIA Res DEC	CT DEEP RSR CRITERIA Res SEH (15xDEC)	Soil Boring	SB-36	SB-36A*	SB-36B	SB-36C	SB-36D		SB-36E		SB-36F		
				Sample Date	3/5/2021	6/3/2021	6/3/2021	6/3/2021	6/3/2021	9/14/2021	6/3/2021	9/14/2021	6/3/2021	9/14/2021	9/14/2021
				Sample Number	1305210305-08	1643210603-05	1643210603-06	1643210603-08	1643210603-10	1643210914-08	1643210603-12	1643210914-10	1643210603-07	1643210914-23	1643210914-24
				Sample Depth (feet)	0.3-2.3	2-4	1-2	1-2	1-2	2-4	1-2	2-4	1-2	2-4	4-6
PAHs (ug/kg)															
2-Methylnaphthalene	[560]	[270,000]	4050000		*<2,500*	< 430	*< 1100*	< 250	*< 1100*	< 270	*< 1100*	< 280	360	< 270	< 320
Acenaphthene	[8,400]	[1,000,000]	15000000		<2,500	750	8,800	1,400	3,200	< 270	3,700	< 280	3,800	< 270	< 320
Acenaphthylene	8,400	1,000,000	15000000		<2,500	500	< 2,600	330	< 2,600	< 270	< 2,700	290	570	450	< 320
Anthracene	40,000	1,000,000	15000000		<2,500	1,600	17,000	2,600	6,100	< 270	7,000	< 280	6,300	320	< 320
Benz(a)anthracene	1,000	1,000	15000		13,000	8,000	110,000	19,000	57,000	430	60,000	370	67,000	1,100	< 320
Benzo(a)pyrene	1,000	1,000	15000		16,000	8,600	210,000	31,000	74,000	450	74,000	420	84,000	1,300	< 320
Benzo(b)fluoranthene	1,000	1,000	15000		14,000	8,700	180,000	29,000	91,000	440	100,000	460	62,000	1,100	< 320
Benzo(ghi)perylene	[1,000]	[8,400]	126000		10,000	6,200	160,000	21,000	46,000	390	48,000	380	42,000	870	< 320
Benzo(k)fluoranthene	1,000	8,400	126000		12,000	5,800	150,000	24,000	42,000	460	56,000	440	49,000	950	< 320
Chrysene	[1,000]	[84,000]	1260000		14,000	9,400	110,000	20,000	64,000	520	66,000	530	75,000	1,100	< 320
Dibenz(a,h)anthracene	[1,000]	[1,000]	15000		*<2,500*	36B	26,000	4,900	8,600	< 270	9,800	< 280	7,400	< 270	< 320
Fluoranthene	5,600	1,000,000	15000000		24,000	19,000	230,000	34,000	92,000	630	100,000	800	83,000	2,000	340
Fluorene	5,600	1,000,000	15000000		<2,500	660	6,600	980	< 2,600	< 270	< 2,700	< 280	3,100	< 270	< 320
Indeno(1,2,3-cd)pyrene	[1,000]	[1,000]	15000		11,000	6,700	170,000	21,000	45,000	350	48,000	330	47,000	940	< 320
Naphthalene	5,600	1,000,000	15000000		<2,500	< 430	< 2,600	< 250	< 2,600	< 270	< 2,700	< 280	600	< 270	< 320
Phenanthrene	4,000	1,000,000	15000000		8,100	6,700	94,000	13,000	30,000	300	35,000	430	58,000	590	< 320
Pyrene	4,000	1,000,000	15000000		22,000	18,000	190,000	32,000	89,000	580	96,000	750	83,000	2,200	360
SPLP PAHs (ug/L)	*10xGWPC*														
2-Methylnaphthalene	280	N/A	N/A		---	---	---	---	---	< 0.49	---	---	---	---	---
Acenaphthene	4,200	N/A	N/A		---	---	---	---	---	< 0.49	---	---	---	---	---
Acenaphthylene	4,200	N/A	N/A		---	---	---	---	---	< 0.29	---	---	---	---	---
Anthracene	20,000	N/A	N/A		---	---	---	---	---	< 0.49	---	---	---	---	---
Benz(a)anthracene	0.6	N/A	N/A		---	---	---	---	---	< 0.05	---	---	---	---	---
Benzo(a)pyrene	2	N/A	N/A		---	---	---	---	---	< 0.20	---	---	---	---	---
Benzo(b)fluoranthene	0.8	N/A	N/A		---	---	---	---	---	< 0.07	---	---	---	---	---
Benzo(ghi)perylene	4.8	N/A	N/A		---	---	---	---	---	< 0.47	---	---	---	---	---
Benzo(k)fluoranthene	5	N/A	N/A		---	---	---	---	---	< 0.29	---	---	---	---	---
Chrysene	48	N/A	N/A		---	---	---	---	---	< 0.49	---	---	---	---	---
Dibenz(a,h)anthracene	1	N/A	N/A		---	---	---	---	---	< 0.10	---	---	---	---	---
Fluoranthene	2,800	N/A	N/A		---	---	---	---	---	< 0.49	---	---	---	---	---
Fluorene	2,800	N/A	N/A		---	---	---	---	---	< 0.49	---	---	---	---	---
Indeno(1,2,3-cd)pyrene	1	N/A	N/A		---	---	---	---	---	< 0.10	---	---	---	---	---
Naphthalene	2,800	N/A	N/A		---	---	---	---	---	< 0.49	---	---	---	---	---
Phenanthrene	2,000	N/A	N/A		---	---	---	---	---	< 0.06	---	---	---	---	---
Pyrene	2,000	N/A	N/A		---	---	---	---	---	< 0.49	---	---	---	---	---

CONSTITUENTS	SB-36F	SB-36G		SB-36H	SB-36I	SB-36J		SB-36K		SB-36L		SB-36M		
Sample Date	9/14/2021	6/3/2021	9/14/2021	6/3/2021	6/3/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021
Sample Number	1643210914-15	1643210603-09	1643210914-25	1643210603-11	1643210603-13	1643210914-02	1643210914-03	1643210914-05	1643210914-06	1643210914-12	1643210914-13	1643210914-17	1643210914-18	1643210914-19
Sample Depth (feet)	2-4	1-2	2-4	1-2	1-2	0-2	2-4	0-2	2-4	0-2	2-4	0-2	2-4	4-6
PAHs (ug/kg)														
2-Methylnaphthalene	< 270	< 250	< 270	< 260	< 260	< 260	< 270	< 260	< 270	< 270	< 270	< 260	< 280	< 250
Acenaphthene	< 270	2,100	< 270	310	470	< 260	< 270	< 260	< 270	< 270	< 270	< 260	< 280	< 250
Acenaphthylene	840	740	840	380	390	1,300	< 270	380	< 270	< 270	< 270	820	2,100	340
Anthracene	320	3,800	360	770	1,100	1,100	< 270	1,200	< 270	< 270	< 270	600	1,000	< 250
Benz(a)anthracene	1,100	42,000	650	4,100	7,300	4,600	< 270	3,800	< 270	< 270	540	1,800	1,800	630
Benzo(a)pyrene	1,300	54,000	970	5,700	13,000	4,300	< 270	3,600	< 270	280	600	1,900	1,700	710
Benzo(b)fluoranthene	1,100	66,000	890	5,600	14,000	4,300	< 270	3,500	< 270	< 270	620	2,000	1,400	610
Benzo(ghi)perylene	870	32,000	890	4,300	6,500	2,400	360	2,200	< 270	< 270	600	1,500	1,300	620
Benzo(k)fluoranthene	950	40,000	780	3,100	6,200	3,900	< 270	3,000	< 270	< 270	580	1,900	1,400	680
Chrysene	1,100	48,000	760	5,000	12,000	4,700	< 270	4,100	< 270	270	630	2,300	1,900	780
Dibenz(a,h)anthracene	< 270	4,900	< 270	1,600	2,500	730	< 270	580	< 270	< 270	< 270	380	330	280
Fluoranthene	2,000	65,000	860	6,200	22,000	17,000	310	6,700	< 270	420	920	5,000	3,400	1,200
Fluorene	< 270	1,600	< 270	270	370	< 260	< 270	370	< 270	< 270	< 270	< 260	630	< 250
Indeno(1,2,3-cd)pyrene	940	35,000	750	4,800	7,200	2,600	370	2,300	< 270	< 270	550	1,500	1,100	650
Naphthalene	< 270	260	< 270	< 260	< 260	< 260	< 270	< 260	< 270	< 270	< 270	< 260	< 280	< 250
Phenanthrene	590	31,000	< 270	3,000	4,300	2,700	< 270	4,500	< 270	< 270	530	2,400	1,700	720
Pyrene	2,200	61,000	1,000	6,000	21,000	16,000	280	5,900	< 270	380	850	4,200	3,900	1,200
SPLP PAHs (ug/L)														
2-Methylnaphthalene	---	---	---	---	---	< 0.47	---	< 0.52	---	---	---	---	< 0.50	---
Acenaphthene	---	---	---	---	---	< 0.47	---	< 0.52	---	---	---	---	< 0.50	---
Acenaphthylene	---	---	---	---	---	< 0.28	---	< 0.31	---	---	---	---	< 0.30	---
Anthracene	---	---	---	---	---	< 0.47	---	< 0.52	---	---	---	---	< 0.50	---
Benz(a)anthracene	---	---	---	---	---	< 0.05	---	< 0.05	---	---	---	---	0.28	---
Benzo(a)pyrene	---	---	---	---	---	< 0.19	---	< 0.21	---	---	---	---	< 0.20	---
Benzo(b)fluoranthene	---	---	---	---	---	< 0.07	---	< 0.07	---	---	---	---	0.19	---
Benzo(ghi)perylene	---	---	---	---	---	< 0.45	---	< 0.49	---	---	---	---	< 0.48	---
Benzo(k)fluoranthene	---	---	---	---	---	< 0.28	---	< 0.31	---	---	---	---	< 0.30	---
Chrysene	---	---	---	---	---	< 0.47	---	< 0.52	---	---	---	---	< 0.50	---
Dibenz(a,h)anthracene	---	---	---	---	---	< 0.09	---	< 0.10	---	---	---	---	< 0.10	---
Fluoranthene	---	---	---	---	---	< 0.47	---	< 0.52	---	---	---	---	1.6	---
Fluorene	---	---	---	---	---	< 0.47	---	< 0.52	---	---	---	---	< 0.50	---
Indeno(1,2,3-cd)pyrene	---	---	---	---	---	< 0.09	---	< 0.10	---	---	---	---	< 0.10	---
Naphthalene	---	---	---	---	---	< 0.47	---	< 0.52	---	---	---	---	< 0.50	---
Phenanthrene	---	---	---	---	---	< 0.06	---	< 0.06	---	---	---	---	0.55	---
Pyrene	---	---	---	---	---	< 0.47	---	< 0.52	---	---	---	---	< 0.50	---

CONSTITUENTS	CT DEEP RSR CRITERIA GA PMC	CT DEEP RSR CRITERIA Res DEC	CT DEEP RSR CRITERIA Res SEH (15xDEC)	Soil Boring	SB-36N			SB-36O		SB-36P			SB-36Q		
				Sample Date	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021	9/14/2021
				Sample Number	1643210914-20	1643210914-21	1643210914-22	1643210914-25	1643210914-26	1643210914-28	1643210914-29	1643210914-30	1643210914-31	1643210914-32	1643210914-33
				Sample Depth (feet)	0-2	2-4	4-6	0-2	2-4	0-2	2-4	4-6	0-2	2-4	4-6
PAHs (ug/kg)															
2-Methylnaphthalene	[560]	[270,000]	4050000		< 280	< 270	< 280	< 260	< 290	< 260	920	< 320	< 260	< 2600	< 2600
Acenaphthene	[8,400]	[1,000,000]	15000000		< 280	< 270	< 280	< 260	< 290	< 260	5,900	< 320	< 260	< 2600	< 2600
Acenaphthylene	8,400	1,000,000	15000000		280	1,100	490	< 260	< 290	390	390	370	530	< 2600	< 2600
Anthracene	40,000	1,000,000	15000000		< 280	740	300	< 260	< 290	620	13,000	< 320	350	2,500	< 2600
Benz(a)anthracene	1,000	1,000	15000		< 280	1,800	1,100	310	350	1,900	18,000	730	1,100	12,000	1,000
Benzo(a)pyrene	1,000	1,000	15000		< 280	1,900	1,000	380	430	2,000	14,000	660	1,600	18,000	1,000
Benzo(b)fluoranthene	1,000	1,000	15000		< 280	1,800	940	330	370	2,100	15,000	550	1,300	17,000	1,100
Benzo(ghi)perylene	[1,000]	[8,400]	126000		< 280	1,600	580	410	360	1,000	4,900	370	1,000	14,000	< 1000
Benzo(k)fluoranthene	1,000	8,400	126000		< 280	1,800	1,000	360	340	1,800	11,000	590	1,000	16,000	1,100
Chrysene	[1,000]	[84,000]	1260000		< 280	2,100	1,200	400	430	2,100	18,000	850	1,300	14,000	1,400
Dibenz(a,h)anthracene	[1,000]	[1,000]	15000		< 280	360	< 280	< 260	< 290	300	1,900	< 320	< 260	2,700	< 1000
Fluoranthene	5,600	1,000,000	15000000		340	3,900	1,900	660	590	4,900	69,000	1,400	2,500	35,000	< 2600
Fluorene	5,600	1,000,000	15000000		< 280	< 270	< 280	< 260	< 290	< 260	7,100	< 320	< 260	< 2600	< 2600
Indeno(1,2,3-cd)pyrene	[1,000]	[1,000]	15000		< 280	1,400	620	390	370	1,100	6,200	380	920	12,000	< 1000
Naphthalene	5,600	1,000,000	15000000		< 280	< 270	< 280	< 260	< 290	< 260	1,400	< 320	< 260	< 2600	< 2600
Phenanthrene	4,000	1,000,000	15000000		< 280	1,100	520	310	< 290	1,900	67,000	400	880	13,000	< 2600
Pyrene	4,000	1,000,000	15000000		370	4,000	2,000	720	730	4,400	52,000	1,500	2,800	30,000	< 2600
SPLP PAHs (ug/L)	*10xGWPC*														
2-Methylnaphthalene	280	N/A	N/A		---	< 0.52	---	---	---	---	< 0.51	---	---	---	---
Acenaphthene	4,200	N/A	N/A		---	< 0.52	---	---	---	---	< 0.51	---	---	---	---
Acenaphthylene	4,200	N/A	N/A		---	< 0.31	---	---	---	---	< 0.30	---	---	---	---
Anthracene	20,000	N/A	N/A		---	< 0.52	---	---	---	---	< 0.51	---	---	---	---
Benz(a)anthracene	0.6	N/A	N/A		---	< 0.05	---	---	---	---	< 0.05	---	---	---	---
Benzo(a)pyrene	2	N/A	N/A		---	< 0.21	---	---	---	---	< 0.20	---	---	---	---
Benzo(b)fluoranthene	0.8	N/A	N/A		---	< 0.07	---	---	---	---	< 0.07	---	---	---	---
Benzo(ghi)perylene	4.8	N/A	N/A		---	< 0.49	---	---	---	---	< 0.48	---	---	---	---
Benzo(k)fluoranthene	5	N/A	N/A		---	< 0.31	---	---	---	---	< 0.30	---	---	---	---
Chrysene	48	N/A	N/A		---	< 0.52	---	---	---	---	< 0.51	---	---	---	---
Dibenz(a,h)anthracene	1	N/A	N/A		---	< 0.10	---	---	---	---	< 0.10	---	---	---	---
Fluoranthene	2,800	N/A	N/A		---	< 0.52	---	---	---	---	< 0.51	---	---	---	---
Fluorene	2,800	N/A	N/A		---	< 0.52	---	---	---	---	< 0.51	---	---	---	---
Indeno(1,2,3-cd)pyrene	1	N/A	N/A		---	< 0.10	---	---	---	---	< 0.10	---	---	---	---
Naphthalene	2,800	N/A	N/A		---	< 0.52	---	---	---	---	< 0.51	---	---	---	---
Phenanthrene	2,000	N/A	N/A		---	< 0.06	---	---	---	---	0.16	---	---	---	---
Pyrene	2,000	N/A	N/A		---	< 0.52	---	---	---	---	< 0.51	---	---	---	---

Notes:
Bold and Grey shaded cells indicates an exceedance of one or more of the listed standard RSR criteria
Bold and Orange shaded cells indicates a Residential Significant Environmental Hazard condition (15x Res DEC)

Res DEC = Residential Direct Exposure Criteria
I/C DEC = Industrial/Commercial Residential Direct Exposure Criteria
GA PMC = GA Pollutant Mobility Criteria
SEH = Significant Environmental Hazard
[Green Text] = DEEP fast-track approveable additional polluting substances; DEEP approval required

< #= Not detected above given laboratory reporting limit / Italics indicates laboratory reporting limit exceeds applicable RSR criteria
PAHs = Polynuclear Aromatic Hydrocarbons
ug/kg = micrograms per kilogram
ug/L = micrograms per liter

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Table 4
Summary of Constituents Detected in Soil - AOC-02

Riverfront Land, Inc. (RLI) Properties
Riverfront Recapture, Inc.
Hartford Windsor, CT

			AOC-02 - Fill Material on Western Portion of the Site																				
		Sample Location:	TP-04	TP-05	TP-06	TP-07	TP-08	TP-13	TP-14	TP-15			TP-16		TP-17	TP-18	MW-02	MW-03	MW-05	SB-14	SB-15	SB-15R	SB-16	
		Sample Depth (feet):	8-9	4-6	3-4.5	0-1	6.5-7.5	0.33-1	0.25-1	0.25-1	3-5	0.25-1	3.5-4.5		2-4	2-4	10-12 ^{DUP}	0-0.8	2-4	0.25-0.75	0-0.5	0-0.75	2.5-3.5	5-6
		Sample Date:	4/5/2018	4/5/2018	4/5/2018	4/5/2018	4/5/2018	10/23/2018	10/23/2018	10/23/2018	10/23/2018	10/23/2018	10/23/2018	10/23/2018	10/23/2018	10/23/2018	4/6/2018	4/16/2018	10/25/2018	8/17/2020	8/17/2020	8/18/2020	8/17/2020	8/17/2020
		Sample Number:	1305180405-08	1305180405-07	1305180405-09	1305180405-10	1305180405-11	1534181023-05	1534181023-06	1534181023-07	1534181023-08	1534181023-09	1534181023-10	1534181023-11	1534181023-12	1305180406-26/27	1305180406-31	1534181025-05	1305209817-04	1305209817-14	1305209818-25	1305209817-16	1305209817-17
CONSTITUENTS	CT DEEP RSRs Res DEC	GB PMC																					
Metals, Total (mg/Kg)																							
Arsenic	10	N/A	2.04	2.87	4.78	10.4	3.04	1.75	2.67	7.02	120	2.8	8.47	< 0.71	2.17	4.14	3.07	3.7				3.18	4.14
Barium	4,700	N/A	42.4	64.4	187	69.8	12.6	---	---	---	288	---	120	13.7	9.94	52.1	81.3	9.46	---	---	---	164	100
Cadmium	34	N/A	<0.38	<0.41	0.43	0.7	<0.39	---	---	---	2.77	---	0.79	< 0.36	< 0.35	<0.41	<0.37	<0.33	---	---	---	1.48	1.03
Chromium	100	N/A	10.1	14.1	24.6	13.9	8.51	---	---	---	28.8	---	22.9	5.61	7.05	19.6	17.7	8.33	---	---	---	25.5	18.5
Lead	400	N/A	30.7	47.5	304	462	2.77	29	14.1	115	1,480	77.3	1,380	3.06	2.39	4.4	49.8	2.62	---	---	---	164	19.4
Mercury	20	N/A	0.05	<0.03	0.1	0.33	<0.03	---	---	---	0.27	---	0.57	< 0.03	< 0.03	<0.03	0.16	<0.03	---	---	---	0.34	0.05
Selenium	340	N/A	<1.5	<1.7	<1.4	<1.8	<1.6	---	---	---	< 1.8	---	< 1.7	< 1.4	< 1.4	<1.6	<1.5	<1.3	---	---	---	< 1.6	< 1.5
Silver	340	N/A	<0.38	<0.41	<0.35	<0.45	<0.39	---	---	---	< 0.48	---	< 0.42	< 0.36	< 0.35	<0.41	<0.37	<0.33	---	---	---	< 0.40	< 0.38
CT ETPH (mg/Kg)																							
Ext. Petroleum H.C. (C9-C36)	500	2,500	440	---	510	76	---	---	---	---	< 330	---	< 60	< 51	< 53	<63	---	<53	---	---	---	---	---
PCBs (ug/Kg)																							
Total PCBs	1,000	5**	<360	<380	<380	<430	---	---	---	---	< 440	---	< 400	---	---	<420	---	---	---	---	---	---	---
VOCs (ug/Kg)																							
Naphthalene	1,000,000	56,000	<4.7	---	15	<400	---	---	---	---	320	---	< 500	---	---	<5.7	<4.5	---	---	---	---	---	---
PAHs (ug/Kg)																							
2-Methylnaphthalene	[270,000]	[5,600]	<250	<160	<270	<310	<250	---	---	---	1,000	---	< 280	< 240	< 250	<170	<150	<250	---	---	---	<260	<270
Acenaphthene	[1,000,000]	[84,000]	<250	<160	<270	<310	<250	---	---	---	860	---	< 280	< 240	< 250	<170	220	<250	---	---	---	< 260	< 270
Acenaphthylene	1,000,000	84,000	<250	<160	490	<310	<250	---	---	---	1,300	---	< 280	< 240	< 250	<170	460	<250	---	---	---	< 260	< 270
Anthracene	1,000,000	400,000	<250	<160	630	<310	<250	---	---	---	1,800	---	< 280	< 240	< 250	<170	710	<250	---	---	---	< 260	< 270
Benz(a)anthracene	1,000	1,000	280	300	1,700	380	<250	---	---	---	3,700	---	< 280	< 240	< 250	<170	4,400	<250	---	---	---	< 260	< 270
Benzo(a)pyrene	1,000	1,000	320	370	1,800	380	<250	---	---	---	3,000	---	< 280	< 240	< 250	<170	5,700	<250	---	---	---	< 260	< 270
Benzo(b)fluoranthene	1,000	1,000	290	310	1,700	490	<250	---	---	---	2,500	---	< 280	< 240	< 250	<170	4,300	<250	---	---	---	< 260	< 270
Benzo(ghi)perylene	[8,400]	[1,000]	<250	350	1,200	310	<250	---	---	---	1,900	---	< 280	< 240	< 250	<170	4,400	<250	---	---	---	< 260	< 270
Benzo(k)fluoranthene	8,400	1,000	270	290	1,500	350	<250	---	---	---	2,200	---	< 280	< 240	< 250	<170	4,700	<250	---	---	---	< 260	< 270
Chrysene	[84,000]	[1,000]	300	400	1,900	460	<250	---	---	---	4,000	---	< 280	< 240	< 250	<170	5,000	<250	---	---	---	< 260	< 270
Dibenz(a,h)anthracene	[1,000]	[1,000]	<250	<160	320	<310	<250	---	---	---	540	---	< 280	< 240	< 250	<170	980	<250	---	---	---	< 260	< 270
Fluoranthene	1,000,000	56,000	340	580	3,100	530	<250	---	---	---	8,700	---	< 280	< 240	< 250	<170	8,300	<250	---	---	---	260	280
Fluorene	1,000,000	56,000	<250	<160	310	<310	<250	---	---	---	2,300	---	< 280	< 240	< 250	<170	240	<250	---	---	---	< 260	< 270
Indeno(1,2,3-cd)pyrene	[1,000]	[1,000]	<250	400	1,200	310	<250	---	---	---	1,900	---	< 280	< 240	< 250	<170	5,700	<250	---	---	---	< 260	< 270
Naphthalene	1,000,000	56,000	<250	<160	<270	<310	<250	---	---	---	1,100	---	< 280	< 240	< 250	<170	<150	<250	---	---	---	360	260
Phenanthrene	1,000,000	40,000	<250	210	1,600	<310	<250	---	---	---	10,000	---	< 280	< 240	< 250	<170	3,300	<250	---	---	---	< 260	280
Pyrene	1,000,000	40,000	360	650	2,500	470	<250	---	---	---	8,500	---	< 280	< 240	< 250	<170	7,700	<250	---	---	---	300	350
Pesticides (ug/Kg)																							
4,4' -DDD	[1,800]	[20]	<3.6	---	12	<8.6	<7.2	< 6.7	< 7.2	6.8	< 8.9	< 7.0	34	< 6.7	< 7.1	<8.3	<7.3	<7.2	< 6.9	< 20	15	< 7.6	< 8.3
4,4' -DDE	[1,800]	[20]	<3.6	---	<7.7	26	<7.2	< 6.7	< 7.2	3.5	< 8.9	< 7.0	36	< 6.7	< 7.1	<8.3	14	<7.2	< 6.9	22	25	< 7.6	< 8.7
4,4' -DDT	[1,800]	[20]	5.8	---	<7.7	80	<7.2	< 6.7	< 7.2	4.1	< 8.9	< 7.0	13	< 6.7	< 7.1	<8.3	8.5	<7.2	< 6.9	15	86	< 7.6	< 7.7
Aldrin	40	10	<3.6	---	<4.0	<8.6	<7.2	< 3.3	< 3.6	< 3.5	< 4.4	< 3.5	< 4.0	< 3.4	< 3.6	<8.3	<7.3	<3.6	< 3.5	15	< 3.8	< 3.8	< 3.8
Chlordane	490	66	<18	---	<36	210	<36	< 33	< 36	< 35	< 44	< 35	< 40	< 34	< 36	<42	<37	<36	< 35	100	220	< 38	< 38
Dieldrin	38	7	<3.8	---	<3.8	8.6	<3.6	< 3.3	< 3.6	< 3.5	< 4.4	< 3.5	< 4.0	< 3.4	< 3.6	< 4.1	< 3.7	<3.6	< 3.5	39	12	< 3.8	< 3.8
Endosulfan I	[41,000]	[840]	<3.6	---	<7.7	15	<7.2	< 6.7	< 7.2	< 7.0	< 8.9	< 7.0	< 8.0	< 6.7	< 7.1	<8.3	<7.3	<7.2	< 6.9	< 6.7	< 7.6	< 7.6	< 7.7
Heptachlor	140	13	<3.6	---	<7.7	9.4	<7.2	< 6.7	< 7.2	< 7.0	< 8.9	< 7.0	< 8.0	< 6.7	< 7.1	<8.3	<7.3	<7.2	< 6.9	12	14	< 7.6	< 7.7
Heptachlor epoxide	67	20	<3.6	---	<7.7	23	<7.2	< 6.7	< 7.2	< 7.0	< 8.9	< 7.0	< 8.0	< 6.7	< 7.1	<8.3	<7.3	<7.2	< 6.9	9.4	39	< 7.6	< 7.7

