TASK 210:
SUBSURFACE SITE INVESTIGATION REPORT
VOLUME 1

New Haven Line
Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport and Stratford, Connecticut

Rehabilitation of Bridge No. 08028R over Osborne Avenue
East Norwalk, Connecticut

ConnDOT Assignment No. 204-4191
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1.0 INTRODUCTION

On behalf of the Connecticut Department of Transportation (ConnDOT), Maguire Group Inc. (MGI) has conducted a Task 210 – Subsurface Site Investigation Report in association with the Catenary Replacement Program for Sections C1a and C2 of the New Haven Line (NHL) in East Norwalk, Westport, Bridgeport, and Stratford, Connecticut, State Project No. 301-0145 and the Rehabilitation of Bridge No. 08028R over Osborne Avenue in East Norwalk, Connecticut, State Project No. 301-0040.

Based upon a review of the Preliminary Design plans by others, the project will include the replacement of the existing antiquated 90-year old system with a state-of-the-art two wire automatically tensioned (AT) catenary system. The existing catenary system will be replaced in East Norwalk/Westport (Section C1a) and Bridgeport/Stratford (Section C2) totaling approximately 11 miles on four tracks, from catenary structures #530 to #630 and #787 to #862, respectively. All work will take place on the railroad right-of-way and existing access points will be used for construction. Construction activities will include the replacement of overhead railroad traction system conductors, installation of 87 new structure caisson foundations designed, in general, for a maximum depth of 12-feet and foundation and steel repairs to existing catenary portal structures. Some foundations in the area of the viaduct may be deeper.

ConnDOT is also proposing the Rehabilitation of Bridge No. 08028R over Osborne Avenue in East Norwalk on the Metro-North Railroad New Haven Mainline (State Project No. 301-0040). The project is currently in the initial design phase and construction activities may include the rehabilitation or replacement of the existing bridge structure.

This Task 210 - Subsurface Site Investigation was conducted in areas of anticipated construction activities for the NHL Sections C1a and C2 Catenary Replacement Program and for the Rehabilitation of Bridge No. 08028R over Osborne Avenue in East Norwalk (See Attached Figures 1, 2 and 3 – Project Location Maps).

The purpose of this Task 210 – Subsurface Site Investigation Report is to verify the absence or presence and location of subsurface contamination, and to assess the potential pollutant impacts to be encountered during construction associated with the Catenary Replacement Program for Sections C1a and C2 of the New Haven Line and for the Rehabilitation of Bridge No. 08028R over Osborne Avenue in East Norwalk. It is anticipated that Task 310 Plans and Specifications will subsequently be prepared to assess construction related activities (i.e. proper storage, classification, transport and disposal of contaminated materials), in relationship to the environmental conditions prevalent within the project limits, as well as to specify remedial work to be included in the Contract Bid Documents.

2.0 SITE DESCRIPTION

2.1 Background

ConnDOT's Office of Rails is proposing to replace the existing catenary system on the New Haven Line (NHL) in East Norwalk and Westport (Section C1a) and Bridgeport and Stratford (Section C2) with a new catenary system designed for the maximum speed allowed by track geometry, other physical restraints and to support Amtrak's Northeast Corridor High Speed Rail Program. The limits of the Catenary Replacement Program extend from catenary structure #530 in East Norwalk to #630 in Westport for Section C1a and from catenary structure #787 in Bridgeport to #862 in Stratford for Section C2.

The catenary replacement program includes the replacement of all existing overhead railroad traction system conductors within the project limits. Approximately 87 new structure caisson foundations designed, in general, for a maximum depth of 12-feet are proposed to be installed as part of the project. Some foundations in the area of the viaduct may be deeper. Also as part of the project, the existing catenary portal structures will be utilized and may require foundation and steel repairs. All work will take place within the existing railroad right-of-way and existing access points will be used for construction.

ConnDOT is also proposing the Rehabilitation of Bridge No. 08028R over Osborne Avenue in East Norwalk on the Metro-North Railroad New Haven Mainline (State Project No. 301-0040). The project is currently in the initial design phase and construction activities may include the rehabilitation or replacement of the existing bridge structure.

The following environmental investigation was previously conducted within the project limits:

- Task 210: Surficial Site Investigation, New Haven Railroad Line Catenary Section "C", Stratford to Westport, Connecticut, Prepared by: GEI Consultants, Inc., Dated: August 31, 2000.

The results of the above environmental investigation indicated the presence of elevated concentrations of polynuclear aromatic hydrocarbons (PAHs), total arsenic and lead, leachable lead and extractable total petroleum hydrocarbons (ETPH) within and adjacent to the existing railroad corridor. The environmental investigation recommended the preparation of plans, specifications and estimates for the proper management, handling and disposal of contaminated material excavated during construction activities within the areas of environmental concern identified within the existing railroad corridor.

This Task 210 - Subsurface Site Investigation was conducted in areas of anticipated construction activities associated with the catenary replacement program in East Norwalk, Westport, Bridgeport and Stratford along the existing rail line and the bridge rehabilitation project over Osborne Avenue in East Norwalk. The limits for the Section C1a project begin at the Norwalk River in South Norwalk (Station 1517+74) and extend to the Greens Farms station in Westport (Station 1819+48); the Osborne Avenue bridge rehabilitation project is located at Station 1539+82 in Norwalk, and the limits for the Section C2 project begin just east of the Pequonnock River in Bridgeport (Station 2282+47) and extend to just west of the Housatonic River in Stratford (Station 2507+26) (See attached Figures 1, 2 and 3 – Project Location Maps).

The active rail corridor property is owned by the ConnDOT, and properties adjacent to the active rail line corridor consist of industrial, commercial, residential, and undeveloped land. The site area is depicted on the Task 210 Project Area & Sampling Locations Figures included at the end of this Report.

3.0 LOCAL ENVIRONMENT & RECEPTORS

3.1 Geology

The Connecticut Department of Energy and Environmental Protection's (CTDEEP's) "Surficial Materials Map" for Norwalk indicates that the soils in Section C1a (Norwalk, East Norwalk and Westport) of the project corridor and at the Osborne Avenue bridge are glacial ice-laid deposits composed of non-sorted and generally non-stratified Thin Till and glacial meltwater coarse deposits composed of layers of well-to-poorly sorted Sand and Gravel. Artificial Fill was also indicated on the Surficial Material Map as being present within the Section C1a project corridor adjacent to the Norwalk River and Mill Creek/Grove Point areas.

The CTDEEP's "Surficial Materials Map" for Bridgeport indicates that soils in Section C2 (Bridgeport and Stratford) of the project corridor are glacial meltwater stacked coarse deposits composed of Sand overlying Fines and Sand and Gravel overlying Sand overlying Fines. Glacial meltwater coarse deposits composed of layers of well-to-poorly sorted Sand and Gravel were also indicated within the C2 project corridor. Glacial ice-laid deposits composed of Thin Till and Thick Till were indicated to be present within a small portion of the C2 project corridor just east of the Bridgeport/Stratford town border. Artificial Fill was also indicated within the C2 project corridor adjacent to the Yellow Mill Channel and Pequonnock River.

The Bedrock Geological Map of Connecticut, compiled by John Rodgers in 1985, indicates that the bedrock unit underlying the project corridor in Norwalk and East Norwalk is Ordovician Granitic gneiss, which is a light-colored, foliated granitic gneiss and the Trap Fall Formation which is a gray to silvery, partly rusty-weathering, medium-grained schist. The bedrock unit underlying the project corridor in both Bridgeport and Westport is Golden Hill Schist, with is a gray to silvery, medium- to coarse-grained schist and granofels. The bedrock unit underlying the project corridor in Statford is Oronoque Schist, which is a silver, medium- to fine-grained schist and granofels.

3.2 Groundwater & Surface Water

The CTDEEP's "Water Quality Classifications Map" for Norwalk, Connecticut depicts the groundwater classification for the portion of the project corridor (Section C1a) beginning west of the Norwalk River and extending east along the railroad corridor through East Norwalk and ending at approximately where Norden Place crosses the railroad as "GB". The groundwater classification at the Osborne Avenue bridge is also classified as "GB". The "GB" groundwater classification indicates that the groundwater is within an urbanized area of intense industrial activity where a public water supply source is available. The groundwater may not be suitable for human consumption due to waste discharges, spills or leaks of chemicals, or land use impacts.

The groundwater classification along the project corridor east of Norden Place is "GA" and remains a "GA" classification through Westport to just west of the Greens Farms Station where the classification changes back to "GB". The "GA" groundwater classification indicates that the groundwater is within the area of influence of private and potential public water supply wells. The groundwater is assumed suitable for direct human consumption without the need for treatment.

The CTDEEP's "Water Quality Classifications Map" for Bridgeport, Connecticut depicts the groundwater classification for the entire Section C2 project corridor from the Pequonnock River and Yellow Mill Channel and proceeding east along the railroad corridor to the Housatonic River as "GB". The "GB" groundwater classification indicates that the groundwater is within an urbanized area of intense industrial activity where a public water supply source is available. The groundwater may not be suitable for human consumption due to waste discharges, spills or leaks of chemicals, or land use impacts. Groundwater was encountered at depths of 5-feet to 10-feet below grade within the project limits.

The portion of the project corridor (Section C1a and Osborne Avenue bridge) in Norwalk and East Norwalk on both sides of the Norwalk River is located within the Norwalk River Basin within the Norwalk Regional Basin. The eastern portion of the project corridor encompassing the boundary between East Norwalk and Westport, including in the eastern portion of East Norwalk and Westport, is located within the Southwest Shoreline Basin within the Southwest Shoreline Regional Basin. Both basins are within the Southwest Coast Major Drainage Basin.

The portion of the project corridor (Section C2) in Bridgeport adjacent to the Pequonnock River is located within the Pequonnock River Basin and the portion adjacent to the Yellow Mill Channel is located within the Yellow Mill Channel Basin. Proceeding east along the project corridor towards Stratford, the railroad is located within the Bruce Brook Basin and Stratford Great Meadows Basin. These four (4) basins are located within the Southwest Eastern Regional Complex Basin within the Southwest Coast Major Basin. The portion of the project adjacent to the Housatonic River is located within the Housatonic River Basin within the Housatonic Main Stem Regional Basin within the Housatonic Major Basin.

The New Haven Line crosses numerous surface water resources along the project corridor. The following sections summarize the surface water bodies in the portions (Section C1a and Section C2) of the railroad corridor, which were investigated as part of this Task 210 Subsurface Site Investigation.

Norwalk and East Norwalk

Norwalk River: The Norwalk River is located in the western portion of the Section C1a project corridor and is designated by the CTDEEP as a Class "SC/SB" coastal surface water body. The "SC/SB" classification indicates that due to point or non-point sources of pollution, certain Criteria or one or more designated uses assigned to Class "SB" surface waters may not be currently met. The water quality goal is achievement of Class "SB" Criteria and attainment of Class "SB" designated uses.

Westport

Saugatuck River: The Saugatuck River is located east of the Westport Station within the Section C1a project corridor and is designated by the CTDEEP as a Class "SB" coastal surface water body. The Class "SB" designation indicates that these waters are known or presumed to meet Criteria which support designated uses. Class "SB" waters are designated for habitat for marine fish, other aquatic life and wildlife; commercial shellfish harvesting; recreation; industrial water supply; and navigation.

Sherwood Millpond and Mill Creek: Sherwood Millpond and Mill Creek are located in the eastern portion of the Section C1a project corridor and west of the Green's Farm Station. These surface water bodies are designated by the CTDEEP as Class "SB/SA" coastal surface waters. The Class "SB/SA" designation indicates that these surface water bodies presently may not be meeting Criteria or one or more designated uses. The water quality goal is achievement of Class "SA" Criteria and attainment of Class "SA" designated uses.

Bridgeport

Pequonnock River and Yellow Mill Channel: The Pequonnock River and Yellow Mill Channel are located in the western portion of the Section C2 project corridor and are designated by the CTDEEP as a Class "SC/SB" coastal surface water bodies. The "SC/SB" classification indicates that due to point or non-point sources of pollution, certain Criteria or one or more designated uses assigned to Class "SB" surface waters may not be currently met. The water quality goal is achievement of Class "SB" Criteria and attainment of Class "SB" designated uses.

Bruce Brook: Bruce Brook is located to the east of the Yellow Mill channel within the Section C2 project corridor and is designated by the CTDEEP as a Class "C/B" surface water body. The "C/B" classification indicates that due to point or non-point sources of pollution, certain Criteria or one or more designated uses assigned to Class "B" surface waters may not be currently met. The water quality goal is achievement of Class "B" Criteria and attainment of Class "B" designated uses.

Stratford

Housatonic River: The Housatonic River is located at the eastern end of the Section C2 project corridor and is designated by the CTDEEP as a Class "SC/SB" coastal surface water body. The "SC/SB" classification indicates that due to point or non-point sources of pollution, certain Criteria or one or more designated uses assigned to Class "SB" surface waters may not be currently met. The water quality goal is achievement of Class "SB" Criteria and attainment of Class "SB" designated uses.

4.0 SUBSURFACE INVESTIGATION

Based upon the railroad corridor's use as an active railroad, and the current and former industrial and commercial nature of the project area, a comprehensive sampling program was conducted. The following subsections detail the investigation.

4.1 Geoprobe® Soil Borings & Soil Sample Analyses

Forty-five (45) borings GP-1 to GP-5, GP-37 to GP-46, GP-56 to GP-81, GP-83, GP-84, GP-86 and GP-87 were advanced to a depth of 12-feet or refusal in the vicinities of the new structure caisson foundations proposed to be installed as part of the project, utilizing a Geoprobe® direct push unit. Forty-two (42) hand auger borings GP-6 to GP-36, GP-47 to GP-55, GP-82, and GP-85 were also advanced in areas within the project limits where access was limited. Borings GP-82 to GP-87 were advanced at the Osborne Avenue bridge rehabilitation project area at track and street level. The Geoprobe® borings and hand auger borings were advanced by Logical Environmental Solutions, LLC. under the direction of MGI and laboratory analyses were conducted by Phoenix Environmental Laboratories, Inc. The Geoprobe® and hand auger boring locations (GP-1 to GP-87) are depicted on the Task 210 Project Area & Sample Location Plans (Figures ENV-1 through ENV-47) at the end of this Report. The boring locations for the Osborne Avenue bridge rehabilitation project are shown on Figure ENV-3.

The direct push borings were advanced continuously to 12-feet or refusal for the catenary and bridge project utilizing a 4-foot long 2-inch diameter Macro Core Sampler with dedicated acetate liners at the boring locations referenced above. Hand auger borings were advanced to depths of 4-feet or refusal utilizing decontaminated equipment at the boring locations referenced above. The soil samples were visually inspected in the field for staining, and were described as to physical characteristics and soil type. Soil boring logs were generated in the field by the on-site qualified technician. In addition, the soil samples were screened in the field for total volatile organic compounds utilizing a Photovac photoionization detector (PID).

Based upon field screening results and visual observations, one (1) soil sample was collected from each boring. If visual screening did not indicate contamination, the soil sample directly below the ballast material was collected for laboratory analyses. The soil samples were placed in laboratory-supplied glassware, stored in an ice-filled cooler, and submitted to the laboratory in accordance with chain-of-custody procedures. The analyses of all soil samples included volatile organic compounds (VOCs) utilizing EPA Method 8260, semi-volatile organic compounds (SVOCs) utilizing EPA Method 8270, extractable total petroleum hydrocarbons (ETPH) utilizing the Connecticut ETPH method, pesticides and polychlorinated biphenyls (PCBs) utilizing EPA Method 8081A and 8082, herbicides utilizing EPA Method 8151, and total and SPLP RCRA 8 metals.

All soil borings were back-filled upon completion utilizing clean sand and/or hydrated bentonite. All down-hole sampling equipment was decontaminated in accordance with Maguire's March 23, 2012, Task 210 – Subsurface Site Investigation Work Plan.

4.2 Groundwater Grab Sample Collection & Analyses

Groundwater grab samples were collected from borings GP-1, GP-4, GP-5, GP-7, GP-9, GP-11, GP-13, GP-15, GP-16, GP-18, GP-19, GP-20, GP-21, GP-22, GP-24, GP-26, GP-28, GP-30, GP-32, GP-34, GP-36, GP-37, GP-39, GP-41, GP-43, GP-44, GP-46, GP-49, GP-50, GP-53, GP-54, GP-55, GP-56, GP-58, GP-60, GP-62, GP-64, GP-65, GP-67, GP-69, GP-71, GP-73, GP-77, GP-79, GP-81, and GP-83 designated with a "GW" on Figures ENV-1 through ENV-47 at the end of this report. The groundwater grab samples were collected by inserting one-half inch diameter, schedule 40, 10-slot, PVC well screen and riser casing into the borehole. The well screen was temporarily installed approximately 4 feet into the observed water table depth. Dedicated polyethylene tubing was placed into the temporary well and the groundwater grab sample was drawn through the tubing using a low-flow peristaltic pump.

The groundwater grab samples were placed in laboratory-supplied glassware, and stored in an ice-filled cooler. The groundwater samples were collected for laboratory analysis of VOCs (EPA Method 8260), SVOCs (EPA Method 8270), ETPH (CT-ETPH), pesticides & PCBs (EPA

Method 8081A & 8082), herbicides (EPA Method 8151), and Total and Dissolved RCRA 8 metals. Groundwater samples collected for Dissolved-phase RCRA metals were field filtered using a 0.45-µm membrane filter prior to acidification.

4.3 Project Quality Assurance/Quality Control Practices

The CTDEEP's Quality Assurance and Quality Control (QA/QC) Guidance was used to ensure that the analytical results generated during the investigation is of known and appropriate quality. Specifically, the Laboratory Quality Assurance Control Reasonable Confidence Protocols (RCPs) were utilized for all laboratory analytical methods. The Laboratory Quality Assurance and Quality Control, Data Quality Assessment and Data Usability Evaluation (DQA/DUE) Guidance were utilized to ensure that the analytical data used is of known and sufficient level of quality for the intended purpose. See Sections 5.4 and 5.5 of this report for a discussion of the QA/QC procedures and data usability evaluation.

To assess the collection of samples in the field in terms of the sampling techniques and decontamination procedures followed, quality control and quality assurance samples were collected and analyzed. Field blank samples were prepared by pouring laboratory supplied de-ionized water over decontaminated sampling equipment and collecting the resulting rinsate in appropriate sample containers. The field blank samples were stored with the daily samples in the sample cooler until delivery to the laboratory for analysis. The field blanks were analyzed for the same parameters specified for the daily samples.

Trip blanks were prepared by Phoenix Environmental Laboratories, Inc. and were stored with the daily samples in the sample cooler until delivery to the laboratory for analysis. The trip blanks were analyzed for VOCs.

All samples collected in the field were stored in a manner that preserved the integrity of the sample chemistry. Samples intended for organic analyses were stored in an ice-filled cooler until delivery to the laboratory. Chain-of-Custody (COC) forms were initiated in the field and accompanied the containers during sample collection, transportation to the lab, analysis, and

final disposal of the sample as a legal record of possession of the sample. All sampling equipment was either dedicated to a specific sample or was decontaminated prior to and between each use. Sampling equipment was not placed near solvents, gasoline, or other materials that may have impacted the sample integrity.

5.0 DISCUSSION OF SAMPLE RESULTS

5.1 Regulatory Criteria

The CTDEEP adopted Remediation Standard Regulations (Regulations of Connecticut State Agencies, Section 22a-133k-1 to 3 and 22a-133q-1) as of January 31, 1996. The Remediation Standard Regulations (RSRs) apply to any site undergoing voluntary remediation under Public Acts 95-183 or 95-190, a transfer of an "establishment" under Public Act 95-183, or any site as ordered by the CTDEEP Commissioner. The Regulations also outline the processes for establishing alternative site-specific numerical standards for certain sites, upon approval by the CTDEEP.

The RSRs criteria applicable to the soil and groundwater sampled during this investigation are summarized below. The application of these RSRs to the results of the laboratory analyses from this investigation are discussed in subsections 5.2 and 5.3 of this section.

Soils Criteria: The RSRs are organized into two sets of criteria: the Direct Exposure Criteria (DEC) and the Pollutant Mobility Criteria (PMC). The DEC and PMC are briefly explained in the following sub-sections, in relation to how they would be applicable to the types of analyses conducted on the soil samples collected for this investigation. Please refer to the RSRs for a complete explanation of the Regulations.

Direct Exposure Criteria

The purpose of the Direct Exposure Criteria (DEC) is to protect human health from risks associated with the direct contact with or ingestion of various common soil contaminants. The DEC are applicable to soil within approximately fifteen (15) feet of the ground surface. Concentrations of contaminants are evaluated based upon mass-based analyses and different criteria are established for residential and industrial/commercial properties. The use of the less stringent commercial/industrial standards requires the placement of an environmental land use restriction on the property.

The DEC is not applicable to inaccessible soils, including soil more than four (4) feet below the ground surface, two (2) feet below pavement greater than three (3) inches thick, or below an existing building, provided that an Environmental Land Use Restriction (ELUR) is placed in effect for the property.

Pollutant Mobility Criteria

The purpose of the Pollutant Mobility Criteria (PMC) is to evaluate the potential for contaminants to leach from the soil in concentrations that may degrade groundwater quality. Different numerical criteria are established for GA and GAA groundwater areas, versus GB groundwater areas. Since the site is situated in a GB groundwater area, the less stringent criteria apply for the site.

Groundwater Criteria: Contaminants in the groundwater are compared either to background quality or the Groundwater Protection Criteria (GWPC), the Volatilization Criteria (VC), as well as the Surface Water Protection Criteria (SWPC). However, ConnDOT has had numerous discussions with CTDEEP staff with regard to groundwater encountered during "Construction Projects" and the applicability of the RSRs to these situations. Based on the guidance provided by CTDEEP, groundwater samples collected for "Construction Projects" will be compared to the effluent limits for the ***"General Permit for the Discharge of Groundwater Remediation Wastewater Directly to Surface Water"*** (GP to Surface Water) and the ***"General Permit for the Discharge of Groundwater Remediation Wastewater Directly to Sanitary Sewer"*** (GP to Sanitary Sewer) to determine if Groundwater Areas of Environmental Concern (GW AOECs) exist within the project limits.

5.2 Results of Soil Sample Analyses

Soil samples collected during the advancement of borings, GP-1 to GP-87, were sent to Phoenix Environmental Laboratories, Inc. for laboratory analyses. Summaries of the laboratory results from the Geoprobe® boring soil samples are presented in Tables 1(a) to 1(v), which are located

at the end of this report, and copies of the soil sample analytical results are included in Appendix B. The following summarizes the results of the analyses conducted on the soil samples.

Extractable Total Petroleum Hydrocarbons

Extractable total petroleum hydrocarbons (ETPH) were detected above analytical detection limits in fifty (50) of the eighty-seven (87) soil samples collected as part of this Task 210 – SSIR. ETPH was detected in the following ten (10) soil samples at concentrations equaling or exceeding the applicable CTDEEP RSR criteria:

TABLE A – ETPH Exceedances – Soil Samples

Sample ID.	ETPH Concentration (mg/Kg)	GW Classification	Applicable CTDEEP PMC (mg/Kg)	CTDEEP RDEC/I&C-DEC (mg/Kg)
GP-7 (2'-4')	***900***	GB	2,500	**500**/2,500
GP-8 (2'-4')	***750***	GB	2,500	
GP-20 (1'-3')	***910***	GA	**500**	
GP-22 (1'-3')	***1,200***	GA	**500**	
GP-24 (1'-3')	***1,000***	GA	**500**	
GP-34 (1'-3')	***680***	GA	**500**	
GP-37 (10'-12')	***910***	GB	2,500	
GP-47 (2'-4')	***560***	GB	2,500	
GP-50 (2'-4')	***600***	GB	2,500	
GP-84 (2'-4') – Osborne Avenue	***500***	GB	2,500	

The remaining detected concentrations of ETPH in the soil samples collected did not exceed the applicable CTDEEP RSR criteria.

Volatile Organic Compounds

Volatile organic compounds (VOCs) were not detected above analytical detection limits (ND) in the soil samples collected as part of this Task 210 – SSIR with the exception of soil samples collected from the following borings: GP-6, GP-37, GP-56, GP-57, GP-66, GP-68, GP-82, GP-83, GP-84, GP-85, GP-86, and GP-87. The following table summarizes the VOCs detected in soil samples collected from these boring locations. The concentrations of all VOCs detected are below the applicable CTDEEP RSR criteria.

TABLE B – Detected VOCs – Soil Samples

Sample ID. VOC Compound	Concentration (mg/kg)	Groundwater Classification	Applicable CTDEEP PMC (mg/Kg)	CTDEEP RDEC/I&C-DEC (mg/Kg)
GP-6 (1'-3')				
Toluene	0.0073	GB	67	500/1,000
GP-37 (10'-12')				
Naphthalene	8.3	GB	56	1,000/2,500
GP-56 (3'-5')				
Toluene	0.0066	GB	67	500/1,000
GP-57 (3'-5')				
Toluene	0.0086	GB	67	500/1,000
GP-66 (3'-5')				
Trichloroethene	0.014	GB	1	56/520
GP-68 (3'-5')				
Trichloroethene	0.0076	GB	1	56/520
GP-82 (1'-3') – Osborne Ave.				
Toluene	0.0074	GB	67	500/1,000
Xylenes	0.0063		19.5	500/1,000
GP-83 (2'-4') – Osborne Ave.				
Toluene	0.019	GB	67	500/1,000
Xylenes	0.011		19.5	500/1,000
GP-84 (2'-4') – Osborne Ave.				
Toluene	0.015	GB	67	500/1,000
Xylenes	0.011		19.5	500/1,000
GP-85 (1'-3') – Osborne Ave.				
1,2,4-Trimethylbenzene	0.0058	GB	70	500/1,000
Toluene	0.017		67	500/1,000
Xylenes	0.013		19.5	500/1,000
GP-86 (2'-4') – Osborne Ave.				
Toluene	0.018	GB	67	500/1,000
Xylenes	0.023		19.5	500/1,000
GP-87 (2'-4') – Osborne Ave.				
1,2,4-Trimethylbenzene	0.0065	GB	70	500/1,000
Toluene	0.017		67	500/1,000
Xylenes	0.013		19.5	500/1,000

No other VOCs were detected in the soil samples collected and analyzed at concentrations above analytical detection limits (ND).

Semi-Volatile Organic Compounds

Semi-volatile organic compounds (SVOCs) were not detected above analytical detection limits (ND) in soil samples collected from borings GP-5, GP-38 to GP-46, GP-56 to GP-58, GP-62, GP-64 to GP-75, and GP-77 to GP-81. SVOCs were detected at varying concentrations in the remaining soil samples collected from within the project limits. The following table summarized the SVOCs that were detected in the soil samples at concentrations equaling or exceeding the applicable CTDEEP RSR criteria.

TABLE C – SVOC Exceedances – Soil Samples

Sample ID. SVOC Compound	Concentration (mg/kg)	Groundwater Classification	Applicable CTDEEP PMC (mg/Kg)	CTDEEP RDEC/I&C-DEC (mg/Kg)
GP-1 (1'-3')				
Benzo(a)anthracene	***2.3***		**1**	1/7.8
Benzo(a)pyrene	***2.6***		**1**	1/1
Benzo(b)fluoranthene	***5.0***		**1**	1/7.8
Benzo(k)fluoranthene	***1.0***		**1**	8.4/78
Chrysene	***2.9***		**1**	84/780
Indeno(1,2,3-cd)pyrene	***1.2***		**1**	1/7.8
GP-2 (1'-3')				
Benzo(a)anthracene	***6.4***		**1**	1/7.8
Benzo(a)pyrene	***6.4***		**1**	1/1
Benzo(b)fluoranthene	***12.0***		**1**	1/7.8
Benzo(k)fluoranthene	***3.1***		**1**	8.4/78
Chrysene	***7.7***		**1**	84/780
Indeno(1,2,3-cd)pyrene	***2.0***		**1**	1/7.8
GP-6 (1'-3')				
Benzo(a)anthracene	***1.1***		**1**	1/7.8
Benzo(a)pyrene	***2.0***		**1**	1/1
Chrysene	***1.2***	GB	**1**	84/780
GP-7 (2'-4')				
Benzo(a)anthracene	***12.0***		**1**	1/7.8
Benzo(a)pyrene	***14.0***		**1**	1/1
Benzo(b)fluoranthene	***25.0***		**1**	1/7.8
Benzo(k)fluoranthene	***7.1***		**1**	8.4/78
Carbazole	***1.6***		**1**	31/290
Chrysene	***16.0***		**1**	84/780
Dibenz(a,h)anthracene	***1.7***		**1**	1/1
Indeno(1,2,3-cd)pyrene	***4.8***		**1**	1/7.8
GP-8 (2'-4')				
Benzo(a)anthracene	***13.0***		**1**	1/7.8
Benzo(a)pyrene	***12.0***		**1**	1/1
Benzo(b)fluoranthene	***26.0***		**1**	1/7.8
Benzo(k)fluoranthene	***7.3***		**1**	8.4/78
Chrysene	***16.0***		**1**	84/780
Dibenz(a,h)anthracene	***1.5***		**1**	1/1
Indeno(1,2,3-cd)pyrene	***4.0***		**1**	1/7.8

TABLE C – SVOC Exceedances – Soil Samples Continued

Sample ID. SVOC Compound	Concentration (mg/kg)	Groundwater Classification	Applicable CTDEEP PMC (mg/Kg)	CTDEEP RDEC/I&C-DEC (mg/Kg)
GP-9 (2'-4')				
Benzo(b)fluoranthene	***1.8***		**1**	1/7.8
Chrysene	***1.6***		**1**	84/780
GP-10 (1'-3')				
Benzo(a)anthracene	***3.3***		**1**	1/7.8
Benzo(a)pyrene	***3.2***		**1**	1/1
Benzo(b)fluoranthene	***5.1***		**1**	1/7.8
Benzo(k)fluoranthene	***1.6***		**1**	8.4/78
Chrysene	***3.4***		**1**	84/780
Indeno(1,2,3-cd)pyrene	***1.7***		**1**	1/7.8
GP-11 (1'-3')				
Benzo(a)anthracene	***1.8***		**1**	1/7.8
Benzo(a)pyrene	***1.6***		**1**	1/1
Benzo(b)fluoranthene	***3.6***		**1**	1/7.8
Chrysene	***2.5***		**1**	84/780
2-Methylnaphthalene	***1.0***		**0.98**	474/2500
GP-12 (1'-3')				
Benzo(b)fluoranthene	***1.3***		**1**	1/7.8
GP-14 (1'-3')				
Benzo(a)anthracene	***6.1***		**1**	1/7.8
Benzo(a)pyrene	***5.3***		**1**	1/1
Benzo(b)fluoranthene	***11.0***		**1**	1/7.8
Benzo(k)fluoranthene	***3.4***	GA	**1**	8.4/78
Chrysene	***8.1***		**1**	84/780
Dibenz(a,h)anthracene	***1.5***		**1**	1/1
Fluoranthene	***11.0***		**5.6**	1000/2500
Indeno(1,2,3-cd)pyrene	***3.7***		**1**	1/7.8
Pyrene	***11.0***		**4**	1000/2500
GP-15 (1'-3')				
Benzo(a)anthracene	***1.2***		**1**	1/7.8
Benzo(a)pyrene	***1.1***		**1**	1/1
Benzo(b)fluoranthene	***2.4***		**1**	1/7.8
Chrysene	***1.5***		**1**	84/780
GP-16 (1'-3')				
Benzo(a)anthracene	***1.7***		**1**	1/7.8
Benzo(a)pyrene	***1.5***		**1**	1/1
Benzo(b)fluoranthene	***3.2***		**1**	1/7.8
Chrysene	***2.8***		**1**	84/780
Indeno(1,2,3-cd)pyrene	***1.2***		**1**	1/7.8
2-Methylnaphthalene	***1.2***		**0.98**	474/2500
GP-17 (1'-3')				
Benzo(a)anthracene	***1.2***		**1**	1/7.8
Benzo(a)pyrene	***1.0***		**1**	1/1
Benzo(b)fluoranthene	***1.9***		**1**	1/7.8
Chrysene	***1.5***		**1**	84/780

TABLE C – SVOC Exceedances – Soil Samples Continued

Sample ID. SVOC Compound	Concentration (mg/kg)	Groundwater Classification	Applicable CTDEEP PMC (mg/Kg)	CTDEEP RDEC/I&C-DEC (mg/Kg)
GP-18 (1'-3')				
Benzo(a)anthracene	***3.9***		***1***	1/7.8
Benzo(a)pyrene	***2.9***		***1***	1/1
Benzo(b)fluoranthene	***4.9***		***1***	1/7.8
Benzo(k)fluoranthene	***1.1***		***1***	8.4/78
Chrysene	***5.7***		***1***	84/780
Indeno(1,2,3-cd)pyrene	***1.7***		***1***	1/7.8
2-Methylnaphthalene	***1.3***		***0.98***	474/2500
Pyrene	***5.6***		***4***	1000/2500
GP-19 (1'-3')				
Benzo(a)anthracene	***1.2***		***1***	1/7.8
Benzo(b)fluoranthene	***1.8***		***1***	1/1
Chrysene	***2.2***		***1***	84/780
GP-20 (1'-3')				
Benzo(a)anthracene	***13.0***		***1***	1/7.8
Benzo(a)pyrene	***11.0***		***1***	1/1
Benzo(b)fluoranthene	***19.0***		***1***	1/7.8
Benzo(ghi)perylene	***4.9***		***4.2***	1000/2500
Benzo(k)fluoranthene	***6.0***		***1***	8.4/78
Chrysene	***15.0***		***1***	84/780
Dibenz(a,h)anthracene	***1.8***		***1***	1/1
Fluoranthene	***25.0***		***5.6***	1000/2500
Indeno(1,2,3-cd)pyrene	***5.1***		***1***	1/7.8
Phenanethrene	***7.5***		***4***	1000/2500
Pyrene	***25.0***	GA	***4***	1000/2500
GP-21 (1'-3')				
Acenaphthylene	***12.0***		***8.4***	1000/2500
Benzo(a)anthracene	***50.0***		***1***	1/7.8
Benzo(a)pyrene	***38.0*** [1]		***1***	1/1 **(30** [2]**)**
Benzo(b)fluoranthene	***77.0***		***1***	1/7.8
Benzo(ghi)perylene	***13.0***		***4.2***	1000/2500
Benzo(k)fluoranthene	***20.0***		***1***	8.4/78
Chrysene	***51.0***		***1***	84/780
Dibenz(a,h)anthracene	***6.2***		***1***	1/1
Fluoranthene	***110***		***5.6***	1000/2500
Indeno(1,2,3-cd)pyrene	***14.0***		***1***	1/7.8
Phenanethrene	***8.8***		***4***	1000/2500
Pyrene	***110***		***4***	1000/2500
GP-22 (1'-3')				
Benzo(a)anthracene	***20.0***		***1***	1/7.8
Benzo(a)pyrene	***16.0***		***1***	1/1
Benzo(b)fluoranthene	***27.0***		***1***	1/7.8
Benzo(ghi)perylene	***6.5***		***4.2***	1000/2500
Benzo(k)fluoranthene	***9.3***		***1***	8.4/78
Chrysene	***21.0***		***1***	84/780
Fluoranthene	***36.0***		***5.6***	1000/2500
Indeno(1,2,3-cd)pyrene	***7.3***		***1***	1/7.8
Phenanethrene	***11.0***		***4***	1000/2500
Pyrene	***32.0***		***4***	1000/2500

1. Significant Environmental Hazard Condition – Surface Soil
2. SEH surface soil contamination threshold concentration.

TABLE C – SVOC Exceedances – Soil Samples Continued

Sample ID. SVOC Compound	Concentration (mg/kg)	Groundwater Classification	Applicable CTDEEP PMC (mg/Kg)	CTDEEP RDEC/I&C-DEC (mg/Kg)
GP-23 (2'-4')				
Benzo(a)anthracene	***2.9***		**1**	1/7.8
Benzo(a)pyrene	***2.3***		**1**	1/1
Benzo(b)fluoranthene	***3.9***		**1**	1/7.8
Benzo(k)fluoranthene	***1.5***		**1**	8.4/78
Chrysene	***3.2***		**1**	84/780
Indeno(1,2,3-cd)pyrene	***1.6***		**1**	1/7.8
GP-24 (1'-3')				
Benzo(a)anthracene	***11.0***		**1**	1/7.8
Benzo(a)pyrene	***7.9***		**1**	1/1
Benzo(b)fluoranthene	***13.0***		**1**	1/7.8
Benzo(k)fluoranthene	***2.8***		**1**	8.4/78
Chrysene	***15.0***		**1**	84/780
Dibenz(ah)anthracene	***1.7***		**1**	1/1
Fluoranthene	***16.0***		**5.6**	1000/2500
Indeno(1,2,3-cd)pyrene	***3.4***		**1**	1/7.8
2-Methylnaphthalene	***2.9***	GA	**0.98**	474/2500
Phenanthrene	***6.7***		**4**	1000/2500
Pyrene	***21.0***		**4**	1000/2500
GP-25 (1'-3')				
Benzo(a)anthracene	***2.8***		**1**	1/7.8
Benzo(a)pyrene	***2.3***		**1**	1/1
Benzo(b)fluoranthene	***3.9***		**1**	1/7.8
Chrysene	***3.9***		**1**	84/780
Indeno(1,2,3-cd)pyrene	***1.1***		**1**	1/7.8
2-Methylnaphthalene	***1.2***		**0.98**	474/2500
Pyrene	***4.1***		**4**	1000/2500
GP-26 (1'-3')				
Benzo(a)anthracene	***1.9***		**1**	1/7.8
Benzo(a)pyrene	***1.5***		**1**	1/1
Benzo(b)fluoranthene	***2.6***		**1**	1/7.8
Chrysene	***2.4***		**1**	84/780
2-Methylnaphthalene	***1.6***		**0.98**	474/2500

TABLE C – SVOC Exceedances – Soil Samples Continued

Sample ID. SVOC Compound	Concentration (mg/kg)	Groundwater Classification	Applicable CTDEEP PMC (mg/Kg)	CTDEEP RDEC/I&C-DEC (mg/Kg)
GP-27 (1'-3')		GA		
Benzo(a)anthracene	***3.3***		**1**	1/7.8
Benzo(a)pyrene	***2.7***		**1**	1/1
Benzo(b)fluoranthene	***5.3***		**1**	1/7.8
Benzo(k)fluoranthene	***2.0***		**1**	8.4/78
Chrysene	***5.3***		**1**	84/780
Indeno(1,2,3-cd)pyrene	***1.3***		**1**	1/7.8
2-Methylnaphthalene	***1.5***		**0.98**	474/2500
Pyrene	***5.3***		**4**	1000/2500
GP-28 (2'-4')				
Benzo(a)anthracene	***3.8***		**1**	1/7.8
Benzo(a)pyrene	***3.1***		**1**	1/1
Benzo(b)fluoranthene	***5.6***		**1**	1/7.8
Benzo(k)fluoranthene	***1.1***		**1**	8.4/78
Chrysene	***5.4***		**1**	84/780
Indeno(1,2,3-cd)pyrene	***1.2***		**1**	1/7.8
2-Methylnaphthalene	***1.4***		**0.98**	474/2500
Pyrene	***5.8***		**4**	1000/2500
GP-29 (1'-3')				
Benzo(a)anthracene	***1.8***		**1**	1/7.8
Benzo(a)pyrene	***1.3***		**1**	1/1
Benzo(b)fluoranthene	***2.2***		**1**	1/7.8
Chrysene	***2.4***		**1**	84/780
GP-30 (1'-3')				
Benzo(a)anthracene	***2.0***		**1**	1/7.8
Benzo(a)pyrene	***1.6***		**1**	1/1
Benzo(b)fluoranthene	***3.1***		**1**	1/7.8
Chrysene	***2.8***		**1**	84/780
GP-31 (1'-3')				
Benzo(a)anthracene	***2.3***		**1**	1/7.8
Benzo(a)pyrene	***1.8***		**1**	1/1
Benzo(b)fluoranthene	***3.8***		**1**	1/7.8
Chrysene	***3.3***		**1**	84/780
GP-32 (1'-3')				
Benzo(a)anthracene	***2.1***		**1**	1/7.8
Benzo(a)pyrene	***1.8***		**1**	1/1
Benzo(b)fluoranthene	***3.0***		**1**	1/7.8
Chrysene	***3.2***		**1**	84/780

TABLE C – SVOC Exceedances – Soil Samples Continued

Sample ID. SVOC Compound	Concentration (mg/kg)	Groundwater Classification	Applicable CTDEEP PMC (mg/Kg)	CTDEEP RDEC/I&C-DEC (mg/Kg)
GP-33 (1'-3')				
Benzo(a)anthracene	***4.1***		**1**	1/7.8
Benzo(a)pyrene	***3.0***		**1**	1/1
Benzo(b)fluoranthene	***5.9***		**1**	1/7.8
Benzo(k)fluoranthene	***1.8***		**1**	8.4/78
Chrysene	***5.8***		**1**	84/780
Fluoranthene	***5.7***		**5.6**	1000/2500
Indeno(1,2,3-cd)pyrene	***1.3***		**1**	1/7.8
2-Methylnaphthalene	***1.5***		**0.98**	474/2500
Pyrene	***6.1***		**4**	1000/2500
GP-34 (1'-3')				
Benzo(a)anthracene	***7.4***		**1**	1/7.8
Benzo(a)pyrene	***5.8***		**1**	1/1
Benzo(b)fluoranthene	***10.0***		**1**	1/7.8
Benzo(k)fluoranthene	***3.7***		**1**	8.4/78
Carbazole	***1.2***		**1**	31/290
Chrysene	***11.0***		**1**	84/780
Fluoranthene	***11.0***		**5.6**	1000/2500
Indeno(1,2,3-cd)pyrene	***2.0***	GA	**1**	1/7.8
2-Methylnaphthalene	***2.1***		**0.98**	474/2500
Phenanthrene	***7.0***		**4**	1000/2500
Pyrene	***14.0***		**4**	1000/2500
GP-35 (1'-3')				
Benzo(a)anthracene	***5.1***		**1**	1/7.8
Benzo(a)pyrene	***3.8***		**1**	1/1
Benzo(b)fluoranthene	***6.2***		**1**	1/7.8
Benzo(k)fluoranthene	***2.0***		**1**	8.4/78
Chrysene	***6.3***		**1**	84/780
Fluoranthene	***8.5***		**5.6**	1000/2500
Indeno(1,2,3-cd)pyrene	***1.5***		**1**	1/7.8
2-Methylnaphthalene	***1.1***		**0.98**	474/2500
Phenanthrene	***4.8***		**4**	1000/2500
Pyrene	***9.3***		**4**	1000/2500
GP-36 (1'-3')				
Benzo(a)anthracene	***1.3***		**1**	1/7.8
Benzo(a)pyrene	***1.2***		**1**	1/1
Benzo(b)fluoranthene	***2.3***		**1**	1/7.8
Chrysene	***2.0***		**1**	84/780

TABLE C – SVOC Exceedances – Soil Samples Continued

Sample ID. SVOC Compound	Concentration (mg/kg)	Groundwater Classification	Applicable CTDEEP PMC (mg/Kg)	CTDEEP RDEC/I&C-DEC (mg/Kg)
GP-37 (1'-3')				
Benzo(a)anthracene	***41.0***		**1**	1/7.8
Benzo(a)pyrene	***35.0*** [1]		**1**	1/1 **(30** [2]**)**
Benzo(b)fluoranthene	***44.0***		**1**	1/7.8
Benzo(k)fluoranthene	***17.0***		**1**	8.4/78
Carbazole	***11.0***		**1**	31/290
Chrysene	***36.0***		**1**	84/780
Dibenzofuran	***11.0***		**5.6**	270/2500
Fluoranthene	***96.0***		**56**	1000/2500
Indeno(1,2,3-cd)pyrene	***8.8***		**1**	1/7.8
Phenanthrene	***94.0***		**40**	1000/2500
Pyrene	***81.0***		**40**	1000/2500
GP-47 (2'-4')				
Benzo(a)anthracene	***6.3***		**1**	1/7.8
Benzo(a)pyrene	***6.4***		**1**	1/1
Benzo(b)fluoranthene	***22.0***		**1**	1/7.8
Benzo(k)fluoranthene	***5.1***		**1**	8.4/78
Carbazole	***1.2***		**1**	31/290
Chrysene	***6.8***		**1**	84/780
Indeno(1,2,3-cd)pyrene	***3.1***		**56**	1/7.8
GP-48 (2'-4')				
Benzo(a)anthracene	***3.2***		**1**	1/7.8
Benzo(a)pyrene	***3.0***	GB	**1**	1/1
Benzo(b)fluoranthene	***5.3***		**1**	1/7.8
Benzo(k)fluoranthene	***1.9***		**1**	8.4/78
Chrysene	***3.6***		**1**	84/780
Indeno(1,2,3-cd)pyrene	***1.8***		**1**	1/7.8
GP-49 (2'-4')				
Benzo(a)anthracene	***1.4***		**1**	1/7.8
Benzo(a)pyrene	***1.3***		**1**	1/1
Benzo(b)fluoranthene	***2.8***		**1**	1/7.8
Chrysene	***1.9***		**1**	84/780
GP-50 (2'-4')				
Benzo(a)anthracene	***3.5***		**1**	1/7.8
Benzo(a)pyrene	***3.1***		**1**	1/1
Benzo(b)fluoranthene	***6.7***		**1**	1/7.8
Benzo(k)fluoranthene	***1.4***		**1**	8.4/78
Chrysene	***4.6***		**1**	84/780
Indeno(1,2,3-cd)pyrene	***1.8***		**1**	1/7.8
GP-51 (1'-3')				
Benzo(a)anthracene	***1.6***		**1**	1/7.8
Benzo(a)pyrene	***1.6***		**1**	1/1
Benzo(b)fluoranthene	***2.8***		**1**	1/7.8
Chrysene	***2.0***		**1**	84/780
Indeno(1,2,3-cd)pyrene	***1.1***		**1**	1/7.8

1. Significant Environmental Hazard (SEH) Condition – Surface Soil
2. SEH surface soil contamination threshold concentration.