Notes:
mg = milligram; kg = kilogram; L = Liter; ug = microgram
Res DEC = Residential Direct Exposure Criteria
GB PMC = GB Pollutant Mobility Criteria
NE = Not established
ND = Not detected
[Green Text] = DEEP fast-track approveable additional polluting substances; DEEP approval required
0.25-2^{DUP} - indicates a duplicate sample was collected; the higher results of the two samples was reported
Bold indicates a detection
Bold and highlighted cells indicates an exceedance of one or more of the listed criteria
VOCs = Volatile Organic Compounds; PAHs = Polynuclear Aromatic Hydrocarbons; PCBs = Polychlorinated Biphenyls
** Pollutant Mobility Criteria units for PCBs are mg/L

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Table 5
Summary of Constituents Detected in Soil - AOC-03

Riverfront Land, Inc. (RLI) Properties
Riverfront Recapture, Inc.
Hartford Windsor, CT

			AOC-03 - Material Stockpiles							
		Stockpile ID	Stockpile A		Stockpile B	Stockpiles H/I, K	Stockpile I	Stockpile K	Stockpile V	Stockpile W
		Sample Location	SS-03	---	---	---	SS-01	---	---	---
		Sample Date	4/5/2018	8/17/2020	10/24/2018	8/17/2020	4/5/2018	10/23/2018	10/24/2018	3/5/2021
		Sample Number	1305180405-14	1305200817-22	1534181024-16	1305200817-21	1305180405-12	1534181023-13	1534181024-17	1305210305-04
CONSTITUENTS	CT DEEP RSRs Res DEC	CT DEEP RSRs GB PMC								
Metals, Total (mg/Kg)										
Arsenic	10	N/A	22.7	4.18	---	24	6.66	4.44	---	3.47
Barium	4,700	N/A	189	157	---	175	228	118	---	146
Cadmium	34	N/A	<0.40	2.32	---	0.83	2.71	1.12	---	1.33
Chromium	100	N/A	9.95	17.2	---	9.52	16.2	26.7	---	23.2
Lead	400	N/A	33.7	291	---	36.5	494	125	---	63.3
Mercury	20	N/A	11.5	0.21	---	12.4	0.87	0.09	---	<0.09
Selenium	340	N/A	<1.6	< 1.4	---	< 1.4	<1.7	< 1.7	---	<1.8
Silver	340	N/A	<0.40	< 0.35	---	0.54	<0.43	< 0.42	---	<0.46
CT ETPH (mg/Kg)										
Ext. Petroleum H.C. (C9-C36)	500	2,500	<88	520	---	< 50	---	< 340	---	<350
PCBs (ug/Kg)										
Total PCBs	1,000	5**	<580	<340	< 330	<330	---	< 440	< 340	<470
VOCs (ug/Kg)										
Total VOCs	Varies	Varies	---	BDL	---	BDL	---	BDL	---	BDL
PAHs (ug/Kg)										
Acenaphthylene	1,000,000	84,000	<270	580	---	< 230	1,300	< 310	---	410
Anthracene	1,000,000	400,000	<270	450	---	< 230	2,600	< 310	---	570
Benz(a)anthracene	1,000	1,000	560	1,400	---	< 230	8,400	570	---	2,700
Benzo(a)pyrene	1,000	1,000	530	2,500	---	< 230	6,200	710	---	2,900
Benzo(b)fluoranthene	1,000	1,000	510	2,000	---	< 230	6,800	600	---	2,500
Benzo(ghi)perylene	[8,400]	[1,000]	420	5,500	---	< 230	3,400	1,000	---	1,900
Benzo(k)fluoranthene	8,400	1,000	500	860	---	< 230	3,800	530	---	2,100
Chrysene	[84,000]	[1,000]	670	1,800	---	< 230	7,900	660	---	2,800
Dibenz(a,h)anthracene	[1,000]	[1,000]	<270	410	---	< 230	1,400	< 310	---	350
Fluoranthene	1,000,000	56,000	1100	2,900	---	< 230	17,000	720	---	4,600
Fluorene	1,000,000	56,000	<270	< 240	---	< 230	970	< 310	---	<330
Indeno(1,2,3-cd)pyrene	[1,000]	[1,000]	390	1,800	---	< 230	3,900	640	---	2,100
Phenanthrene	1,000,000	40,000	860	710	---	< 230	9,200	< 310	---	2,100
Pyrene	1,000,000	40,000	1,300	3,000	---	< 230	12,000	820	---	3,900
Pesticides (ug/Kg)										
4,4' -DDD	[1,800]	[20]	<12	---	---	---	62	< 8.9	---	<9.4
4,4' -DDE	[1,800]	[20]	<12	---	---	---	210	< 8.9	---	<9.4
4,4' -DDT	[1,800]	[20]	<12	---	---	---	1,500	< 8.9	---	<9.4
Chlordane	490	66	<58	---	---	---	540	< 44	---	74
Dieldrin	38	7	<5.8	---	---	---	14	< 4.4	---	<4.7
Heptachlor	140	13	<12	---	---	---	<8.4	< 8.9	---	<9.4
Heptachlor epoxide	67	20	<12	---	---	---	<20	< 8.9	---	<9.4
Chlorinated Herbicides (ug/Kg)										
2,4,5-T	NE	NE	---	---	---	---	---	< 110	---	---
2,4,5-TP (Silvex)	NE	NE	---	---	---	---	---	< 110	---	---
2,4-D	680,000	14,000	---	---	---	---	---	< 230	---	---
2,4-DB	NE	NE	---	---	---	---	---	< 2300	---	---
Dalapon	NE	NE	---	---	---	---	---	< 110	---	---
Dicamba	[500,000]	[42,000]	---	---	---	---	---	< 110	---	---
Dichloroprop	[240,000]	[5,000]	---	---	---	---	---	< 230	---	---
Dinoseb	NE	NE	---	---	---	---	---	< 230	---	---

Notes:
Only sampling results from Stockpiles remaining on Site in March 2021 are depicted on the Table.
Bold indicates a detection
Bold and highlighted cells indicates an exceedance of one or more of the listed criteria
Res DEC = Residential Direct Exposure Criteria
GB PMC = GB Pollutant Mobility Criteria
[Green Text] = DEEP fast-track approveable additional polluting substances; DEEP approval required
VOCs = Volatile Organic Compounds; PAHs = Polynuclear Aromatic Hydrocarbons; PCBs = Polychlorinated Biphenyls
** Pollutant Mobility Criteria units for PCBs are mg/L

mg = milligram; kg = kilogram; L = Liter; ug = microgram
NE = Not established
BDL = Below detection limits
*Stockpiles F, G, H, J, L, M, N, O, P, Q, R, S, T, and U
(observed during initial investigations) were no longer present on Site in March 2021

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Table 6
Summary of Constituents Detected in Soil - AOC-04

Riverfront Land, Inc. (RLI) Properties
Riverfront Recapture, Inc.
Hartford Windsor, CT

CONSTITUENTS	CT DEEP RSRs DEC RES	CT DEEP RSRs GB PMC	AOC-04 - Historical Fill Material	
Sample Location			MW-04	MW-06
Sample Depth (feet)			0-0.5	0-1
Sample Date			4/6/2018	10/25/2018
Sample Number			1305180406-33	1534181025-66
Metals, Total (mg/Kg)				
Arsenic	10	N/A	4.80	5.68
Barium	4,700	N/A	63.1	---
Cadmium	34	N/A	<0.41	---
Chromium	100	N/A	25.8	---
Lead	400	N/A	18.3	11
Mercury	20	N/A	0.07	---
Selenium	340	N/A	<1.6	---
Silver	340	N/A	<0.41	---
PAHs (ug/Kg)				
Acenaphthene	[1,000,000]	[84,000]	<170	---
Acenaphthylene	1,000,000	84,000	<170	---
Anthracene	1,000,000	400,000	<170	---
Benzo(a)anthracene	1,000	1,000	<170	---
Benzo(a)pyrene	1,000	1,000	<170	---
Benzo(b)fluoranthene	1,000	1,000	<170	---
Benzo(ghi)perylene	[8,400]	[1,000]	<170	---
Benzo(k)fluoranthene	8,400	1,000	<170	---
Chrysene	[84,000]	[1,000]	<170	---
Dibenz(a,h)anthracene	[1,000]	[1,000]	<170	---
Fluoranthene	1,000,000	56,000	<170	---
Fluorene	1,000,000	56,000	<170	---
Indeno(1,2,3-cd)pyrene	[1,000]	[1,000]	<170	---
Naphthalene	1,000,000	56,000	<170	---
Phenanthrene	1,000,000	40,000	<170	---
Pyrene	1,000,000	40,000	<170	---
Pesticides By SW8081B (ug/Kg)				
4,4' -DDD	[1,800]	[20]	<8.3	<8.7
4,4' -DDE	[1,800]	[20]	70	<8.7
4,4' -DDT	[1,800]	[20]	73	<8.7
Aldrin	40	10	<8.3	<4.4
Chlordane	490	66	68	<44
Dieldrin	38	7	<4.1	<4.4
Endosulfan I	[41,000]	[840]	<8.3	<8.7
Heptachlor	140	13	<8.3	<8.7
Heptachlor epoxide	67	20	20	<8.7
Chlorinated Herbicides (ug/Kg)				
2,4,5-T	NE	NE	---	<110
2,4,5-TP (Silvex)	NE	NE	---	<110
2,4-D	680,000	14,000	---	<220
2,4-DB	NE	NE	---	<2200
Dalapon	NE	NE	---	<110
Dicamba	[500,000]	[42,000]	---	<110
Dichloroprop	[240,000]	[5,000]	---	<220
Dinoseb	NE	NE	---	<220

Notes:

Bold indicates a detection

Bold and highlighted cells indicates an exceedance of one or more of the listed criteria

Res DEC = Residential Direct Exposure Criteria

GB PMC = GB Pollutant Mobility Criteria

[Green Text] = DEEP fast-track approveable additional polluting substances; DEEP approval required

VOCs = Volatile Organic Compounds; PAHs = Polynuclear Aromatic Hydrocarbons; PCBs = Polychlorinated Biphenyls

--- = Not analyzed

** Pollutant Mobility Criteria units for PCBs are mg/L

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Table 7
Summary of Constituents Detected in Soil - AOC-05

Riverfront Land, Inc. (RLI) Properties
Riverfront Recapture, Inc.
Hartford Windsor, CT

			AOC 05 - Pesticide Use (Sitewide)																		
Sample Location			SS-04	SS-05	SS-06	SS-07	SS-08	SS-09	SS-10	SS-11		SS-12	SS-13	SS-14	SS-15		SS-16	SS-17		SS-18	SS-19
Sample Depth (feet)			0-0.3	0-0.3	0-0.3	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0.75-1	0-0.5	0-0.5	0-0.5	0-0.5	0.75-1	0-0.5	0-0.5	0-0.5[DUP]	0-0.5	0-0.5
Sample Date			4/5/2018	4/5/2018	4/5/2018	10/24/2018	10/24/2018	10/24/2018	10/24/2018	10/24/2018	10/24/2018	10/24/2018	10/24/2018	10/24/2018	10/24/2018	10/24/2018	10/24/2018	10/24/2018	10/24/2018	10/24/2018	10/24/2018
Sample Number			1305180405-15	1305180405-16	1305180405-17	1534181024-27	1534181024-29	1534181024-30	1534181024-32	1534181024-33	1534181024-34	1534181024-35	1534181024-36	1534181024-38	1534181024-39	1534181024-40	1534181024-41	1534181024-42	1534181024-44	1534181024-45	1534181024-46
CONSTITUENTS	CT DEEP RSRs Res DEC	CT DEEP RSRs GB PMC																			
Metals, Total (mg/Kg)																					
Arsenic	10	N/A	---	---	---	4.75	6.7	5.55	8.16	5.65	---	4.81	4.6	9.74	7.06	---	7.31	6.14	6.25	4.94	5.54
Lead	400	N/A	---	---	---	23.6	30.8	32.7	25.3	37.7	---	33.6	19.4	28.9	49.9	---	42.8	34.9	34.8	28.6	26.2
Pesticides (ug/Kg)																					
4,4' -DDD	[1,800]	[20]	10	<8.8	<8.6	< 7.7	< 8.0	< 8.1	< 8.2	< 8.4	< 8.6	< 7.7	< 8.0	< 8.1	< 8.5	< 8.3	< 8.3	< 8.5	< 8.4	< 8.3	< 8.2
4,4' -DDE	[1,800]	[20]	120	130	210	92	100	66	56	160	72	71	65	83	140	130	86	72	84	52	59
4,4' -DDT	[1,800]	[20]	82	190	220	100	150	72	71	200	90	79	100	120	150	130	98	80	96	76	94
Chlordane	490	66	50	69	<43	61	< 66	< 40	< 41	51	< 43	< 39	43	59	< 43	< 42	< 42	< 42	< 42	< 42	< 41
Dieldrin	38	7	<4.3	<4.4	<4.3	< 3.8	< 4.0	< 4.0	< 4.1	< 4.2	< 4.3	< 3.9	< 4.0	< 4.0	< 4.3	< 4.2	< 4.2	< 4.2	< 4.2	< 4.2	< 4.1
Endosulfan I	[41,000]	[840]	<8.6	<8.8	<8.6	< 7.7	< 8.0	< 8.1	< 8.2	< 8.4	< 8.6	< 7.7	< 8.0	< 8.1	< 8.5	< 8.3	< 8.3	< 8.5	< 8.4	< 8.3	< 8.2
Heptachlor	140	13	<8.6	<8.8	<8.6	< 7.7	< 8.0	< 8.1	< 8.2	< 8.4	< 8.6	< 7.7	< 8.0	< 8.1	< 8.5	< 8.3	< 8.3	< 8.5	< 8.4	< 8.3	< 8.2
Heptachlor epoxide	67	20	13	12	11	13	< 20	< 8.1	< 8.2	< 8.4	< 8.6	< 7.7	9.1	19	< 8.5	< 8.3	< 8.3	< 8.5	< 8.4	< 8.3	< 8.2
Chlorinated Herbicides (ug/Kg)																					
2,4,5-T	NE	NE	<110	<110	<110	< 96	---	< 100	---	< 100	---	---	< 100	---	< 110	---	---	< 110	< 110	---	< 100
2,4,5-TP (Silvex)	NE	NE	<110	<110	<110	< 96	---	< 100	---	< 100	---	---	< 100	---	< 110	---	---	< 110	< 110	---	< 100
2,4-D	680,000	14,000	<220	<220	<220	< 190	---	< 200	---	< 210	---	---	< 200	---	< 210	---	---	< 210	< 220	---	< 200
2,4-DB	NE	NE	<2200	<2200	<2200	< 1900	---	< 2000	---	< 2100	---	---	< 2000	---	< 2100	---	---	< 2100	< 2200	---	< 2000
Dalapon	NE	NE	<110	<110	<110	< 96	---	< 100	---	< 100	---	---	< 100	---	< 110	---	---	< 110	< 110	---	< 100
Dicamba	[500,000]	[42,000]	<110	<110	<110	< 96	---	< 100	---	< 100	---	---	< 100	---	< 110	---	---	< 110	< 110	---	< 100
Dichloroprop	[240,000]	[5,000]	<220	<220	<220	< 190	---	< 200	---	< 210	---	---	< 200	---	< 210	---	---	< 210	< 220	---	< 200
Dinoseb	NE	NE	<220	<220	<220	< 190	---	< 200	---	< 210	---	---	< 200	---	< 210	---	---	< 210	< 220	---	< 200

Notes:
mg = milligram; kg = kilogram; L = Liter; ug = microgram
Res DEC = Residential Direct Exposure Criteria
GB PMC = GB Pollutant Mobility Criteria
NE = Not established
--- = Not analyzed
[Green Text] = DEEP fast-track additional polluting substances; DEEP approval required
0.25-2[DUP] - indicates duplicate sample collected; the higher results of the two is reported
Bold indicates a detection
Bold and highlighted cells indicates an exceedance of one or more of the listed criteria
VOCs = Volatile Organic Compounds; PAHs = Polynuclear Aromatic Hydrocarbons;
PCBs = Polychlorinated Biphenyls
** Pollutant Mobility Criteria units for PCBs are mg/L

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Table 7
Summary of Constituents Detected in Soil - AOC-05

Riverfront Land, Inc. (RLI) Properties
Riverfront Recapture, Inc.
Hartford Windsor, CT

			AOC 05 - Pesticide Use (Sitewide)																
		Sample Location	SS-20	SS-21	SS-22	SS-23		SS-24	SS-25	SS-26	SS-30		SS-31	SS-32		SS-33	SS-37	SS-38
		Sample Depth (feet)	0-0.5	0-0.5	0-0.5	0-0.5	0.75-1	0-0.5	0-0.5	0-0.5	0-0.5[DUP]	1.5-2	0-0.5	0-0.5	1.5-2	0-0.5	0-0.5	0-0.5
		Sample Date	10/24/2018	10/24/2018	10/24/2018	10/24/2018	10/24/2018	10/24/2018	10/24/2018	10/24/2018	3/1/2021	3/5/2021	3/1/2021	3/1/2021	3/5/2021	3/1/2021	3/5/2021	3/5/2021
		Sample Number	1534181024-48	1534181024-49	1534181024-51	1534181024-52	1534181024-53	1534181024-54	1534181024-55	1534181024-57	1305210301-01/-02	1305210305-18	1305210301-03	1305210301-04	1305210305-16	1305210301-05	1305210305-10	1305210305-12
CONSTITUENTS	CT DEEP RSRs Res DEC	CT DEEP RSRs GB PMC																
Metals, Total (mg/Kg)																		
Arsenic	10	N/A	5.85	4.75	7.61	7.27	---	6.02	7.85	5.43	---	---	---	---	---	---	---	---
Lead	400	N/A	30.6	25.6	49.1	43.8	---	47.6	48.1	30.2	---	---	---	---	---	---	---	---
						---	---	---	---	---	---	---	---	---	---	---	---	---
Pesticides (ug/Kg)																		
4,4'-DDD	[1,800]	[20]	< 8.4	< 8.2	13	< 8.5	< 8.5	< 8.7	< 8.4	< 8.4	<9.0	<9.6	<9.1	<9.1	<9.2	<9.4	<8.4	<8.7
4,4'-DDE	[1,800]	[20]	55	52	210	130	110	13	87	44	85	<9.6	47	50	<9.2	26	56	50
4,4'-DDT	[1,800]	[20]	84	74	210	130	92	12	82	57	85	<9.6	47	70	<9.2	37	16	50
Chlordane	490	66	< 42	< 41	< 43	< 42	< 42	< 44	51	< 42	<45	<48	<45	<45	<46	<47	<42	<44
Dieldrin	38	7	< 4.2	< 4.1	< 4.3	< 4.2	< 4.2	< 4.4	< 4.2	< 4.2	<4.5	<4.8	<4.5	<4.5	<4.6	<4.7	<4.2	<4.4
Endosulfan I	[41,000]	[840]	< 8.4	< 8.2	< 8.7	< 8.5	< 8.5	< 8.7	< 8.4	< 8.4	<9.0	<9.6	<9.1	<9.1	<9.2	<9.4	<8.4	<8.7
Heptachlor	140	13	< 8.4	< 8.2	< 8.7	< 8.5	< 8.5	< 8.7	< 8.4	< 8.4	<9.0	<9.6	<9.1	<9.1	<9.2	<9.4	<8.4	<8.7
Heptachlor epoxide	67	20	14	< 8.2	< 8.7	< 8.5	< 8.5	< 8.7	< 8.4	< 8.4	13	<9.6	<9.1	<9.1	<9.2	<9.4	<8.4	<8.7
Chlorinated Herbicides (ug/Kg)																		
2,4,5-T	NE	NE	---	< 100	---	< 110	---	---	< 110	---	---	---	---	---	---	---	---	---
2,4,5-TP (Silvex)	NE	NE	---	< 100	---	< 110	---	---	< 110	---	---	---	---	---	---	---	---	---
2,4-D	680,000	14,000	---	< 200	---	< 210	---	---	< 220	---	---	---	---	---	---	---	---	---
2,4-DB	NE	NE	---	< 2000	---	< 2100	---	---	< 2200	---	---	---	---	---	---	---	---	---
Dalapon	NE	NE	---	< 100	---	< 110	---	---	< 110	---	---	---	---	---	---	---	---	---
Dicamba	[500,000]	[42,000]	---	< 100	---	< 110	---	---	< 110	---	---	---	---	---	---	---	---	---
Dichloroprop	[240,000]	[5,000]	---	< 200	---	< 210	---	---	< 220	---	---	---	---	---	---	---	---	---
Dinoseb	NE	NE	---	< 200	---	< 210	---	---	< 220	---	---	---	---	---	---	---	---	---

Notes:
mg = milligram; kg = kilogram; L = Liter; ug = microgram
Res DEC = Residential Direct Exposure Criteria
GB PMC = GB Pollutant Mobility Criteria
NE = Not established
--- = Not analyzed
[Green Text] = DEEP fast-track additional polluting substances; DEEP approval required
0.25-2[DUP] - indicates duplicate sample collected; the higher results of the two is reported
Bold indicates a detection
Bold and highlighted cells indicates an exceedance of one or more of the listed criteria
VOCs = Volatile Organic Compounds; PAHs = Polynuclear Aromatic Hydrocarbons;
PCBs = Polychlorinated Biphenyls
** Pollutant Mobility Criteria units for PCBs are mg/L

FUSS & O'NEILL

Table 8
Summary of Constituents Detected in Soil - AOC-06

Riverfront Land, Inc. (RLI) Properties
Riverfront Recapture, Inc.
Hartford Windsor, CT

			AOC-06 - Drums & Misc. Containers/Surficial Oil Staining				
Sample Location			SB-03	SB-04	SB-11	SB-12	SB-13
Sample Depth (feet)			0.5-1.5	0.1-0.9	0.25-1	0-1	0.2-1.2
Sample Date			4/6/2018	4/6/2018	8/17/2020	8/17/2020	8/17/2020
Sample Number			1305180406-28	1305180406-29	1305200817-01	1305200817-02	1305200817-03
CONSTITUENTS	CT DEEP RSRs DEC RES	CT DEEP RSRs GB PMC					
Metals, Total (mg/Kg)							
Arsenic	10	N/A	3.21	6.74	2.9	1.88	4.83
Barium	4,700	N/A	69.0	55.9	65	64.2	75.3
Cadmium	34	N/A	<0.39	<0.39	0.78	0.69	0.95
Chromium	100	N/A	16.5	16.5	15.9	13.8	20.5
Lead	400	N/A	26.0	40.3	103	21.7	34.9
Mercury	20	N/A	<0.03	0.47	0.14	< 0.03	< 0.03
Selenium	340	N/A	<1.5	<1.6	< 1.3	< 1.4	< 1.4
Silver	340	N/A	<0.39	<0.39	< 0.31	< 0.36	< 0.36
Metals, SPLP (mg/L)							
Arsenic	N/A	0.5	<0.004	---	---	---	---
Barium	N/A	10	0.017	---	---	---	---
Cadmium	N/A	0.05	<0.005	---	---	---	---
Chromium	N/A	0.5	<0.010	---	---	---	---
Lead	N/A	0.02	<0.0005	---	---	---	---
Mercury	N/A	0.15	0.012	---	---	---	---
Selenium	N/A	0.5	<0.020	---	---	---	---
Silver	N/A	0.36	<0.010	---	---	---	---
VOCs (ug/Kg)							
Naphthalene	1,000,000	56,000	<5.5	---	< 270	< 300	< 4.6
CT ETPH (mg/Kg)							
Ext. Petroleum H.C. (C9-C36)	500	2,500	<59	---	---	---	---
PCBs (ug/Kg)							
Total PCBs	1,000	5**	<390	---	---	---	---
PAHs (ug/Kg)							
Benzo(a)anthracene	1,000	1,000	<160	420	7,300	1,900	360
Benzo(a)pyrene	1,000	1,000	<160	410	8,500	2,200	380
Benzo(b)fluoranthene	1,000	1,000	<160	400	7,400	1,600	350
Benzo(ghi)perylene	[8,400]	[1,000]	<160	340	5,200	1,500	270
Benzo(k)fluoranthene	8,400	1,000	<160	410	6,500	1,400	290
Chrysene	[84,000]	[1,000]	<160	470	7,400	1,900	370
Dibenz(a,h)anthracene	[1,000]	[1,000]	<160	<160	1,200	< 1100	< 250
Fluoranthene	1,000,000	56,000	<160	790	16,000	2,600	670
Fluorene	1,000,000	56,000	<160	<160	< 2500	< 2300	< 250
Indeno(1,2,3-cd)pyrene	[1,000]	[1,000]	<160	400	5,700	1,400	260
Naphthalene	1,000,000	56,000	<160	<160	< 2500	< 2300	< 250
Phenanthrene	1,000,000	40,000	<160	230	6,100	< 2300	410
Pyrene	1,000,000	40,000	<160	720	15,000	3,400	610
Pesticides By SW8081B (ug/Kg)							
4,4' -DDD	[1,800]	[20]	<7.8	<7.8	< 7.0	< 6.8	< 7.4
4,4' -DDE	[1,800]	[20]	<7.8	<7.8	< 7.0	< 6.8	< 7.4
4,4' -DDT	[1,800]	[20]	<7.8	<7.8	< 7.0	< 6.8	< 7.4
Aldrin	40	10	<7.8	<7.8	< 7.0	< 3.4	< 3.7
Chlordane	490	66	<39	<39	< 66	< 34	< 37
Dieldrin	38	7	<3.9	<3.9	< 7.0	< 3.4	< 3.7
Endosulfan I	[41,000]	[840]	<7.8	<7.8	< 35	< 6.8	< 7.4
Heptachlor	140	13	<7.8	<7.8	< 13	< 6.8	< 7.4
Heptachlor epoxide	67	20	<7.8	<7.8	< 17	< 6.8	< 7.4

Notes:
Bold indicates a detection
Bold and highlighted cells indicates an exceedance of one or more of the listed criteria
Res DEC = Residential Direct Exposure Criteria
GB PMC = GB Pollutant Mobility Criteria
--- = Not analyzed
[Green Text] = DEEP fast-track approveable additional polluting substances; DEEP approval required
VOCs = Volatile Organic Compounds; PAHs = Polynuclear Aromatic Hydrocarbons; PCBs = Polychlorinated Biphenyls
** Pollutant Mobility Criteria units for PCBs are mg/L

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Table 9
Summary of Constituents Detected in Soil - AOC-07

Riverfront Land, Inc. (RLI) Properties
Riverfront Recapture, Inc.
Hartford Windsor, CT

			AOC-07 - Former Produce Wash Building & Truck Storage						
Sample Location			MW-01	SB-01	SB-02	SB-05	SB-06	SB-07	SB-08
Sample Depth (feet)			10-11.5	6-8	6-8	0.5-2	0.25-2	0.25-2 DUP	0.25-2
Sample Date			4/6/2018	4/6/2018	4/6/2018	10/25/2018	10/25/2018	10/25/2018	10/25/2018
Sample Number			1305180406-24	1305180406-23	1305180406-25	1534181025-60	1534181025-61	1534181025-62/63	1534181025-64
CONSTITUENTS	CT DEEP RSRs DEC RES	CT DEEP RSRs GB PMC							
Metals, Total (mg/Kg)									
Arsenic	10	N/A	2.98	2.58	1.92	9.93	5.49	5.21	5.44
Barium	4,700	N/A	21.0	8.52	11.1	---	---	---	---
Cadmium	34	N/A	<0.40	<0.39	<0.39	---	---	---	---
Chromium	100	N/A	13.0	7.93	7.95	---	---	---	---
Lead	400	N/A	6.32	<0.39	2.05	24.3	16.7	26.4	21.3
Mercury	20	N/A	<0.03	<0.03	<0.03	---	---	---	---
Selenium	340	N/A	<1.6	<1.5	<1.6	---	---	---	---
Silver	340	N/A	<0.40	<0.39	<0.39	---	---	---	---
Metals, SPLP (mg/L)									
Arsenic	N/A	0.5	---	<0.004	---	---	---	---	---
Barium	N/A	10	---	<0.010	---	---	---	---	---
Cadmium	N/A	0.05	---	<0.005	---	---	---	---	---
Chromium	N/A	0.5	---	<0.010	---	---	---	---	---
Lead	N/A	0.02	---	<0.0005	---	---	---	---	---
Mercury	N/A	0.15	---	<0.010	---	---	---	---	---
Selenium	N/A	0.5	---	<0.020	---	---	---	---	---
Silver	N/A	0.36	---	<0.010	---	---	---	---	---
VOCs (ug/Kg)									
Naphthalene	1,000,000	56,000	<280	<7.1	---	---	---	---	---
CT ETPH (mg/Kg)									
Ext. Petroleum H.C. (C9-C36)	500	2,500	<280	<57	---	<56	<54	<56	<56
PCBs (ug/Kg)									
Total PCBs	1,000	5**	<370	<390	---	<380	<370	<380	<370
PAHs (ug/Kg)									
Acenaphthene	[1,000,000]	[84,000]	<150	<150	<160	<270	<250	<260	<260
Acenaphthylene	1,000,000	84,000	<150	<150	<160	<270	<250	<260	<260
Anthracene	1,000,000	400,000	<150	<150	<160	<270	<250	<260	<260
Benzo(a)anthracene	1,000	1,000	380	<150	<160	<270	<250	<260	<260
Benzo(a)pyrene	1,000	1,000	450	<150	<160	<270	<250	<260	<260
Benzo(b)fluoranthene	1,000	1,000	340	<150	<160	<270	<250	<260	<260
Benzo(ghi)perylene	[8,400]	[1,000]	420	<150	<160	<270	<250	<260	<260
Benzo(k)fluoranthene	8,400	1,000	340	<150	<160	<270	<250	<260	<260
Chrysene	[84,000]	[1,000]	420	<150	<160	<270	<250	<260	<260
Dibenz(a,h)anthracene	[1,000]	[1,000]	<150	<150	<160	<270	<250	<260	<260
Fluoranthene	1,000,000	56,000	670	<150	<160	<270	<250	<260	<260
Fluorene	1,000,000	56,000	<150	<150	<160	<270	<250	<260	<260
Indeno(1,2,3-cd)pyrene	[1,000]	[1,000]	460	<150	<160	<270	<250	<260	<260
Naphthalene	1,000,000	56,000	<150	<150	<160	<270	<250	<260	<260
Phenanthrene	1,000,000	40,000	420	<150	<160	<270	<250	<260	<260
Pyrene	1,000,000	40,000	700	<150	<160	<270	<250	<260	<260
Pesticides By SW8081B (ug/Kg)									
4,4' -DDD	[1,800]	[20]	<7.3	<7.8	<7.9	---	---	---	---
4,4' -DDE	[1,800]	[20]	<7.3	<7.8	<7.9	---	---	---	---
4,4' -DDT	[1,800]	[20]	<7.3	<7.8	<7.9	---	---	---	---
Aldrin	40	10	<3.7	<3.9	<4.0	---	---	---	---
Chlordane	490	66	<37	<39	<40	---	---	---	---
Dieldrin	38	7	<3.7	<3.9	<4.0	---	---	---	---
Endosulfan I	[41,000]	[840]	<7.3	<7.8	<7.9	---	---	---	---
Heptachlor	140	13	<7.3	<7.8	<7.9	---	---	---	---
Heptachlor epoxide	67	20	<7.3	<7.8	<7.9	---	---	---	---

Notes:
Bold indicates a detection
Bold and highlighted cells indicates an exceedance of one or more of the listed criteria
Res DEC = Residential Direct Exposure Criteria
GB PMC = GB Pollutant Mobility Criteria
--- = Not analyzed
[Green Text] = DEEP fast-track approveable additional polluting substances; DEEP approval required
VOCs = Volatile Organic Compounds; PAHs = Polynuclear Aromatic Hydrocarbons; PCBs = Polychlorinated Biphenyls
** Pollutant Mobility Criteria units for PCBs are mg/L

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Table 3B
Summary of Soil Analytical Results
AOC-02, AOC-03 and AOC-04

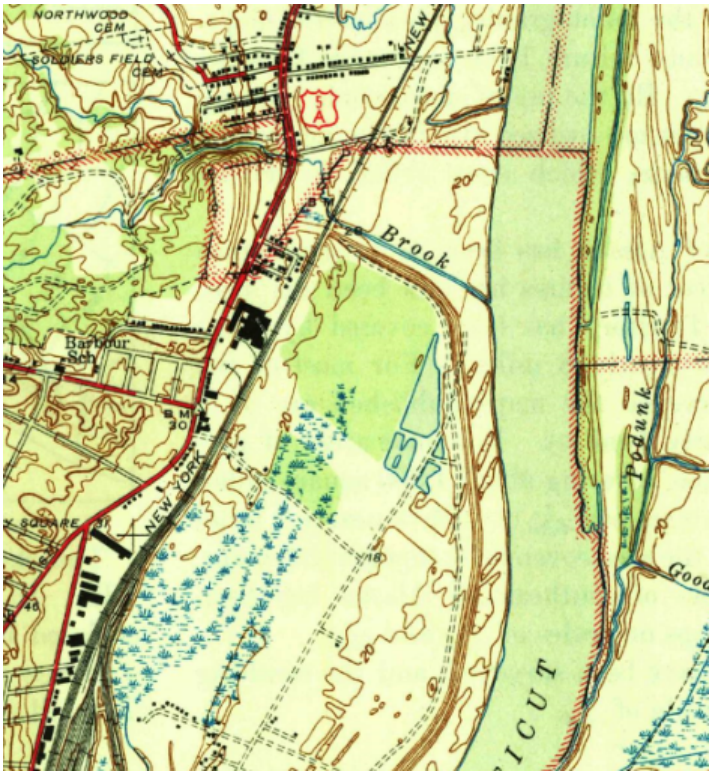
Portion of Windsor Meadows State Park
Riverfront Recapture, LLC
Windsor, Connecticut

			Background	AOC-02 - Riverbank Berm														AOC-03 - Western Soil Stockpile / Earthen Berm						AOC-04 - Former Sewer Overflow Branch Manholes / Debris Area					
Sample Location			SB-01/MW-01	SB-07	SS-19	SS-20	TP-04		TP-05	TP-06	TP-07	TP-08	HS-03	HS-04	HS-05	HS-06	SS-21	TP-01		TP-11	HS-01	HS-02	SB-03/MW-02	SB-02	SB-04	TP-02	TP-03	
Sample Depth (feet)			3-4.2	0.5-1.75[D]	1-1.5	1-1.5	0-2	4-6	0-2	0-2	0-2	2-4	0-1	0-1	0-1	0-1	1-1.5	0-2	2-4	0-2	0-0.5	0-0.5	0.5-2.5	0.2-1	1-2.5	0-2	0-2	2-4
Sample Date			8/18/2020	8/17/2020	8/17/2020	8/17/2020	10/15/2021	10/15/2021	10/15/2021	10/15/2021	10/15/2021	10/15/2021	10/15/2021	10/15/2021	10/15/2021	10/15/2021	8/17/2020	10/15/2021	10/15/2021	10/15/2021	10/15/2021	10/15/2021	8/17/2020	8/17/2020	8/17/2020	10/15/2021	10/15/2021	10/15/2021
Sample Number			1305200818-27	1305200817-09/10	1305200817-18	1305200817-19	1643211015-09	1643211015-10	1643211015-11	1643211015-13	1643211015-15	1643211015-35	1643211015-26	1643211015-27	1643211015-28	1643211015-29	1305200817-20	1643211015-03	1643211015-04	1643211015-24	1643211015-01	1643211015-02	1305200817-13	1305200817-06	1305200817-05	1643211015-05	1643211015-07	1643211015-08
CONSTITUENTS	CT DEEP RSRs DEC RES	CT DEEP RSRs GB PMC																											
Metals, Total (mg/Kg)																													
Arsenic	10	N/A	1.6	3.92	4.01	4.42	5.64	---	4.09	3.68	3.69	1.9	2.62	3.24	3.51	3.34	4.55	7.06	---	3.57	3.45	2.78	4.58	2.7	2.77	3.52	6.62	---
Barium	4,700	N/A	36.9	100	62.3	68	84.1	---	68.5	63.4	41	52.1	47.9	63.7	62.8	60.2	63.3	94.8	---	33.1	64.7	58.1	69.3	44.1	41.3	63.4	97.1	---
Cadmium	34	N/A	0.65	0.91	1.5	1.55	1.15	---	0.93	1.03	0.55	0.76	0.61	0.7	0.78	0.78	1.38	1.31	---	0.57	0.78	0.48	1.59	0.63	0.84	0.54	1.16	---
Chromium	100	N/A	18.3	19.8	23.2	26.1	33.4	---	30.4	24.3	19.6	18.8	21	26	26.9	25.6	25.4	211	---	19.9	30.8	31.9	22.8	15.7	11.3	27.1	31.7	---
Lead	400	N/A	7.67	129	28.6	35	31	---	30.8	31.4	16.8	6.07	18.3	13.1	24	20.7	29.7	78.1	---	16.4	39.5	33.7	64.3	20.4	41.4	17	80.9	---
Mercury	20	N/A	< 0.08	0.14	0.12	0.12	0.07	---	0.04	0.06	0.05	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.17	0.12	---	< 0.03	0.23	0.03	0.06	0.55	0.05	0.05	0.17	---
Selenium	340	N/A	< 1.6	<1.5	< 1.5	< 1.4	< 1.4	---	< 1.6	< 1.6	< 1.4	< 1.6	< 1.4	< 1.6	< 1.7	< 1.7	< 1.4	< 1.4	---	< 1.5	< 1.5	< 1.7	< 1.5	< 1.5	< 1.4	< 1.7	< 1.6	---
Silver	340	N/A	< 0.41	<0.38	< 0.37	< 0.36	< 0.35	---	< 0.40	< 0.39	< 0.34	< 0.40	< 0.35	< 0.41	< 0.41	< 0.42	< 0.35	< 0.36	---	< 0.36	< 0.39	< 0.42	< 0.38	< 0.37	< 0.35	< 0.42	< 0.41	---
VOCs (ug/Kg)																													
Naphthalene	1,000,000	56,000	<61	---	---	---	---	---	---	---	---	---	---	---	---	---	<53	< 290	---	< 59	< 300	< 290	<4.6	300	<270	< 4.7	---	---
CT ETPH (mg/Kg)																													
Extractable Total Petroleum Hydrocarbons (C9-C36)	500	2,500	<400	---	---	---	< 57	---	< 58	< 55	< 56	< 59	< 57	< 63	< 59	< 62	<360	< 390	---	< 400	---	---	<260	<260	<260	< 60	100	---
PCBs (ug/Kg)																													
Total PCBs	1,000	5**	<4.9	---	---	---	---	---	---	---	---	---	< 380	---	---	< 420	< 360	< 390	---	< 400	---	---	<350	<330	<350	< 400	---	---
PAHs (ug/Kg)																													
2-Methylnaphthalene	270,000	5,600	< 280	< 240	< 250	< 250	< 270	---	< 270	< 260	< 260	< 280	< 260	< 290	< 280	< 280	< 250	< 270	< 260	< 280	< 280	< 270	< 240	< 240	*< 2400*	< 290	< 280	---
Acenaphthene	[1,000,000]	[84,000]	< 280	< 240	< 250	< 250	< 270	---	< 270	< 260	< 260	< 280	< 260	< 290	< 280	< 280	< 250	< 270	< 260	< 280	< 280	< 270	< 240	< 240	*< 2400*	< 290	< 280	---
Acenaphthylene	1,000,000	84,000	< 280	2,500	< 250	< 250	< 270	---	< 270	< 260	< 260	< 280	< 260	< 290	< 280	< 280	< 250	4,300	< 260	< 280	400	< 270	< 240	1,300	*< 2400*	< 290	290	---
Anthracene	1,000,000	400,000	< 280	1,700	< 250	< 250	< 270	---	< 270	< 260	< 260	< 280	< 260	< 290	< 280	< 280	< 250	2,600	< 260	< 280	< 280	< 270	< 240	680	*< 2400*	< 290	< 280	---
Benzo(a)anthracene	1,000	1,000	< 280	3,600	< 250	< 250	< 270	---	480	< 260	< 260	< 280	330	< 290	< 280	300	280	15,000	< 260	< 280	880	700	400	1,300	1,400	< 290	580	---
Benzo(a)pyrene	1,000	1,000	< 280	3,900	< 250	< 250	290	---	540	< 260	< 260	< 280	330	< 290	< 280	340	380	15,000	< 260	< 280	1,000	1,100	480	1,800	2,400	< 290	700	---
Benzo(b)fluoranthene	1,000	1,000	< 280	3,400	< 250	< 250	< 270	---	440	< 260	< 260	< 280	< 260	< 290	< 280	290	370	12,000	< 260	< 280	910	990	370	1,500	1,500	< 290	570	---
Benzo(ghi)perylene	[8,400]	[1,000]	< 280	2,500	< 250	< 250	310	---	420	< 260	< 260	< 280	< 260	< 290	< 280	< 280	290	9,800	290	< 280	700	940	420	1,400	2,200	370	600	---
Benzo(k)fluoranthene	8,400	1,000	< 280	2,600	< 250	< 250	< 270	---	480	< 260	< 260	< 280	300	< 290	< 280	300	270	6,600	< 260	< 280	890	1,000	440	1,200	1,800	< 290	620	---
Chrysene	[84,000]	[1,000]	< 280	3,500	< 250	< 250	< 270	---	500	< 260	< 260	< 280	340	< 290	< 280	310	330	15,000	< 260	< 280	1,000	780	400	1,400	1,400	< 290	630	---
Dibenz(a,h)anthracene	[1,800]	[1,000]	< 280	700	< 250	< 250	< 270	---	< 270	< 260	< 260	< 280	< 260	< 290	< 280	< 280	< 250	2,800	< 260	< 280	< 280	< 270	290	350	< 690	< 290	< 280	---
Fluoranthene	1,000,000	56,000	< 280	5,700	< 250	< 250	290	---	900	< 260	< 260	< 280	490	< 290	< 280	520	400	25,000	< 260	< 280	1,300	930	750	1,900	*< 2400*	< 290	910	---
Fluorene	1,000,000	56,000	< 280	510	< 250	< 250	< 270	---	< 270	< 260	< 260	< 280	< 260	< 290	< 280	< 280	< 250	780	< 260	< 280	< 280	< 270	< 240	270	*< 2400*	< 290	< 280	---
Indeno(1,2,3-cd)pyrene	[1,000]	[1,000]	< 280	2,500	< 250	< 250	290	---	450	< 260	< 260	< 280	< 260	< 290	< 280	< 280	300	11,000	300	< 280	760	980	510	1,300	1,600	350	640	---
Naphthalene	1,000,000	56,000	< 280	280	< 250	< 250	< 270	---	< 270	< 260	< 260	< 280	< 260	< 290	< 280	< 280	< 250	570	< 260	< 280	< 280	< 270	< 240	260	*< 2400*	< 290	< 280	---
Phenanthrene	1,000,000	40,000	< 280	3,200	< 250	< 250	< 270	---	340	< 260	< 260	< 280	< 260	< 290	< 280	< 280	< 250	5,500	< 260	< 280	480	460	440	790	*< 2400*	< 290	410	---
Pyrene	1,000,000	40,000	< 280	5,800	< 250	260	310	---	840	< 260	< 260	< 280	560	< 290	280	530	430	26,000	< 260	< 280	1,300	930	710	2,800	2,700	< 290	910	---
Pesticides By SW8081B (ug/Kg)																													
4,4' -DDD	[1,800]	[20]	< 8.0	< 8.2	< 8.5	< 7.2	22	< 1.6	< 1.5	< 1.5	1.7	< 1.6	< 1.5	< 1.7	< 1.6	< 1.7	12	34	5.6	< 1.6	37	< 1.5	< 6.9	< 6.8	31	< 1.6	< 1.6	57
4,4' -DDE	[1,800]	[20]	< 8.0	< 8.5	83	55	260	< 1.6	190	70	52	< 1.6	4.4	< 1.7	6.9	< 1.7	82	95	41	26	370	18	28	< 6.8	110	1.9	120	170
4,4' -DDT	[1,800]	[20]	< 8.0	< 19	46	45	280	< 1.6	200	37	41	< 1.6	8.5	< 1.7	10	4.8	51	240	130	41	610	43	28	< 6.8	95	2	180	270
a-BHC	340	10	< 8.0	< 6.8	< 7.1	< 7.2	< 1.6	< 1.6	< 1.5	< 1.5	< 1.5	< 1.6	< 1.5	< 1.7	< 1.6	< 1.7	< 7.1	< 1.6	< 1.5	< 1.6	< 1.6	< 1.5	< 6.9	< 6.8	< 7.0	< 1.6	< 1.6	< 1.6
Alachlor	7,700	400	< 8.0	< 6.8	< 7.1	< 7.2	< 7.8	< 7.8	< 7.7	< 7.4	< 7.5	< 7.8	< 7.6	< 8.4	< 7.9	< 8.3	< 7.1	< 7.8	< 7.4	< 8.0	< 8.1	< 7.6	< 6.9	< 6.8	< 7.0	< 8.1	< 8.1	< 8.0
Aldrin	40	10	< 4.0	< 3.4	< 3.5	< 3.6	< 1.6	< 1.6	< 1.5	< 1.5	< 1.5	< 1.6	< 1.5	< 1.7	< 1.6	< 1.7	< 3.6	< 1.6	< 1.5	< 1.6	< 1.6	< 1.5	< 3.5	< 3.4	< 3.5	< 1.6	< 1.6	< 1.6
b-BHC	340	10	< 8.0	< 6.8	< 7.1	< 7.2	< 1.6	< 1.6	< 1.5	< 1.5	< 1.5	< 1.6	< 1.5	< 1.7	< 1.6	< 1.7	< 7.1	< 1.6	< 1.5	< 1.6	< 1.6	< 1.5	< 6.9	< 6.8	< 7.0	< 1.6	< 1.6	< 1.6
Chlordane	490	66	< 40	70	64	43	490	< 39	98	49	< 37	< 39	< 38	< 42	< 40	< 42	76	96	64	< 40	80	120	< 35	< 34	270	< 40	310	750
d-BHC	340	10	< 8.0	< 6.8	< 7.1	< 7.2	< 1.6	< 1.6	< 1.5	< 1.5	< 1.5	< 1.6	< 1.5	< 1.7	< 1.6	< 1.7	< 7.1	< 1.6	< 1.5	< 1.6	< 1.6	< 1.5	< 6.9	< 6.8	< 7.0	< 1.6	< 1.6	< 1.6
Dieldrin	38	7	< 4.0	< 3.4	< 3.5	< 3.6	9.3	< 3.9	< 3.9	< 3.7	< 3.7	< 3.9	< 3.8	< 4.2	< 4.0	< 4.2	< 3.6	< 3.9	9.7	< 4.0	15	< 3.8	< 3.5	< 3.4	< 7.0	< 4.0	9.5	20
Endosulfan I	[41,000]	[840]	< 8.0	< 6.8	< 7.1	< 7.2	< 7.8	< 7.8	< 7.7	< 7.4	< 7.5	< 7.8	< 7.6	< 8.4	< 7.9	< 8.3	< 7.1	< 7.8	< 7.4	< 8.0	< 8.1	< 7.6	< 6.9	< 6.8	< 7.0	< 8.1	< 8.1	< 8.0
Endosulfan II	41,000	840	< 8.0	< 6.8	< 7.1	< 7.2	< 7.8	< 7.8	< 7.7	< 7.4	< 7.5	< 7.8	< 7.6	< 8.4	< 7.9	< 8.3	< 7.1	< 7.8	< 7.4	< 8.0	< 8.1	< 7.6	< 6.9	< 6.8	< 7.0	< 8.1	< 8.1	< 8.0
Endosulfan sulfate	41,000	840	< 8.0	< 6.8	< 7.1	< 7.2	< 7.8	< 7.8	< 7.7	< 7.4	< 7.5	< 7.8	< 7.6	< 8.4	< 7.9	< 8.3	< 7.1	< 7.8	< 7.4	< 8.0	< 8.1	< 7.6	< 6.9	< 6.8	< 7.0	< 8.1	< 8.1	< 8.0
Endrin	20,000	400	< 8.0	< 8.0	< 7.1	< 7.2	< 20	< 7.8	< 7.7	< 7.4	< 7.5	< 7.8	< 7.6	< 8.4	< 7.9	< 8.3	< 7.1	< 7.8	< 7.4	< 8.0	< 8.1	< 7.6	< 6.9	< 6.8	41	< 8.1	47	120
Endrin aldehyde	20,000	400	< 8.0	< 6.8	< 7.1	< 7.2	< 7.8	< 7.8	< 7.7	< 7.4	< 7.5	< 7.8	< 7.6	< 8.4	< 7.9	< 8.3	< 7.1	< 7.8	< 7.4	< 8.0	< 8.1	< 7.6	< 6.9	< 6.8	< 7.0	< 8.1	< 8.1	< 8.0
Endrin ketone	20,000	400	< 8.0	< 6.8	< 7.1	< 7.2	11	< 7.8	< 7.7	< 7.4	< 7.5	< 7.8	< 7.6	< 8.4	< 7.9	< 8.3	< 7.1	< 7.8	< 7.4	< 8.0	< 8.1	< 7.6	< 6.9	< 6.8	< 7.0	< 8.1	< 8.1	36
g-BHC	20,000	40	< 1.6	< 1.4	< 1.4	< 1.4	< 1.6	< 1.6	< 1.5	< 1.5	< 1.5	< 1.6	< 1.5	< 1.7	< 1.6	< 1.7	< 1.4	< 1.6	< 1.5	< 1.6	< 1.6	< 1.5	< 1.4	< 1.4	< 1.4	< 1.6	< 1.6	< 1.6
Heptachlor	140	13	< 8.0	< 6.8	< 7.1	< 7.2	< 7.8	< 7.8	< 7.7	< 7.4	< 7.5	< 7.8	< 7.6	< 8.4	< 7.9	< 8.3	< 7.1	< 7.8	< 7.4	< 8.0	< 8.1	< 7.6	< 6.9	< 6.8	< 7.0	< 8.1	< 8.1	15
Heptachlor epoxide	67	20	< 8.0	< 6.8	< 7.1	< 7.2	78	< 7.8	14	< 7.4	< 7.5	< 7.8	< 7.6	< 8.4	< 7.9	< 8.3	< 7.1	12	< 7.4	< 8.0	< 8.1	< 7.6	< 6.9	< 6.8	17	< 8.1	47	85
Methoxychlor	340,000	8,000	< 40	< 35	< 35	< 36	< 39	< 39	< 39	< 37	< 37	< 39	< 38	< 42	< 40	< 42	< 36	< 39	< 37	< 40	< 41	< 38	< 35	< 35	<34	< 40	< 41	< 40
Toxaphene	560	600	< 160	< 140	< 140	< 140	< 160	< 160	< 150	< 150	< 150	< 160	< 150	< 170	< 160	< 170	< 140	< 160	< 150	< 160	< 160	< 150	< 140	< 140	<140	< 160	< 160	< 160