TABLE C – SVOC Exceedances – Soil Samples Continued

Sample ID. SVOC Compound	Concentration (mg/kg)	Groundwater Classification	Applicable CTDEEP PMC (mg/Kg)	CTDEEP RDEC/I&C-DEC (mg/Kg)
GP-52 (2'-4')				
Benzo(a)anthracene	***1.1***		**1**	1/7.8
Benzo(b)fluoranthene	***2.2***		**1**	1/1
Chrysene	***1.4***		**1**	84/780
GP-53 (2'-4')				
Benzo(a)anthracene	***1.3***		**1**	1/7.8
Benzo(a)pyrene	***1.2***		**1**	1/1
Benzo(b)fluoranthene	***2.4***		**1**	1/7.8
Chrysene	***1.5***		**1**	84/780
GP-54 (2'-4')				
Benzo(b)fluoranthene	***1.9***		**1**	1/7.8
Chrysene	***1.2***		**1**	84/780
GP-55 (2'-4')				
Benzo(b)fluoranthene	***1.7***		**1**	1/7.8
Chrysene	***1.2***		**1**	84/780
GP-59 (3'-5')				
Benzo(a)anthracene	***1.5***		**1**	1/7.8
Benzo(a)pyrene	***1.4***		**1**	1/1
Benzo(b)fluoranthene	***2.3***		**1**	1/7.8
Chrysene	***2.3***		**1**	84/780
GP-63 (3'-5')		GB		
Benzo(a)anthracene	***2.4***		**1**	1/7.8
Benzo(a)pyrene	***1.9***		**1**	1/1
Benzo(b)fluoranthene	***3.2***		**1**	1/7.8
Benzo(k)fluoranthene	***1.1***		**1**	8.4/78
Chrysene	***4.1***		**1**	84/780
Indeno(1,2,3-cd)pyrene	***1.1***		**1**	1/7.8
GP-82 (1'-3') – Osborne Avenue				
Benzo(a)anthracene	***5.7***		**1**	1/7.8
Benzo(a)pyrene	***6.2***		**1**	1/1
Benzo(b)fluoranthene	***7.6***		**1**	1/7.8
Benzo(k)fluoranthene	***3.4***		**1**	8.4/7.8
Chrysene	***7.8***		**1**	84/780
Indeno(1,2,3-cd)pyrene	***2.4***		**1**	1/7.8
GP-83 (2'-4') – Osborne Avenue				
Benzo(a)anthracene	***1.4***		**1**	1/7.8
Benzo(a)pyrene	***1.6***		**1**	1/1
Benzo(b)fluoranthene	***2.7***		**1**	1/7.8
Chrysene	***1.6***		**1**	84/780

TABLE C – SVOC Exceedances – Soil Samples Continued

Sample ID. SVOC Compound	Concentration (mg/kg)	Groundwater Classification	Applicable CTDEEP PMC (mg/Kg)	CTDEEP RDEC/I&C-DEC (mg/Kg)
GP-84 (2'-4') – Osborne Avenue				
Benzo(a)anthracene	***5.8***		**1**	1/7.8
Benzo(a)pyrene	***5.8***		**1**	1/1
Benzo(b)fluoranthene	***11.0***		**1**	1/7.8
Benzo(k)fluoranthene	***2.9***		**1**	8.4/7.8
Chrysene	***6.0***		**1**	84/780
Indeno(1,2,3-cd)pyrene	***2.4***		**1**	1/7.8
GP-85 (1'-3') – Osborne Avenue				
Benzo(a)anthracene	***2.5***		**1**	1/7.8
Benzo(a)pyrene	***2.8***		**1**	1/1
Benzo(b)fluoranthene	***5.3***		**1**	1/7.8
Benzo(k)fluoranthene	***1.5***		**1**	8.4/7.8
Chrysene	***3.3***		**1**	84/780
Indeno(1,2,3-cd)pyrene	***1.4***	GB	**1**	1/7.8
GP-86 (2'-4') – Osborne Avenue				
Benzo(a)anthracene	***2.5***		**1**	1/7.8
Benzo(a)pyrene	***2.7***		**1**	1/1
Benzo(b)fluoranthene	***4.8***		**1**	1/7.8
Benzo(k)fluoranthene	***1.4***		**1**	8.4/7.8
Chrysene	***3.1***		**1**	84/780
Indeno(1,2,3-cd)pyrene	***1.2***		**1**	1/7.8
GP-87 (2'-4') – Osborne Avenue				
Benzo(a)anthracene	***1.8***		**1**	1/7.8
Benzo(a)pyrene	***1.9***		**1**	1/1
Benzo(b)fluoranthene	***3.1***		**1**	1/7.8
Benzo(k)fluoranthene	***1.3***		**1**	8.4/7.8
Chrysene	***2.2***		**1**	84/780

No other detected SVOCs were present in the soil samples at concentrations exceeding the applicable CTDEEP RSR criteria.

Polychlorinated Biphenyls

Polychlorinated biphenyls (PCBs) were not detected in above analytical detection limits (ND) in soil samples collected as part of this Task 210 – SSIR with the exception of soil samples collected from borings GP-2, GP-7, GP-8, GP-47, and GP-50. The following table summarizes the soil samples, which contained PCBs at concentrations above analytical detection. Only one (1) soil sample, GP-8 (2'-4') contained PCBs at concentrations exceeding the applicable CTDEEP RSR critiera.

TABLE D – Detected PCBs – Soil Samples

Sample ID.	Concentration (mg/Kg)	GW Classification	CTDEEP RDEC/I&C-DEC (mg/Kg)
GP-2 (1'-3') PCB-1260	0.82	GB	**1**/10
GP-7 (2'-4') PCB-1260	0.7		
GP-8 (2'-4') PCB-1260	***1.2***		
GP-47 (2'-4') PCB-1254	0.7		
GP-50 (2'-4') PCB-1254	0.64		

No other PCBs were detected in the soil samples collected and analyzed at concentrations above analytical detection limits (ND).

Pesticides

Pesticides were not detected above analytical detection limits (ND) in the soil samples collected as part of this Task 210 –SSIR with the exception of soil samples collected from borings GP-11, GP-14, GP-20, GP-22, and GP-34. The pesticide 4,4-DDT was detected in soil samples GP-11 (2'-4'), GP-14 (1'-3'), GP-20 (1'-3'), and GP-22 (1'-3') at concentrations of 0.038 mg/kg, 0.085 mg/kg, 0.11 mg/kg, and 0.23 mg/kg, respectively which are below the RDEC of 1.8 mg/kg and the I/C-DEC of 17 mg/kg. A pollutant mobility criteria has not been established for 4,4-DDT. Dieldrin was detected in soil sample GP-34 (1'-3') at a concentration of 0.03 mg/kg which exceeds the GA PMC of 0.007 mg/kg, but is below the RDEC of 0.038 mg/kg and I/C-DEC of 0.36 mg/kg. In addition, the detection limits for 4,4-DDT in soil sample GP-21 (1'-3') and dieldrin in soil sample GP-8 (2'-4') exceed the applicable CTDEEP RSR criteria and therefore may be present at these locations at concentrations exceeding the applicable criteria. No other pesticides were detected in the soil samples collected and analyzed at concentrations above analytical detection limits (ND).

Herbicides

Herbicides were not detected above analytical detection limits (ND) in the soil samples collected as part of this Task 210 –SSIR.

RCRA Metals

Total and leachable metals, arsenic, barium, cadmium, chromium, lead, mercury, and selenium were detected in soil samples collected within the project limits at varying concentrations below the applicable CTDEEP RSR criteria with the exception of total arsenic, total lead, leachable chromium and leachable lead. The following table summarizes the total arsenic exceedances detected in soil samples collected from within the project limits.

TABLE E – Total Arsenic Exceedances – Soil Samples

Sample ID.	Concentration (mg/kg)	Groundwater Classification	CTDEEP RDEC/I&C-DEC (mg/Kg)
GP-2 (1'-3')	***26.7***	GB	**10/10**
GP-7 (2'-4')	***32.3***		
GP-8 (2'-4')	***39.5***		
GP-11 (1'-3')	***51.0***	GA	
GP-12 (1'-3')	***19.2***		
GP-14 (1'-3')	***114***		
GP-15 (1'-3')	***19.1***		
GP-16 (1'-3')	***42.5***		
GP-17 (1'-3')	***17.8***		
GP-18 (1'-3')	***17.9***		
GP-19 (1'-3')	***25.0***		
GP-20 (1'-3')	***33.9***		
GP-21 (1'-3')	***11.4***		
GP-22 (1'-3')	***28.0***		
GP-23 (2'-4')	***10.4***		
GP-24 (1'-3')	***76.6***		
GP-25 (1'-3')	***20.4***		
GP-26 (1'-3')	***25.6***		
GP-27 (1'-3')	***22.7***		
GP-28 (2'-4')	***22.8***		
GP-29 (1'-3')	***20.8***		
GP-30 (1'-3')	***38.2***		
GP-31 (1'-3')	***28.5***		
GP-32 (1'-3')	***26.4***		
GP-33 (1'-3')	***22.7***		
GP-34 (1'-3')	***52.1***		

TABLE E – Total Arsenic Exceedances – Soil Samples Continued

Sample ID.	Concentration (mg/kg)	Groundwater Classification	CTDEEP RDEC/I&C-DEC (mg/Kg)
GP-35 (1'-3')	***15.1***	GA	**10/10**
GP-36 91'-3')	***28.7***		
GP-47 (2'-4')	***30.1***	GB	
GP-48 (2'-4')	***12.3***		
GP-49 (2'-4')	***21.1***		
GP-50 (2'-4')	***19.1***		
GP-51 (1'-3')	***26.7***		
GP-52 (2'-4')	***31.9***		
GP-53 (2'-4'0	***20.5***		
GP-54 (2'-4')	***20.5***		
GP-55 (2'-4')	***15.2***		
GP-65 (3'-5')	***10.7***		
GP-84 (2'-4') – Osborne Avenue	***11.3***		

No other soil samples collected from within the project corridor contained total arsenic at concentrations exceeding the applicable CTDEEP RSR criteria. Leachable arsenic was detected in soil samples collected from within the project corridor, but at concentrations below the applicable CTDEEP Pollutant Mobility Criteria (PMC).

Elevated concentrations of total lead and leachable lead exceeding the applicable CTDEEP RSR criteria were detected in soil samples collected from within the project limits. In addition, leachable lead was detected at numerous locations within the project limits at concentrations exceeding the EPA Maximum Concentration of Contaminants for Toxicity Characteristic Regulatory Level of 5.0 mg/l for lead (EPA HW #D008). The following tables summarizes the total lead and leachable lead exceedances detected in soil samples within the project limits.

TABLE G – Total Lead Exceedances – Soil Samples

Sample ID.	Concentration (mg/kg)	Groundwater Classification	CTDEEP RDEC/I&C-DEC (mg/Kg)
GP-11 (1'-3')	***4950***	GA	**500/1000**
GP-12 (1'-3')	***3130***		
GP-13 (1'-3')	***1880***		
GP-14 (1'-3')	***5730***		
GP-20 (1'-3')	***20700***		
GP-21 (1'-3')	***1400***		
GP-22 (1'-3')	***14600***		
GP-23 (2'-4')	***6180***		
GP-24 (1'-3')	***1970***		
GP-26 (1'-3')	***1910***		
GP-27 (1'-3')	***1150***		
GP-29 (1'-3')	***1360***		
GP-33 (1'-3')	***1300***		
GP-34 (1'-3')	***1620***		
GP-37 (2'-4')	***520***	GB	
GP-47 (2'-4')	***10100***		
GP-49 (2'-4')	***850***		
GP-50 (2'-4')	***1230***		
GP-51 (1'-3')	***1140***		
GP-52 (2'-4')	***513***		
GP-54 (2'-4')	***606***		
GP-55 (2'-4')	***692***		
GP-82 (1'-3') – Osborne Avenue	***553***		

TABLE G – Leachable Lead Exceedances – Soil Samples

Sample ID.	Concentration SPLP (TCLP)[1] (mg/l)	Groundwater Classification	CTDEEP PMC (mg/l)
GP-1 (1'-3')	***1.47***	GB	**0.15**
GP-6 (1'-3')	***0.412***		
GP-8 (2'-4')	***0.28***		
GP-11 (1'-3')	***0.147 (17.4)***[2]	GA	**0.015**
GP-12 (1'-3')	***1.5 (5.06)***		
GP-13 (1'-3')	***0.444 (3.96)***		
GP-14 (1'-3')	***0.15 (14.8)***		
GP-17 (1'-3')	***0.019***		
GP-18 (1'-3')	***0.103***		
GP-19 (1'-3')	***0.089***		
GP-20 (1'-3')	***1.15 (38.2)***		
GP-21 (1'-3')	***0.756***		
GP-22 (1'-3')	***3.22 (44.7)***		
GP-23 (2'-4')	***0.93***		
GP-24 (1'-3')	***0.071***		
GP-25 (1'-3')	***0.046***		
GP-26 (1'-3')	***0.193 (2.78)***		
GP-27 (1'-3')	***0.09 (0.22)***		
GP-28 (2'-4')	***0.071 (0.55)***		
GP-29 (1'-3')	***0.016 (1.2)***		
GP-31 (1'-3')	***0.017***		
GP-32 (1'-3')	***0.017***		
GP-33 (1'-3')	***0.064 (0.36)***		
GP-34 (1'-3')	***0.106***		
GP-35 (1'-3')	***0.065***		
GP-36 (1'-3')	***0.021***		
GP-37 (2'-4')	***1.37***	GB	**0.15**
GP-43 (2'-4')	***0.637***		
GP-44 (2'-4')	***0.172***		
GP-47 (2'-4')	***0.886***		
GP-48 (2'-4')	***0.706***		
GP-49 (2'-4')	***1.45***		
GP-50 (2'-4')	***1.67***		
GP-51 (1'-3')	***0.357***		
GP-52 (2'-4')	***0.352***		
GP-53 (2'-4')	***0.962***		
GP-54 (2'-4')	***0.154***		
GP-63 (3'-5')	***0.201***		

TABLE G – Leachable Lead Exceedances – Soil Samples Continued

Sample ID.	Concentration SPLP (TCLP)[1] (mg/l)	Groundwater Classification	CTDEEP PMC (mg/l)
GP-64 (3'-5')	***0.212***	GB	**0.15**
GP-82 (1'-3') – Osborne Avenue	***2.16***		
GP-84 (2'-4') – Osborne Avenue	***0.71***		
GP-85 (1'-3') – Osborne Avenue	***0.536***		
GP-86 (2'-4') – Osborne Avenue	***1.01***		

1. If TCLP analysis was conducted on the sample the TCLP result is shown in parenthesis after the SPLP result.
2. Hazardous lead concentrations (> 5.0 mg/l) are shown in red.

Leachable chromium was detected in soil samples GP-12 (1'-3'), and GP-22 (1'-3') at concentrations of 0.063 mg/l and 0.054 mg/l, respectively which exceed the GA PMC of 0.05 mg/l. No other detected total and leachable metals were present in the soil samples at concentrations exceeding the applicable CTDEEP RSR criteria.

5.3 Results of Groundwater Grab Sample Analyses

Groundwater grab samples were collected from borings GP-1, GP-4, GP-5, GP-7, GP-9, GP-11, GP-13, GP-15, GP-16, GP-18, GP-19, GP-20, GP-21, GP-22, GP-24, GP-26, GP-28, GP-30, GP-32, GP-34, GP-36, GP-37, GP-39, GP-41, GP-43, GP-44, GP-46, GP-49, GP-50, GP-53, GP-54, GP-55, GP-56, GP-58, GP-60, GP-62, GP-64, GP-65, GP-67, GP-69, GP-71, GP-73, GP-77, GP-79, GP-81, and GP-83 designated with a "GW" on Figures ENV-1 through ENV-47 at the end of this report and sent to Phoenix Environmental Laboratories, Inc. for analyses. Summaries of the laboratory results from the groundwater grab samples are presented in Tables 2(a) to 2(p), which are located at the end of this report, and copies of the groundwater grab sample analytical results are included in Appendix B. The following summarizes the results of the analyses conducted on the groundwater grab samples.

The results of the laboratory analyses of the groundwater grab samples indicated the presence of ETPH in samples GP-71 GW (0.092 mg/l), GP-73 GW (0.21 mg/l) and GP-83 GW (0.65 mg/l) at a concentrations above analytical detection limits but below the CTDEEP GP to Surface Water effluent limit of 5.0 mg/L and the GP to Sanitary Sewer effluent limit of 100 mg/L.

Various VOCs were detected in the groundwater grab samples GP-1 GW, GP-4 GW, GP-5 GW, GP-37 GW, GP-39 GW, GP-41 GW, GP-49 GW, GP-53 GW, GP-54 GW, GP-55 GW, GP-56 GW, GP-60 GW, GP-62 GW, GP-64 GW, GP-65 GW, GP-71 GW, GP-73 GW, and GP-83 GW. The concentration of total VOCs detected in the groundwater grab samples GP-1 GW (221.0 g/l), GP-4 GW (157.7 ug/l), GP-5 GW (166.9 ug/l), GP-41 GW (84.4 ug/l), GP-49 GW (84.8 ug/l), GP-53 GW (21.3 ug/l), GP-54 GW (367.5 ug/l), GP-55 GW (393.8 ug/l), GP-62 GW (67.5 ug/l), and GP-71 GW (55.1 ug/l) exceed the GP to Surface Water effluent limit of 10.0 ug/L but are below the GP to Sanitary Sewer effluent limit of 5,000 ug/L.

Various SVOCs were detected in the groundwater grab samples GP-1 GW, GP-4 GW, GP-5 GW, GP-7 GW, GP-9 GW, GP-11 GW, GP-19 GW, GP-21 GW, GP-22 GW, GP-24 GW, GP-26 GW, GP-28 GW, GP-32 GW, GP-36 GW, GP-37 GW, GP-39 GW, GP-41 GW, GP-43 GW, GP-44 GW, GP-46 GW, GP-49 GW, GP-50 GW, GP-55 GW, GP-56 GW, GP-58 GW, GP-64 GW,

GP-69 GW, GP-71 GW, GP-73 GW, GP-77 GW, GP-79 GW, GP-81 GW and GP-83 GW. The concentration of total phenols detected in groundwater grab samples GP-1 GW (447 ug/l), GP-4 GW (247 ug/l), GP-5 GW (250 ug/l), and GP-55 GW (72 ug/l) exceed the GP to Surface Water effluent limit of 5.0 ug/l for total phenols. In addition, total base-neutral acid extractables (BNAs) were detected in groundwater grab samples GP-1 GW (14.0 ug/l) and GP-5 GW (14.9 ug/l) at concentrations exceeding the GP to Surface Water effluent limit of 10.0 ug/l for total BNAs.

Dibenz(a,h)anthracene was detected in groundwater grab samples GP-21 GW (0.03 ug/l), GP-22 GW (0.02 ug/l), GP-36 GW (0.06 ug/l), GP-43 GW (0.02 ug/l), GP-69 GW (0.05 ug/l), GP-71 GW (0.06 ug/l), GP-73 GW (0.08 ug/l), GP-77 GW (0.07 ug/l), GP-79 GW (0.25 ug/l), and GP-81 GW (0.27 ug/l) at concentrations exceeding the GP to Surface Water effluent limit of 0.01 ug/l. Benzo(a)anthracene was detected in groundwater grab samples GP-73 GW (0.52 ug/l), GP-79 GW (0.55 ug/l), and GP-81 GW (0.78 ug/l) at concentrations exceeding the GP to Surface Water effluent limit of 0.49 ug/l. Benzo(a)pyrene was detected in groundwater grab samples GP-79 GW (0.95 ug/l), and GP-81 GW (1.1 ug/l) at concentrations exceeding the GP to Surface Water effluent limit of 0.49 ug/l. Benzo(k)fluoranthene was detected in groundwater grab samples GP-79 GW (0.51 ug/l), and GP-81 GW (0.61 ug/l) at concentrations exceeding the GP to Surface Water effluent limit of 0.49 ug/l. Bis(2-ethylhexyl)phthalate was detected in groundwater grab samples GP-77 GW (6.0 ug/l) and GP-79 GW (10.0 ug/l) at concentrations exceeding the GP to Surface Water effluent limit of 5.9 ug/l. Indeno(1,2,3-cd)pyrene was detected in groundwater grab samples GP-79 GW (1.4 ug/l), and GP-81 GW (1.5 ug/l) at concentrations exceeding the GP to Surface Water effluent limit of 0.49 ug/l. Effluent limits for individual PAH compounds have not been established in the GP to Sanitary Sewer.

In addition, total polynuclear aromatic hydrocarbons (PAHs) were detected in groundwater grab samples GP-36 GW (10.15 ug/l), GP-73 GW (5.24 ug/l), GP-79 GW (7.68 ug/l), and GP-81 GW (8.44 ug/l) at concentrations exceeding the GP to Surface Water effluent limit of 5.0 ug/l but below the GP to Sanitary Sewer effluent limit of 500 ug/L.

Herbicides were not detected above analytical detection limits (ND) in any of the groundwater grab samples collected and analyzed as part of this Task 210 – SSIR.

PCBs were not detected above analytical detection limits (ND) in the groundwater grab samples collected and analyzed as part of this Task 210 – SSIR with the exception of groundwater grab samples GP-46 GW, GP-69 GW, GP-71 GW, and GP-73 GW. PCBs were detected in groundwater grab samples GP-46 GW (0.3 ug/l) GP-69 GW (12.0 ug/l), GP-71 GW (2.6 ug/l), and GP-73 GW (4.1 ug/l) at a concentration exceeding the GP to Surface Water effluent limit of 0.00017 ug/l. In addition, the concentrations of PCBs in GP-69 GW, GP-71 GW and GP-73 GW exceed the GP to Sanitary Sewer effluent limit of 1.0 ug/l.

Pesticides were not detected above analytical detection limits (ND) in the groundwater grab samples collected and analyzed as part of this Task 210 – SSIR with the exception of groundwater grab samples GP-24 GW, GP-26 GW, GP-36 GW, GP-41 GW, GP-43 GW, GP-46 and GP-49 GW. Dieldrin was detected in groundwater grab samples GP-24 GW, GP-26 GW, GP-36 GW, GP-41 GW, GP-43 GW, GP-46 and GP-49 GW at concentrations of 0.003 ug/l, 0.005 ug/l, 0.011 ug/l, 0.005 ug/l, 0.003 ug/l, and 0.007 ug/l, respectively. The concentration of dieldrin detected in ground water grab samples GP-26 GW, GP-36 GW, GP-41 GW, GP-43 GW, and GP-49 GW exceeds the GP to Surface Water effluent limit of 0.0042 ug/l, but is below the GP to Sanitary Sewer effluent limit of 10 ug/l. In addition, aldrin was detected in groundwater grab sample GP-46 GW at a concentration of 0.004 ug/l, which exceeds the GP to Surface Water effluent limit of 0.00014 ug/l, but is below the GP to Sanitary Sewer effluent limit of 1.5 ug/l. No other pesticides were detected in the groundwater grab samples at concentrations above analytical detection limits (ND).

Various total metals, arsenic, barium, cadmium, chromium, lead, and silver were detected in the groundwater samples at concentrations above analytical detection limits. Total arsenic was detected in groundwater grab samples GP-9 GW (0.014 mg/l), GP-11 GW (0.105 mg/l), GP-26 GW (0.023 mg/l), GP-28 GW (0.007 mg/l), GP-30 GW (0.008 mg/l), GP-32 GW (0.005 mg/l), GP-36 GW (0.052 mg/l), GP-39 GW (0.005 mg/l), GP-46 GW (0.006 mg/l), GP-49 GW (0.016 mg/l), GP-53 GW (0.007 mg/l), GP-56 GW (0.008 mg/l), GP-58 GW (0.009 mg/l), GP-69 GW

(0.004 mg/l), GP-71 GW (0.039 mg/l), GP-77 GW (0.007 mg/l), and GP-79 GW (0.014 mg/l) at concentrations exceeding the GP to Surface Water effluent limit of 0.000021 mg/l, but below the GP to Sanitary Sewer effluent limit of 0.1 mg/l.

Dissolved arsenic was not detected above analytical detection limits (ND) in the groundwater grab samples with the exception of GP-50 GW, GP-53 GW, GP-54 GW, and GP-55 GW. Dissolved arsenic was detected in groundwater grab samples GP-50 GW (0.016 mg/l), GP-53 GW (0.006 mg/l), GP-54 GW (0.006 mg/l), and GP-55 GW (0.007 mg/l) at concentrations exceeding the GP to Surface Water effluent limit of 0.000021 mg/l, but below the GP to Sanitary Sewer effluent limit of 0.1 mg/l. No other groundwater grab samples contained dissolved arsenic at concentrations above analytical detection limits (ND).

Total lead was detected in groundwater grab samples GP-9 GW (0.012 mg/l), GP-11 GW (0.119 mg/l), GP-21 GW (0.027 mg/l), GP-22 GW (0.079 mg/l), GP-26 GW (0.099 mg/l), GP-28 GW (0.004 mg/l), GP-30 GW (0.009 mg/l), GP-32 GW (0.045 mg/l), GP-36 GW (0.179 mg/l), GP-39 GW (0.02 mg/l), GP-47 GW (0.026 mg/l), GP-49 GW (0.034 mg/l), GP-65 GW (0.019 mg/l), GP-69 GW (0.011 mg/l), GP-71 GW (0.112 mg/l), GP-73 GW (0.004 mg/l), GP-77 GW (0.03 mg/l), GP-79 GW (0.086 mg/l), and GP-81 GW (0.019 mg/l) at concentrations exceeding the GP to Surface Water effluent limit of 0.0098 mg/l, but below the GP to Sanitary Sewer effluent limit of 0.1 mg/l. Dissolved lead was not detected above analytical detection limits (ND) in any of these groundwater grab samples.

Total cadmium and dissolved cadmium were detected in groundwater grab sample GP-65 GW at concentrations of 0.022 mg/l and 0.019 mg/l, respectively, which exceeds the GP to Surface Water effluent limit of 0.01 mg/l, but is below the GP to Sanitary Sewer effluent limits of 0.1 mg/l. No other groundwater grab samples contained total or dissolved cadmium at concentrations exceeding the applicable effluent limit.