Notes:
Bold indicates a detection
Bold and highlighted cells indicates an exceedance of one or more of the listed criteria
Res DEC = Residential Direct Exposure Criteria
GB PMC = GB Pollutant Mobility Criteria
[Green Text] = DEEP fast-track approveable additional polluting substances; DEEP approval required
VOCs = Volatile Organic Compounds; PAHs = Polynuclear Aromatic Hydrocarbons; PCBs = Polychlorinated Biphenyls
mg = milligram; kg = kilogram; L = Liter; ug = microgram
NE = Not established
ND = Not detected
0.5-1.75[D] - indicates a duplicate sample was collected; the higher results of the two samples was reported

Attachment

Historical Aerial Photographs & Maps



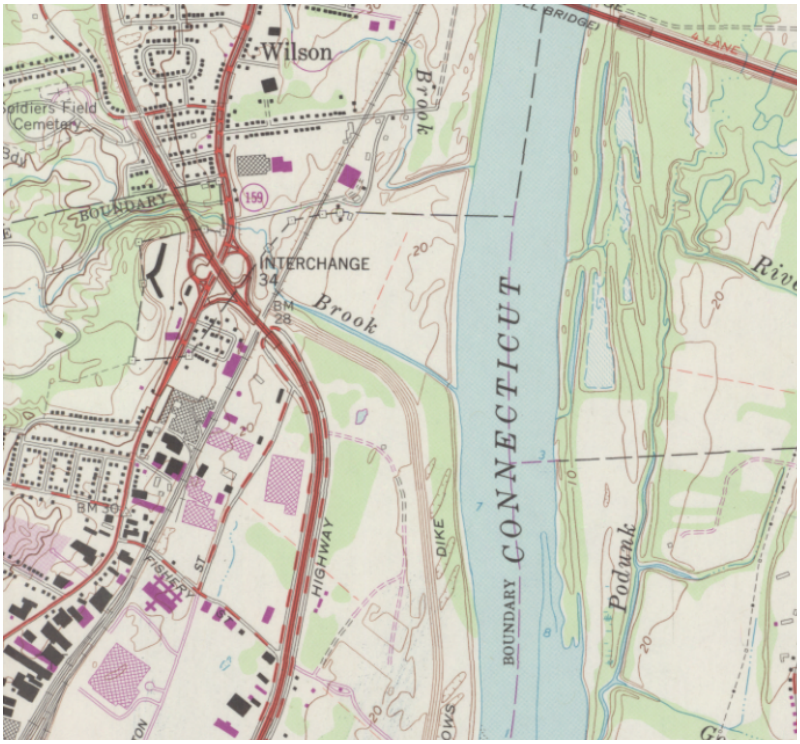
1945 Topographical Map



1963 Geologic Quadrangle Map



1970 Aerial Photograph



1984 Topographical Map



1990 Aerial Photograph



2012 Aerial Photograph

Appendix C

Additional Polluting Substances Request

Electronic Transmittal Form for DEEP Remediation and LUST Secure File Transfer (SFT)

DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION
REMEDIATION DIVISION
LEAKING UNDERGROUND STORAGE TANK COORDINATION PROGRAM
www.ct.gov/deep

This Electronic Transmittal Form must be completed and included as the cover sheet of your electronic document when uploading a document to the Connecticut SFT website. Requirements for Transmittals through the SFT website:

- Only document types identified in the dropdown lists in Part III below may be submitted through the SFT website.
- Documents submitted through the SFT website must include all applicable figures, tables and laboratory data.
- Files must be formatted as PDF/A and use the appropriate naming convention:
  - For Remediation Filings: **REM_RemID_DocumentType_DateofDocument**
    Example: REM_1234_MonitoringReport_01-01-2001
  - For LUST Filings: **LUST_SiteAddress_Town_AbbreviationForDocumentType_DateofDocument**
    Example: LUST_1MainStreet_Hartford_ESA_01-01-2001
    Note: For "AbbreviationForDocumentType" use appropriate abbreviation at Transmittal of Documents

Part I: Primary Recipient*: Remediation Program (* required)

For Remediation documents:	For LUST documents:
Primary Program*: Brownfield Program	UST Facility ID:
Rem ID*: 14420 & 14793	Spill Case Number:

Part II: Site Information

Site Name*: RLI Park Project (RLI Property & Portion of WMSP)

Site Address*: Leibert Road / Meadow Road

City/Town*: Hartford/Windsor State: CT Zip Code: 06120

Secondary Programs (complete as many as applicable for this document):

Program: Voluntary Remediation	Project ID: 14420
Program: Voluntary Remediation	Project ID: 14793
Program: Select Secondary Program	Project ID:
Program: Select Secondary Program	Project ID:

Provide Project ID for each secondary program if it is known.
Each program has a unique ID (i.e. Rem ID, Spill Case #, UST Facility ID, etc.)

Part III: Document Information (document type required for appropriate program[s] only)

Remediation*: Request for Criteria for Additional Polluting Substances or Alternative Criteria

LUST*: LUST Document Type

Date of Document*: 5/24/2022 Version: Final

Part IV: Submitter Information

Name*: Dan Jahne, LEP

E-mail*: DJahne@fando.com

Name of company/business this document is being submitted on behalf of: *

Riverfront Recapture, Inc.

Department of Energy & Environmental Protection
Bureau of Water Protection and Land Reuse
Remediation Division
79 Elm Street, Hartford, CT 06106-5127
(860) 424-3705 **www.ct.gov/deep/remediation**

DEEP USE ONLY (Date Stamp)

REQUEST FOR APPROVAL OF CRITERIA FOR ADDITIONAL POLLUTING SUBSTANCES AND CERTAIN ALTERNATIVE CRITERIA

In accordance with Sections 22a-133k-1 through k-3 of the Regulations of Connecticut State Agencies

This form is prescribed by the Commissioner and must be completed when requesting the Commissioner's approval to use site-specific cleanup criteria for Additional Polluting Substances and certain Alternative Criteria. For use of the criteria listed below for the site identified in this form, the Commissioner's approval is required pursuant to the Remediation Standard Regulations, Sections 22a-133k-1 through 22a-133k-3 (RSRs) of the Regulations of Connecticut State Agencies (RCSA).

If this request is for an anticipated Property Transfer Act Form I, II, or IV filing, the approval will be conditional on the submittal of such filing within one year of the date of this approval. After such time, if such filing was not submitted, this approval automatically expires.

In all other cases, the approval expires eight years from the date approved unless otherwise extended by the Commissioner in writing, or unless a Verification, Interim Verification, or Final Remedial Action Report (in the case of DEEP-lead or Voluntary Remediation under CGS Section 22a-133y only) is submitted within said timeframe.

All sections of this form must be completed, as applicable.

Check the box to indicate the program for which this form is being submitted:

☐ Connecticut General Statutes (CGS) section 22a-134a(a)-(e), Property Transfer Program
☒ CGS section 22a-133x, Voluntary Remediation Program
☐ CGS section 22a-133y, Voluntary Remediation Program
☒ Other (specify) Abandoned Brownfield Cleanup Program

Site Identification

RemID# 14420

Name of Site: RLI Park Project

Street Address: Liebert Road (Hartford) & Meadow Road (Windsor)

City/Town: Hartford & Windsor State: CT Zip Code: -

Groundwater Classification: GB

Contact Information

Certifying Party (if Property Transfer): ☒ N/A

Person submitting Request: Daniel R. Jahne Title: Associate

Business Name: Fuss & O'Neill, Inc. E-mail Address: djahne@fando.com

Mailing Address: 146 Hartford Road

City/Town: Manchester State: CT Zip Code: 06040-5992

Business Phone: 860-646-2469 Ext. 5523 Fax: 860-533-5133

☐ Request to use the 2003 Draft Volatilization and Soil Vapor Criteria Tables C2 and C3, as revised in 2015.

"I hereby request approval, in accordance with Sections 22a-133k-2(b)(5), 22a-133k-2(c)(6), 22a-133k-3(h), 22a-133k-3(b)(3)(B), and/or 22a-133k-3(c)(4)(B) of the RCSA, to use the criteria selected in the table below for Additional Polluting Substances at the site identified above."

Check the box indicating the criteria for which approval is requested. Selection of criteria must correspond to the groundwater classification of the site. The criteria below are not valid and effective for any release or property until and unless DEEP issues a written approval for use at a specific property. DEEP may update these criteria at any time, so no one should rely on them until receipt from DEEP of a property-specific approval. These criteria are optional and any person may elect to apply for a different criterion for any additional polluting substance provided that adequate documentation to support such request is submitted to DEEP.

Substance	Res DEC (mg/kg)	I/C DEC (mg/kg)	GA PMC (mg/kg)	GB PMC (mg/kg)	RSVVC (ppmv)[1]	I/CSVVC (ppmv)[1]	RSVVC (mg/m^3)[1]	I/CSVVC (mg/m^3)[1]	GWPC (µg/L)	SWPC (µg/L)[1]	RGWVC (µg/L)[1]	I/CGWVC (µg/L)[1]
Acenaphthene	1,000 ■	2,500 ☐	8.4 ☐	84 ■	13 ☐	110 ☐	83 ☐	690 ☐	420 ☐	150 ■	30,500 ■	50,000 ☐
Acetone										10,000 ☐		
Acetonitrile	340 ☐	1,000 ☐	0.70 ☐	7.0 ☐	14 ☐	140 ☐	24 ☐	240 ☐	35 ☐	10,000 ☐	37,100 ☐	50,000 ☐
Acrolein	34 ☐	1,000 ☐	0.20 ☐	2.0 ☐	0.003 ☐	0.035 ☐	0.008 ☐	0.081 ☐	10 ☐	30 ☐	4.0 ☐	50 ☐
Alachor										450 ☐		
Aldicarb										9.4 ☐		
Aldrin	0.04 ☐	0.34 ☐	0.002 ☐	0.01 ☐					0.05 ☐	0.05 ☐		
Aniline	110 ☐	1,000 ☐	0.20 ☐	1.2 ☐					6.1 ☐	41 ☐		
Atrazine										16 ☐		
Benzidine	0.20 ☐	0.20 ☐	0.20 ☐	1.0 ☐					5.0 ☐	5.0 ☐		
Benzo(g,h,i)perylene	8.4 ■	78 ☐	1 ☐	1 ■					0.48 ☐	150 ☐		
Benzoic acid	1,000 ☐	2,500 ☐	20 ☐	200 ☐					1,000 ☐	9,000 ☐		
Bis(2-chloroethoxy)methane	200 ☐	2,500 ☐	0.42 ☐	4.2 ☐					21 ☐	10,000 ☐		
Bromodichloromethane	18 ☐	170 ☐	0.02 ☐	0.21 ☐	0.002 ☐	0.046 ☐	0.012 ☐	0.31 ☐	1.0 ☐	510 ☐	1.1 ☐	35 ☐
Bromomethane	34 ☐	1,000 ☐	0.07 ☐	0.70 ☐	0.51 ☐	5.2 ☐	2 ☐	20 ☐	3.5 ☐	160 ☐	83 ☐	1,100 ☐
2-Butanone (MEK)										10,000 ☐		
Butylbenzene, n-	500 ☐	1,000 ☐	7.0 ☐	70 ☐	13 ☐	130 ☐	69 ☐	690 ☐	350 ☐	10,000 ☐	1,600 ☐	21,800 ☐
Butylbenzene, sec-	500 ☐	1,000 ☐	7.0 ☐	70 ☐	13 ☐	130 ☐	69 ☐	690 ☐	350 ☐	10,000 ☐	1,500 ☐	20,100 ☐
Butylbenzene, tert-	500 ☐	1,000 ☐	7.0 ☐	70 ☐	13 ☐	130 ☐	69 ☐	690 ☐	350 ☐	10,000 ☐	1,900 ☐	25,300 ☐

Substance	Res DEC (mg/kg)	I/C DEC (mg/kg)	GA PMC (mg/kg)	GB PMC (mg/kg)	RSVVC (ppmv)[1]	I/CSVVC (ppmv)[1]	RSVVC (mg/m^3)[1]	I/CSVVC (mg/m^3)[1]	GWPC (µg/L)	SWPC (µg/L)[1]	RGWVC (µg/L)[1]	I/CGWVC (µg/L)[1]
Butylbenzyl phthlate										230 ☐		
Carbazole	31 ☐	290 ☐	0.20 ☐	1.0 ☐					5.0 ☐	53 ☐		
Carbon disulfide	500 ☐	1,000 ☐	0.80 ☐	8.0 ☐	27 ☐	48 ☐	83 ☐	150 ☐	40 ☐	150 ☐	2,100 ☐	5,200 ☐
Chlordane, (total)[2]	0.49 ☐	2.2 ☐	0.066 ☐	0.066 ☐					0.30 ☐	0.3 ☐		
Chloroaniline, 4-	3.1 ☐	29 ☐	0.20 ☐	1.0 ☐					5.0 ☐	9.9 ☐		
Chloroethane	130 ☐	1,000 ☐	0.15 ☐	1.5 ☐	0.27 ☐	3.3 ☐	0.71 ☐	8.7 ☐	7.4 ☐	10,000 ☐	22 ☐	360 ☐
Chloromethane	180 ☐	1,000 ☐	0.36 ☐	3.6 ☐	1.70 ☐	18 ☐	3.6 ☐	36 ☐	18 ☐	10,000 ☐	130 ☐	1,800 ☐
Chloronaphthalene, 2-	500 ☐	1,000 ☐	11 ☐	110 ☐	17 ☐	100 ☐	110 ☐	690 ☐	560 ☐	10,000 ☐	27,300 ☐	50,000 ☐
Chlorophenol, 3-methyl-4	1,000 ☐	2,500 ☐	14 ☐	140 ☐					700 ☐	73 ☐		
Chlorophenol, 2-										420 ☐		
Chlorotoluene, 2-	500 ☐	1,000 ☐	2.8 ☐	28 ☐	6.1 ☐	62 ☐	32 ☐	320 ☐	140 ☐	10,000 ☐	2,100 ☐	28,300 ☐
Chlorotoluene, 4-	500 ☐	1,000 ☐	2.8 ☐	28 ☐	6.1 ☐	62 ☐	32 ☐	320 ☐	140 ☐	10,000 ☐	1,900 ☐	25,200 ☐
Chrysene	84 ■	780 ☐	1 ☐	1 ■					4.8 ☐	0.54 ☐		
Cyclohexane	500 ☐	1,000 ☐	20 ☐	200 ☐	110 ☐	200 ☐	380 ☐	690 ☐	1,000 ☐	2,800 ☐	1,100 ☐	2,800 ☐
D, 2,4-										1,700 ☐		
Dibenzo(a,h)anthracene	1.0 ■	1 ☐	1 ☐	1 ■					0.10 ☐	0.30 ☐		
Dibenzofuran	68 ☐	1,000 ☐	0.20 ☐	1.4 ☐	0.20 ☐	2.1 ☐	1.4 ☐	14 ☐	7.0 ☐	40 ☐	460 ☐	5,800 ☐
Dibromo-3-chloropropane, 1.2-	0.09 ☐	0.82 ☐	0.005 ☐	0.04 ☐					0.20 ☐	1.1 ☐		
Dicamba	500 ☐	1,000 ☐	4.2 ☐	42 ☐					210 ☐	2,200 ☐		
Dichlorobenzidine, 3,3'-	1.4 ☐	13 ☐	0.20 ☐	1.0 ☐					5.0 ☐	5.0 ☐		
Dichlorobutene, 1,4-					0.0005 ☐	0.0005 ☐	0.0026 ☐	0.0027 ☐			0.5 ☐	0.5 ☐
Dichlorodifluromethane	500 ☐	1,000 ☐	7.0 ☐	70 ☐	8.0 ☐	81 ☐	39 ☐	400 ☐	350 ☐	10,000 ☐	53 ☐	720 ☐
Dichlorodiphenyl Trichloroethane, P,P'-(DDT) (total)[3]	1.8 ■	17 ☐	0.003 ☐	0.02 ■					0.10 ☐	0.05 ☐		

Substance	Res DEC (mg/kg)	I/C DEC (mg/kg)	GA PMC (mg/kg)	GB PMC (mg/kg)	RSVVC (ppmv)[1]	I/CSVVC (ppmv)[1]	RSVVC (mg/m^3)[1]	I/CSVVC (mg/m^3)[1]	GWPC (µg/L)	SWPC (µg/L)[1]	RGWVC (µg/L)[1]	I/CGWVC (µg/L)[1]
Dichloroethane, 1,1-										4,100 ☐		
Dichloroethene, 1,2-										9,700 ☐		
Dichloroethene, cis 1,2-										6,200 ☐		
Dichloroethene, trans 1,2-										10,000 ☐		
Dichloroprop	240 ☐	1,000 ☐	0.50 ☐	5.0 ☐					25 ☐	120 ☐		
Dichloropropane, 1,2										150 ☐		
Diethyl phthalate	1,000 ☐	2,500 ☐	20 ☐	200 ☐					1,000 ☐	2,200 ☐		
Dimethyl phthalate	1,000 ☐	2,500 ☐	20 ☐	200 ☐					1,000 ☐	10,000 ☐		
Dimethylphenol, 2,4-	1,000 ☐	2,500 ☐	2.8 ☐	28 ☐					140 ☐	150 ☐		
Dinitrophenol, 2,4-	140 ☐	2,500 ☐	0.30 ☐	2.8 ☐					14 ☐	710 ☐		
Dinitophenol, 2-methyl-4,6-	20 ☐	610 ☐	0.30 ☐	2.0 ☐					10 ☐	10 ☐		
Dinitrotoluene, 2,4-	0.90 ☐	8.4 ☐	0.20 ☐	1.0 ☐					5.0 ☐	100 ☐		
Dinitrotoluene, 2,6-	0.9 ☐	8.4 ☐	0.2 ☐	1.0 ☐					5.0 ☐	46 ☐		
Dioxane, 1,4-	6.1 ☐	57 ☐	0.10 ☐	0.60 ☐	0.050 ☐	0.61 ☐	0.18 ☐	2.2 ☐	3.0 ☐	960 ☐		
1,2-Diphenylhydrazine	0.77 ☐	7.2 ☐	0.20 ☐	1.0 ☐					5.0 ☐	6.0 ☐		
Endosulfan (total)[4]	41 ■	1,000 ☐	0.084 ☐	0.84 ■					4.2 ☐	0.56 ☐		
Endrin (total)[5]	20 ☐	610 ☐	0.04 ☐	0.40 ☐					2.0 ☐	0.1 ☐		
Ethanol	1,000 ☐	2,500 ☐	20 ☐	200 ☐					1,000 ☐	10,000 ☐		
Ethyl acetate	500 ☐	1,000 ☐	20 ☐	200 ☐	100 ☐	190 ☐	380 ☐	690 ☐	1,000 ☐	10,000 ☐	50,000 ☐	50,000 ☐
Ethylene glycol	1,000 ☐	2,500 ☐	20 ☐	200 ☐					1,000 ☐	10,000 ☐		
Extractable Total Petroleum Hydrocarbons (ETPH)										250 ■		
Formaldehyde	1,000 ☐	2,500 ☐	2.8 ☐	28 ☐					140 ☐	9,700 ☐		
Hexachlorobutadiene	130 ☐	1,200 ☐	0.2 ☐	1.5 ☐					7.4 ☐	10 ☐		

Substance	Res DEC (mg/kg)	I/C DEC (mg/kg)	GA PMC (mg/kg)	GB PMC (mg/kg)	RSVVC (ppmv)[1]	I/CSVVC (ppmv)[1]	RSVVC (mg/m^3)[1]	I/CSVVC (mg/m^3)[1]	GWPC (µg/L)	SWPC (µg/L)[1]	RGWVC (µg/L)[1]	I/CGWVC (µg/L)[1]
Hexachlorocyclohexane, alpha-	0.34 ☐	3.2 ☐	0.002 ☐	0.01 ☐					0.05 ☐	0.11 ☐		
Hexachlorocyclohexane, beta-	0.34 ☐	3.2 ☐	0.002 ☐	0.01 ☐					0.05 ☐	0.11 ☐		
Hexachlorocyclohexane, delta-	0.34 ☐	3.2 ☐	0.002 ☐	0.01 ☐					0.05 ☐	0.11 ☐		
Hexachlorocyclopentadiene	410 ☐	1,000 ☐	0.84 ☐	8.4 ☐					42 ☐	0.70 ☐		
Hexane, n-	500 ☐	1,000 ☐	8.4 ☐	84 ☐	79 ☐	200 ☐	280 ☐	690 ☐	420 ☐	200 ☐	71 ☐	240 ☐
Hexanone-2	340 ☐	1,000 ☐	0.70 ☐	7.0 ☐	2.90 ☐	29 ☐	12 ☐	120 ☐	35 ☐	10,000 ☐	7,600 ☐	94,000 ☐
Indeno(1,2,3-c,d)pyrene	1.0 ■	7.8 ☐	1 ☐	1 ■					0.10 ☐	0.54 ☐		
Isophorone	640 ☐	2,500 ☐	0.74 ☐	7.4 ☐					37 ☐	9,200 ☐		
Isopropanol	1,000 ☐	2,500 ☐	46 ☐	460 ☐					2,300 ☐	10,000 ☐		
Isopropylbenzene (cumene)	500 ☐	1,000 ☐	0.50 ☐	5.0 ☐	6.0 ☐	11 ☐	30 ☐	54 ☐	25 ☐	210 ☐	900 ☐	2,200 ☐
Isopropyltoluene, 4- (cymene)	500 ☐	1,000 ☐	0.50 ☐	5.0 ☐	5.3 ☐	9.7 ☐	30 ☐	54 ☐	25 ☐	200 ☐	870 ☐	2,100 ☐
Lindane										0.11 ☐		
Methanol	1,000 ☐	2,500 ☐	20 ☐	200 ☐					1,000 ☐	3,300 ☐		
Methoxychlor										0.50 ☐		
Methyl methacrylate	500 ☐	1,000 ☐	20 ☐	200 ☐	6.8 ☐	68 ☐	28 ☐	280 ☐	980 ☐	10,000 ☐	6,800 ☐	87,600 ☐
Methylnaphthalene, 1-	21 ☐	200 ☐	0.20 ☐	1.0 ☐	0.019 ☐	0.24 ☐	0.11 ☐	1.4 ☐	5 ☐	61 ☐	20 ☐	320 ☐
Methylnaphthalene, 2-	270 ■	1,000 ☐	0.56 ☐	5.6 ■	0.95 ☐	9.7 ☐	5.5 ☐	57 ☐	28 ☐	62 ☐	1,000 ☐	13,100 ☐
Methylphenol, 2- (Cresol, o-)	1,000 ☐	2,500 ☐	2.8 ☐	28 ☐					140 ☐	670 ☐		
Methylphenol, 3- (Cresol, m-)	1,000 ☐	2,500 ☐	2.4 ☐	24 ☐					120 ☐	620 ☐		
Methylphenol, 4- (Cresol, p-)	1,000 ☐	2,500 ☐	2.8 ☐	28 ☐					140 ☐	560 ☐		
Methyl-tert butyl ether (MTBE)										10,000 ☐		
Naphthalene										210 ☐		
Nitroaniline, 2-	31 ☐	290 ☐	0.30 ☐	2.0 ☐					10 ☐	210 ☐		

Substance	Res DEC (mg/kg)	I/C DEC (mg/kg)	GA PMC (mg/kg)	GB PMC (mg/kg)	RSVVC (ppmv)[1]	I/CSVVC (ppmv)[1]	RSVVC (mg/m^3)[1]	I/CSVVC (mg/m^3)[1]	GWPC (µg/L)	SWPC (µg/L)[1]	RGWVC (µg/L)[1]	I/CGWVC (µg/L)[1]
Nitroaniline, 3-	31 ☐	290 ☐	0.30 ☐	2.0 ☐					10 ☐	70 ☐		
Nitroaniline, 4-	31 ☐	290 ☐	0.30 ☐	2.0 ☐					10 ☐	1,200 ☐		
Nitrobenzene	4 ☐	41 ☐	0.20 ☐	1.0 ☐	0.005 ☐	0.056 ☐	0.023 ☐	0.28 ☐	5 ☐	2,300 ☐	51 ☐	750 ☐
Nitrophenol, 2-										560 ☐		
Nitrosodimethylamine, N-	0.20 ☐	0.36 ☐	0.20 ☐	1.0 ☐					5.0 ☐	90 ☐		
Nitrosodi-n-propylamine, N-	0.20 ☐	0.82 ☐	0.20 ☐	1.0 ☐					5.0 ☐	15 ☐		
Nitrosodiphenylamine, N-	130 ☐	1,200 ☐	0.20 ☐	1.4 ☐					7.1 ☐	180 ☐		
Pentachloronitrobenzene	68 ☐	2,000 ☐	0.14 ☐	1.4 ☐					7.0 ☐	25 ☐		
Pentachlorophenol										30 ☐		
Phenanthrene										14 ■		
Per- and Polyfluoroalkyl Substances (PFAS)[6]	1.35 ☐	41 ☐	0.0014 ☐	0.014 ☐					0.07 ☐			
Propylbenzene, n-	500 ☐	1,000 ☐	1.0 ☐	10 ☐	7.4 ☐	14 ☐	36 ☐	67 ☐	50 ☐	10,000 ☐	1,200 ☐	2,900 ☐
Propylene glycol	1,000 ☐	2,500 ☐	20 ☐	200 ☐					1,000 ☐	10,000 ☐		
Pyridine	20 ☐	610 ☐	0.20 ☐	1.0 ☐	0.13 ☐	1.3 ☐	0.41 ☐	4.2 ☐	5.0 ☐	260 ☐	1,900 ☐	23,500 ☐
Styrene										320 ☐		
tert Butyl Alcohol (TBA) (Total Oxygenates)[7]	1,000 ☐	2,500 ☐	2.0 ☐	20 ☐					100 ☐	10,000 ☐		
Tetrachlorobenzene, 1,2,4,5-	20 ☐	610 ☐	0.1 ☐	1.0 ☐					5.0 ☐	11 ☐		
Tetrachloroethane, 1,1,1,2-										330 ☐		
Tetrahydrofuran	61 ☐	570 ☐	0.08 ☐	0.80 ☐	0.10 ☐	1.28 ☐	0.31 ☐	3.8 ☐	4 ☐	9,600 ☐	250 ☐	3,700 ☐
Trichloro-1,2,2-trifluoroethane, 1,1,2-	500 ☐	1,000 ☐	20 ☐	200 ☐	50 ☐	90 ☐	380 ☐	690 ☐	1,000 ☐	320 ☐	330 ☐	810 ☐
Trichlorobenzene, 1,2,4-	21 ☐	200 ☐	1.4 ☐	14 ☐	0.015 ☐	0.64 ☐	0.11 ☐	4.7 ☐	70 ☐	9.6 ☐	12 ☐	660 ☐
Trichlorofluoromethane	500 ☐	1,000 ☐	20 ☐	200 ☐	50 ☐	120 ☐	280 ☐	690 ☐	1,000 ☐	10,000 ☐	1,300 ☐	4,300 ☐
Trichlorophenol, 2,4,5-	1,000 ☐	2,500 ☐	14 ☐	140 ☐					700 ☐	28 ☐		

Substance	Res DEC (mg/kg)	I/C DEC (mg/kg)	GA PMC (mg/kg)	GB PMC (mg/kg)	RSVVC (ppmv)[1]	I/CSVVC (ppmv)[1]	RSVVC (mg/m^3)[1]	I/CSVVC (mg/m^3)[1]	GWPC (µg/L)	SWPC (µg/L)[1]	RGWVC (µg/L)[1]	I/CGWVC (µg/L)[1]
Trichlorophenol, 2,4,6-	56 ☐	520 ☐	0.20 ☐	1.0 ☐					5.0 ☐	49 ☐		
Trimethylbenzene, 1,2,4-	500 ☐	1,000 ☐	2.8 ☐	28 ☐	4.0 ☐	41 ☐	20 ☐	200 ☐	140 ☐	150 ☐	940 ☐	12,800 ☐
Trimethylbenzene, 1,3,5-	500 ☐	1,000 ☐	2.8 ☐	28 ☐	4.0 ☐	41 ☐	20 ☐	200 ☐	140 ☐	260 ☐	730 ☐	10,000 ☐
Vinyl acetate	500 ☐	1,000 ☐	8.0 ☐	80 ☐	2.2 ☐	23 ☐	7.9 ☐	81 ☐	400 ☐	10,000 ☐	1,500 ☐	18,900 ☐
Xylenes (total)										270 ☐		

Inorganics	Res DEC (mg/kg)	I/C DEC (mg/kg)	GA PMC (mg/L via SPLP)	GB PMC (mg/L via SPLP)	GWPC (µg/L)	SWPC (µg/L)
Aluminum	50,000 ☐	50,000 ☐	0.05 ☐	0.5 ☐	50 ☐	870 ☐
Ammonia	6,800 ☐	50,000 ☐	0.7 ☐	7.0 ☐	700 ☐	10,000 ☐
Barium						2,200 ■
Boron	13,500 ☐	50,000 ☐	1.0 ☐	10 ☐	1,000 ☐	10,000 ☐
Chloride						10,000 ☐
Chlorine	6,800 ☐	50,000 ☐	4.0 ☐	40 ☐	4,000 ☐	110 ☐
Cobalt	20 ☐	610 ☐	0.002 ☐	0.02 ☐	2.1 ☐	240 ☐
Iron						10,000 ☐
Lithium	140 ☐	4,100 ☐	0.014 ☐	0.14 ☐	14 ☐	4,400 ☐
Manganese	3,400 ☐	50,000 ☐	0.50 ☐	5.0 ☐	500 ☐	930 ☐
Tin	680 ☐	20,400 ☐	0.07 ☐	0.7 ☐	70 ☐	1,800 ☐
Uranium	200 ☐	6,100 ☐	0.03 ☐	0.3 ☐	30 ☐	10,000 ☐
Vanadium						270 ☐

Key: R DEC-Residential Direct Exposure Criterion
I/C DEC-Industrial/Commercial Direct Exposure Criterion
GA PMC-GA Ground-water Class Pollutant Mobility Criterion
GB PMC-GB Ground-water Class Pollutant Mobility Criterion
R SVVC-Residential Soil Vapor Volatilization Criterion
I/C SVVC-Industrial/Commercial Soil Vapor Volatilization Criterion
GWPC-Groundwater Protection Criterion
SWPC-Surface Water Protection Criterion
R GWVC-Residential Ground-water Volatilization Criterion
I/C GWVC-Industrial/Commercial Ground-water Volatilization Criterion
mg/kg-milligrams per kilogram
ppmv-parts per million volume
µg/L-micrograms per liter
SPLP-Synthetic Precipitation Leaching Procedure
mg/L-milligrams per liter
N/A not applicable
[1] Alternative Criterion for SWPC and Vol C
[2] This criterion applies to the sum of all forms of Chlordane
[3] This criterion applies to the sum of all forms of DDT, DDD, and DDE

Blank cells – No fast track criteria have been calculated.

[4] This criterion applies to the sum of all forms of Endosulfan including the I and II isomers and Endosulfan sulfate
[5] This criterion applies to the sum of all forms of Endrin including Endrin Aldehyde and Endrin Ketone
[6] "PFAS = sum of: Perfluorooctanoic Acid (PFOA), Perfluorooctane Sulfonate (PFOS), Perfluorononanoic Acid (PFNA), Perfluorohexane Sulfonate (PFHxS), and Perfluoroheptanoic Acid (PFHpA).
[7] Total Oxygenates = sum of: Tert Butyl Alcohol (TBA), MTBE, ethyl-t-butyl ether (ETBE), t-amyl-methyl ether (TAME), diisopropyl ether (DIPE).

If you have a prior Approval for Additional Polluting Substances or Alternative Criteria and are now requesting a new Approval to supercede it, please attach a copy of the prior Approval. This Approval will supercede all criteria listed in the previous Approval; a request for use of fewer than all of the previously approved criteria may require additional site-specific review by the Department.

Rem ID# 14420

Signature of Person Requesting Approval

Daniel R Jahne	04/01/2022
Signature	
Daniel Jahne	Associate
Printed Name of Signatory	Title (if applicable)

This completed form should be submitted to:

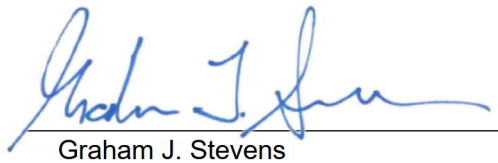
REMEDIATION DIVISION, 2nd Floor
BUREAU OF WATER PROTECTION AND LAND REUSE
DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION
79 ELM STREET
HARTFORD, CT 06106-5127

Section Below Reserved for DEEP Approval

☑ The Request received by DEEP on 4/07/2022 is hereby approved.

Nothing in this approval shall affect the Commissioner's authority to institute any proceeding, or take any action to prevent or abate pollution, to recover costs and natural resource damages, and to impose penalties for violations of law, if any. If at any time the Commissioner determines that the approved actions have not fully characterized the extent and degree of pollution or have not successfully abated or prevented pollution, the Commissioner may institute any proceeding, or take any action to require further investigation or further action to prevent or abate pollution. This approval applies only to the criteria identified in this request. In addition, nothing in this approval shall relieve any person of his or her obligations under applicable federal, state and local law.

*This approval expires eight years from the date approved unless otherwise extended by the Commissioner in writing.



May 24, 2022

Graham J. Stevens
Bureau Chief
Bureau of Water Protection and Land Reuse

Date Approved

Section Below Reserved for DEEP Disapproval

☐ The Request received by DEEP on / / is hereby disapproved.

Rationale:

Graham J. Stevens
Bureau Chief
Bureau of Water Protection and Land Reuse

Date Disapproved

You may re-submit the request if and when the reason(s) for disapproval have been adequately addressed.

Appendix D

Sequencing Plan

SITE REMEDIATION & MITIGATION SEQUENCE

Existing Conditions

Wetlands

Tidal Wetland Delineation Report (TRC Companies, September 2024)
Wetland Report Hartford-Windsor Riverwalk Extension Fuss & O'Neill (April 2020)

Fauna

Rare Species Management Plan: Freshwater Mussel & Odonate Management Plans
(Biodrawversity LLC, October 2024)

Amphibian and Reptile Habitat Assessment and Species Protection Recommendations
(Quinn Ecological LLC, January 2025)

Flora

Report on a Botanical Survey (Christopher Mangels, December 2024)

Property Line

Inland Wetland
+/- 0.25 Acres

Inland Wetland
0.7 Acres
El. 10' to 14'

Scripus georgianus
Georgia Bulrush

Wetland W-JFK-1
Palustrine Emergent (PEM)
1.23 Acres

Carex typhina
Cattail Sedge

Crassula aquatica
Pygmyweed

Alopecurus aequalis (Main)
Short-awned Meadow-Foxtail

Turtle Nesting
(No State Listed Species)

Necturus maculosus
Mudpuppy

Proposed Mussel Salvage Area

Atlanticoncha ochracea
Tidewater Mucket

Connecticut River

Alopecurus aequalis (NW)
Short-awned Meadow-Foxtail

100-ft Buffer Zone
Existing Wetlands & Waterbodies

Alopecurus aequalis (NE)
Short-awned Meadow-Foxtail

Proposed Mussel Relocation Area

Ranunculus pensylvanicus
Bristly Buttercup

0' 100' 200' 400'

SITE REMEDIATION & MITIGATION SEQUENCE

Phase 1A

2025					2026											
AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

Remediation / Earthwork:

- Impacted Soils - Offsite Disposal

Property Line

Impacted soils - offsite disposal

0' 100' 200' 400'

SITE REMEDIATION & MITIGATION SEQUENCE

Phase 1B

2025					2026											
AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

Remediation / Earthwork:

- Proposed remedial areas - excavation
- Temporary stockpile of impacted soils
- Impacted soils to be re-graded

Property Line

Remedial Area

Temporary stocklpile of impacted soils

Remedial Area

Impacted soils to be re-graded

Remedial Areas

Remedial Area

0' 100' 200' 400'

SITE REMEDIATION & MITIGATION SEQUENCE

Phase 2A

2025					2026													
AUG	**SEP**	**OCT**	**NOV**	**DEC**	**JAN**	**FEB**	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC		

Remediation / Earthwork:

Excavation
- Central Cove
- Mitigation Inland Wetland
- Mitigation Tidal Wetland 50%

Fill
- North Commercial Area

Mitigation:
- Pygmyweed benches A & B - construction
- Transplant Short-awned meadow-foxtail (Main)
- Transplant Georgia bulrush
- Transplant Cattail sedge

No impacts to existing tidal wetland or inland wetland.

Property Line

No Inland Wetland Impact

Mitigation Tidal Wetland +/-0.67 Acre

Pygmyweed bench A 8'-10' elevation / full sun

Mitigation Tidal Wetland +/-1 Acre

Pygmyweed bench B 8'-10' elevation / full sun

No Pygmyweed impact

No Tidal Wetland impact

+ 4' Normal Water Level

- 4' Cove Bottom

0' 100' 200' 400'

SITE REMEDIATION & MITIGATION SEQUENCE

Phase 2B

2025					2026										
AUG	SEP	OCT	NOV	DEC	JAN	FEB	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	AUG	SEP	OCT	NOV	DEC

Remediation / Earthwork:

Excavation
- East Cove

Fill
- South Commercial Area

Mitigation:
- Mitigation Inland Wetland - planting
- Mitigation Tidal Wetland - planting
- Existing Tidal Wetland - restore in place (0.52 Ac)
- Existing Inland Wetland - restore in place (0.07 Ac)
- Pygmyweed benches A & B - installation
- *(scraped soil translocation & propogules)*
- Relocate mussels

Property Line

Existing Inland Wetland
Temp. Construction Impact / Restore in Place (0.07 Acres)

+ 4' Normal Water Level

- 4' Cove Bottom

Mitigation Tidal Wetland
Expansion to 2.11 Acres

Existing Tidal Wetland
Temp. Construction Impact / Restore in Place (0.53 Acres)

Mussel Relocation Area

0' 100' 200' 400'

SITE REMEDIATION & MITIGATION SEQUENCE

Phase 2B

2025					2026							
AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	**AUG SEP OCT NOV DEC**

Remediation / Earthwork:

Excavation
- West Cove

Fill
- Prospect hill (south of cove)
- Copse berm (north of cove)
- Commercial Area Overall

Mitigation:
- Establishment & Monitoring

Property Line

+ 4' Normal Water Level

- 4' Cove Bottom

0' 100' 200' 400'

SITE REMEDIATION & MITIGATION SEQUENCE

Overall Summary

- Excavation
- Fiil
- Mitigation Wetland
- Existing Wetland - Restore in Place

Property Line

2B

2A

2A

2C

2C

2C

2A

2B

+ 4' Normal Water Level

- 4' Cove Bottom

3:1

4:1

5:1

10:1

7.5:1

2%

+ 46

+ 33

+ 30)

+ 24

+ 20

(+ 20)

+ 18

+ 16

+10

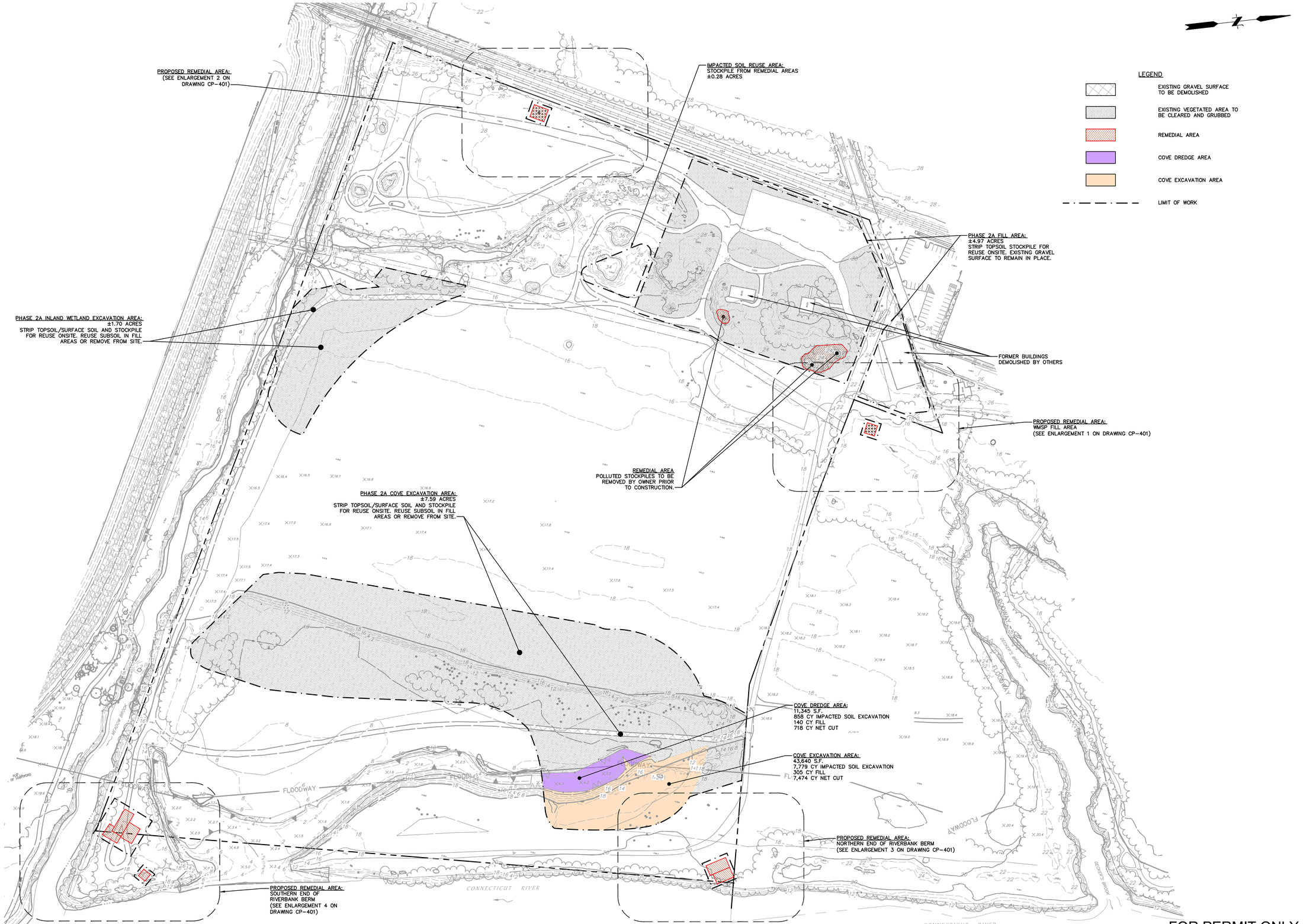
+2

+ 26

0' 100' 200' 400'

Appendix E

Soil Management Plans



FOR PERMIT ONLY

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

SEAL

SCALE: HORZ.: 1" = 100'
VERT.: -

DATUM: HORZ.: -
VERT.: -

0 50' 100' 200'
GRAPHIC SCALE

FUSS & O'NEILL
ONE FINANCIAL PLAZA, 15th FLOOR
HARTFORD, CT 06103
860.646.2469
www.fando.com

RIVERFRONT LAND DEVELOPMENT PROJECT

SITE PREPARATION PLAN - PHASES 1B & 2A

RIVERFRONT RECAPTURE, INC.
228 LIEBERT ROAD, HARTFORD, CONNECTICUT
100 MEADOW ROAD, WINDSOR, CONNECTICUT

PROJ. No.: 20170277.S10
DATE: JULY 2025

CP-101

File: J:\DWG\P2017\0277\S10\Civil\Plan\New Park Phase 1B & 2A\20170277S10_DM001 - Phase 1B & 2A.dwg Layout: CP-101 Plotted: 2025-07-09 2:11 PM Saved: 2025-07-09 2:11 PM User: Avery.OConnell
PC3: AUTOCAD PDF (GENERAL DOCUMENTATION).PC3 STB/CTB: FO.STB
LAYER STATE:
MS VIEW:

PHASE 2B FILL AREA
±8.34 ACRES
STRIP TOPSOIL STOCKPILE FOR REUSE ONSITE.
EXISTING GRAVEL SURFACE TO REMAIN IN PLACE.

EXISTING IMPACTED SOIL STOCKPILE:
STOCKPILE FROM PREVIOUS PHASE REMEDIAL ACTIVITIES
±0.28 ACRES

POLLUTED SOIL REUSE AREA
+/– 197,823 S.F.
+/– 29,307 CY
ELEV. 28' UPPER LIMIT
ELEV. 15.5' LOWER LIMIT
12.5' MAXIMUM THICKNESS

LEGEND

- EXISTING GRAVEL SURFACE TO BE DEMOLISHED
- EXISTING VEGETATED AREA TO BE CLEARED AND GRUBBED
- COVE DREDGE AREA
- COVE EXCAVATION AREA
- LIMIT OF WORK

COVE EXCAVATION AREA #2:
33,408 S.F.
252 CY IMPACTED SOIL EXCAVATION
2,106 CY FILL
1,854 CY NET FILL

PHASE 2B COVE EXCAVATION AREA
±6.84 ACRES
STRIP TOPSOIL/SURFACE SOIL AND STOCKPILE FOR REUSE ONSITE. REUSE SUBSOIL IN FILL AREAS OR REMOVE FROM SITE.

PHASE 2B COVE FILL AREA
±0.83 ACRES
EXISTING TOPSOIL/SURFACE SOIL TO REMAIN IN PLACE.

COVE DREDGE AREA:
100,937 S.F.
5,153 CY IMPACTED SOIL EXCAVATION
4,230 CY FILL
923 CY NET CUT

COVE EXCAVATION AREA #1:
139,113 S.F.
11,348 CY IMPACTED SOIL EXCAVATION
4,540 CY FILL
6,808 CY NET CUT

FOR PERMIT ONLY

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

SEAL

SCALE: HORZ.: 1" = 100'
VERT.: -
DATUM: HORZ.: -
VERT.: -
GRAPHIC SCALE 0 50' 100' 200'

FUSS & O'NEILL
ONE FINANCIAL PLAZA, 15th FLOOR
HARTFORD, CT 06103
860.646.2469
www.fando.com

RIVERFRONT LAND DEVELOPMENT PROJECT

SITE PREPARATION PLAN - PHASE 2B

RIVERFRONT RECAPTURE, INC.
228 LIEBERT ROAD, HARTFORD, CONNECTICUT
100 MEADOW ROAD, WINDSOR, CONNECTICUT

PROJ. No.: 20170277.S10
DATE: 6/12/2025

CP-102

File: J:\DWG\P2017\0277\S10\Civil\Plan\New Park Phase 2B\20170277S10_DMO01 - Phase 2B.dwg Layout: CP-102 Plotted: 2025-07-08 12:20 PM Saved: 2025-07-08 12:16 PM User: Avery.OConnell
MS VIEW: LAYER STATE: PC3: AUTOCAD PDF (GENERAL DOCUMENTATION).PC3 STB/CTB: FO.STB

PHASE 2C FILL AREA:
±7.11 ACRES

LIMITS OF EXISTING IMPACTED SOIL CELL

PHASE 2C FILL AREA:
±13.99 ACRES
EXISTING TOPSOIL/SURFACE SOIL TO REMAIN IN PLACE.

PHASE 2C COVE EXCAVATION AREA:
±8.37 ACRES
STRIP TOPSOIL/SURFACE SOIL AND STOCKPILE FOR REUSE ONSITE. REUSE SUBSOIL IN FILL AREAS OR REMOVE FROM SITE.

PHASE 2C COVE EXCAVATION AREA:
±0.58 ACRES
STRIP EXISTING SURFACE MATERIALS AND STOCKPILE FOR REUSE ONSITE. REUSE SUBSOIL IN FILL AREAS OR REMOVE FROM SITE.