5.4 Quality Assurance/Quality Control Samples

The trip blanks, TB-1 to TB-16 did not contain VOCs at concentrations above analytical detection limits (ND). Field blanks, FB-1 to FB-3 did not contain ETPH, VOCs, SVOCs, PCBs, Pesticides, Herbicides, and Dissolved RCRA Metals at concentrations above analytical detection limits (ND). Total arsenic, barium, and chromium were detected in field blank FB-3 at concentrations above analytical detections but below the applicable effluent limits. The presence of total metals in field blank FB- 3 is likely due to field or laboratory contamination.

A summary of the laboratory results from the QA/QC sample is presented in Tables 3(a) to 3(d) which are located at the end of this report, and copies of the analytical results associated with the quality assurance/quality control samples is included in Appendix B.

5.5 Data Quality Assessment and Data Usability Evaluation (DQA/DUE)

Eighty-seven (87) soil samples and forty-six (46) groundwater samples were collected from within the project limits and submitted to a state-certified analytical laboratory for analyses using the CTDEEP Reasonable Confidence Protocols (RCPs) established for VOCs, SVOCs, ETPH, metals, pesticides, herbicides, and PCBs. The samples were collected to verify the absence or presence and location of subsurface contamination, and to assess the potential pollutant impacts to be encountered during construction of the proposed roadway improvements.

A data quality assessment and data usability evaluation was performed for the data generated in accordance with CTDEEP guidance and noted the following quality control non-conformances. Copies of the DQA and DUE worksheets are included in Appendix C

Non-conformances related to Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries, LCS/LCSD Relative Percent Differences (RPDs), Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries, detection limits, Initial Calibration Analytical Limits (ICALs), and Continuing Calibration Verification (CCVs), responses do not have significant bearing on the accuracy and usability of the data for its intended uses. In all cases the non-

conformances had no impact on the data usability and the data is of sufficient quality and precision for its intended use based on multiple lines of evidence.

Based on the above findings from the DQA and DUE, the analytical data is of adequate quality and of sufficient accuracy, precision and sensitivity to confirm that contaminants of concern are present in the soil at concentrations exceeding the CTDEEP RSRs and EPA Maximum Concentration of Contaminants for Toxicity Characteristic Regulatory Level. Contaminants of concern are also present in groundwater within the project limits at concentrations exceeding the effluent limits in CTDEEP's General Permit for Discharge of Groundwater Remediation Wastewater to Surface Water and the General Permit for Discharge to a Sanitary Sewer effluent limits. Task 310 Plans, Specifications and Estimate will be required to assess construction related activities (i.e. proper storage, classification, transport and disposal of contaminated materials), in relationship to the environmental conditions prevalent within the project limits, as well as to specify remedial work to be included in the Contract Bid Documents.

6.0 DISCUSSION OF AFFECTED RESOURCES

Based upon the results of the laboratory analyses performed on soil and groundwater samples for this Task 210 investigation, thirty-eight (38) areas of environmental concern (AOECs) for soil have been identified where contaminants are present at concentrations that exceed the applicable CTDEEP RSR criteria. In addition, eleven (11) hazardous areas of environmental concern (Haz-AOECs) for soil have been identified where the concentration of leachable lead exceeds or has the potential to exceed the EPA Maximum Concentration of Contaminants for Toxicity Characteristic Regulatory Level of 5.0 mg/l for lead (EPA HW #D008) when applying the 20X rule to the total concentrations detected. Also, benzo(a)pyrene was detected in borings GP-21 and GP-37 at a concentration exceeding the CTDEEP Significant Environmental Hazard Condition Notification Threshold Concentration for Surface Soil Contamination. In addition, nine (9) low-level areas of environmental concern (LLAOECs) for soil have been identified, where contaminants were detected at concentrations below the applicable CTDEEP RSR standards, but above laboratory detection limits.

Twenty-one (21) groundwater AOECs (GW AOECs) have been identified within the project limits where contaminants are present at concentrations that exceed the GP to Surface Water, but are below the GP to Sanitary Sewer effluent limits. Therefore, dewatering fluids encountered during construction activities in these areas may not be discharged **directly** to surface water. Contaminated groundwater encountered within these GW AOECs will require on-site treatment prior to discharge in accordance with CTDEEP's general permits or will require off-site disposal at a permitted treatment/disposal facility.

The locations of the Haz-AOECs, AOECs. LLAOECs, and GW AOECs identified within the project limits are discussed in the following sections. *(Note: The final number of Haz-AOECs, AOECs, LLAOECs, and GW AOECs may be revised as part of the preparation of Task 310 Plans and Specifications.)*

6.1 Hazardous Areas of Environmental Concern (Haz-AOECs)

Borings GP-11, GP-12, GP-14, GP-20, GP-21, GP-22, GP-23, GP-34, GP-47, GP-50, and GP-51

Analytical results from the soil samples collected from borings GP-11, GP-12, GP-14, GP-20, GP-21, GP-22, GP-23, GP-34, GP-47, GP-50, and GP-51 indicated the presence of leachable lead at concentrations exceeding or having the potential to exceed the EPA Maximum Concentration of Contaminants for Toxicity Characteristic Regulatory Level of 5.0 mg/l for lead (EPA HW #D008) when applying the 20X rule to the total concentrations detected. In addition, ETPH, SVOCs, dieldrin, total arsenic, total arsenic, and leachable chromium were detected at concentrations above the applicable CTDEEP RSR criteria. Also, benzo(a)pyrene was detected in boring GP-21 at a concentrations exceeding the CTDEEP Significant Environmental Hazard Condition Notification Threshold Concentration for Surface Soil Contamination. The contaminants were detected in soils at depths of 1 to 4 feet below grade.

6.2 Areas of Environmental Concern (AOECs) – Catenary Structures

Borings GP-1, GP-2, GP-6, GP-7, GP-8, GP-9, GP-10, GP-13, GP-15, GP-16, GP-17, GP-18, GP-19, GP-24, GP-25, GP-26, GP-27, GP-28, GP-29, GP-30, GP-31, GP-32, GP-33, GP-35, GP-36, GP-37, GP-43, GP-44, GP-48, GP-49, GP-52, GP-53, GP-54, GP-55, GP-59, GP-63, GP-64, and GP-65

Analytical results from the soil samples collected from borings GP-1, GP-2, GP-6, GP-7, GP-8, GP-9, GP-10, GP-13, GP-15, GP-16, GP-17, GP-18, GP-19, GP-24, GP-25, GP-26, GP-27, GP-28, GP-29, GP-30, GP-31, GP-32, GP-33, GP-35, GP-36, GP-37, GP-43, GP-44, GP-48, GP-49, GP-52, GP-53, GP-54, GP-55, GP-59, GP-63, GP-64, and GP-65 indicated the presence of ETPH, SVOCs, PCBs, pesticides, total lead, total arsenic, and leachable lead at concentrations above the applicable CTDEEP RSR criteria. Also, benzo(a)pyrene was detected in boring GP-37 at a concentrations exceeding the CTDEEP Significant Environmental Hazard Condition Notification Threshold Concentration for Surface Soil Contamination. In addition, VOCs were

detected at low concentrations in the soils. The contaminants were detected in soils at depths of 1 to 5 feet below grade.

6.3 Areas of Environmental Concern (AOECs) – Osborne Avenue Bridge

Borings GP-82, GP-83, GP-84, GP-85, GP-86, and GP-87 (Entire Project Site)

Analytical results from the soil samples collected from borings GP-82, GP-83, GP-84, GP-85, GP-86, and GP-87 indicated the presence of SVOCs, total arsenic, total lead and leachable lead at concentrations above the applicable CTDEEP RSR criteria. In addition, ETPH, and VOCs were detected at low concentrations in the soils. The contaminants were detected in soils at depths of 1 to 4 feet below grade.

6.4 Low Level Areas of Environmental Concern (LLAOECs)

Borings GP-3, GP-4, GP-56, GP-57, GP-60, GP-61, GP-66, GP-68, and GP-76

Analytical results from the soil sample collected from borings GP-3, GP-4, GP-56, GP-57, GP-60, GP-61, GP-66, GP-68, and GP-76 indicated the presence of ETPH, VOCs and SVOCs at concentrations above analytical detection limits, but below the CTDEEP RSR standards. The contaminants were detected in soil ranging from 1 to 5 feet below grade.

6.5 Groundwater Areas of Environmental Concern (GW AOECs)

Borings GP-1 GW, GP-4 GW, GP-5 GW, GP-21 GW, GP-22 GW, GP-26 GW, GP-36 GW, GP-41 GW, GP-43 GW, GP-46 GW, GP-49 GW, GP-53 GW, GP-54 GW, GP-55 GW, GP-62 GW, GP-69 GW, GP-71 GW, GP-73 GW, GP-77 GW, GP-79 GW, and GP-81 GW

Analytical results from the groundwater grab samples collected from borings GP-1 GW, GP-4 GW, GP-5 GW, GP-21 GW, GP-22 GW, GP-26 GW, GP-36 GW, GP-41 GW, GP-43 GW, GP-46 GW, GP-49 GW, GP-53 GW, GP-54 GW, GP-55 GW, GP-62 GW, GP-69 GW, GP-71 GW,

GP-73 GW, GP-77 GW, GP-79 GW, and GP-81 GW indicated the presence of VOCs, SVOCs, pesticides, PCBs, and metals at concentrations that exceed the applicable CTDEEP GP to Surface Water effluent limits. In addition, low concentrations of ETPH were detected in the groundwater grab samples at a concentration that is below the GP to Surface Water and GP to Sanitary Sewer effluent limits. The concentrations of total metals detected exceeds the applicable effluent limits, however, with proper sedimentation controls, dissolved metals are likely to be below limits.

7.0 RECOMMENDATIONS

The results of the Task 210 – Subsurface Site Investigation Report in association with the Catenary Replacement Program for Sections C1a and C2 of the New Haven Line (NHL) in East Norwalk, Westport, Bridgeport, and Stratford, Connecticut, State Project No. 301-0145 and the Rehabilitation of Bridge No. 08028R over Osborne Avenue in East Norwalk, Connecticut, State Project No. 301-0040 indicated the presence of ETPH, SVOCs, dieldrin, total arsenic, total arsenic, leachable lead and leachable chromium at concentrations above the applicable CTDEEP RSR criteria. The contaminants were detected in soils at depths of 1 to 5 feet below grade. Low concentrations of ETPH, VOCs, SVOCs, and pesticides were also detected in the soil samples. In addition, groundwater has been impacted with VOCs, SVOCs, PCBs, and pesticides that exceed the CTDEEP GP to Surface Water effluent limits. Therefore, dewatering fluids encountered during construction may not be discharged **directly** to surface water or sanitary sewer. Dewatering fluids generated from the GW AOECs will require on-site treatment prior to discharge to surface water or sanitary sewer in accordance with the CTDEEP's general permits or will require off-site disposal at a permitted treatment/disposal facility.

Eleven (11) hazardous areas of environmental concern (Haz-AOECs) for soil have been identified where leachable lead exceeds or has the potential to exceed the EPA Maximum Concentration of Contaminants for Toxicity Characteristic Regulatory Level of 5.0 mg/l for lead (EPA HW #D008) when applying the 20X rule to the total concentrations detected. Thirty-eight (38) areas of environmental concern (AOECs) for soil have been identified where contaminants are present at concentrations that exceed the applicable CTDEEP RSR criteria. Also, nine (9) low-level areas of environmental concern (LLAOECs) for soil have been identified, where contaminants were detected at concentrations below the applicable CTDEEP RSR standards, but above laboratory detection limits. In addition, twenty-one (21) Groundwater Area of Environmental Concern (GW AOEC) have been identified within the project limits.

Special considerations for treatment/disposal, dewatering activities, and worker health & safety must be given to these areas in order to ensure compliance with all local, State and Federal laws. Task 310 Plans, Specifications, and Estimate are therefore, recommended for the areas of construction within the AOECs described in Section 6.0 above.

8.0 LIMITATIONS

All work product and reports provided by Maguire Group Inc. (Maguire) in connection with the performance of this Task 210 - Subsurface Site Investigation Report are subject to the following limitations:

1. The observations described in this report were made under the conditions stated therein. The conclusions presented in the report were based solely upon the services described therein, and not on scientific tasks or procedures beyond the scope of described services provided to ConnDOT.

2. In preparing this report, Maguire has 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 to Maguire at the time of this investigation. To the extent that such files are missing, incomplete or not provided to Maguire, Maguire is not responsible. Although there may have been some degree of overlap in the information provided by these various sources, Maguire did not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this investigation.

3. The conclusions and recommendations contained in this report are based in part upon the data from subsurface explorations. The nature and extent of variations between these explorations may not become evident until further explorations are completed. If variations or other latent conditions become evident, it will be necessary to re-evaluate the conclusions and recommendations of this report.

4. The water level readings made for this investigation were made at the times and conditions stated on the boring logs. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, passage of time and other factors. Should additional data become available in the future, these data should be reviewed by Maguire, and the conclusions and recommendations presented herein modified accordingly.

5. Where quantitative laboratory analyses have been conducted by an outside certified laboratory, Maguire has relied upon the data provided, and has evaluated the data in accordance with CTDEEP DQA/DUE Guidance, but has not conducted an independent evaluation of the reliability of these tests.

6. If the conclusions and recommendations contained in this report 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 have been reviewed and interpretations made in the report. 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. Should additional chemical data become available in the future, these data should be reviewed by Maguire and the conclusions and recommendations presented herein modified accordingly.

7. Chemical analyses were performed for specific parameters during the course of this investigation, as described in the text. However, it should be noted that testing for all known chemical constituents was not performed. The conclusions and recommendations contained in this report are based only upon the chemical constituents for which testing was accomplished.

The following qualifications apply to the undersigned's opinion:

The activities described and opinions included herein are based on information gathered during this subsurface site investigation, which was limited in scope in adherence to the terms of our agreement. The professional opinion provided herein is based on the information described in this report.

The information contained herein was prepared for the use of ConnDOT solely in conjunction with the task descriptions for this assignment. The conclusions and recommendations set forth in this report are based on site conditions at the time of the investigation. Future studies and

findings could change the contents of this report. The professional opinions presented in this report have been developed by using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable environmental engineering consultants practicing in this or similar localities. No other warranty, expressed or implied, is made as to the professional opinions included in this report.

Prepared by:	Approved by:	Reviewed by:
Jane Witherell, PE, LEP, CHMM Principal Engineer	David R. Stock, P.E. Program Manager	Peter Griswold, P.E. Principal Engineer

FIGURES

PROJECT LOCATION
SECTION C1a

PROJECT LOCATION
OSBORNE BRIDGE

1000 0 1000 2000 FEET

SCALE 1:24000

Maguire Group Inc.
Architects/Engineers/Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

CONNECTICUT DOT

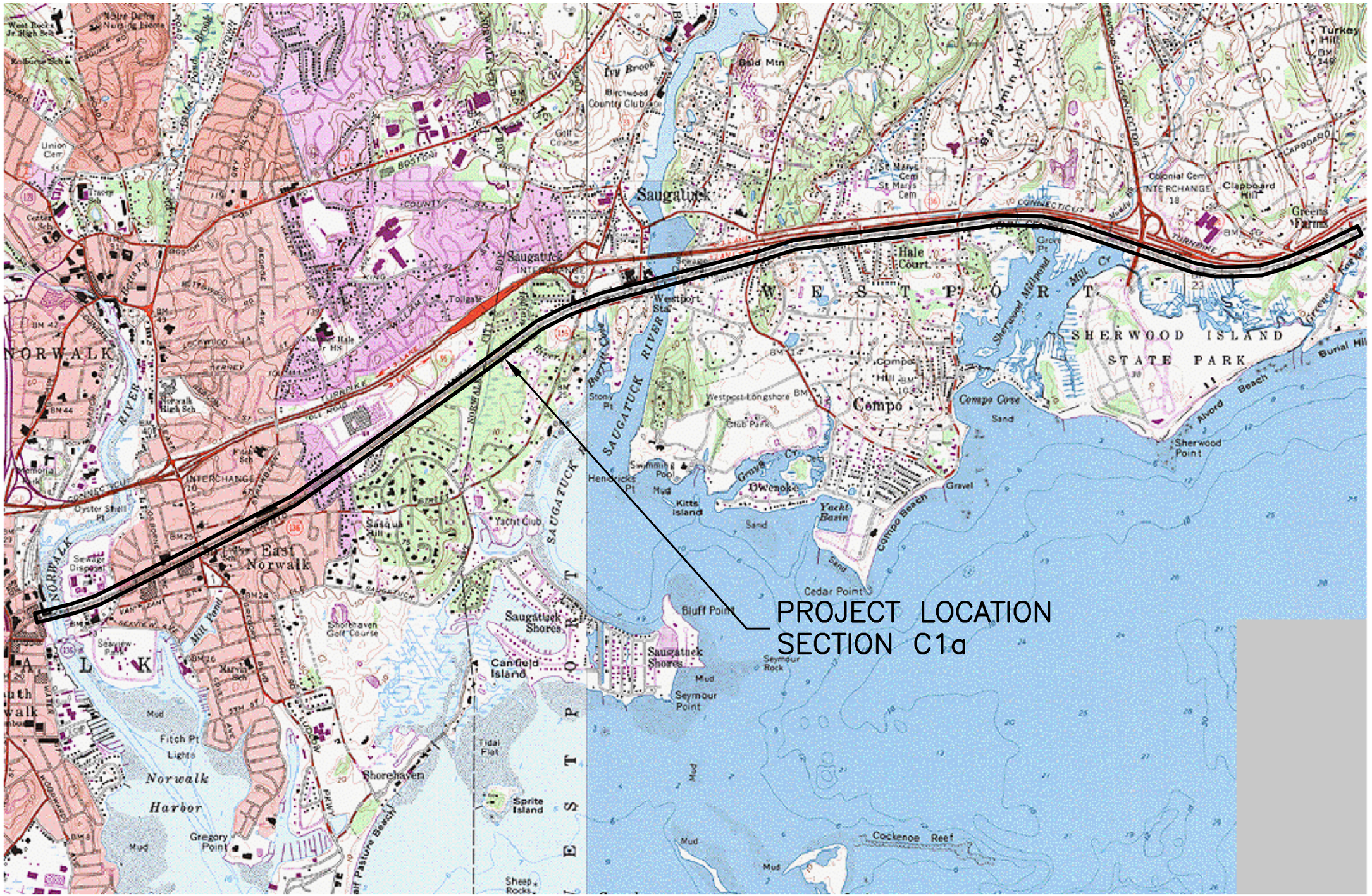
NEW HAVEN LINE – SECTION C1a
CATENARY REPLACEMENT PROGRAM
EAST NORWALK & WESTPORT, CONNECTICUT
CONNDOT PROJECT NO. 301-0145
CONDOT ASSIGNMENT NO. 204-4191

FIGURE 1
PROJECT LOCATION MAP

SCALE: 1:24,000
DRAWN BY: MJB
CHK'D BY: JDW
DATE: JULY 2012

PROJ. NO. 19097.10
DWG. NO. FIG 1
SHEET 1 OF 3

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\DOCS\FIG-1.dwg PLOT DATE: Jul 25,2012-4:22PM



DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\DOCS\FIG-2.dwg PLOT DATE: Jul 25,2012-4:20PM

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Architects/Engineers/Planners
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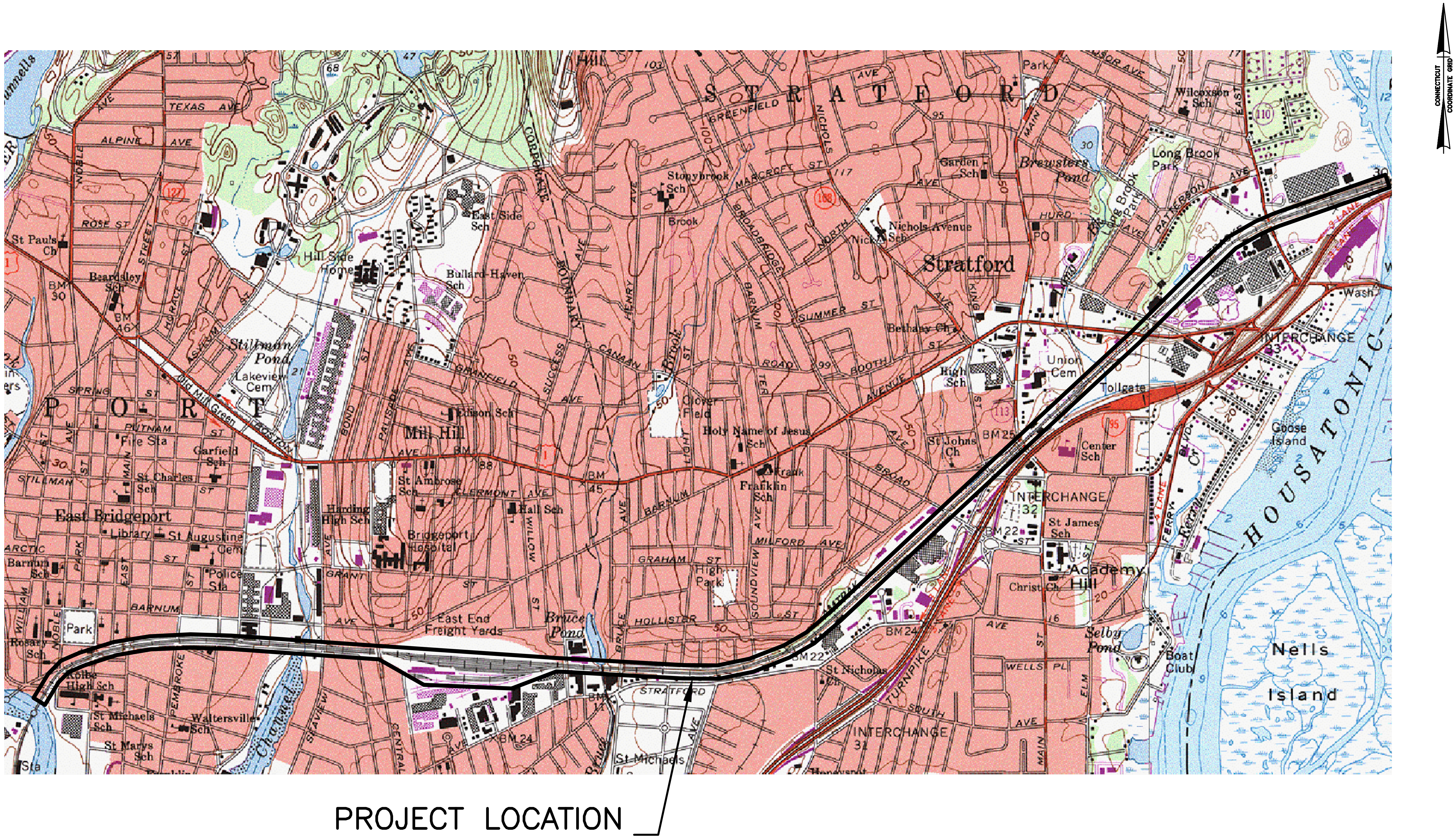
Rocky Hill, Connecticut 06067

CONNECTICUT DOT	SCALE: 1:24,000	PROJ. NO. 19097.10
NEW HAVEN LINE – SECTION C1a CATENARY REPLACEMENT PROGRAM EAST NORWALK & WESTPORT, CONNECTICUT CONNDOT PROJECT NO. 301-0145 CONDOT ASSIGNMENT NO. 204-4191	DRAWN BY: CAD	DWG. NO.
	CHK'D BY: JDW	FIG 2
FIGURE 2 PROJECT LOCATION MAP	DATE: JULY 2012	SHEET 2 OF 3



750 0 750 1500 FEET

SCALE 1:18000

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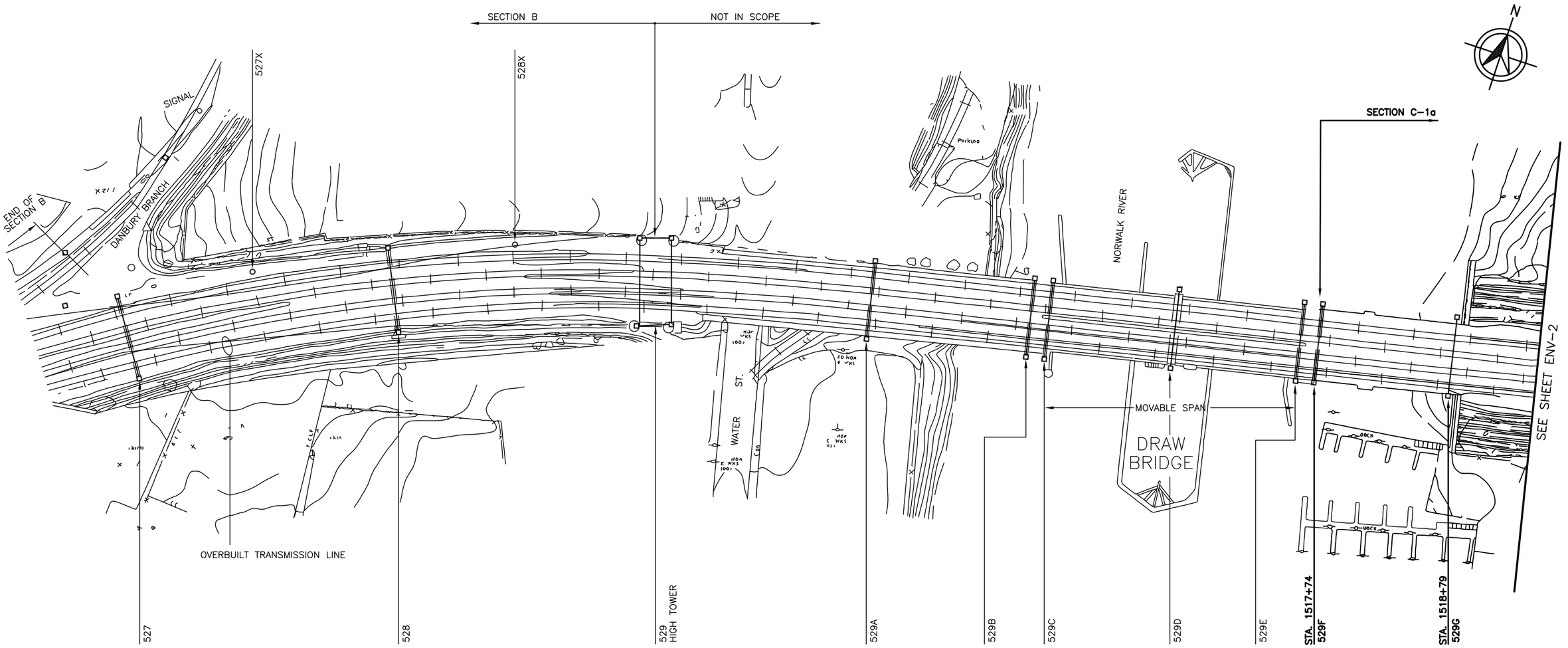
Architects/Engineers/Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

CONNECTICUT DOT	SCALE: 1:18,000	PROJ. NO. 19097.10
NEW HAVEN LINE – SECTION C2 CATENARY REPLACEMENT PROGRAM BRIDGEPORT & STRATFORD, CONNECTICUT CONNDOT PROJECT NO. 301-0145 CONDOT ASSIGNMENT NO. 204-4191	DRAWN BY: CAD	DWG. NO.
	CHK'D BY: JDW	FIG 3
FIGURE 3 PROJECT LOCATION MAP	DATE: JULY 2012	SHEET 3 OF 3

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\DOCS\FIG-3.dwg PLOT DATE: Jul 25,2012-4:18PM



NO GEOPROBE LOCATIONS ON THIS SHEET

LEGEND

- GP–# – GEOPROBE SAMPLE LOCATION
- GP–#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects / Engineers / Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

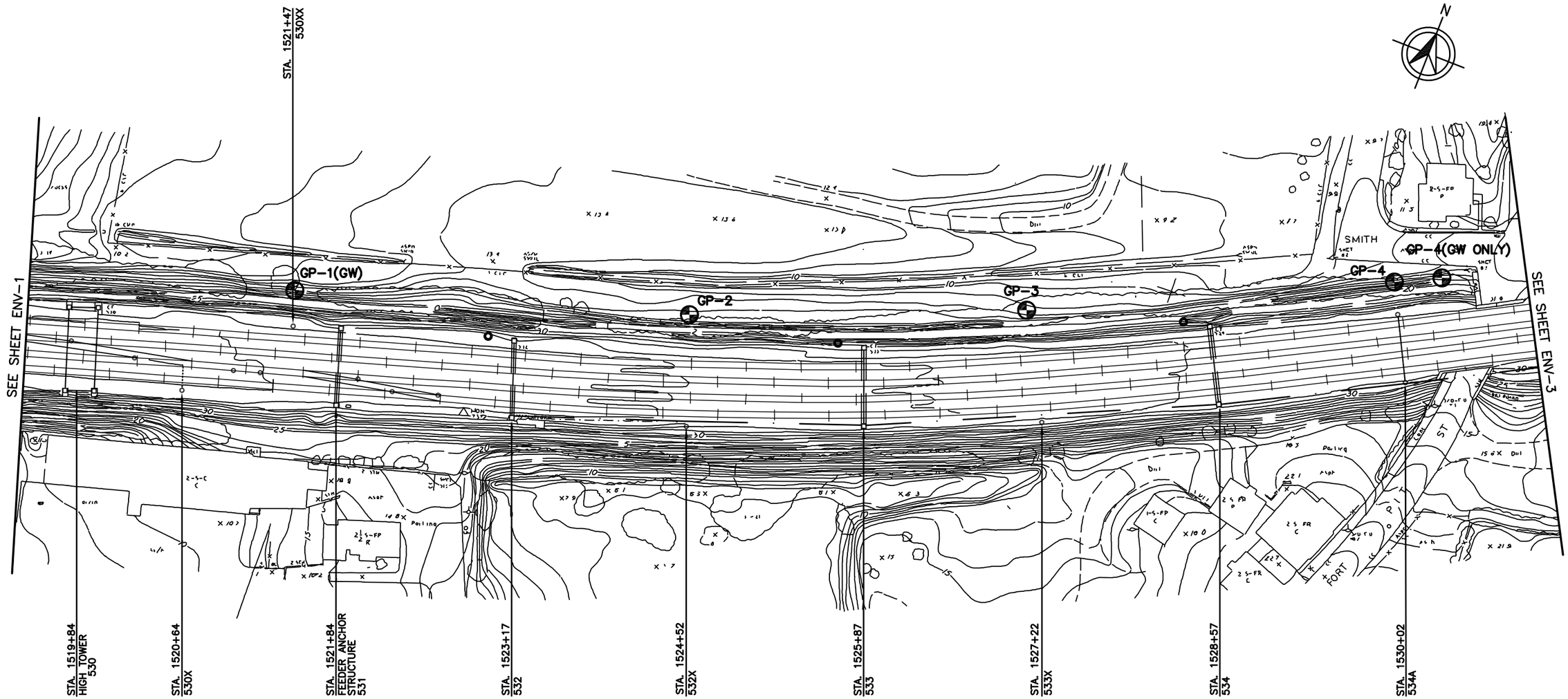
CONNECTICUT DOT

NEW HAVEN LINE – SECTION C–1A CATENARY REPLACEMENT BETWEEN WALK BRIDGE AND STRUCTURE 636

TASK 210: PROJECT AREA & SAMPLING LOCATION PLAN IN THE CITY OF NORWALK

SCALE:	1"=80'
DRAWN BY:	MJB
CHK'D BY:	DRS
DATE:	JULY 2012
PROJ. NO.	19097
DWG. NO.	ENV–1
SHEET	1 OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HWY\301-0045\Section C-1A\19097_10hn001C-1A.dwg PLOT DATE: Jul 26,2012-11:59AM



LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc. Architects / Engineers / Planners 2080 Silas Deane Highway Rocky Hill, Connecticut 06067	CONNECTICUT DOT	SCALE: 1"=80'	PROJ. NO. 19097
	NEW HAVEN LINE – SECTION C-1A CATENARY REPLACEMENT BETWEEN WALK BRIDGE AND STRUCTURE 636	DRAWN BY: MJB	DWG. NO. ENV-2
	TASK 210: PROJECT AREA & SAMPLING LOCATION PLAN IN THE CITY OF NORWALK	CHK'D BY: DRS	
		DATE: JULY 2012	SHEET 2 OF 47

REHABILITATION OF BRIDGE NO. 08082R
OVER OSBOURNE AVENUE
(STATE PROJECT NO. 301-0040)

N

SEE SHEET ENV-2

SEE SHEET ENV-4

FL GP-5(GW)

GP-6

GP-84 GP-83 (GW)

GP-82

GP-87 GP-86

GP-85

OSBOURNE AVENUE

STA. 1531+62
535

STA. 1534+67
536

STA. 1536+02
536A

STA. 1537+72
537

STA. 1539+82
537A

STA. 1540+77
538

LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

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Architects / Engineers / Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

CONNECTICUT DOT

NEW HAVEN LINE – SECTION C-1A
CATENARY REPLACEMENT BETWEEN
WALK BRIDGE AND STRUCTURE 636
AND REHABILITATION OF BRIDGE NO. 08028R

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE CITY OF NORWALK

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO. ENV-3
SHEET 3 OF 47

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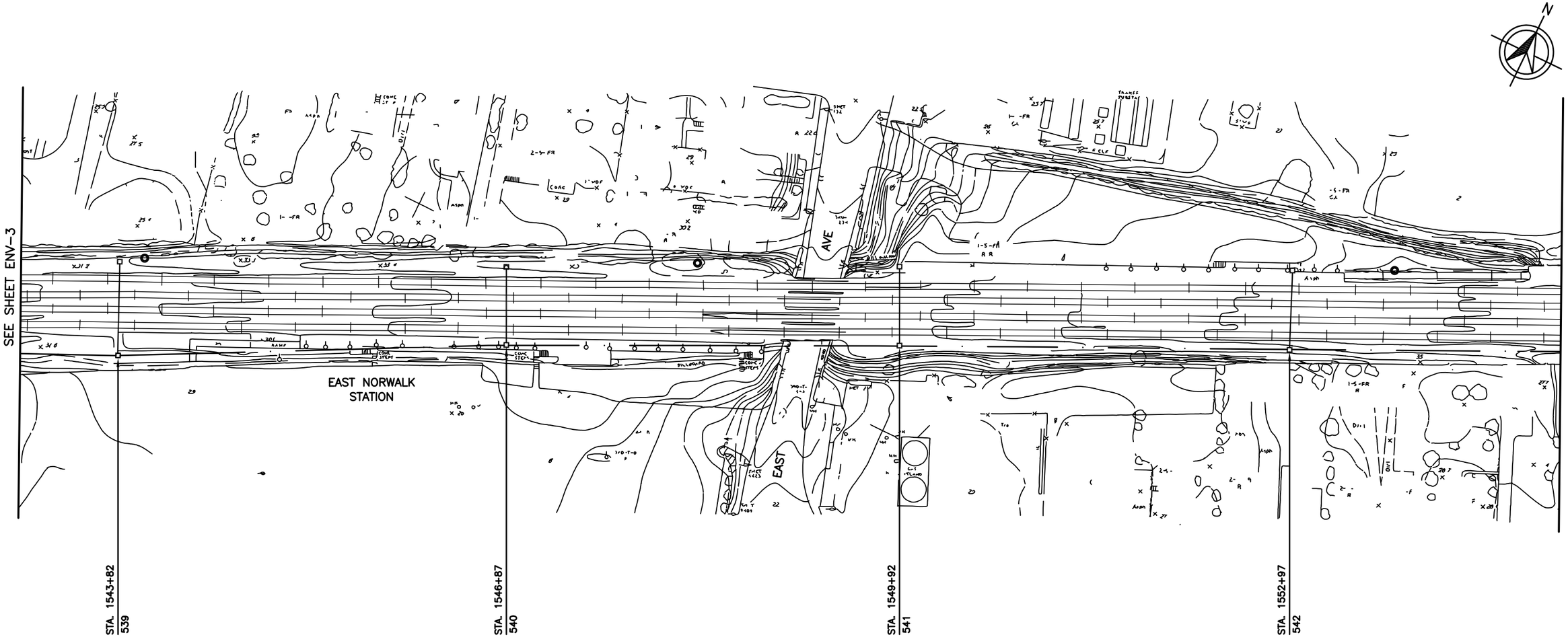


NO GEOPROBE LOCATIONS ON THIS SHEET

LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects / Engineers / Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

CONNECTICUT DOT

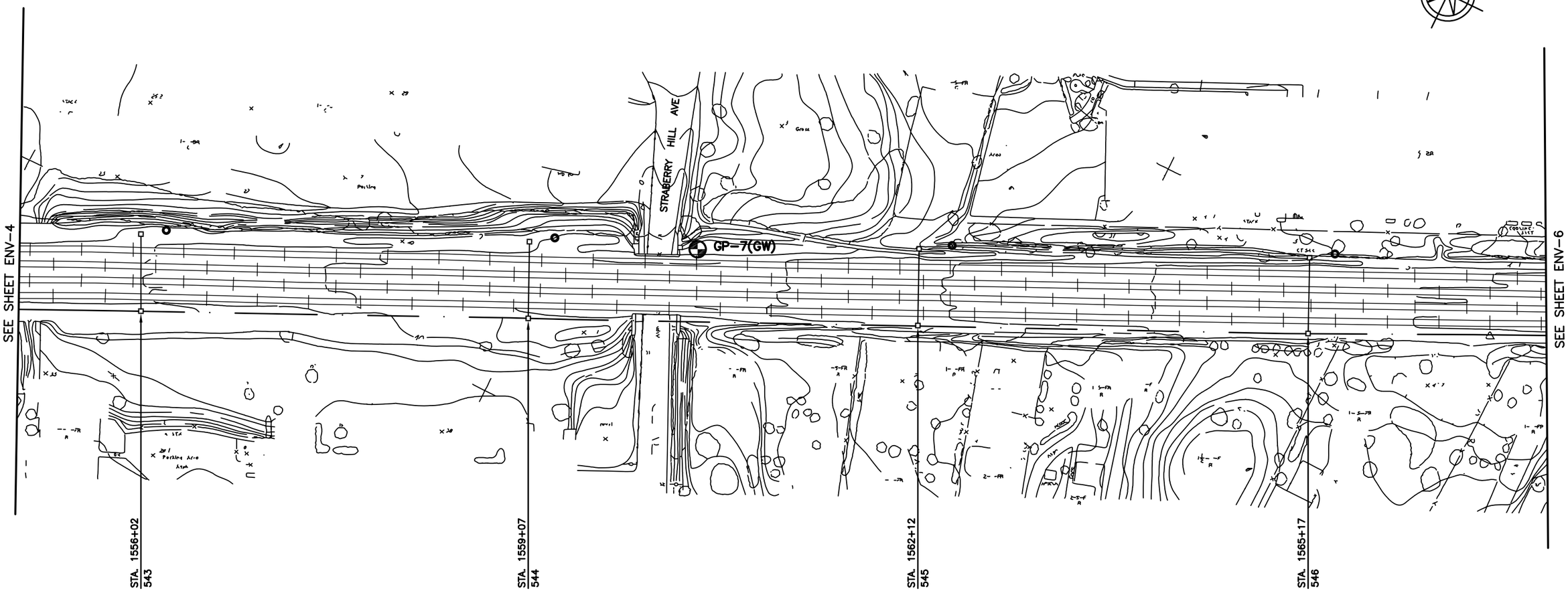
NEW HAVEN LINE – SECTION C-1A
CATENARY REPLACEMENT BETWEEN
WALK BRIDGE AND STRUCTURE 636

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE CITY OF NORWALK

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO. ENV-4
SHEET 4 OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HIWY\301-0045\Section C-1A\19097_10hn0040-1A.dwg PLOT DATE: Jul 26,2012-1:07PM



NO GEOPROBE LOCATIONS ON THIS SHEET

LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects / Engineers / Planners
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Rocky Hill, Connecticut 06067

CONNECTICUT DOT

NEW HAVEN LINE – SECTION C-1A
CATENARY REPLACEMENT BETWEEN
WALK BRIDGE AND STRUCTURE 636

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE CITY OF NORWALK

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO. ENV-5
SHEET 5 OF 47

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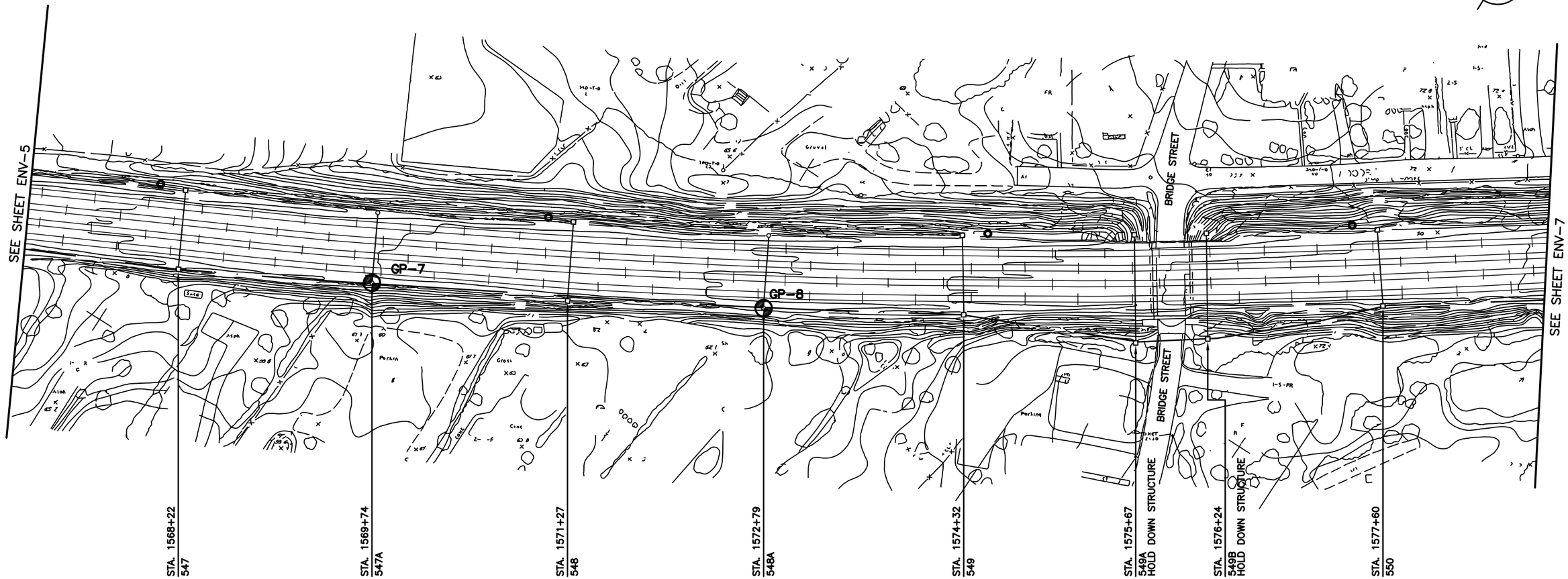

LEGEND

- GP–# – GEOPROBE SAMPLE LOCATION
- GP–#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

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Rocky Hill, Connecticut 06067

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NEW HAVEN LINE – SECTION C–1A
CATENARY REPLACEMENT BETWEEN
WALK BRIDGE AND STRUCTURE 636

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE CITY OF NORWALK

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO.
ENV–6
SHEET 6 OF 47

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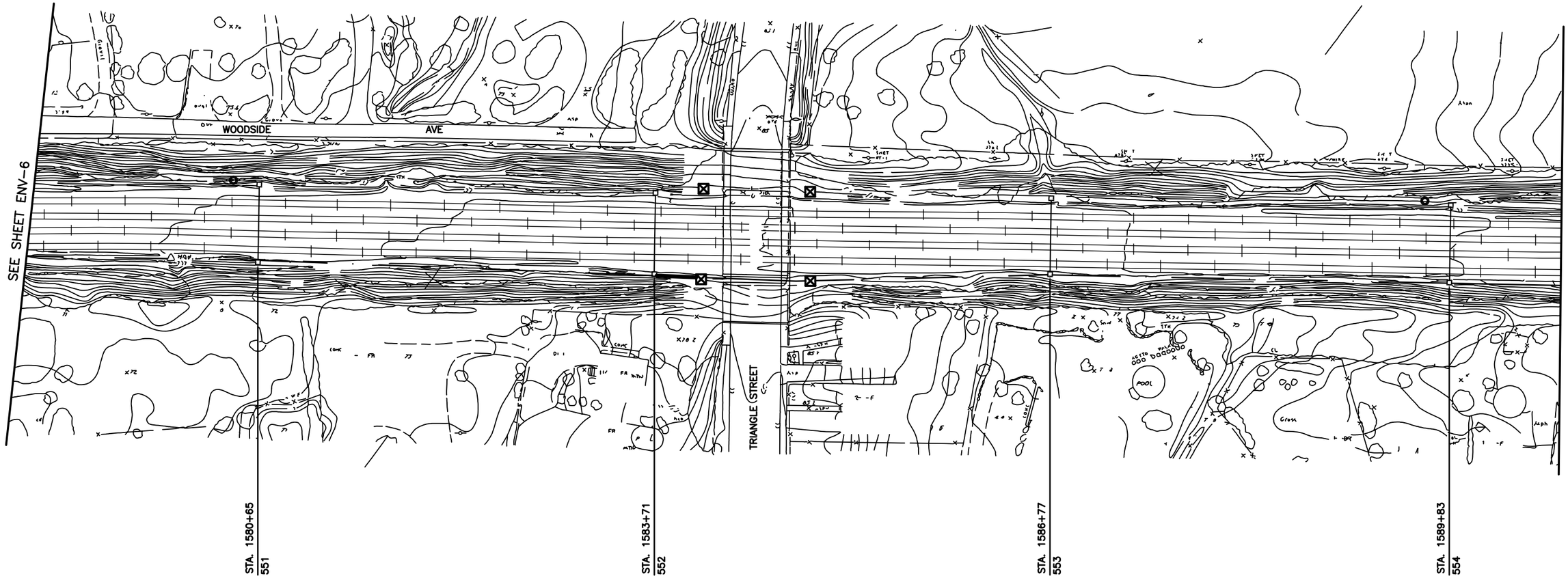

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LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects / Engineers / Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

CONNECTICUT DOT

NEW HAVEN LINE – SECTION C-1A
CATENARY REPLACEMENT BETWEEN
WALK BRIDGE AND STRUCTURE 636

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE CITY OF NORWALK

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO.
ENV-7
SHEET 7 OF 47

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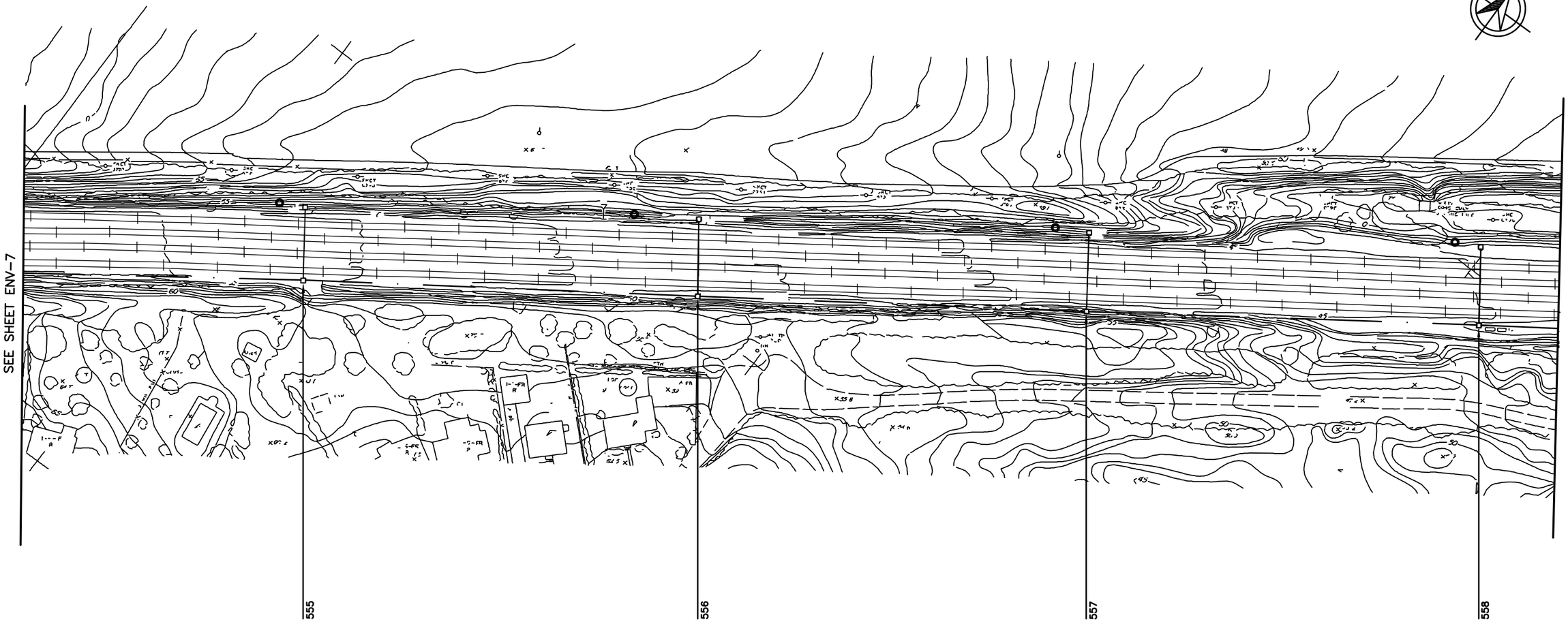