REMOVE TEMPORARY STONE BERM, SALVAGE RIPRAP, FILTER STONE, AND EMBANKMENT FILL

LEGEND

- EXISTING SURFACE MATERIALS TO BE DEMOLISHED
- EXISTING VEGETATED AREA TO BE CLEARED AND GRUBBED
- LIMIT OF WORK

FLOODWAY

CONNECTICUT RIVER

BECKER'S BROOK

FOR PERMIT ONLY

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

SEAL

SCALE: HORZ.: 1" = 100'
VERT.: -

DATUM: HORZ.: -
VERT.: -

GRAPHIC SCALE 0 50' 100' 200'

FUSS & O'NEILL
ONE FINANCIAL PLAZA, 15th FLOOR
HARTFORD, CT 06103
860.646.2469
www.fando.com

RIVERFRONT LAND DEVELOPMENT PROJECT

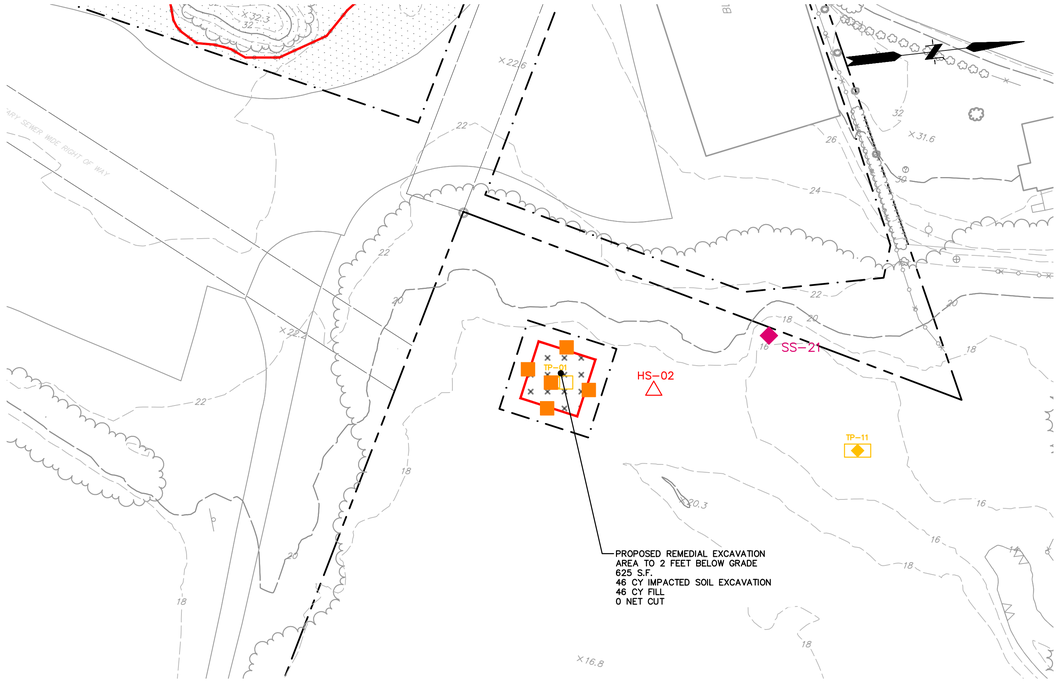
SITE PREPARATION PLAN - PHASE 2C

RIVERFRONT RECAPTURE, INC.
228 LIEBERT ROAD, HARTFORD, CONNECTICUT
100 MEADOW ROAD, WINDSOR, CONNECTICUT

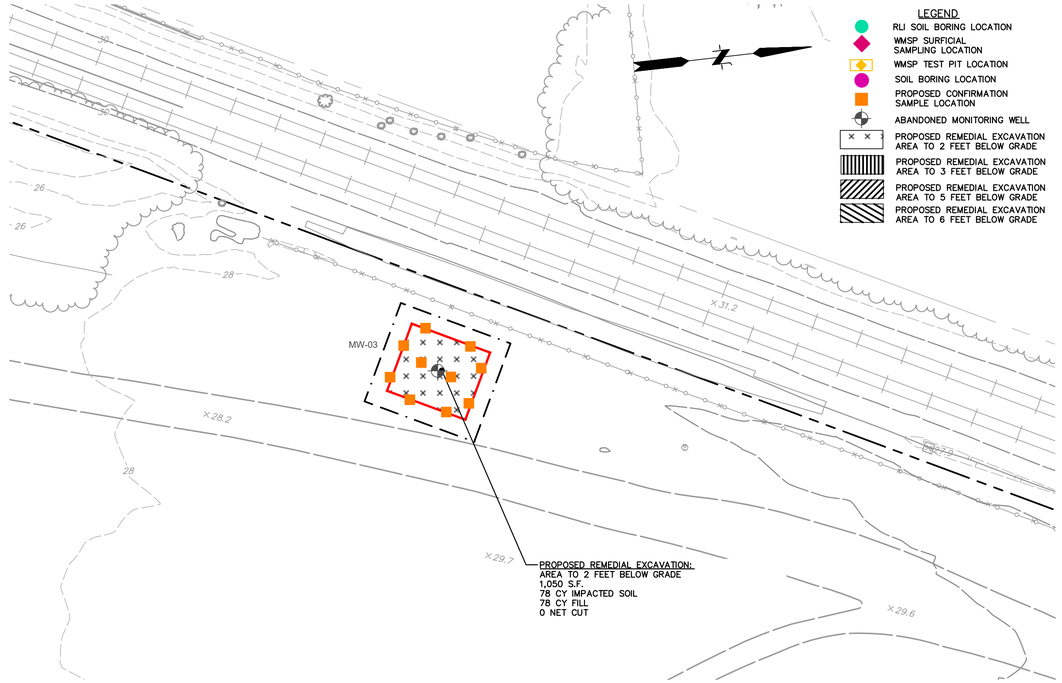
PROJ. No.: 20170277.S10
DATE: JULY 2025

CP-103

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MS VIEW: | LAYER STATE: | PC3: AUTOCAD PDF (GENERAL DOCUMENTATION).PC3 STB/CTB: FO.STB



1 REMEDIAL AREA – WMSP FILL AREA
SCALE: 1"=30'



2 REMEDIAL AREA – RLI-MW-03
SCALE: 1"=30'



3 REMEDIAL AREA – NORTHERN END OF RIVERBANK BERM
SCALE: 1"=30'



4 REMEDIAL AREA – SOUTHERN END OF RIVERBANK BERM
SCALE: 1"=30'

FOR PERMIT ONLY

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

SEAL

SCALE: HORZ.: 1" = 30'
VERT.: -
DATUM: HORZ.: -
VERT.: -
0 15' 30' 60'
GRAPHIC SCALE

FUSS & O'NEILL
ONE FINANCIAL PLAZA, 15th FLOOR
HARTFORD, CT 06103
860.646.2469
www.fando.com

RIVERFRONT LAND DEVELOPMENT PROJECT
SITE PREPARATION
ENLARGEMENTS - PHASE 1B
RIVERFRONT RECAPTURE, INC.
228 LIBERTY ROAD, HARTFORD, CONNECTICUT
100 MEADOW ROAD, WINDSOR, CONNECTICUT

PROJ. No.: 20170277.S10
DATE: JULY 2025

CP-401

File: J:\DWG\P2017\0277\S10\Civil\Plan\New Park Phase 1B & 2A\20170277S10_DM001 - Phase 1B & 2A.dwg Layout: CP-401 Plotted: 2025-07-09 2:17 PM Saved: 2025-07-09 2:11 PM User: Avery.OConnell
PC3: AUTOCAD PDF (GENERAL DOCUMENTATION).PC3 STB/CTB: FO.STB
LAYER STATE:
MS VIEW:



LEGEND

- TEMPORARY ACCESS PATH
- CONSTRUCTION ENTRANCE
- TEMPORARY EROSION CONTROL BLANKET
- TEMPORARY SEEDING
- SF — SILT FENCE
- COMPOST FILTER SOCK
- CT/STATE INLAND WETLAND & FEDERAL WETLAND LIMIT
- CT/STATE TIDAL WETLAND & FEDERAL WETLAND LIMIT
- 100 FOOT UPLAND REVIEW AREA
- FLOODWAY — FEMA FLOODWAY LINE

NOTES:

1) USE EXISTING ACCESS ROADS WHERE POSSIBLE

FOR PERMIT ONLY

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

SEAL

SCALE: HORZ.: 1" = 100'
VERT.: -

DATUM: HORZ.: -
VERT.: -

0 50' 100' 200'
GRAPHIC SCALE

FUSS & O'NEILL
ONE FINANCIAL PLAZA, 15th FLOOR
HARTFORD, CT 06103
860.646.2469
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RIVERFRONT LAND DEVELOPMENT PROJECT
SITE EROSION & SEDIMENT CONTROL PLAN
- PHASE 2C

RIVERFRONT RECAPTURE, INC.
228 LIEBERT ROAD, HARTFORD, CONNECTICUT
100 MEADOW ROAD, WINDSOR, CONNECTICUT

PROJ. No.: 20170277.S10
DATE: JULY 2025

CE-103

File: J:\DWG\P20170277\S10\Civil\Plan\New Park Phase 2C\20170277S10_ERO01 - Phase 2C.dwg Layout: CE-103 Plotted: 2025-07-10 12:30 PM Saved: 2025-07-10 12:08 PM User: Nicholas.Roy
MS VIEW: LAYER STATE: PC3: AUTOCAD PDF (GENERAL DOCUMENTATION).PC3 STB/CTB: FO.STB

Appendix F

95% UCL Output

1	**Appendix C - 95% UCL Results**											
2												
3	User Selected Options											
4	Date/Time of Computation	ProUCL 5.13/7/2022 11:06:36 AM										
5	From File	RLI Cove_95% UCL AsPb.xls										
6	Full Precision	OFF										
7	Confidence Coefficient	95%										
8	Number of Bootstrap Operations	2000										
9												
10	**Arsenic (mg/kg)**											
11												
12	**General Statistics**											
13	Total Number of Observations	86							Number of Distinct Observations	82		
14	Number of Detects	85							Number of Non-Detects	1		
15	Number of Distinct Detects	81							Number of Distinct Non-Detects	1		
16	Minimum Detect	1.49							Minimum Non-Detect	0.71		
17	Maximum Detect	120							Maximum Non-Detect	0.71		
18	Variance Detects	161.1							Percent Non-Detects	1.163%		
19	Mean Detects	5.79							SD Detects	12.69		
20	Median Detects	4.12							CV Detects	2.192		
21	Skewness Detects	8.879							Kurtosis Detects	80.75		
22	Mean of Logged Detects	1.431							SD of Logged Detects	0.579		
23												
24	**Normal GOF Test on Detects Only**											
25	Shapiro Wilk Test Statistic	0.218							**Normal GOF Test on Detected Observations Only**			
26	5% Shapiro Wilk P Value	0							Detected Data Not Normal at 5% Significance Level			
27	Lilliefors Test Statistic	0.369							**Lilliefors GOF Test**			
28	5% Lilliefors Critical Value	0.0962							Detected Data Not Normal at 5% Significance Level			
29	**Detected Data Not Normal at 5% Significance Level**											
30												
31	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
32	KM Mean	5.731							KM Standard Error of Mean	1.362		
33	KM SD	12.55							95% KM (BCA) UCL	8.53		
34	95% KM (t) UCL	7.995							95% KM (Percentile Bootstrap) UCL	8.438		
35	95% KM (z) UCL	7.971							95% KM Bootstrap t UCL	16.42		
36	90% KM Chebyshev UCL	9.816							95% KM Chebyshev UCL	11.67		
37	97.5% KM Chebyshev UCL	14.24							99% KM Chebyshev UCL	19.28		
38												
39	**Gamma GOF Tests on Detected Observations Only**											
40	A-D Test Statistic	6.913							**Anderson-Darling GOF Test**			
41	5% A-D Critical Value	0.768							Detected Data Not Gamma Distributed at 5% Significance Level			
42	K-S Test Statistic	0.195							**Kolmogorov-Smirnov GOF**			
43	5% K-S Critical Value	0.0986							Detected Data Not Gamma Distributed at 5% Significance Level			
44	**Detected Data Not Gamma Distributed at 5% Significance Level**											
45												
46	**Gamma Statistics on Detected Data Only**											
47	k hat (MLE)	1.684							k star (bias corrected MLE)	1.632		
48	Theta hat (MLE)	3.438							Theta star (bias corrected MLE)	3.547		
49	nu hat (MLE)	286.3							nu star (bias corrected)	277.5		
50	Mean (detects)	5.79										
51												
52	**Gamma ROS Statistics using Imputed Non-Detects**											
53	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
54	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)											
55	For such situations, GROS method may yield incorrect values of UCLs and BTVs											
56	This is especially true when the sample size is small.											
57	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
58	Minimum	0.01							Mean	5.723		
59	Maximum	120							Median	4.105		
60	SD	12.63							CV	2.207		
61	k hat (MLE)	1.446							k star (bias corrected MLE)	1.404		
62	Theta hat (MLE)	3.957							Theta star (bias corrected MLE)	4.077		
63	nu hat (MLE)	248.8							nu star (bias corrected)	241.4		
64	Adjusted Level of Significance (β)	0.0472										
65	Approximate Chi Square Value (241.43, α)	206.5							Adjusted Chi Square Value (241.43, β)	205.9		
66	95% Gamma Approximate UCL (use when n>=50)	6.692							95% Gamma Adjusted UCL (use when n<50)	6.71		
67												

	A	B	C	D	E	F	G	H	I	J	K	L
68	**Estimates of Gamma Parameters using KM Estimates**											
69					Mean (KM)	5.731				SD (KM)		12.55
70					Variance (KM)	157.6				SE of Mean (KM)		1.362
71					k hat (KM)	0.208				k star (KM)		0.209
72					nu hat (KM)	35.84				nu star (KM)		35.92
73					theta hat (KM)	27.5				theta star (KM)		27.44
74					80% gamma percentile (KM)	7.719				90% gamma percentile (KM)		17.33
75					95% gamma percentile (KM)	29.19				99% gamma percentile (KM)		61.62
76												
77	**Gamma Kaplan-Meier (KM) Statistics**											
78					Approximate Chi Square Value (35.92, α)	23.2				Adjusted Chi Square Value (35.92, β)		23.03
79					95% Gamma Approximate KM-UCL (use when n>=50)	8.871				95% Gamma Adjusted KM-UCL (use when n<50)		8.938
80												
81	**Lognormal GOF Test on Detected Observations Only**											
82					Shapiro Wilk Approximate Test Statistic	0.87				**Shapiro Wilk GOF Test**		
83					5% Shapiro Wilk P Value	3.867E-10				Detected Data Not Lognormal at 5% Significance Level		
84					Lilliefors Test Statistic	0.0865				**Lilliefors GOF Test**		
85					5% Lilliefors Critical Value	0.0962				Detected Data appear Lognormal at 5% Significance Level		
86	**Detected Data appear Approximate Lognormal at 5% Significance Level**											
87												
88	**Lognormal ROS Statistics Using Imputed Non-Detects**											
89					Mean in Original Scale	5.734				Mean in Log Scale		1.414
90					SD in Original Scale	12.63				SD in Log Scale		0.596
91					95% t UCL (assumes normality of ROS data)	7.998				95% Percentile Bootstrap UCL		8.374
92					95% BCA Bootstrap UCL	10.82				95% Bootstrap t UCL		16.22
93					95% H-UCL (Log ROS)	5.555						
94												
95	**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**											
96					KM Mean (logged)	1.41				KM Geo Mean		4.096
97					KM SD (logged)	0.603				95% Critical H Value (KM-Log)		1.912
98					KM Standard Error of Mean (logged)	0.0654				95% H-UCL (KM -Log)		5.566
99					KM SD (logged)	0.603				95% Critical H Value (KM-Log)		1.912
100					KM Standard Error of Mean (logged)	0.0654						
101												
102	**DL/2 Statistics**											
103	**DL/2 Normal**									**DL/2 Log-Transformed**		
104					Mean in Original Scale	5.727				Mean in Log Scale		1.402
105					SD in Original Scale	12.63				SD in Log Scale		0.634
106					95% t UCL (Assumes normality)	7.991				95% H-Stat UCL		5.675
107	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
108												
109	**Nonparametric Distribution Free UCL Statistics**											
110	**Detected Data appear Approximate Lognormal Distributed at 5% Significance Level**											
111												
112	**Suggested UCL to Use**											
113					KM H-UCL	5.566						
114												
115	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
116	Recommendations are based upon data size, data distribution, and skewness.											
117	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
118	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
119												

120	**Lead (mg/kg)**										
121											
122	**General Statistics**										
123	Total Number of Observations				86	Number of Distinct Observations				80	
124	Number of Detects				85	Number of Non-Detects				1	
125	Number of Distinct Detects				79	Number of Distinct Non-Detects				1	
126	Minimum Detect				2.05	Minimum Non-Detect				0.39	
127	Maximum Detect				1430	Maximum Non-Detect				0.39	
128	Variance Detects				46842	Percent Non-Detects				1.163%	
129	Mean Detects				73.18	SD Detects				216.4	
130	Median Detects				26.4	CV Detects				2.958	
131	Skewness Detects				5.644	Kurtosis Detects				32.78	
132	Mean of Logged Detects				3.209	SD of Logged Detects				1.268	
133											
134	**Normal GOF Test on Detects Only**										
135	Shapiro Wilk Test Statistic				0.303	**Normal GOF Test on Detected Observations Only**					
136	5% Shapiro Wilk P Value				0	Detected Data Not Normal at 5% Significance Level					
137	Lilliefors Test Statistic				0.402	**Lilliefors GOF Test**					
138	5% Lilliefors Critical Value				0.0962	Detected Data Not Normal at 5% Significance Level					
139	**Detected Data Not Normal at 5% Significance Level**										
140											
141	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**										
142	KM Mean				72.33	KM Standard Error of Mean				23.22	
143	KM SD				214	95% KM (BCA) UCL				113.3	
144	95% KM (t) UCL				110.9	95% KM (Percentile Bootstrap) UCL				112.5	
145	95% KM (z) UCL				110.5	95% KM Bootstrap t UCL				195.6	
146	90% KM Chebyshev UCL				142	95% KM Chebyshev UCL				173.5	
147	97.5% KM Chebyshev UCL				217.3	99% KM Chebyshev UCL				303.3	
148											
149	**Gamma GOF Tests on Detected Observations Only**										
150	A-D Test Statistic				7.751	**Anderson-Darling GOF Test**					
151	5% A-D Critical Value				0.811	Detected Data Not Gamma Distributed at 5% Significance Level					
152	K-S Test Statistic				0.287	**Kolmogorov-Smirnov GOF**					
153	5% K-S Critical Value				0.102	Detected Data Not Gamma Distributed at 5% Significance Level					
154	**Detected Data Not Gamma Distributed at 5% Significance Level**										
155											
156	**Gamma Statistics on Detected Data Only**										
157	k hat (MLE)				0.574	k star (bias corrected MLE)				0.561	
158	Theta hat (MLE)				127.6	Theta star (bias corrected MLE)				130.4	
159	nu hat (MLE)				97.52	nu star (bias corrected)				95.41	
160	Mean (detects)				73.18						
161											
162	**Gamma ROS Statistics using Imputed Non-Detects**										
163	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs										
164	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)										
165	For such situations, GROS method may yield incorrect values of UCLs and BTVs										
166	This is especially true when the sample size is small.										
167	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates										
168	Minimum				0.01	Mean				72.33	
169	Maximum				1430	Median				26.3	
170	SD				215.3	CV				2.977	
171	k hat (MLE)				0.54	k star (bias corrected MLE)				0.529	
172	Theta hat (MLE)				134	Theta star (bias corrected MLE)				136.8	
173	nu hat (MLE)				92.81	nu star (bias corrected)				90.91	
174	Adjusted Level of Significance (β)				0.0472						
175	Approximate Chi Square Value (90.91, α)				69.92	Adjusted Chi Square Value (90.91, β)				69.61	
176	95% Gamma Approximate UCL (use when n>=50)				94.03	95% Gamma Adjusted UCL (use when n<50)				94.45	
177											

	A	B	C	D	E	F	G	H	I	J	K	L
178	**Estimates of Gamma Parameters using KM Estimates**											
179					Mean (KM)	72.33				SD (KM)		214
180					Variance (KM)	45813				SE of Mean (KM)		23.22
181					k hat (KM)	0.114				k star (KM)		0.118
182					nu hat (KM)	19.64				nu star (KM)		20.29
183					theta hat (KM)	633.4				theta star (KM)		613.2
184					80% gamma percentile (KM)	62.21				90% gamma percentile (KM)		203.9
185					95% gamma percentile (KM)	413.6				99% gamma percentile (KM)		1056
186												
187	**Gamma Kaplan-Meier (KM) Statistics**											
188					Approximate Chi Square Value (20.29, α)	11.07				Adjusted Chi Square Value (20.29, β)		10.95
189					95% Gamma Approximate KM-UCL (use when n>=50)	132.6				95% Gamma Adjusted KM-UCL (use when n<50)		134
190												
191	**Lognormal GOF Test on Detected Observations Only**											
192					Shapiro Wilk Approximate Test Statistic	0.919				**Shapiro Wilk GOF Test**		
193					5% Shapiro Wilk P Value	1.2516E-5				Detected Data Not Lognormal at 5% Significance Level		
194					Lilliefors Test Statistic	0.149				**Lilliefors GOF Test**		
195					5% Lilliefors Critical Value	0.0962				Detected Data Not Lognormal at 5% Significance Level		
196	**Detected Data Not Lognormal at 5% Significance Level**											
197												
198	**Lognormal ROS Statistics Using Imputed Non-Detects**											
199					Mean in Original Scale	72.34				Mean in Log Scale		3.17
200					SD in Original Scale	215.3				SD in Log Scale		1.31
201					95% t UCL (assumes normality of ROS data)	110.9				95% Percentile Bootstrap UCL		113.4
202					95% BCA Bootstrap UCL	131.4				95% Bootstrap t UCL		195.6
203					95% H-UCL (Log ROS)	80.74						
204												
205	**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**											
206					KM Mean (logged)	3.16				KM Geo Mean		23.58
207					KM SD (logged)	1.33				95% Critical H Value (KM-Log)		2.578
208					KM Standard Error of Mean (logged)	0.144				95% H-UCL (KM -Log)		82.77
209					KM SD (logged)	1.33				95% Critical H Value (KM-Log)		2.578
210					KM Standard Error of Mean (logged)	0.144						
211												
212	**DL/2 Statistics**											
213	**DL/2 Normal**									**DL/2 Log-Transformed**		
214					Mean in Original Scale	72.33				Mean in Log Scale		3.152
215					SD in Original Scale	215.3				SD in Log Scale		1.364
216					95% t UCL (Assumes normality)	110.9				95% H-Stat UCL		87.35
217	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
218												
219	**Nonparametric Distribution Free UCL Statistics**											
220	**Data do not follow a Discernible Distribution at 5% Significance Level**											
221												
222	**Suggested UCL to Use**											
223					95% KM (Chebyshev) UCL	173.5						
224												
225	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
226	Recommendations are based upon data size, data distribution, and skewness.											
227	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
228	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
229												

RLI Park Project - Remedial Action Plan
Appendix C - 95% UCL Results

1	**Appendix C - 95% UCL Output**											
2												
3				User Selected Options								
4				Date/Time of Computation	ProUCL 5.13/7/2022 11:12:08 AM							
5				From File	95% UCL - ETPH ALL.xls							
6				Full Precision	OFF							
7				Confidence Coefficient	95%							
8				Number of Bootstrap Operations	2000							
9												
10	**ETPH (mg/kg)**											
11												
12	**General Statistics**											
13						Total Number of Observations	48			Number of Distinct Observations	26		
14										Number of Missing Observations	1	
15						Number of Detects	5			Number of Non-Detects	43	
16						Number of Distinct Detects	5			Number of Distinct Non-Detects	21	
17						Minimum Detect	76			Minimum Non-Detect	51	
18						Maximum Detect	570			Maximum Non-Detect	400	
19						Variance Detects	54773			Percent Non-Detects	89.58%	
20						Mean Detects	339.2			SD Detects	234	
21						Median Detects	440			CV Detects	0.69	
22						Skewness Detects	-0.443			Kurtosis Detects	-3.057	
23						Mean of Logged Detects	5.521			SD of Logged Detects	0.97	
24												
25	**Normal GOF Test on Detects Only**											
26						Shapiro Wilk Test Statistic	0.833			**Shapiro Wilk GOF Test**		
27						5% Shapiro Wilk Critical Value	0.762			Detected Data appear Normal at 5% Significance Level		
28						Lilliefors Test Statistic	0.267			**Lilliefors GOF Test**		
29						5% Lilliefors Critical Value	0.343			Detected Data appear Normal at 5% Significance Level		
30	**Detected Data appear Normal at 5% Significance Level**											
31												
32	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
33						KM Mean	81.72			KM Standard Error of Mean	17.93	
34						KM SD	110.9			95% KM (BCA) UCL	116.1	
35						95% KM (t) UCL	111.8			95% KM (Percentile Bootstrap) UCL	109.9	
36						95% KM (z) UCL	111.2			95% KM Bootstrap t UCL	108.5	
37						90% KM Chebyshev UCL	135.5			95% KM Chebyshev UCL	159.9	
38						97.5% KM Chebyshev UCL	193.7			99% KM Chebyshev UCL	260.1	
39												
40	**Gamma GOF Tests on Detected Observations Only**											
41						A-D Test Statistic	0.62			**Anderson-Darling GOF Test**		
42						5% A-D Critical Value	0.685			Detected data appear Gamma Distributed at 5% Significance Level		
43						K-S Test Statistic	0.329			**Kolmogorov-Smirnov GOF**		
44						5% K-S Critical Value	0.361			Detected data appear Gamma Distributed at 5% Significance Level		
45	**Detected data appear Gamma Distributed at 5% Significance Level**											
46												
47	**Gamma Statistics on Detected Data Only**											
48						k hat (MLE)	1.782			k star (bias corrected MLE)	0.846	
49						Theta hat (MLE)	190.3			Theta star (bias corrected MLE)	400.8	
50						nu hat (MLE)	17.82			nu star (bias corrected)	8.462	
51						Mean (detects)	339.2					
52												
53	**Gamma ROS Statistics using Imputed Non-Detects**											
54	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
55	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)											
56	For such situations, GROS method may yield incorrect values of UCLs and BTVs											
57	This is especially true when the sample size is small.											
58	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											