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LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects/Engineers/Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

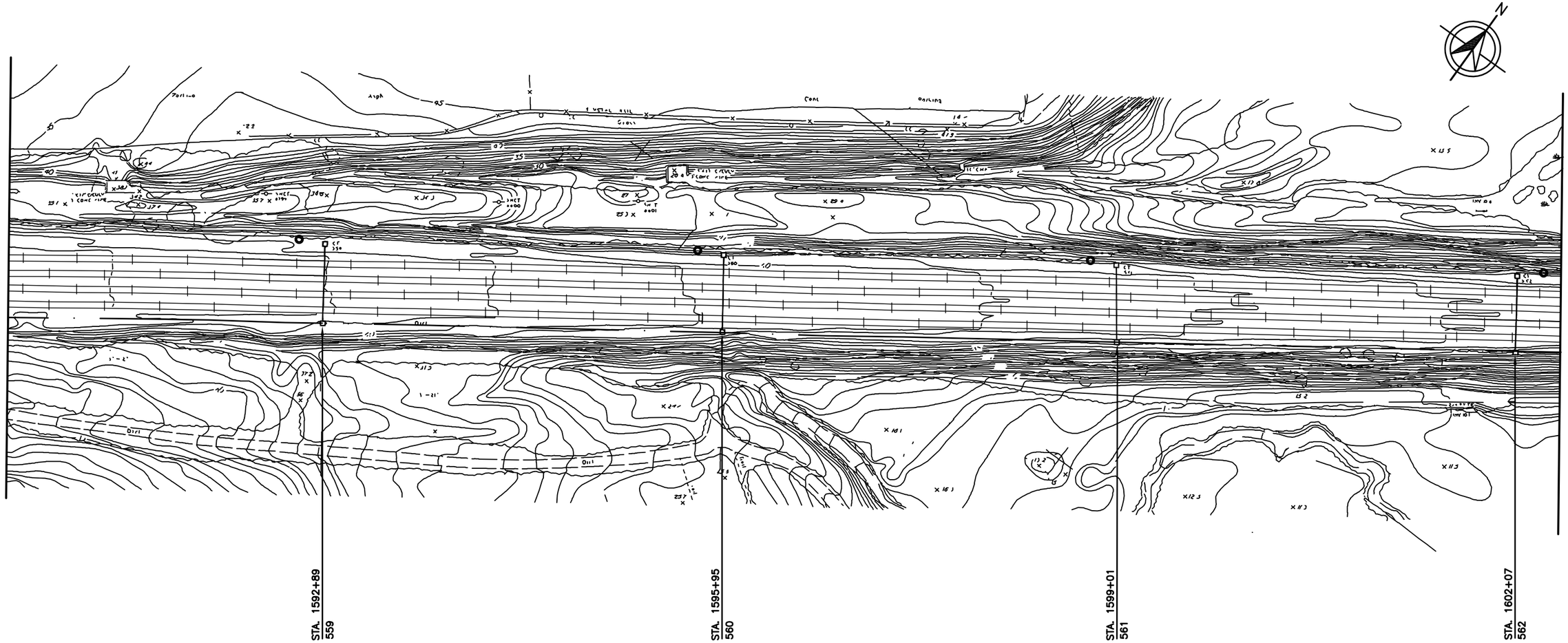
CONNECTICUT DOT

NEW HAVEN LINE – SECTION C-1A
CATENARY REPLACEMENT BETWEEN
WALK BRIDGE AND STRUCTURE 636

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE CITY OF NORWALK

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO.
ENV-8
SHEET **8** OF 47



NO GEOPROBE LOCATIONS ON THIS SHEET

LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects/Engineers/Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

CONNECTICUT DOT

NEW HAVEN LINE – SECTION C-1A
CATENARY REPLACEMENT BETWEEN
WALK BRIDGE AND STRUCTURE 636

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE CITY OF NORWALK

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO.
ENV-9
SHEET 9 OF 47

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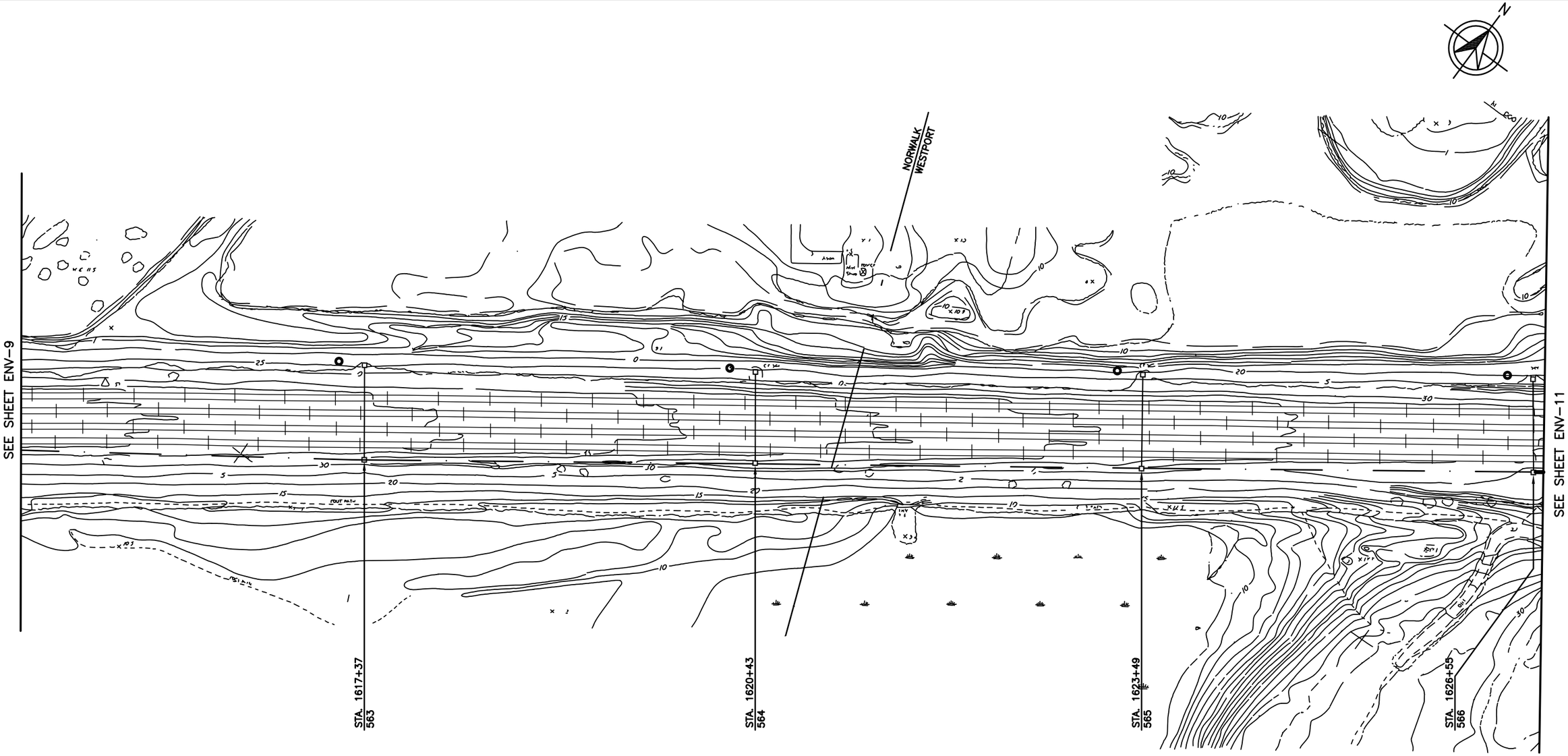


NO GEOPROBE LOCATIONS ON THIS SHEET

LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects / Engineers / Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

CONNECTICUT DOT

NEW HAVEN LINE – SECTION C-1A
CATENARY REPLACEMENT BETWEEN
WALK BRIDGE AND STRUCTURE 636

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE CITY OF NORWALK/WESTPORT

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO.
ENV-10
SHEET 10 OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HWY\301-0045\Section C-1A\19097_10hn010C-1A.dwg PLOT DATE: Jul 26,2012-1:54PM

SEE SHEET ENV-10

SEE SHEET ENV-12

TRACKS NOT IN SCOPE OF WORK

GP-9(GW)

GP-10

GP-11

STA. 1629+61
567

STA. 1631+14
567A

STA. 1632+67
568

STA. 1634+20
568X

STA. 1635+73
569

STA. 1637+26
569X

STA. 1638+79
570

LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects/Engineers/Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

CONNECTICUT DOT

NEW HAVEN LINE – SECTION C-1A
CATENARY REPLACEMENT BETWEEN
WALK BRIDGE AND STRUCTURE 636

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF WESTPORT

SCALE: 1"=80'

DRAWN BY: MJB

CHK'D BY: DRS

DATE: JULY 2012

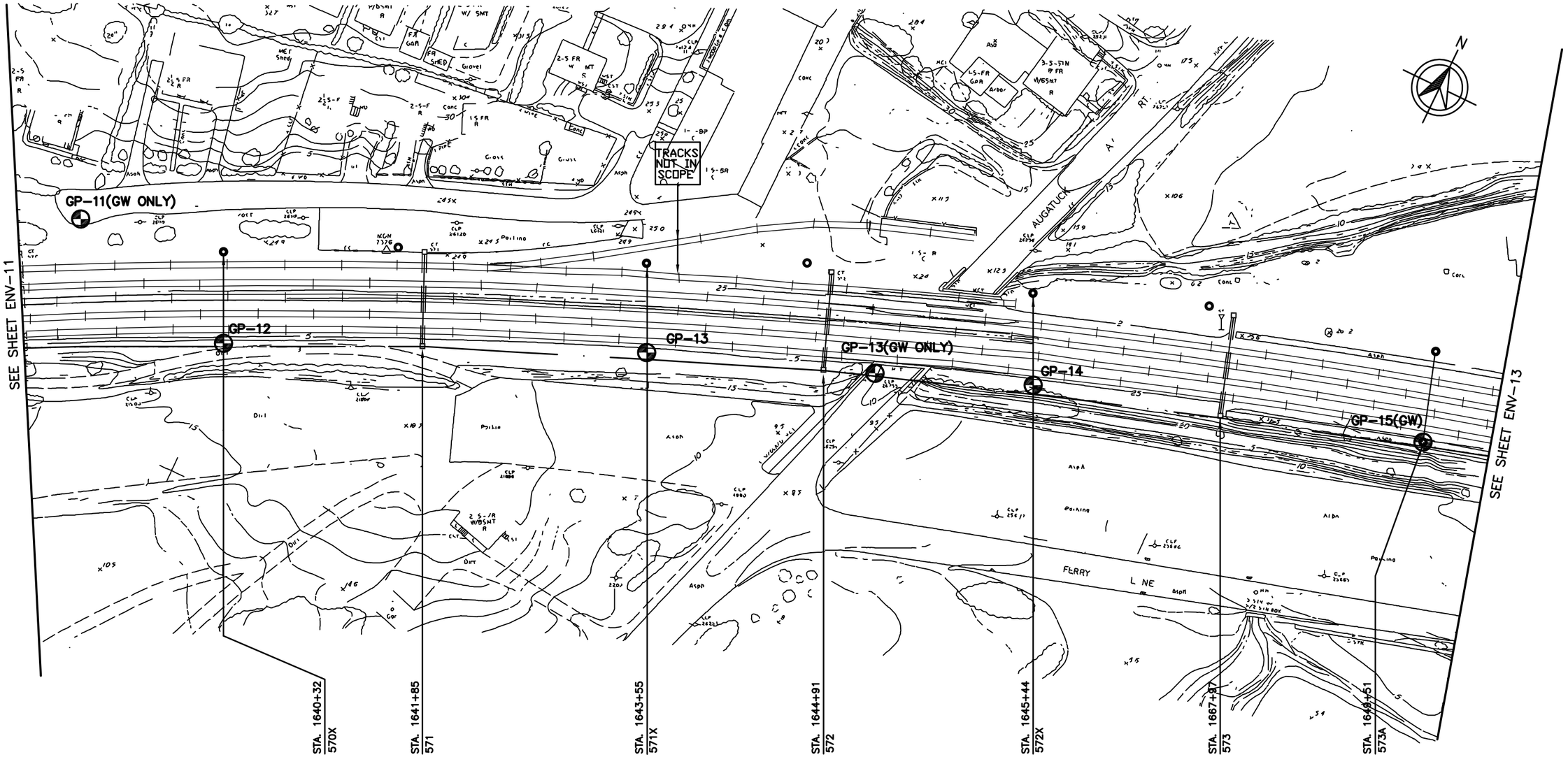
PROJ. NO. 19097

DWG. NO.

ENV-11

SHEET 11 OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HWY\301-0045\Section C-1A\19097_10hn011C-1A.dwg PLOT DATE: Jul 26,2012-1:27PM



LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects/Engineers/Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

CONNECTICUT DOT

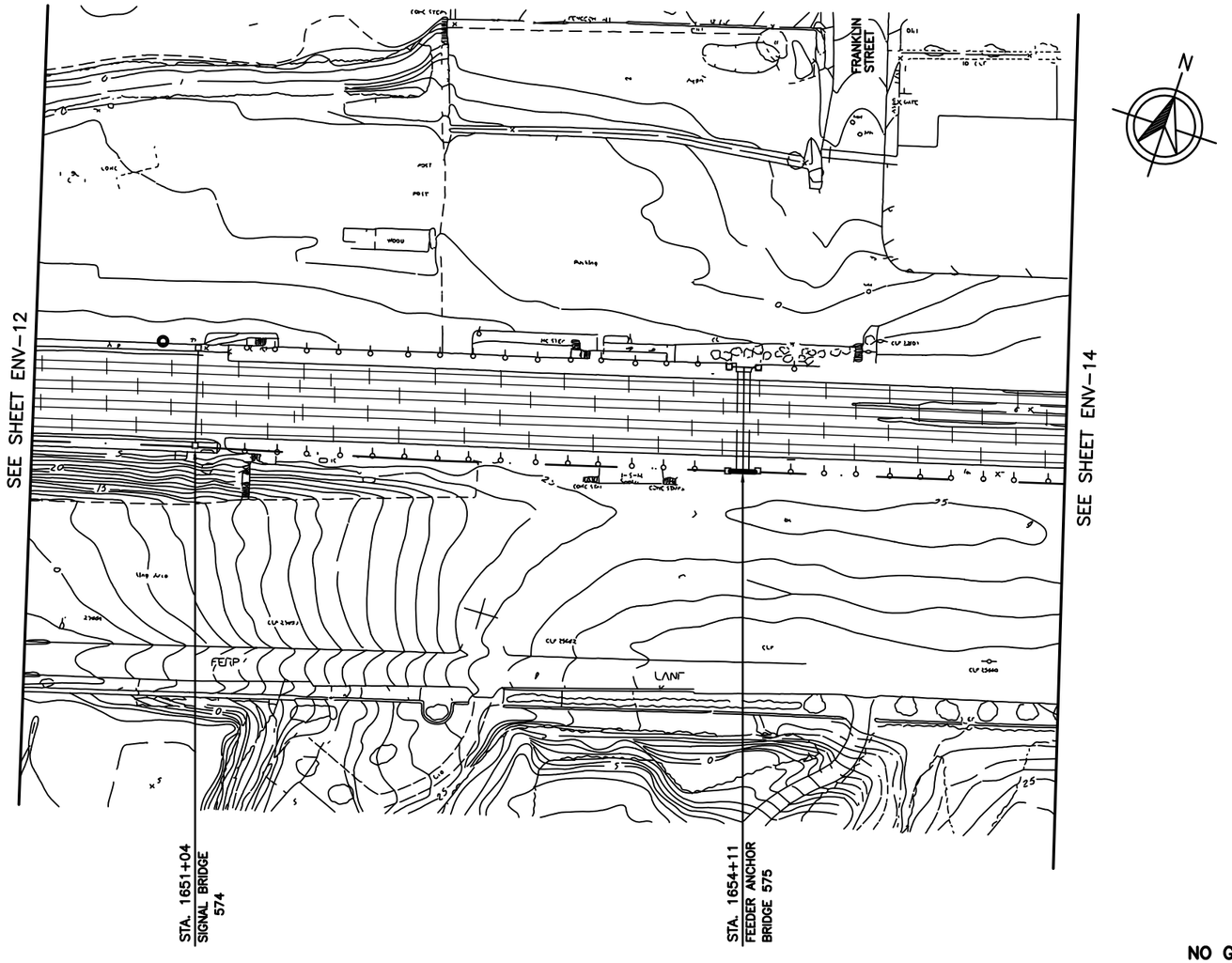
NEW HAVEN LINE – SECTION C-1A
CATENARY REPLACEMENT BETWEEN
WALK BRIDGE AND STRUCTURE 636

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF WESTPORT

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO.
ENV-12
SHEET 12 OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HWY\301-0045\Section C-1A\19097_10hn0120-1A.dwg PLOT DATE: Jul 26,2012-1:28PM



NO GEOPROBE LOCATIONS ON THIS SHEET

LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects/Engineers/Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

CONNECTICUT DOT

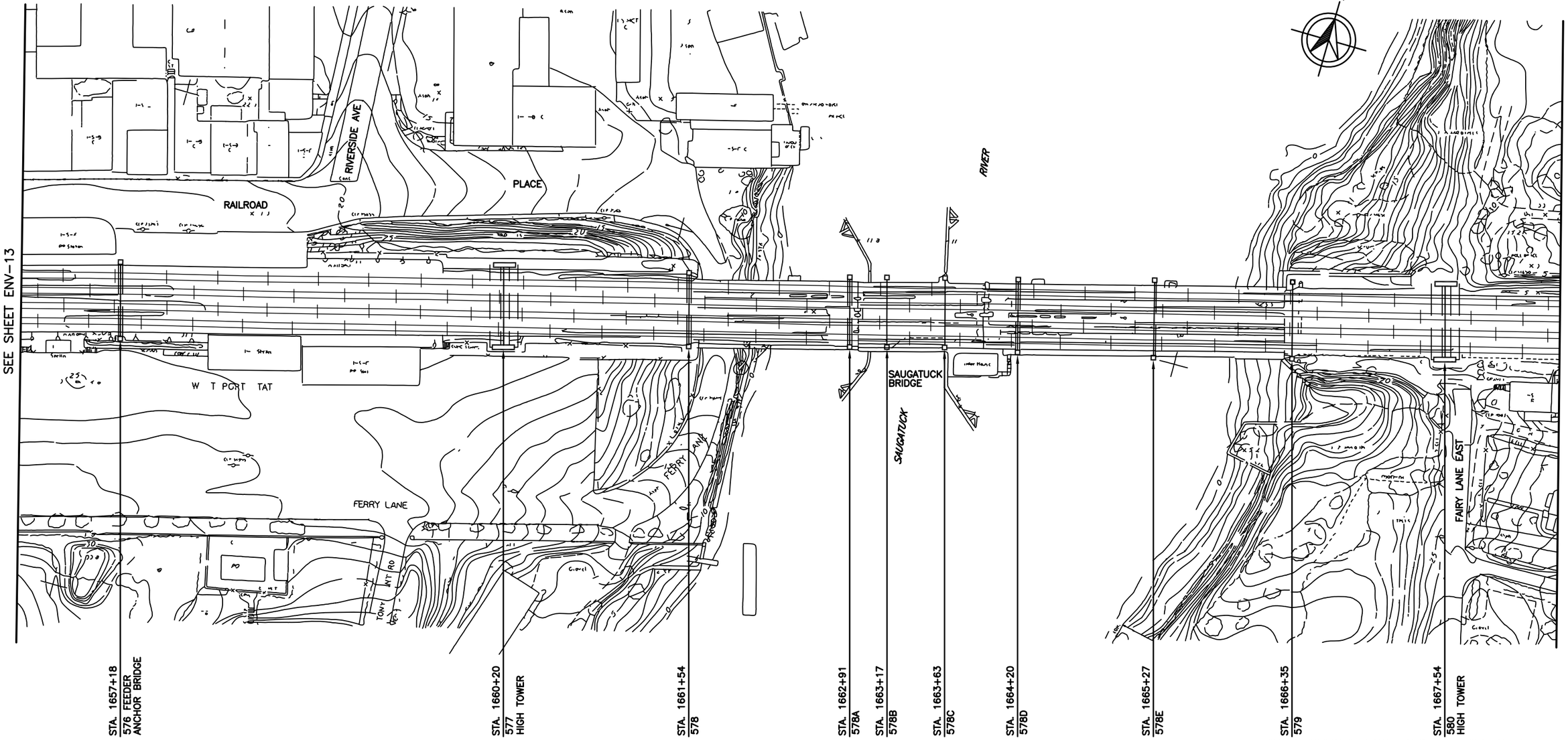
NEW HAVEN LINE – SECTION C-1A
CATENARY REPLACEMENT BETWEEN
WALK BRIDGE AND STRUCTURE 636

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF WESTPORT

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO.
ENV-13
SHEET 13 OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HIWY\301-0045\Section C-1A\19097_10hn013C-1A.dwg PLOT DATE: Jul 26,2012-1:30PM



NO GEOPROBE LOCATIONS ON THIS SHEET

LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects / Engineers / Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

CONNECTICUT DOT

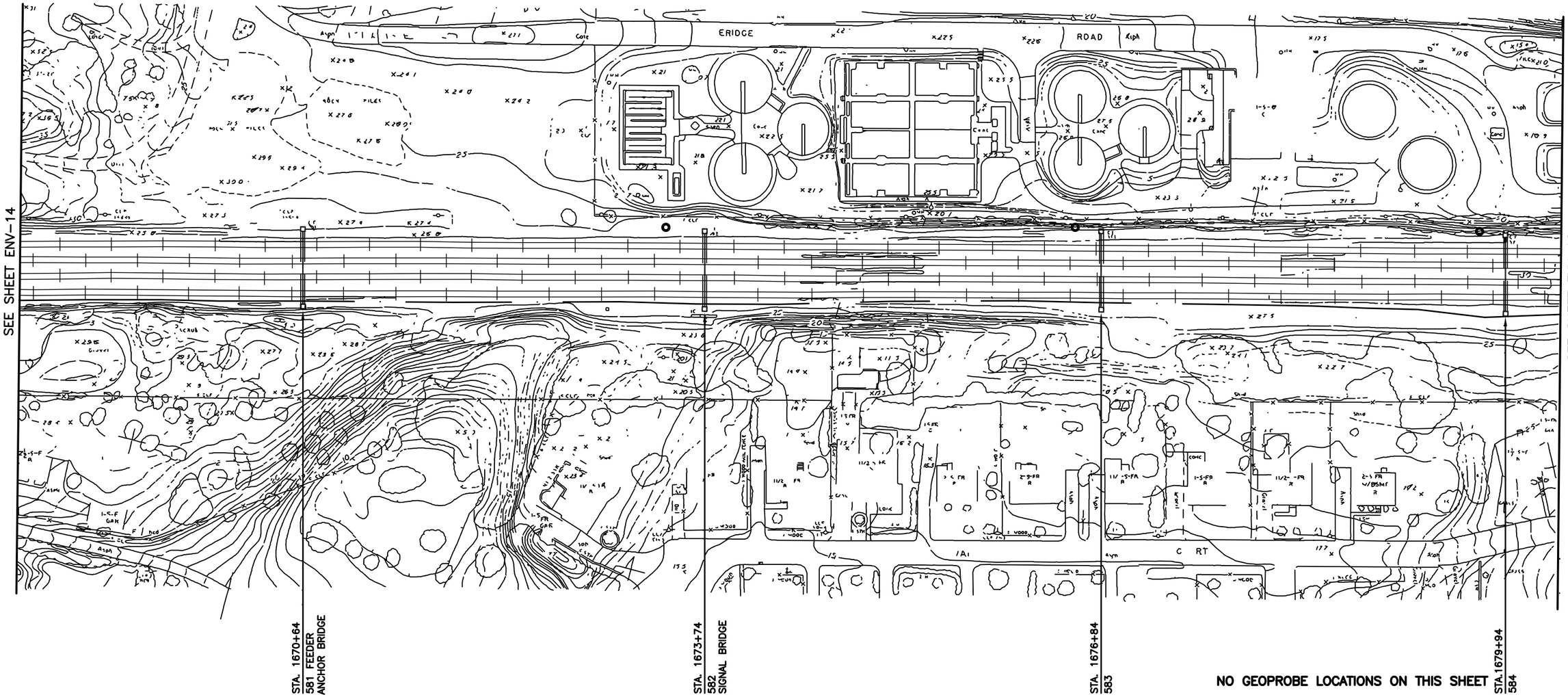
NEW HAVEN LINE – SECTION C-1A
CATENARY REPLACEMENT BETWEEN
WALK BRIDGE AND STRUCTURE 636

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF WESTPORT

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO. ENV-14
SHEET 14 OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HWY\301-0045\Section C-1A\19097_10hn0140-1A.dwg PLOT DATE: Jul 26,2012-1:31PM



NO GEOPROBE LOCATIONS ON THIS SHEET

LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects/Engineers/Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

CONNECTICUT DOT

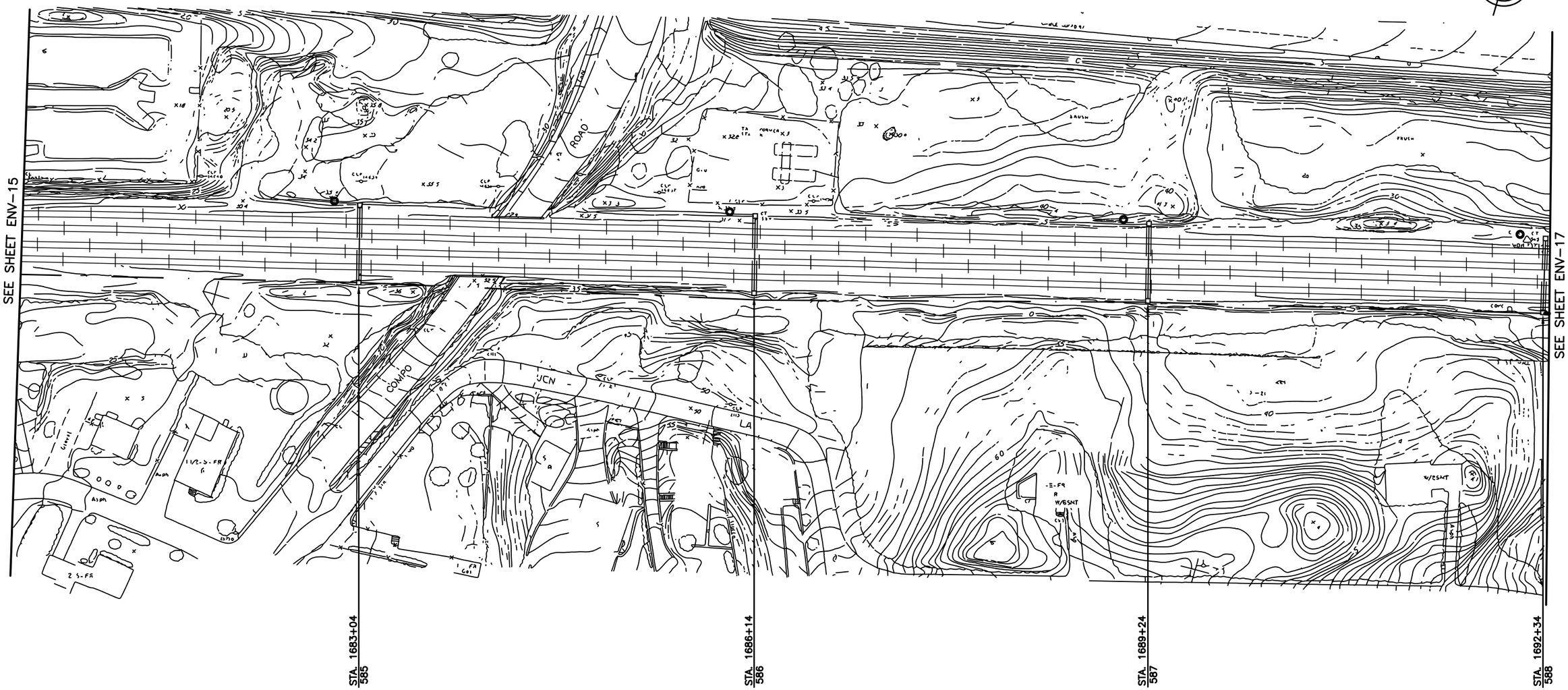
NEW HAVEN LINE – SECTION C-1A
CATENARY REPLACEMENT BETWEEN
WALK BRIDGE AND STRUCTURE 636

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF WESTPORT

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO. ENV-15
SHEET 15 OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HWY\301-0045\Section C-1A\19097_10hn015C-1A.dwg PLOT DATE: Jul 26,2012-1:33PM



NO GEOPROBE LOCATIONS ON THIS SHEET

LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects/Engineers/Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

CONNECTICUT DOT

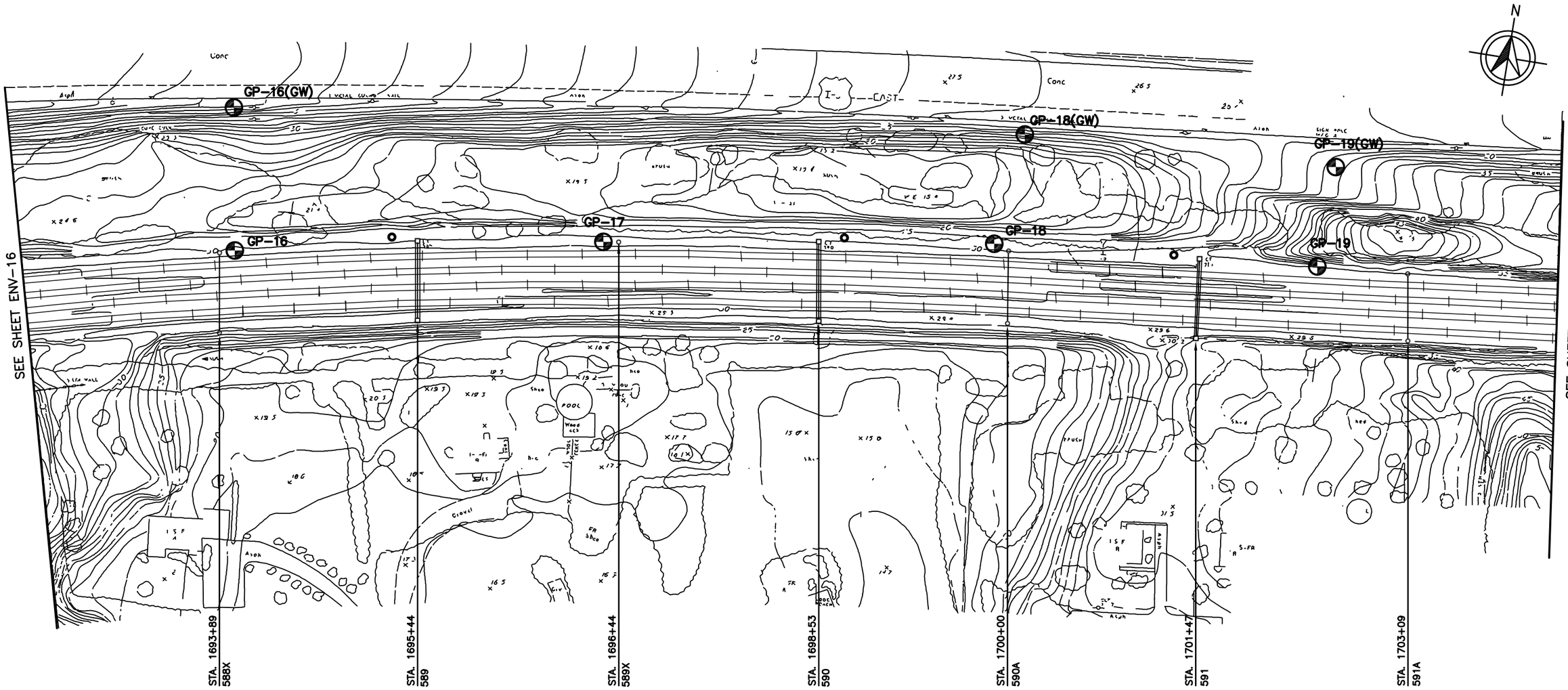
NEW HAVEN LINE – SECTION C-1A
CATENARY REPLACEMENT BETWEEN
WALK BRIDGE AND STRUCTURE 636

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF WESTPORT

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO. ENV-16
SHEET 16 OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HWY\301-0045\Section C-1A\19097_10hn016C-1A.dwg PLOT DATE: Jul 26,2012-1:37PM



LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects/Engineers/Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

CONNECTICUT DOT

NEW HAVEN LINE – SECTION C-1A
CATENARY REPLACEMENT BETWEEN
WALK BRIDGE AND STRUCTURE 636

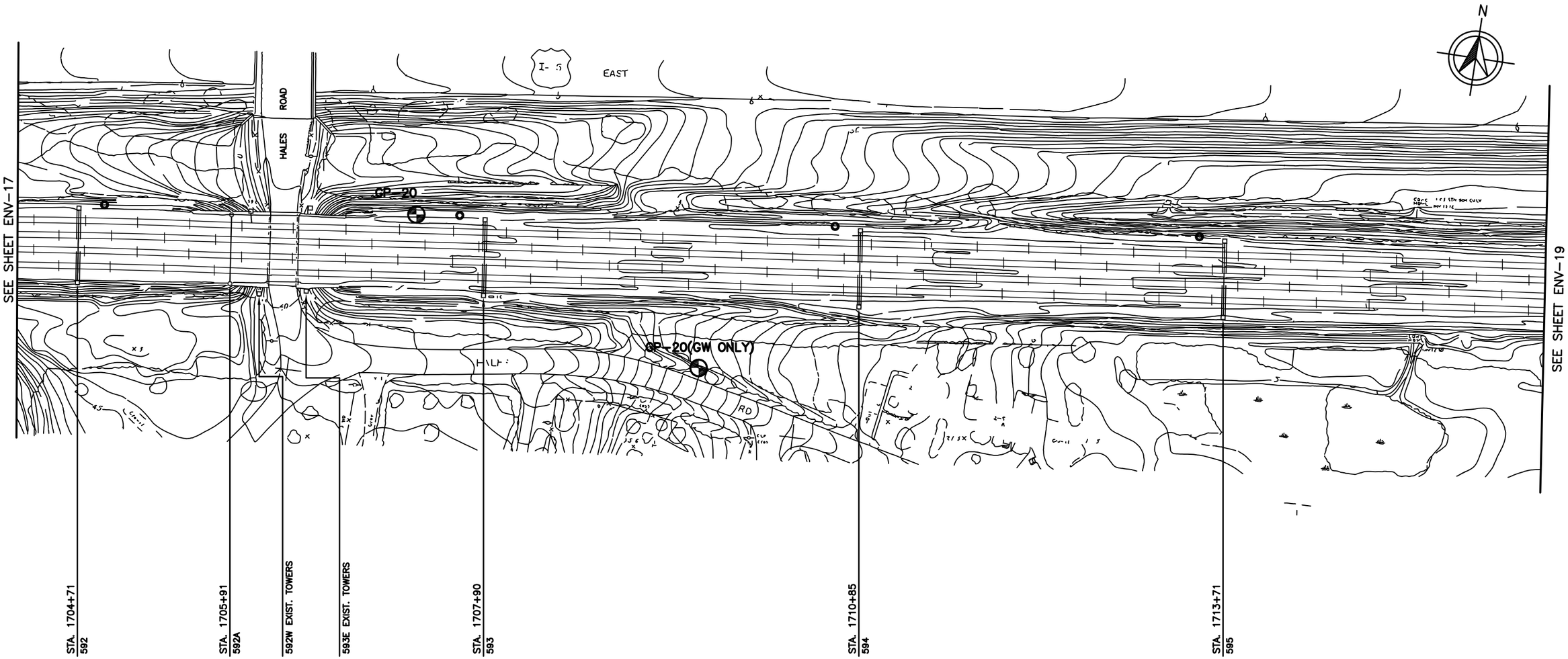
TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF WESTPORT

SCALE:	1"=80'
DRAWN BY:	MJB
CHK'D BY:	DRS
DATE:	JULY 2012

PROJ. NO. 19097

DWG. NO.

ENV-17



LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects / Engineers / Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

CONNECTICUT DOT

NEW HAVEN LINE – SECTION C-1A
CATENARY REPLACEMENT BETWEEN
WALK BRIDGE AND STRUCTURE 636

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF WESTPORT

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO. ENV-18
SHEET 18 OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HIWY\301-0045\Section C-1A\19097_10hn0180-1A.dwg PLOT DATE: Jul 26,2012-1:40PM

SEE SHEET ENV-18

SEE SHEET ENV-20

N

POINT RD

GP-21

GP-21(GW ONLY)

STA. 1716+59
596

STA. 1719+47
597

STA. 1722+23
598

STA. 1725+23
599

STA. 1727+28
599A

LEGEND

GP-# – GEOPROBE SAMPLE LOCATION

GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects / Engineers / Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

CONNECTICUT DOT

NEW HAVEN LINE – SECTION C-1A
CATENARY REPLACEMENT BETWEEN
WALK BRIDGE AND STRUCTURE 636

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF WESTPORT

SCALE: 1"=80'

DRAWN BY: MJB

CHK'D BY: DRS

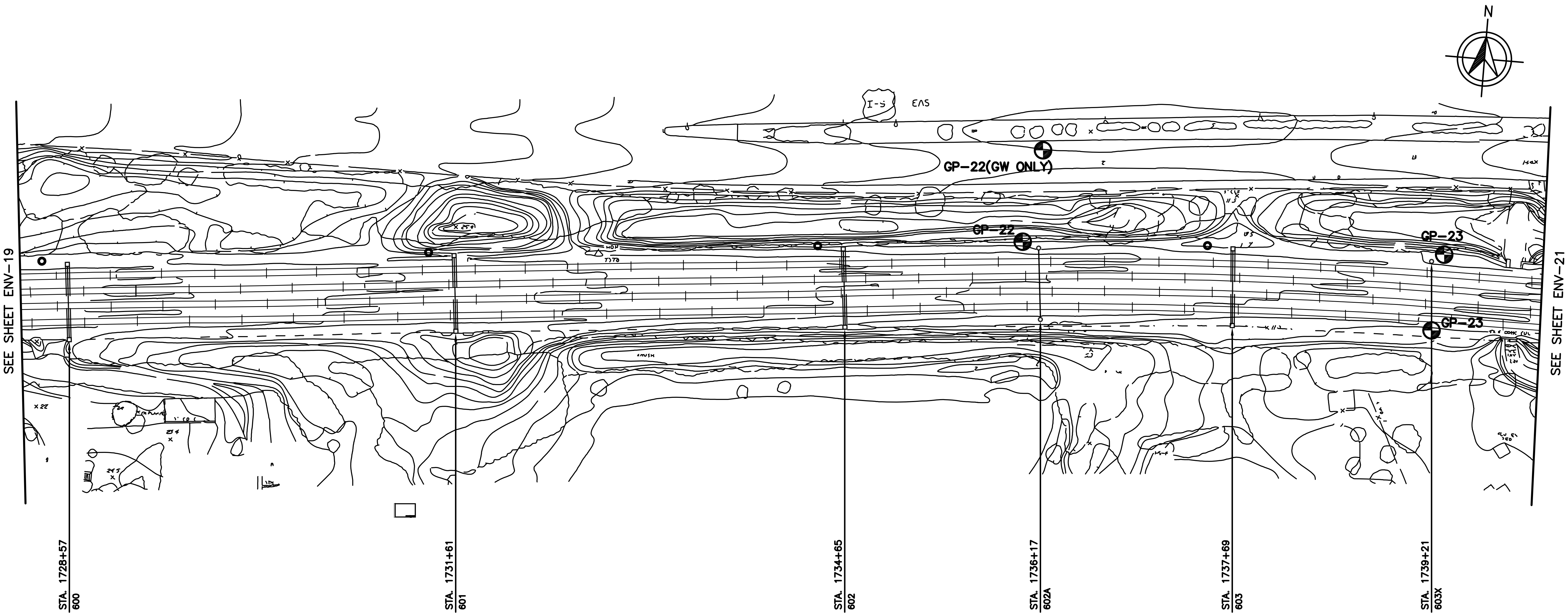
DATE: JULY 2012

PROJ. NO. 19097

DWG. NO.
ENV-19

SHEET 19 OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HIWY\301-0045\Section C-1A\19097_10hn0190-1A.dwg PLOT DATE: Jul 26,2012-1:41PM

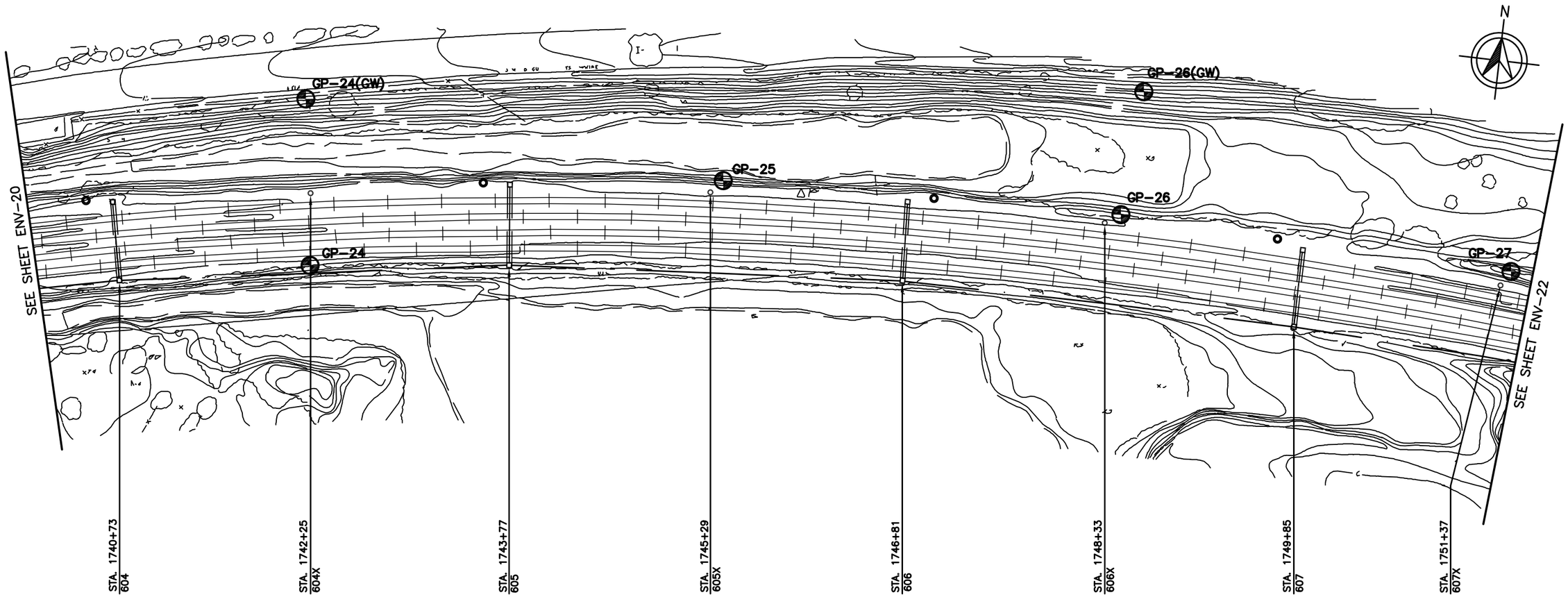


LEGEND

GP-# – GEOPROBE SAMPLE LOCATION

GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc. Architects/Engineers/Planners 2080 Silas Deane Highway Rocky Hill, Connecticut 06067	CONNECTICUT DOT	SCALE: 1"=80'	PROJ. NO. 19097
	NEW HAVEN LINE – SECTION C-1A CATENARY REPLACEMENT BETWEEN WALK BRIDGE AND STRUCTURE 636	DRAWN BY: MJB	DWG. NO. ENV-20
	TASK 210: PROJECT AREA & SAMPLING LOCATION PLAN IN THE TOWN OF WESTPORT	CHK'D BY: DRS	
		DATE: JULY 2012	SHEET 20 OF 47



LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects/Engineers/Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

CONNECTICUT DOT

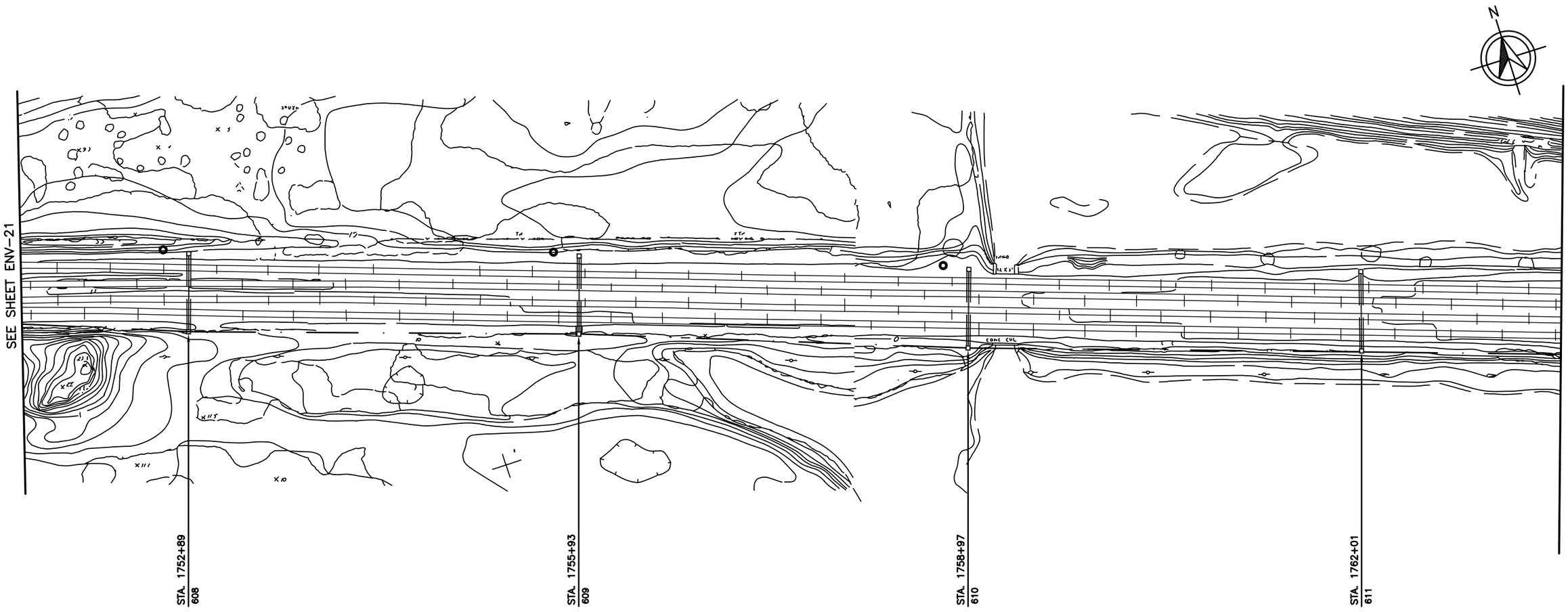
NEW HAVEN LINE – SECTION C-1A
CATENARY REPLACEMENT BETWEEN
WALK BRIDGE AND STRUCTURE 636