RLI Park Project - Remedial Action Plan
Appendix C - 95% UCL Results

	A	B	C	D	E	F	G	H	I	J	K	L
59					Minimum	0.01					Mean	35.34
60					Maximum	570					Median	0.01
61					SD	125					CV	3.537
62					k hat (MLE)	0.112					k star (bias corrected MLE)	0.119
63					Theta hat (MLE)	314.4					Theta star (bias corrected MLE)	296.3
64					nu hat (MLE)	10.79					nu star (bias corrected)	11.45
65					Adjusted Level of Significance (β)	0.045						
66					Approximate Chi Square Value (11.45, α)	4.868					Adjusted Chi Square Value (11.45, β)	4.735
67					95% Gamma Approximate UCL (use when n>=50)	83.14					95% Gamma Adjusted UCL (use when n<50)	85.48
68												
69					**Estimates of Gamma Parameters using KM Estimates**							
70					Mean (KM)	81.72					SD (KM)	110.9
71					Variance (KM)	12301					SE of Mean (KM)	17.93
72					k hat (KM)	0.543					k star (KM)	0.523
73					nu hat (KM)	52.11					nu star (KM)	50.19
74					theta hat (KM)	150.5					theta star (KM)	156.3
75					80% gamma percentile (KM)	134.4					90% gamma percentile (KM)	219
76					95% gamma percentile (KM)	309					99% gamma percentile (KM)	529.2
77												
78					**Gamma Kaplan-Meier (KM) Statistics**							
79					Approximate Chi Square Value (50.19, α)	34.92					Adjusted Chi Square Value (50.19, β)	34.53
80					95% Gamma Approximate KM-UCL (use when n>=50)	117.4					95% Gamma Adjusted KM-UCL (use when n<50)	118.8
81												
82					**Lognormal GOF Test on Detected Observations Only**							
83					Shapiro Wilk Test Statistic	0.797					**Shapiro Wilk GOF Test**	
84					5% Shapiro Wilk Critical Value	0.762					Detected Data appear Lognormal at 5% Significance Level	
85					Lilliefors Test Statistic	0.32					**Lilliefors GOF Test**	
86					5% Lilliefors Critical Value	0.343					Detected Data appear Lognormal at 5% Significance Level	
87					**Detected Data appear Lognormal at 5% Significance Level**							
88												
89					**Lognormal ROS Statistics Using Imputed Non-Detects**							
90					Mean in Original Scale	39.47					Mean in Log Scale	1.484
91					SD in Original Scale	123.9					SD in Log Scale	1.751
92					95% t UCL (assumes normality of ROS data)	69.48					95% Percentile Bootstrap UCL	72.77
93					95% BCA Bootstrap UCL	84.62					95% Bootstrap t UCL	90.28
94					95% H-UCL (Log ROS)	46.98						
95												
96					**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**							
97					KM Mean (logged)	4.107					KM Geo Mean	60.79
98					KM SD (logged)	0.562					95% Critical H Value (KM-Log)	1.932
99					KM Standard Error of Mean (logged)	0.0919					95% H-UCL (KM -Log)	83.43
100					KM SD (logged)	0.562					95% Critical H Value (KM-Log)	1.932
101					KM Standard Error of Mean (logged)	0.0919						
102												
103					**DL/2 Statistics**							
104					**DL/2 Normal**						**DL/2 Log-Transformed**	
105					Mean in Original Scale	96.69					Mean in Log Scale	4.066
106					SD in Original Scale	121.6					SD in Log Scale	0.938
107					95% t UCL (Assumes normality)	126.1					95% H-Stat UCL	123.5
108					**DL/2 is not a recommended method, provided for comparisons and historical reasons**							
109												
110					**Nonparametric Distribution Free UCL Statistics**							
111					**Detected Data appear Normal Distributed at 5% Significance Level**							
112												
113					**Suggested UCL to Use**							
114					95% KM (t) UCL	111.8						
115												
116					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
117					Recommendations are based upon data size, data distribution, and skewness.							
118					These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).							
119					However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.							
120												

RLI Park Project - Remedial Action Plan
Appendix C - 95% UCL Results

Appendix C - 95% UCL Output

User Selected Options	
Date/Time of Computation	ProUCL 5.13/7/2022 10:58:37 AM
From File	RLI Cove_95% UCL ALL.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Benzo(a)anthracene (ug/kg)

General Statistics

Total Number of Observations	62	Number of Distinct Observations	31
		Number of Missing Observations	1
Number of Detects	26	Number of Non-Detects	36
Number of Distinct Detects	22	Number of Distinct Non-Detects	13
Minimum Detect	280	Minimum Non-Detect	150
Maximum Detect	3700	Maximum Non-Detect	370
Variance Detects	819216	Percent Non-Detects	58.06%
Mean Detects	840	SD Detects	905.1
Median Detects	470	CV Detects	1.078
Skewness Detects	2.554	Kurtosis Detects	6.186
Mean of Logged Detects	6.408	SD of Logged Detects	0.731

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.611	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.92	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.29	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.17	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	440.4	KM Standard Error of Mean	86.49
KM SD	667.7	95% KM (BCA) UCL	608.2
95% KM (t) UCL	584.8	95% KM (Percentile Bootstrap) UCL	600.4
95% KM (z) UCL	582.6	95% KM Bootstrap t UCL	708.6
90% KM Chebyshev UCL	699.8	95% KM Chebyshev UCL	817.4
97.5% KM Chebyshev UCL	980.5	99% KM Chebyshev UCL	1301

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.984	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.76	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.198	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.174	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.682	k star (bias corrected MLE)	1.514
Theta hat (MLE)	499.3	Theta star (bias corrected MLE)	554.9
nu hat (MLE)	87.48	nu star (bias corrected)	78.72
Mean (detects)	840		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

RLI Park Project - Remedial Action Plan
Appendix C - 95% UCL Results

59	Minimum	0.01								Mean	352.3
60	Maximum	3700								Median	0.01
61	SD	714.4								CV	2.028
62	k hat (MLE)	0.134								k star (bias corrected MLE)	0.138
63	Theta hat (MLE)	2638								Theta star (bias corrected MLE)	2556
64	nu hat (MLE)	16.56								nu star (bias corrected)	17.09
65	Adjusted Level of Significance (β)	0.0461									
66	Approximate Chi Square Value (17.09, α)	8.738								Adjusted Chi Square Value (17.09, β)	8.596
67	95% Gamma Approximate UCL (use when n>=50)	689								95% Gamma Adjusted UCL (use when n<50)	700.5
68											
69	**Estimates of Gamma Parameters using KM Estimates**										
70	Mean (KM)	440.4								SD (KM)	667.7
71	Variance (KM)	445815								SE of Mean (KM)	86.49
72	k hat (KM)	0.435								k star (KM)	0.425
73	nu hat (KM)	53.94								nu star (KM)	52.66
74	theta hat (KM)	1012								theta star (KM)	1037
75	80% gamma percentile (KM)	715.2								90% gamma percentile (KM)	1230
76	95% gamma percentile (KM)	1792								99% gamma percentile (KM)	3195
77											
78	**Gamma Kaplan-Meier (KM) Statistics**										
79	Approximate Chi Square Value (52.66, α)	36.99								Adjusted Chi Square Value (52.66, β)	36.68
80	95% Gamma Approximate KM-UCL (use when n>=50)	626.9								95% Gamma Adjusted KM-UCL (use when n<50)	632.3
81											
82	**Lognormal GOF Test on Detected Observations Only**										
83	Shapiro Wilk Test Statistic	0.858								**Shapiro Wilk GOF Test**	
84	5% Shapiro Wilk Critical Value	0.92								Detected Data Not Lognormal at 5% Significance Level	
85	Lilliefors Test Statistic	0.177								**Lilliefors GOF Test**	
86	5% Lilliefors Critical Value	0.17								Detected Data Not Lognormal at 5% Significance Level	
87	**Detected Data Not Lognormal at 5% Significance Level**										
88											
89	**Lognormal ROS Statistics Using Imputed Non-Detects**										
90	Mean in Original Scale	403								Mean in Log Scale	5.204
91	SD in Original Scale	690.6								SD in Log Scale	1.21
92	95% t UCL (assumes normality of ROS data)	549.5								95% Percentile Bootstrap UCL	552.8
93	95% BCA Bootstrap UCL	586.3								95% Bootstrap t UCL	636.5
94	95% H-UCL (Log ROS)	537.9									
95											
96	**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**										
97	KM Mean (logged)	5.601								KM Geo Mean	270.8
98	KM SD (logged)	0.83								95% Critical H Value (KM-Log)	2.116
99	KM Standard Error of Mean (logged)	0.108								95% H-UCL (KM -Log)	478.3
100	KM SD (logged)	0.83								95% Critical H Value (KM-Log)	2.116
101	KM Standard Error of Mean (logged)	0.108									
102											
103	**DL/2 Statistics**										
104	**DL/2 Normal**									**DL/2 Log-Transformed**	
105	Mean in Original Scale	425.8								Mean in Log Scale	5.488
106	SD in Original Scale	679.7								SD in Log Scale	0.929
107	95% t UCL (Assumes normality)	570								95% H-Stat UCL	483.8
108	**DL/2 is not a recommended method, provided for comparisons and historical reasons**										
109											
110	**Nonparametric Distribution Free UCL Statistics**										
111	**Data do not follow a Discernible Distribution at 5% Significance Level**										
112											
113	**Suggested UCL to Use**										
114	95% KM (Chebyshev) UCL	817.4									
115											
116	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.										
117	Recommendations are based upon data size, data distribution, and skewness.										
118	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).										
119	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.										

	A	B	C	D	E	F	G	H	I	J	K	L
120												
121	**Benzo(a)pyrene (ug/kg)**											
122												
123	**General Statistics**											
124	Total Number of Observations					63		Number of Distinct Observations				33
125	Number of Detects					27		Number of Non-Detects				36
126	Number of Distinct Detects					23		Number of Distinct Non-Detects				13
127	Minimum Detect					290		Minimum Non-Detect				150
128	Maximum Detect					3900		Maximum Non-Detect				370
129	Variance Detects					809580		Percent Non-Detects				57.14%
130	Mean Detects					924.8		SD Detects				899.8
131	Median Detects					540		CV Detects				0.973
132	Skewness Detects					2.148		Kurtosis Detects				4.308
133	Mean of Logged Detects					6.526		SD of Logged Detects				0.725
134												
135	**Normal GOF Test on Detects Only**											
136	Shapiro Wilk Test Statistic					0.689		**Shapiro Wilk GOF Test**				
137	5% Shapiro Wilk Critical Value					0.923		Detected Data Not Normal at 5% Significance Level				
138	Lilliefors Test Statistic					0.287		**Lilliefors GOF Test**				
139	5% Lilliefors Critical Value					0.167		Detected Data Not Normal at 5% Significance Level				
140	**Detected Data Not Normal at 5% Significance Level**											
141												
142	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
143	KM Mean					482.7		KM Standard Error of Mean				89.03
144	KM SD					693.4		95% KM (BCA) UCL				651.7
145	95% KM (t) UCL					631.4		95% KM (Percentile Bootstrap) UCL				635.1
146	95% KM (z) UCL					629.1		95% KM Bootstrap t UCL				700.7
147	90% KM Chebyshev UCL					749.8		95% KM Chebyshev UCL				870.8
148	97.5% KM Chebyshev UCL					1039		99% KM Chebyshev UCL				1369
149												
150	**Gamma GOF Tests on Detected Observations Only**											
151	A-D Test Statistic					1.771		**Anderson-Darling GOF Test**				
152	5% A-D Critical Value					0.759		Detected Data Not Gamma Distributed at 5% Significance Level				
153	K-S Test Statistic					0.203		**Kolmogorov-Smirnov GOF**				
154	5% K-S Critical Value					0.171		Detected Data Not Gamma Distributed at 5% Significance Level				
155	**Detected Data Not Gamma Distributed at 5% Significance Level**											
156												
157	**Gamma Statistics on Detected Data Only**											
158	k hat (MLE)					1.795		k star (bias corrected MLE)				1.62
159	Theta hat (MLE)					515.2		Theta star (bias corrected MLE)				570.7
160	nu hat (MLE)					96.94		nu star (bias corrected)				87.5
161	Mean (detects)					924.8						
162												
163	**Gamma ROS Statistics using Imputed Non-Detects**											
164	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
165	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)											
166	For such situations, GROS method may yield incorrect values of UCLs and BTVs											
167	This is especially true when the sample size is small.											
168	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											

RLI Park Project - Remedial Action Plan
Appendix C - 95% UCL Results

169					Minimum	0.01					Mean	396.4
170					Maximum	3900					Median	0.01
171					SD	743.2					CV	1.875
172					k hat (MLE)	0.134					k star (bias corrected MLE)	0.138
173					Theta hat (MLE)	2953					Theta star (bias corrected MLE)	2863
174					nu hat (MLE)	16.91					nu star (bias corrected)	17.44
175					Adjusted Level of Significance (β)	0.0462						
176					Approximate Chi Square Value (17.44, α)	8.989					Adjusted Chi Square Value (17.44, β)	8.846
177					95% Gamma Approximate UCL (use when n>=50)	769.1					95% Gamma Adjusted UCL (use when n<50)	781.5
178												
179					**Estimates of Gamma Parameters using KM Estimates**							
180					Mean (KM)	482.7					SD (KM)	693.4
181					Variance (KM)	480819					SE of Mean (KM)	89.03
182					k hat (KM)	0.485					k star (KM)	0.472
183					nu hat (KM)	61.06					nu star (KM)	59.48
184					theta hat (KM)	996.1					theta star (KM)	1022
185					80% gamma percentile (KM)	790.4					90% gamma percentile (KM)	1321
186					95% gamma percentile (KM)	1892					99% gamma percentile (KM)	3305
187												
188					**Gamma Kaplan-Meier (KM) Statistics**							
189					Approximate Chi Square Value (59.48, α)	42.75					Adjusted Chi Square Value (59.48, β)	42.42
190					95% Gamma Approximate KM-UCL (use when n>=50)	671.6					95% Gamma Adjusted KM-UCL (use when n<50)	676.9
191												
192					**Lognormal GOF Test on Detected Observations Only**							
193					Shapiro Wilk Test Statistic	0.886					**Shapiro Wilk GOF Test**	
194					5% Shapiro Wilk Critical Value	0.923					Detected Data Not Lognormal at 5% Significance Level	
195					Lilliefors Test Statistic	0.154					**Lilliefors GOF Test**	
196					5% Lilliefors Critical Value	0.167					Detected Data appear Lognormal at 5% Significance Level	
197					**Detected Data appear Approximate Lognormal at 5% Significance Level**							
198												
199					**Lognormal ROS Statistics Using Imputed Non-Detects**							
200					Mean in Original Scale	453.1					Mean in Log Scale	5.349
201					SD in Original Scale	714.4					SD in Log Scale	1.203
202					95% t UCL (assumes normality of ROS data)	603.4					95% Percentile Bootstrap UCL	612.9
203					95% BCA Bootstrap UCL	660.3					95% Bootstrap t UCL	673.2
204					95% H-UCL (Log ROS)	612.5						
205												
206					**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**							
207					KM Mean (logged)	5.663					KM Geo Mean	288
208					KM SD (logged)	0.882					95% Critical H Value (KM-Log)	2.165
209					KM Standard Error of Mean (logged)	0.113					95% H-UCL (KM -Log)	541.4
210					KM SD (logged)	0.882					95% Critical H Value (KM-Log)	2.165
211					KM Standard Error of Mean (logged)	0.113						
212												
213					**DL/2 Statistics**							
214					**DL/2 Normal**						**DL/2 Log-Transformed**	
215					Mean in Original Scale	469					Mean in Log Scale	5.555
216					SD in Original Scale	705.8					SD in Log Scale	0.981
217					95% t UCL (Assumes normality)	617.5					95% H-Stat UCL	553
218					**DL/2 is not a recommended method, provided for comparisons and historical reasons**							
219												
220					**Nonparametric Distribution Free UCL Statistics**							
221					**Detected Data appear Approximate Lognormal Distributed at 5% Significance Level**							
222												
223					**Suggested UCL to Use**							
224					KM H-UCL	541.4						
225												
226					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
227					Recommendations are based upon data size, data distribution, and skewness.							
228					These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).							
229					However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.							

230												
231	**Benzo(b)fluoranthene (ug/kg)**											
232												
233	**General Statistics**											
234						Total Number of Observations	62				Number of Distinct Observations	32	
235											Number of Missing Observations	1
236						Number of Detects	23				Number of Non-Detects	39
237						Number of Distinct Detects	20				Number of Distinct Non-Detects	14
238						Minimum Detect	290				Minimum Non-Detect	150
239						Maximum Detect	3400				Maximum Non-Detect	750
240						Variance Detects	623133				Percent Non-Detects	62.9%
241						Mean Detects	851.7				SD Detects	789.4
242						Median Detects	500				CV Detects	0.927
243						Skewness Detects	2.106				Kurtosis Detects	4.403
244						Mean of Logged Detects	6.463				SD of Logged Detects	0.712
245												
246	**Normal GOF Test on Detects Only**											
247						Shapiro Wilk Test Statistic	0.71				**Shapiro Wilk GOF Test**	
248						5% Shapiro Wilk Critical Value	0.914				Detected Data Not Normal at 5% Significance Level	
249						Lilliefors Test Statistic	0.267				**Lilliefors GOF Test**	
250						5% Lilliefors Critical Value	0.18				Detected Data Not Normal at 5% Significance Level	
251	**Detected Data Not Normal at 5% Significance Level**											
252												
253	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
254						KM Mean	412.5				KM Standard Error of Mean	75.27
255						KM SD	579.2				95% KM (BCA) UCL	549.3
256						95% KM (t) UCL	538.2				95% KM (Percentile Bootstrap) UCL	545.5
257						95% KM (z) UCL	536.3				95% KM Bootstrap t UCL	598.3
258						90% KM Chebyshev UCL	638.3				95% KM Chebyshev UCL	740.6
259						97.5% KM Chebyshev UCL	882.6				99% KM Chebyshev UCL	1161
260												
261	**Gamma GOF Tests on Detected Observations Only**											
262						A-D Test Statistic	1.411				**Anderson-Darling GOF Test**	
263						5% A-D Critical Value	0.756				Detected Data Not Gamma Distributed at 5% Significance Level	
264						K-S Test Statistic	0.215				**Kolmogorov-Smirnov GOF**	
265						5% K-S Critical Value	0.184				Detected Data Not Gamma Distributed at 5% Significance Level	
266	**Detected Data Not Gamma Distributed at 5% Significance Level**											
267												
268	**Gamma Statistics on Detected Data Only**											
269						k hat (MLE)	1.906				k star (bias corrected MLE)	1.686
270						Theta hat (MLE)	447				Theta star (bias corrected MLE)	505.2
271						nu hat (MLE)	87.66				nu star (bias corrected)	77.56
272						Mean (detects)	851.7					
273												
274	**Gamma ROS Statistics using Imputed Non-Detects**											
275	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
275	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)											
277	For such situations, GROS method may yield incorrect values of UCLs and BTVs											
278	This is especially true when the sample size is small.											
279	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											

RLI Park Project - Remedial Action Plan
Appendix C - 95% UCL Results

280					Minimum	0.01					Mean	316
281					Maximum	3400					Median	0.01
282					SD	629.9					CV	1.994
283					k hat (MLE)	0.126					k star (bias corrected MLE)	0.131
284					Theta hat (MLE)	2509					Theta star (bias corrected MLE)	2419
285					nu hat (MLE)	15.62					nu star (bias corrected)	16.2
286					Adjusted Level of Significance (β)	0.0461						
287					Approximate Chi Square Value (16.20, α)	8.1					Adjusted Chi Square Value (16.20, β)	7.963
288					95% Gamma Approximate UCL (use when n>=50)	631.8					95% Gamma Adjusted UCL (use when n<50)	642.6
289												
290					**Estimates of Gamma Parameters using KM Estimates**							
291					Mean (KM)	412.5					SD (KM)	579.2
292					Variance (KM)	335485					SE of Mean (KM)	75.27
293					k hat (KM)	0.507					k star (KM)	0.493
294					nu hat (KM)	62.89					nu star (KM)	61.18
295					theta hat (KM)	813.3					theta star (KM)	836
296					80% gamma percentile (KM)	677.1					90% gamma percentile (KM)	1119
297					95% gamma percentile (KM)	1592					99% gamma percentile (KM)	2757
298												
299					**Gamma Kaplan-Meier (KM) Statistics**							
300					Approximate Chi Square Value (61.18, α)	44.19					Adjusted Chi Square Value (61.18, β)	43.85
301					95% Gamma Approximate KM-UCL (use when n>=50)	571.1					95% Gamma Adjusted KM-UCL (use when n<50)	575.6
302												
303					**Lognormal GOF Test on Detected Observations Only**							
304					Shapiro Wilk Test Statistic	0.89					**Shapiro Wilk GOF Test**	
305					5% Shapiro Wilk Critical Value	0.914					Detected Data Not Lognormal at 5% Significance Level	
306					Lilliefors Test Statistic	0.174					**Lilliefors GOF Test**	
307					5% Lilliefors Critical Value	0.18					Detected Data appear Lognormal at 5% Significance Level	
308					**Detected Data appear Approximate Lognormal at 5% Significance Level**							
309												
310					**Lognormal ROS Statistics Using Imputed Non-Detects**							
311					Mean in Original Scale	373.9					Mean in Log Scale	5.148
312					SD in Original Scale	602.5					SD in Log Scale	1.198
313					95% t UCL (assumes normality of ROS data)	501.7					95% Percentile Bootstrap UCL	510.3
314					95% BCA Bootstrap UCL	539					95% Bootstrap t UCL	570.2
315					95% H-UCL (Log ROS)	499.7						
316												
317					**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**							
318					KM Mean (logged)	5.558					KM Geo Mean	259.3
319					KM SD (logged)	0.819					95% Critical H Value (KM-Log)	2.106
320					KM Standard Error of Mean (logged)	0.107					95% H-UCL (KM -Log)	452.1
321					KM SD (logged)	0.819					95% Critical H Value (KM-Log)	2.106
322					KM Standard Error of Mean (logged)	0.107						
323												
324					**DL/2 Statistics**							
325					**DL/2 Normal**						**DL/2 Log-Transformed**	
326					Mean in Original Scale	400.1					Mean in Log Scale	5.453
327					SD in Original Scale	590.2					SD in Log Scale	0.915
328					95% t UCL (Assumes normality)	525.3					95% H-Stat UCL	458.6
329					**DL/2 is not a recommended method, provided for comparisons and historical reasons**							
330												
331					**Nonparametric Distribution Free UCL Statistics**							
332					**Detected Data appear Approximate Lognormal Distributed at 5% Significance Level**							
333												
334					**Suggested UCL to Use**							
335					KM H-UCL	452.1						
336												
337					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
338					Recommendations are based upon data size, data distribution, and skewness.							
339					These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).							
340					However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.							

341												
342	**Indeno(1,2,3-cd)pyrene (ug/kg)**											
343												
344	**General Statistics**											
345					Total Number of Observations	62			Number of Distinct Observations	34		
346									Number of Missing Observations	1		
347					Number of Detects	23			Number of Non-Detects	39		
348					Number of Distinct Detects	22			Number of Distinct Non-Detects	14		
349					Minimum Detect	290			Minimum Non-Detect	150		
350					Maximum Detect	2500			Maximum Non-Detect	750		
351					Variance Detects	344529			Percent Non-Detects	62.9%		
352					Mean Detects	737.4			SD Detects	587		
353					Median Detects	460			CV Detects	0.796		
354					Skewness Detects	1.801			Kurtosis Detects	2.804		
355					Mean of Logged Detects	6.378			SD of Logged Detects	0.64		
356												
357	**Normal GOF Test on Detects Only**											
358					Shapiro Wilk Test Statistic	0.748			**Shapiro Wilk GOF Test**			
359					5% Shapiro Wilk Critical Value	0.914			Detected Data Not Normal at 5% Significance Level			
360					Lilliefors Test Statistic	0.262			**Lilliefors GOF Test**			
361					5% Lilliefors Critical Value	0.18			Detected Data Not Normal at 5% Significance Level			
362	**Detected Data Not Normal at 5% Significance Level**											
363												
364	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
365					KM Mean	370.1			KM Standard Error of Mean	58.48		
366					KM SD	449.9			95% KM (BCA) UCL	483.6		
367					95% KM (t) UCL	467.7			95% KM (Percentile Bootstrap) UCL	475.8		
368					95% KM (z) UCL	466.2			95% KM Bootstrap t UCL	503.4		
369					90% KM Chebyshev UCL	545.5			95% KM Chebyshev UCL	625		
370					97.5% KM Chebyshev UCL	735.3			99% KM Chebyshev UCL	951.9		
371												
372	**Gamma GOF Tests on Detected Observations Only**											
373					A-D Test Statistic	1.389			**Anderson-Darling GOF Test**			
374					5% A-D Critical Value	0.753			Detected Data Not Gamma Distributed at 5% Significance Level			
375					K-S Test Statistic	0.196			**Kolmogorov-Smirnov GOF**			
376					5% K-S Critical Value	0.183			Detected Data Not Gamma Distributed at 5% Significance Level			
377	**Detected Data Not Gamma Distributed at 5% Significance Level**											
378												
379	**Gamma Statistics on Detected Data Only**											
380					k hat (MLE)	2.379			k star (bias corrected MLE)	2.097		
381					Theta hat (MLE)	310			Theta star (bias corrected MLE)	351.6		
382					nu hat (MLE)	109.4			nu star (bias corrected)	96.48		
383					Mean (detects)	737.4						
384												
385	**Gamma ROS Statistics using Imputed Non-Detects**											
386	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
387	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)											
388	For such situations, GROS method may yield incorrect values of UCLs and BTVs											
389	This is especially true when the sample size is small.											
390	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											

391	Minimum	0.01	Mean	273.6
392	Maximum	2500	Median	0.01
393	SD	503.2	CV	1.84
394	k hat (MLE)	0.128	k star (bias corrected MLE)	0.133
395	Theta hat (MLE)	2137	Theta star (bias corrected MLE)	2064
396	nu hat (MLE)	15.87	nu star (bias corrected)	16.44
397	Adjusted Level of Significance (β)	0.0461		
398	Approximate Chi Square Value (16.44, α)	8.27	Adjusted Chi Square Value (16.44, β)	8.132
399	95% Gamma Approximate UCL (use when n>=50)	543.6	95% Gamma Adjusted UCL (use when n<50)	552.9
400				
401	**Estimates of Gamma Parameters using KM Estimates**			
402	Mean (KM)	370.1	SD (KM)	449.9
403	Variance (KM)	202367	SE of Mean (KM)	58.48
404	k hat (KM)	0.677	k star (KM)	0.655
405	nu hat (KM)	83.91	nu star (KM)	81.18
406	theta hat (KM)	546.9	theta star (KM)	565.2
407	80% gamma percentile (KM)	609.4	90% gamma percentile (KM)	943.5
408	95% gamma percentile (KM)	1290	99% gamma percentile (KM)	2123
409				
410	**Gamma Kaplan-Meier (KM) Statistics**			
411	Approximate Chi Square Value (81.18, α)	61.42	Adjusted Chi Square Value (81.18, β)	61.01
412	95% Gamma Approximate KM-UCL (use when n>=50)	489.1	95% Gamma Adjusted KM-UCL (use when n<50)	492.4
413				
414	**Lognormal GOF Test on Detected Observations Only**			
415	Shapiro Wilk Test Statistic	0.886	**Shapiro Wilk GOF Test**	
416	5% Shapiro Wilk Critical Value	0.914	Detected Data Not Lognormal at 5% Significance Level	
417	Lilliefors Test Statistic	0.172	**Lilliefors GOF Test**	
418	5% Lilliefors Critical Value	0.18	Detected Data appear Lognormal at 5% Significance Level	
419	**Detected Data appear Approximate Lognormal at 5% Significance Level**			
420				
421	**Lognormal ROS Statistics Using Imputed Non-Detects**			
422	Mean in Original Scale	338	Mean in Log Scale	5.199
423	SD in Original Scale	470.4	SD in Log Scale	1.078
424	95% t UCL (assumes normality of ROS data)	437.8	95% Percentile Bootstrap UCL	444.8
425	95% BCA Bootstrap UCL	459.4	95% Bootstrap t UCL	476.1
426	95% H-UCL (Log ROS)	443.6		
427				
428	**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**			
429	KM Mean (logged)	5.527	KM Geo Mean	251.3
430	KM SD (logged)	0.762	95% Critical H Value (KM-Log)	2.058
431	KM Standard Error of Mean (logged)	0.0995	95% H-UCL (KM -Log)	410.7
432	KM SD (logged)	0.762	95% Critical H Value (KM-Log)	2.058
433	KM Standard Error of Mean (logged)	0.0995		
434				
435	**DL/2 Statistics**			
436	**DL/2 Normal**		**DL/2 Log-Transformed**	
437	Mean in Original Scale	357.4	Mean in Log Scale	5.42
438	SD in Original Scale	460.5	SD in Log Scale	0.861
439	95% t UCL (Assumes normality)	455.1	95% H-Stat UCL	414.5
440	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
441				
442	**Nonparametric Distribution Free UCL Statistics**			
443	**Detected Data appear Approximate Lognormal Distributed at 5% Significance Level**			
444				
445	**Suggested UCL to Use**			
446	KM H-UCL	410.7		
447				
448	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
449	Recommendations are based upon data size, data distribution, and skewness.			
450	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
451	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
452				

RLI Park Project - Remedial Action Plan
Appendix C - 95% UCL Results

	Appendix C - 95% UCL Output			
	User Selected Options			
	Date/Time of Computation	ProUCL 5.13/7/2022 11:28:00 AM		
	From File	RLI Cove_95% UCL ALL Pest.xls		
	Full Precision	OFF		
	Confidence Coefficient	95%		
	Number of Bootstrap Operations	2000		
	Chlordane (ug/kg)			
	General Statistics			
	Total Number of Observations	145	Number of Distinct Observations	46
	Number of Detects	44	Number of Non-Detects	101
	Number of Distinct Detects	32	Number of Distinct Non-Detects	20
	Minimum Detect	39	Minimum Non-Detect	3.6
	Maximum Detect	750	Maximum Non-Detect	66
	Variance Detects	17338	Percent Non-Detects	69.66%
	Mean Detects	104	SD Detects	131.7
	Median Detects	58.5	CV Detects	1.266
	Skewness Detects	3.614	Kurtosis Detects	14.52
	Mean of Logged Detects	4.309	SD of Logged Detects	0.683
	Normal GOF Test on Detects Only			
	Shapiro Wilk Test Statistic	0.505	**Shapiro Wilk GOF Test**	
	5% Shapiro Wilk Critical Value	0.944	Detected Data Not Normal at 5% Significance Level	
	Lilliefors Test Statistic	0.345	**Lilliefors GOF Test**	
	5% Lilliefors Critical Value	0.132	Detected Data Not Normal at 5% Significance Level	
	Detected Data Not Normal at 5% Significance Level			
	Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
	KM Mean	34.61	KM Standard Error of Mean	7.172
	KM SD	85.22	95% KM (BCA) UCL	62.79
	95% KM (t) UCL	46.48	95% KM (Percentile Bootstrap) UCL	57.04
	95% KM (z) UCL	46.41	95% KM Bootstrap t UCL	50.67
	90% KM Chebyshev UCL	56.13	95% KM Chebyshev UCL	65.87
	97.5% KM Chebyshev UCL	79.4	99% KM Chebyshev UCL	106
	Gamma GOF Tests on Detected Observations Only			
	A-D Test Statistic	5.495	**Anderson-Darling GOF Test**	
	5% A-D Critical Value	0.765	Detected Data Not Gamma Distributed at 5% Significance Level	
	K-S Test Statistic	0.295	**Kolmogorov-Smirnov GOF**	
	5% K-S Critical Value	0.136	Detected Data Not Gamma Distributed at 5% Significance Level	
	Detected Data Not Gamma Distributed at 5% Significance Level			
	Gamma Statistics on Detected Data Only			
	k hat (MLE)	1.636	k star (bias corrected MLE)	1.54
	Theta hat (MLE)	63.59	Theta star (bias corrected MLE)	67.57
	nu hat (MLE)	144	nu star (bias corrected)	135.5
	Mean (detects)	104		
	Gamma ROS Statistics using Imputed Non-Detects			
	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)			
	For such situations, GROS method may yield incorrect values of UCLs and BTVs			
	This is especially true when the sample size is small.			
	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			

	A	B	C	D	E	F	G	H	I	J	K	L
58					Minimum	0.01					Mean	31.58
59					Maximum	750					Median	0.01
60					SD	86.49					CV	2.739
61					k hat (MLE)	0.144					k star (bias corrected MLE)	0.146
62					Theta hat (MLE)	218.7					Theta star (bias corrected MLE)	216.3
63					nu hat (MLE)	41.87					nu star (bias corrected)	42.34
64					Adjusted Level of Significance (β)	0.0483						
65					Approximate Chi Square Value (42.34, α)	28.42					Adjusted Chi Square Value (42.34, β)	28.31
66					95% Gamma Approximate UCL (use when n>=50)	47.04					95% Gamma Adjusted UCL (use when n<50)	47.23
67												
68					**Estimates of Gamma Parameters using KM Estimates**							
69					Mean (KM)	34.61					SD (KM)	85.22
70					Variance (KM)	7262					SE of Mean (KM)	7.172
71					k hat (KM)	0.165					k star (KM)	0.166
72					nu hat (KM)	47.84					nu star (KM)	48.18
73					theta hat (KM)	209.8					theta star (KM)	208.3
74					80% gamma percentile (KM)	40.72					90% gamma percentile (KM)	103.8
75					95% gamma percentile (KM)	186.5					99% gamma percentile (KM)	421.6
76												
77					**Gamma Kaplan-Meier (KM) Statistics**							
78					Approximate Chi Square Value (48.18, α)	33.25					Adjusted Chi Square Value (48.18, β)	33.12
79					95% Gamma Approximate KM-UCL (use when n>=50)	50.15					95% Gamma Adjusted KM-UCL (use when n<50)	50.34
80												
81					**Lognormal GOF Test on Detected Observations Only**							
82					Shapiro Wilk Test Statistic	0.761					**Shapiro Wilk GOF Test**	
83					5% Shapiro Wilk Critical Value	0.944					Detected Data Not Lognormal at 5% Significance Level	
84					Lilliefors Test Statistic	0.237					**Lilliefors GOF Test**	
85					5% Lilliefors Critical Value	0.132					Detected Data Not Lognormal at 5% Significance Level	
86					**Detected Data Not Lognormal at 5% Significance Level**							
87												
88					**Lognormal ROS Statistics Using Imputed Non-Detects**							
89					Mean in Original Scale	39.4					Mean in Log Scale	2.845
90					SD in Original Scale	83.92					SD in Log Scale	1.191
91					95% t UCL (assumes normality of ROS data)	50.94					95% Percentile Bootstrap UCL	51.31
92					95% BCA Bootstrap UCL	55.77					95% Bootstrap t UCL	58.82
93					95% H-UCL (Log ROS)	44.28						
94												
95					**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**							
96					KM Mean (logged)	2.234					KM Geo Mean	9.335
97					KM SD (logged)	1.448					95% Critical H Value (KM-Log)	2.65
98					KM Standard Error of Mean (logged)	0.125					95% H-UCL (KM -Log)	36.66
99					KM SD (logged)	1.448					95% Critical H Value (KM-Log)	2.65
100					KM Standard Error of Mean (logged)	0.125						
101												
102					**DL/2 Statistics**							
103					**DL/2 Normal**						**DL/2 Log-Transformed**	
104					Mean in Original Scale	45.04					Mean in Log Scale	3.355
105					SD in Original Scale	81.92					SD in Log Scale	0.768
106					95% t UCL (Assumes normality)	56.31					95% H-Stat UCL	43.74
107					**DL/2 is not a recommended method, provided for comparisons and historical reasons**							
108												
109					**Nonparametric Distribution Free UCL Statistics**							
110					**Data do not follow a Discernible Distribution at 5% Significance Level**							
111												
112					**Suggested UCL to Use**							
113					95% KM (Chebyshev) UCL	65.87						
114												
115					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
116					Recommendations are based upon data size, data distribution, and skewness.							
117					These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).							
118					However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.							

	A	B	C	D	E	F	G	H	I	J	K	L
119												
120	**Dieldrin (ug/kg)**											
121												
122	**General Statistics**											
123	Total Number of Observations					144	Number of Distinct Observations					29
124							Number of Missing Observations					1
125	Number of Detects					10	Number of Non-Detects					134
126	Number of Distinct Detects					9	Number of Distinct Non-Detects					20
127	Minimum Detect					5.7	Minimum Non-Detect					2.1
128	Maximum Detect					39	Maximum Non-Detect					7
129	Variance Detects					99.86	Percent Non-Detects					93.06%
130	Mean Detects					14.54	SD Detects					9.993
131	Median Detects					10.75	CV Detects					0.687
132	Skewness Detects					1.839	Kurtosis Detects					3.827
133	Mean of Logged Detects					2.506	SD of Logged Detects					0.592
134												
135	**Normal GOF Test on Detects Only**											
136	Shapiro Wilk Test Statistic					0.803	**Shapiro Wilk GOF Test**					
137	5% Shapiro Wilk Critical Value					0.842	Detected Data Not Normal at 5% Significance Level					
138	Lilliefors Test Statistic					0.2	**Lilliefors GOF Test**					
139	5% Lilliefors Critical Value					0.262	Detected Data appear Normal at 5% Significance Level					
140	**Detected Data appear Approximate Normal at 5% Significance Level**											
141												
142	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
143	KM Mean					2.964	KM Standard Error of Mean					0.354
144	KM SD					4.03	95% KM (BCA) UCL					4.517
145	95% KM (t) UCL					3.551	95% KM (Percentile Bootstrap) UCL					4.182
146	95% KM (z) UCL					3.547	95% KM Bootstrap t UCL					3.82
147	90% KM Chebyshev UCL					4.027	95% KM Chebyshev UCL					4.508
148	97.5% KM Chebyshev UCL					5.176	99% KM Chebyshev UCL					6.487
149												
150	**Gamma GOF Tests on Detected Observations Only**											
151	A-D Test Statistic					0.382	**Anderson-Darling GOF Test**					
152	5% A-D Critical Value					0.732	Detected data appear Gamma Distributed at 5% Significance Level					
153	K-S Test Statistic					0.192	**Kolmogorov-Smirnov GOF**					
154	5% K-S Critical Value					0.268	Detected data appear Gamma Distributed at 5% Significance Level					
155	**Detected data appear Gamma Distributed at 5% Significance Level**											
156												
157	**Gamma Statistics on Detected Data Only**											
158	k hat (MLE)					3.086	k star (bias corrected MLE)					2.227
159	Theta hat (MLE)					4.712	Theta star (bias corrected MLE)					6.53
160	nu hat (MLE)					61.72	nu star (bias corrected)					44.53
161	Mean (detects)					14.54						
162												
163	**Gamma ROS Statistics using Imputed Non-Detects**											
164	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
165	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)											
166	For such situations, GROS method may yield incorrect values of UCLs and BTVs											
167	This is especially true when the sample size is small.											
168	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
169	Minimum					0.01	Mean					1.019
170	Maximum					39	Median					0.01
171	SD					4.475	CV					4.391
172	k hat (MLE)					0.181	k star (bias corrected MLE)					0.182
173	Theta hat (MLE)					5.631	Theta star (bias corrected MLE)					5.605
174	nu hat (MLE)					52.12	nu star (bias corrected)					52.36
175	Adjusted Level of Significance (β)					0.0483						
176	Approximate Chi Square Value (52.36, α)					36.74	Adjusted Chi Square Value (52.36, β)					36.61
177	95% Gamma Approximate UCL (use when n>=50)					1.452	95% Gamma Adjusted UCL (use when n<50)					1.458

RLI Park Project - Remedial Action Plan
Appendix C - 95% UCL Results

	A	B	C	D	E	F	G	H	I	J	K	L
178												
179	**Estimates of Gamma Parameters using KM Estimates**											
180					Mean (KM)	2.964				SD (KM)		4.03
181					Variance (KM)	16.24				SE of Mean (KM)		0.354
182					k hat (KM)	0.541				k star (KM)		0.534
183					nu hat (KM)	155.8				nu star (KM)		153.9
184					theta hat (KM)	5.479				theta star (KM)		5.547
185					80% gamma percentile (KM)	4.88				90% gamma percentile (KM)		7.909
186					95% gamma percentile (KM)	11.12				99% gamma percentile (KM)		18.97
187												
188	**Gamma Kaplan-Meier (KM) Statistics**											
189					Approximate Chi Square Value (153.91, α)	126.2				Adjusted Chi Square Value (153.91, β)		126
190					95% Gamma Approximate KM-UCL (use when n>=50)	3.614				95% Gamma Adjusted KM-UCL (use when n<50)		3.622
191												
192	**Lognormal GOF Test on Detected Observations Only**											
193					Shapiro Wilk Test Statistic	0.951				**Shapiro Wilk GOF Test**		
194					5% Shapiro Wilk Critical Value	0.842				Detected Data appear Lognormal at 5% Significance Level		
195					Lilliefors Test Statistic	0.167				**Lilliefors GOF Test**		
196					5% Lilliefors Critical Value	0.262				Detected Data appear Lognormal at 5% Significance Level		
197	**Detected Data appear Lognormal at 5% Significance Level**											
198												
199	**Lognormal ROS Statistics Using Imputed Non-Detects**											
200					Mean in Original Scale	1.584				Mean in Log Scale		-0.949
201					SD in Original Scale	4.406				SD in Log Scale		1.582
202					95% t UCL (assumes normality of ROS data)	2.191				95% Percentile Bootstrap UCL		2.231
203					95% BCA Bootstrap UCL	2.414				95% Bootstrap t UCL		2.552
204					95% H-UCL (Log ROS)	1.96						
205												
206	**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**											
207					KM Mean (logged)	0.865				KM Geo Mean		2.374
208					KM SD (logged)	0.472				95% Critical H Value (KM-Log)		1.813
209					KM Standard Error of Mean (logged)	0.0415				95% H-UCL (KM -Log)		2.851
210					KM SD (logged)	0.472				95% Critical H Value (KM-Log)		1.813
211					KM Standard Error of Mean (logged)	0.0415						
212												
213	**DL/2 Statistics**											
214	**DL/2 Normal**									**DL/2 Log-Transformed**		
215					Mean in Original Scale	2.818				Mean in Log Scale		0.784
216					SD in Original Scale	4.083				SD in Log Scale		0.51
217					95% t UCL (Assumes normality)	3.381				95% H-Stat UCL		2.699
218	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
219												
220	**Nonparametric Distribution Free UCL Statistics**											
221	**Detected Data appear Approximate Normal Distributed at 5% Significance Level**											
222												
223	**Suggested UCL to Use**											
224					95% KM (t) UCL	3.551						
225												
226	When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test											
227	When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL											
228												
229	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
230	Recommendations are based upon data size, data distribution, and skewness.											
231	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
232	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
233												

	A	B	C	D	E	F	G	H	I	J	K	L
234	**Heptachlor epoxide (ug/kg)**											
235												
236	**General Statistics**											
237	Total Number of Observations					145	Number of Distinct Observations					45
238	Number of Detects					33	Number of Non-Detects					112
239	Number of Distinct Detects					22	Number of Distinct Non-Detects					30
240	Minimum Detect					7.6	Minimum Non-Detect					3.6
241	Maximum Detect					85	Maximum Non-Detect					20
242	Variance Detects					338.6	Percent Non-Detects					77.24%
243	Mean Detects					18.05	SD Detects					18.4
244	Median Detects					12	CV Detects					1.02
245	Skewness Detects					2.868	Kurtosis Detects					7.884
246	Mean of Logged Detects					2.637	SD of Logged Detects					0.617
247												
248	**Normal GOF Test on Detects Only**											
249	Shapiro Wilk Test Statistic					0.549	**Shapiro Wilk GOF Test**					
250	5% Shapiro Wilk Critical Value					0.931	Detected Data Not Normal at 5% Significance Level					
251	Lilliefors Test Statistic					0.345	**Lilliefors GOF Test**					
252	5% Lilliefors Critical Value					0.152	Detected Data Not Normal at 5% Significance Level					
253	**Detected Data Not Normal at 5% Significance Level**											
254												
255	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
256	KM Mean					6.985	KM Standard Error of Mean					0.892
257	KM SD					10.55	95% KM (BCA) UCL					9.751
258	95% KM (t) UCL					8.462	95% KM (Percentile Bootstrap) UCL					9.105
259	95% KM (z) UCL					8.453	95% KM Bootstrap t UCL					9.076
260	90% KM Chebyshev UCL					9.662	95% KM Chebyshev UCL					10.87
261	97.5% KM Chebyshev UCL					12.56	99% KM Chebyshev UCL					15.86
262												
263	**Gamma GOF Tests on Detected Observations Only**											
264	A-D Test Statistic					3.791	**Anderson-Darling GOF Test**					
265	5% A-D Critical Value					0.759	Detected Data Not Gamma Distributed at 5% Significance Level					
266	K-S Test Statistic					0.304	**Kolmogorov-Smirnov GOF**					
267	5% K-S Critical Value					0.155	Detected Data Not Gamma Distributed at 5% Significance Level					
268	**Detected Data Not Gamma Distributed at 5% Significance Level**											
269												
270	**Gamma Statistics on Detected Data Only**											
271	k hat (MLE)					2.109	k star (bias corrected MLE)					1.937
272	Theta hat (MLE)					8.557	Theta star (bias corrected MLE)					9.314
273	nu hat (MLE)					139.2	nu star (bias corrected)					127.9
274	Mean (detects)					18.05						
275												
276	**Gamma ROS Statistics using Imputed Non-Detects**											
277	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
278	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)											
279	For such situations, GROS method may yield incorrect values of UCLs and BTVs											
280	This is especially true when the sample size is small.											
281	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
282	Minimum					0.01	Mean					4.115
283	Maximum					85	Median					0.01
284	SD					11.52	CV					2.801
285	k hat (MLE)					0.172	k star (bias corrected MLE)					0.173
286	Theta hat (MLE)					23.89	Theta star (bias corrected MLE)					23.74
287	nu hat (MLE)					49.95	nu star (bias corrected)					50.25
288	Adjusted Level of Significance (β)					0.0483						
289	Approximate Chi Square Value (50.25, α)					34.98	Adjusted Chi Square Value (50.25, β)					34.85
290	95% Gamma Approximate UCL (use when n>=50)					5.912	95% Gamma Adjusted UCL (use when n<50)					5.934

RLI Park Project - Remedial Action Plan
Appendix C - 95% UCL Results

	A	B	C	D	E	F	G	H	I	J	K	L
291												
292	**Estimates of Gamma Parameters using KM Estimates**											
293					Mean (KM)	6.985			SD (KM)	10.55		
294					Variance (KM)	111.2			SE of Mean (KM)	0.892		
295					k hat (KM)	0.439			k star (KM)	0.434		
296					nu hat (KM)	127.2			nu star (KM)	125.9		
297					theta hat (KM)	15.92			theta star (KM)	16.09		
298					80% gamma percentile (KM)	11.37			90% gamma percentile (KM)	19.44		
299					95% gamma percentile (KM)	28.21			99% gamma percentile (KM)	50.07		
300												
301	**Gamma Kaplan-Meier (KM) Statistics**											
302					Approximate Chi Square Value (125.93, α)	101			Adjusted Chi Square Value (125.93, β)	100.8		
303					95% Gamma Approximate KM-UCL (use when n>=50)	8.708			95% Gamma Adjusted KM-UCL (use when n<50)	8.728		
304												
305	**Lognormal GOF Test on Detected Observations Only**											
306					Shapiro Wilk Test Statistic	0.778			**Shapiro Wilk GOF Test**			
307					5% Shapiro Wilk Critical Value	0.931			Detected Data Not Lognormal at 5% Significance Level			
308					Lilliefors Test Statistic	0.257			**Lilliefors GOF Test**			
309					5% Lilliefors Critical Value	0.152			Detected Data Not Lognormal at 5% Significance Level			
310	**Detected Data Not Lognormal at 5% Significance Level**											
311												
312	**Lognormal ROS Statistics Using Imputed Non-Detects**											
313					Mean in Original Scale	5.708			Mean in Log Scale	1.017		
314					SD in Original Scale	11.02			SD in Log Scale	1.089		
315					95% t UCL (assumes normality of ROS data)	7.224			95% Percentile Bootstrap UCL	7.313		
316					95% BCA Bootstrap UCL	7.776			95% Bootstrap t UCL	7.932		
317					95% H-UCL (Log ROS)	6.157						
318												
319	**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**											
320					KM Mean (logged)	1.607			KM Geo Mean	4.988		
321					KM SD (logged)	0.641			95% Critical H Value (KM-Log)	1.917		
322					KM Standard Error of Mean (logged)	0.0555			95% H-UCL (KM -Log)	6.785		
323					KM SD (logged)	0.641			95% Critical H Value (KM-Log)	1.917		
324					KM Standard Error of Mean (logged)	0.0555						
325												
326	**DL/2 Statistics**											
327					**DL/2 Normal**				**DL/2 Log-Transformed**			
328					Mean in Original Scale	7.125			Mean in Log Scale	1.642		
329					SD in Original Scale	10.54			SD in Log Scale	0.632		
330					95% t UCL (Assumes normality)	8.574			95% H-Stat UCL	6.976		
331	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
332												
333	**Nonparametric Distribution Free UCL Statistics**											
334	**Data do not follow a Discernible Distribution at 5% Significance Level**											
335												
336	**Suggested UCL to Use**											
337					95% KM (Chebyshev) UCL	10.87						
338												
339	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
340	Recommendations are based upon data size, data distribution, and skewness.											
341	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
342	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
343												