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF WESTPORT

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO.
ENV-21
SHEET **21** OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HWY\301-0045\Section C-1A\19097_10hn021C-1A.dwg PLOT DATE: Jul 26,2012-1:57PM



NO GEOPROBE LOCATIONS ON THIS SHEET

LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects / Engineers / Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

CONNECTICUT DOT

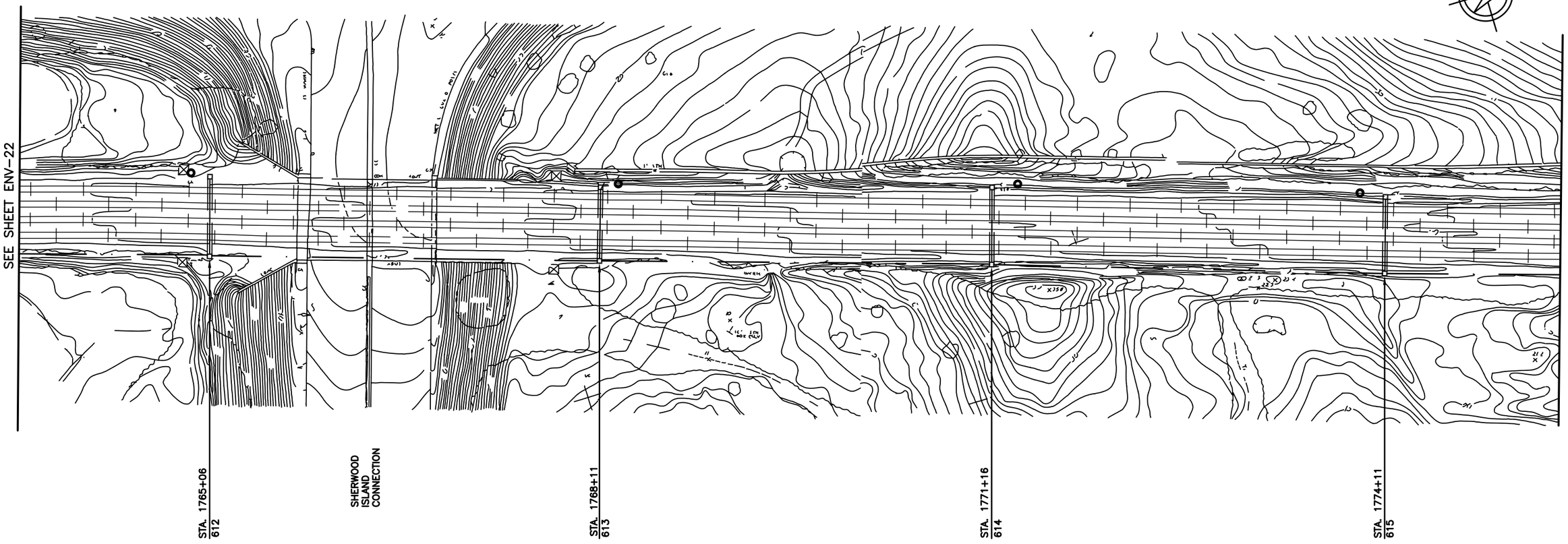
NEW HAVEN LINE – SECTION C-1A
CATENARY REPLACEMENT BETWEEN
WALK BRIDGE AND STRUCTURE 836

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF WESTPORT

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO. ENV-22
SHEET 22 OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HWY\301-0045\Section C-1A\19097_10hn022C-1A.dwg PLOT DATE: Jul 26,2012-2:01PM



NO GEOPROBE LOCATIONS ON THIS SHEET

LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects/Engineers/Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

CONNECTICUT DOT

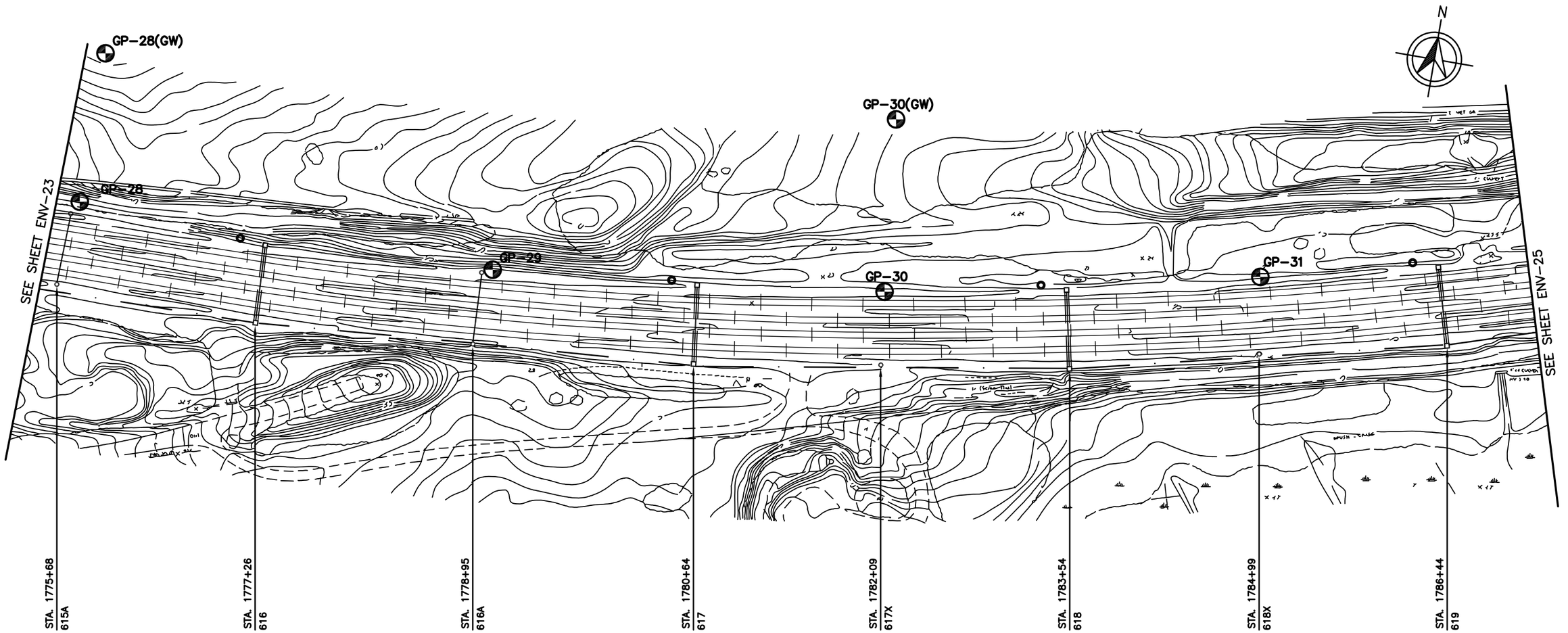
NEW HAVEN LINE – SECTION C-1A
CATENARY REPLACEMENT BETWEEN
WALK BRIDGE AND STRUCTURE 636

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF WESTPORT

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO.
ENV-23
SHEET 23 OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HIWY\301-0045\Section C-1A\19097_10hn023C-1A.dwg PLOT DATE: Jul 26,2012-2:03PM



LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects / Engineers / Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

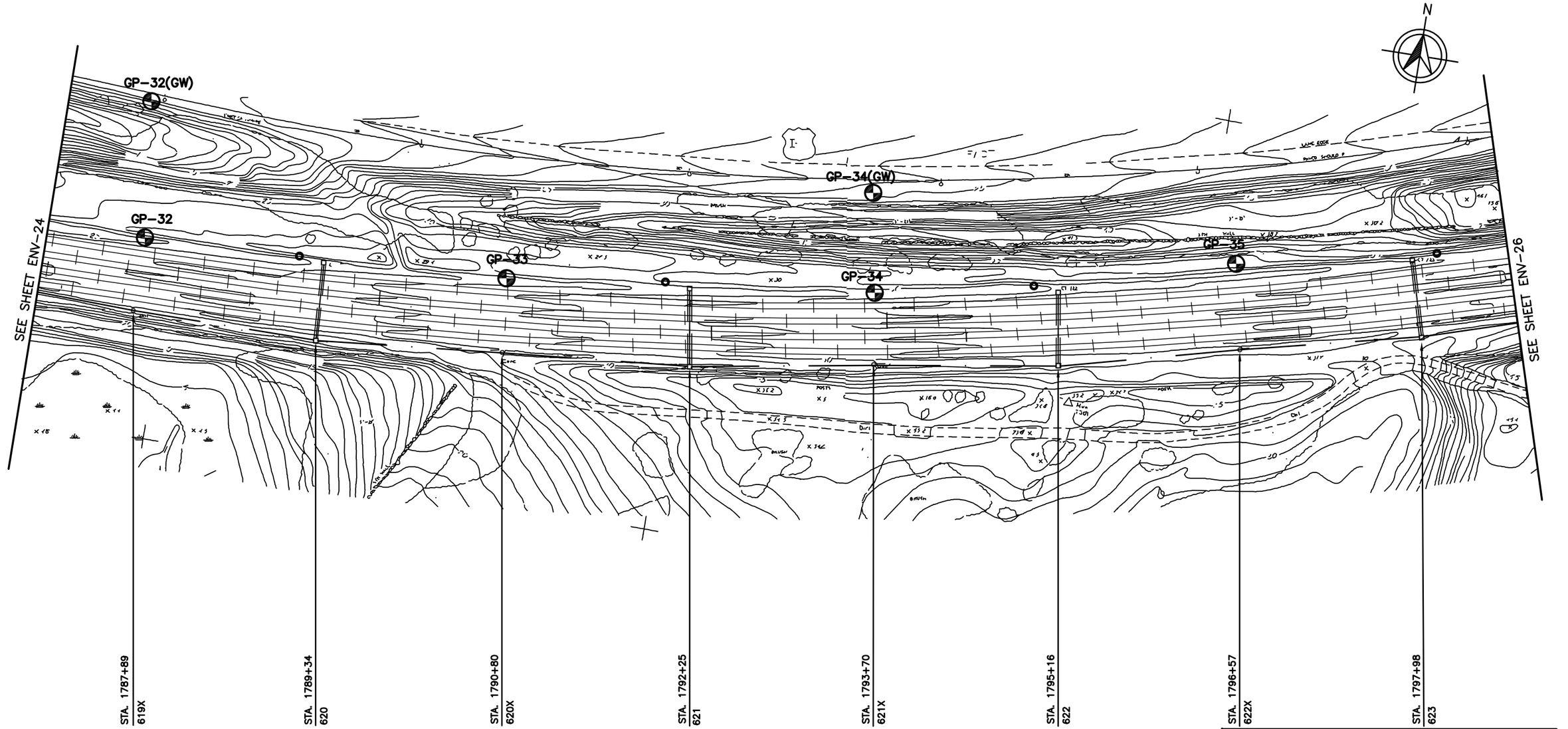
CONNECTICUT DOT

NEW HAVEN LINE – SECTION C-1A
CATENARY REPLACEMENT BETWEEN
WALK BRIDGE AND STRUCTURE 636

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF WESTPORT

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO.
ENV-24
SHEET 24 OF 47



LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects / Engineers / Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

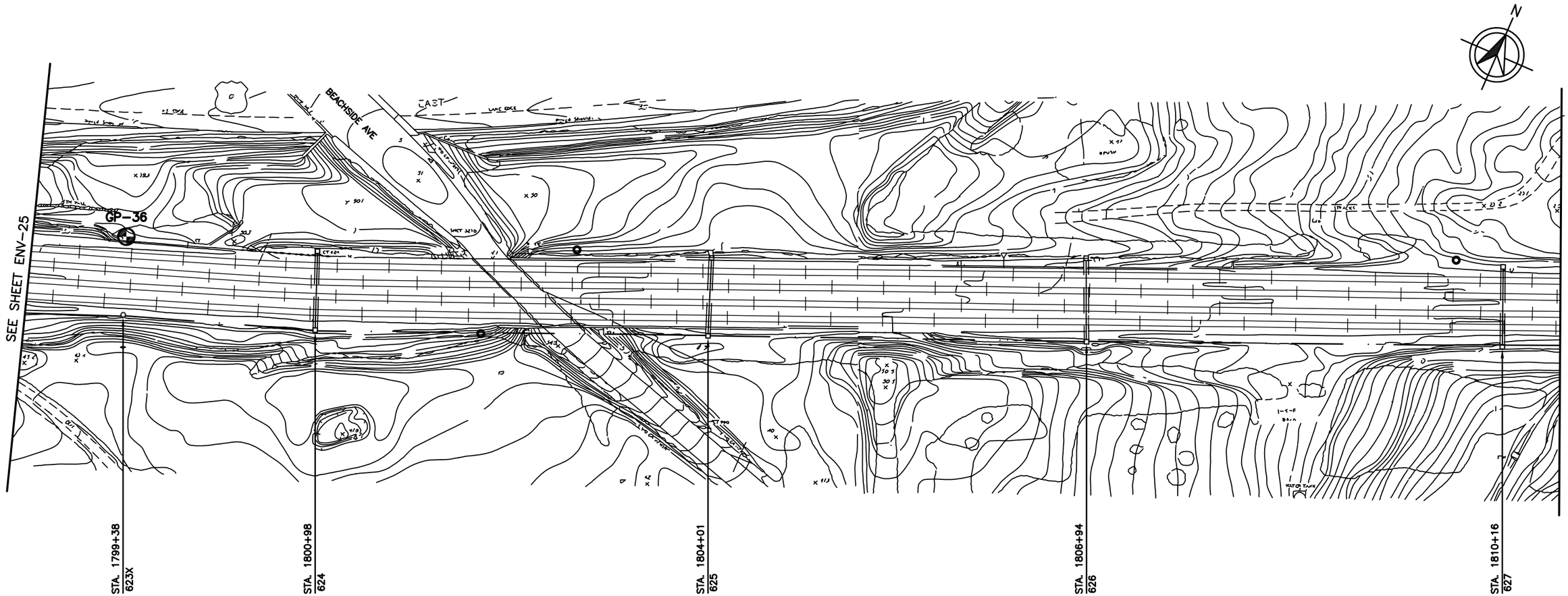
CONNECTICUT DOT

NEW HAVEN LINE – SECTION C-1A
CATENARY REPLACEMENT BETWEEN
WALK BRIDGE AND STRUCTURE 636

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF WESTPORT

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO.
ENV-25
SHEET 25 OF 47



LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects/Engineers/Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

CONNECTICUT DOT

NEW HAVEN LINE – SECTION C-1A
CATENARY REPLACEMENT BETWEEN
WALK BRIDGE AND STRUCTURE 636

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF WESTPORT

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO.
ENV-26
SHEET **26** OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HWY\301-0045\Section C-1A\19097_10hn026C-1A.dwg PLOT DATE: Jul 26,2012-2:08PM

SECTION C–1a

SECTION C–1b

N

SEE SHEET ENV–26

GP–36(GW ONLY) GREENS FARMS STATION

STA. 1813+18
628

STA. 1816+33
629

STA. 1819+48
630

NO GEOPROBE LOCATIONS ON THIS SHEET

LEGEND

- GP–# – GEOPROBE SAMPLE LOCATION
- GP–#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects / Engineers / Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

CONNECTICUT DOT

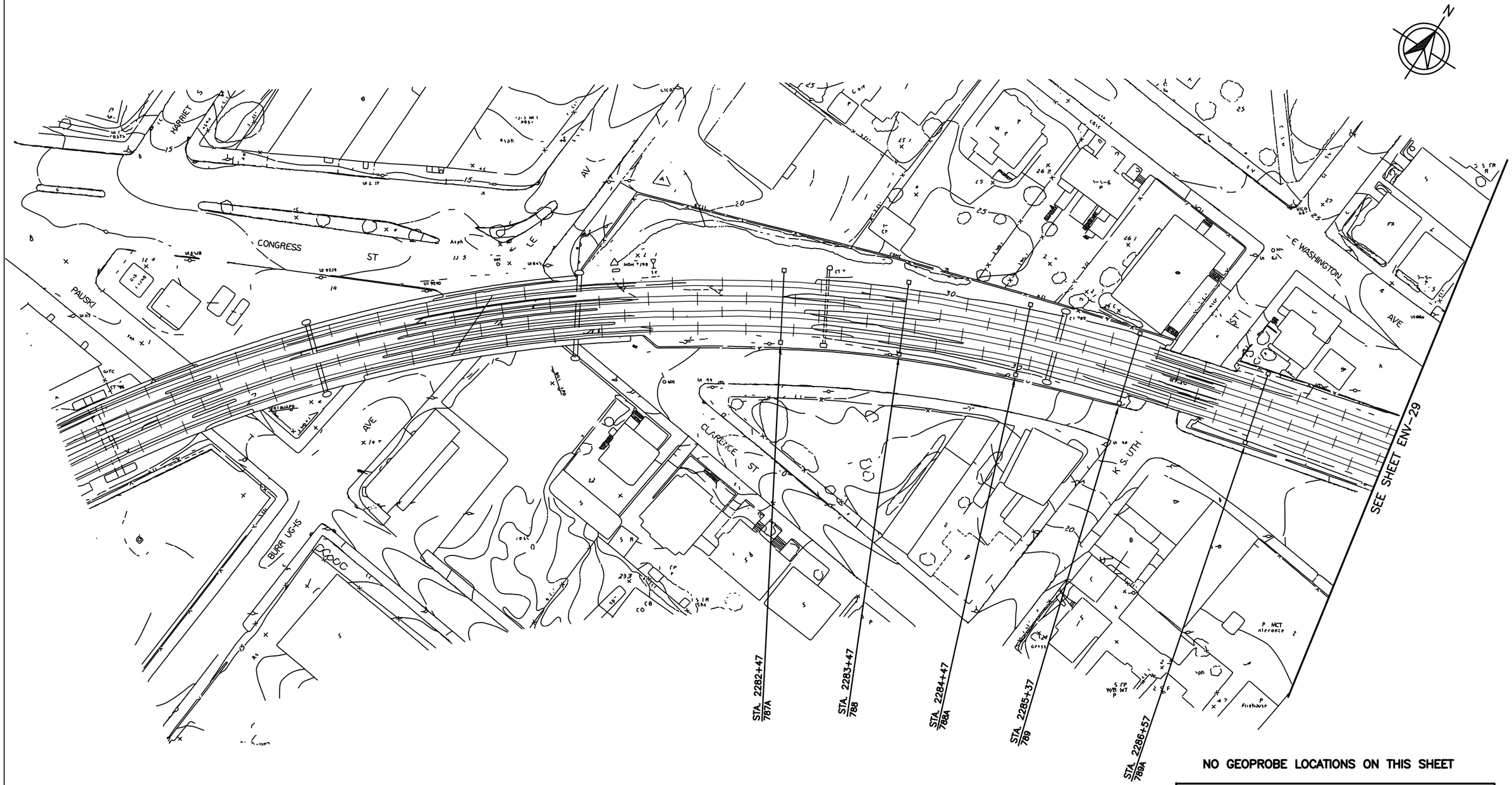
NEW HAVEN LINE – SECTION C–1A
CATENARY REPLACEMENT BETWEEN
WALK BRIDGE AND STRUCTURE 636

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF WESTPORT

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO.
ENV–27
SHEET 27 OF 47

DRAWING FILE: G:\JOBS\19097.10–EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HWY\301–0045\Section C–1A\19097_10hn027C–1A.dwg PLOT DATE: Jul 26,2012–2:09PM



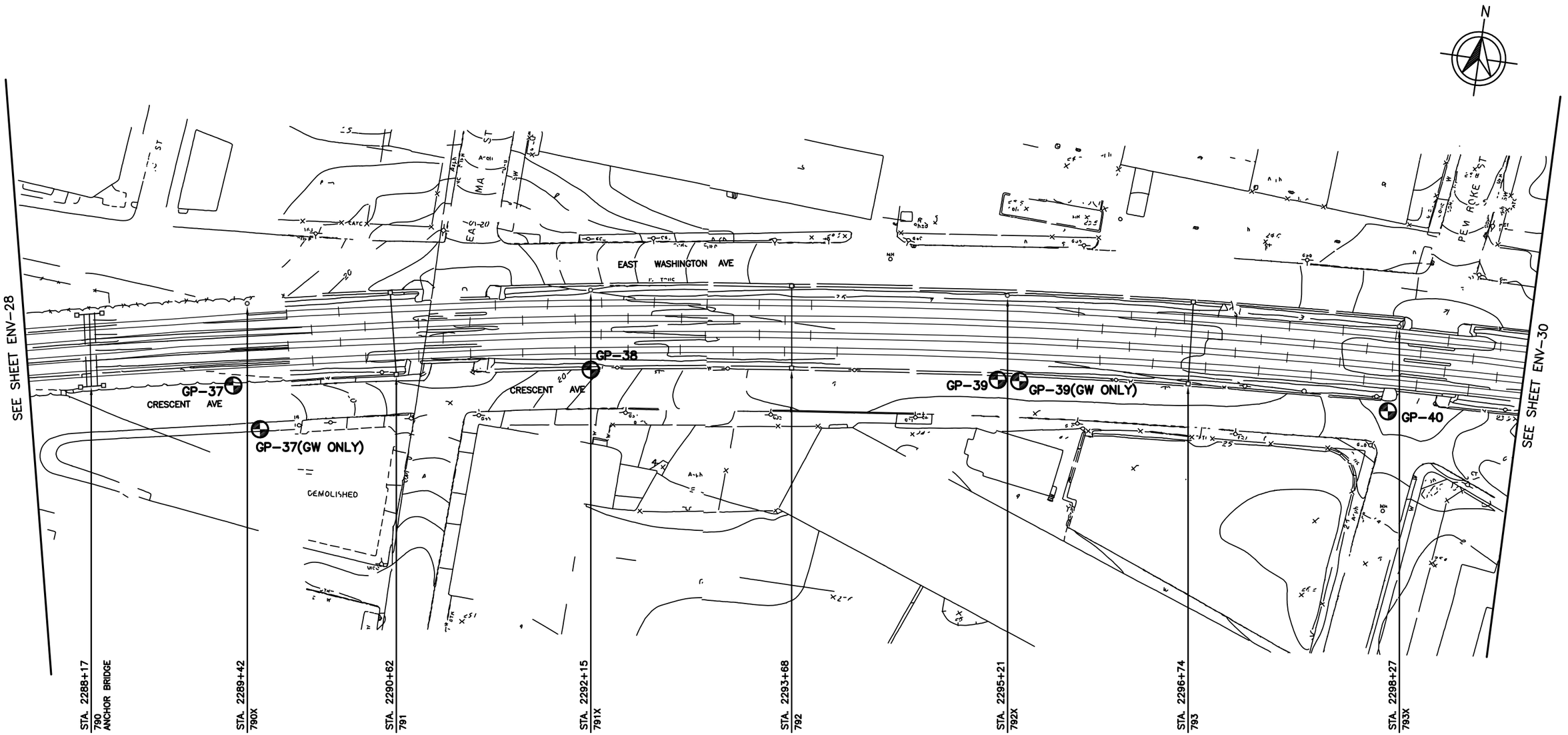
NO GEOPROBE LOCATIONS ON THIS SHEET

LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects / Engineers / Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

CONNECTICUT DOT	SCALE: 1"=80'	PROJ. NO. 19097	
NEW HAVEN LINE – SECTION C-2 CATENARY REPLACEMENT BETWEEN PECK BRIDGE AND STRUCTURE 863	DRAWN BY: MJB	DWG. NO.	ENV-28
TASK 210: PROJECT AREA & SAMPLING LOCATION PLAN IN THE CITY OF BRIDGEPORT	CHK'D BY: DRS		
	DATE: JULY 2012	SHEET 28 OF 47	



LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects / Engineers / Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

CONNECTICUT DOT

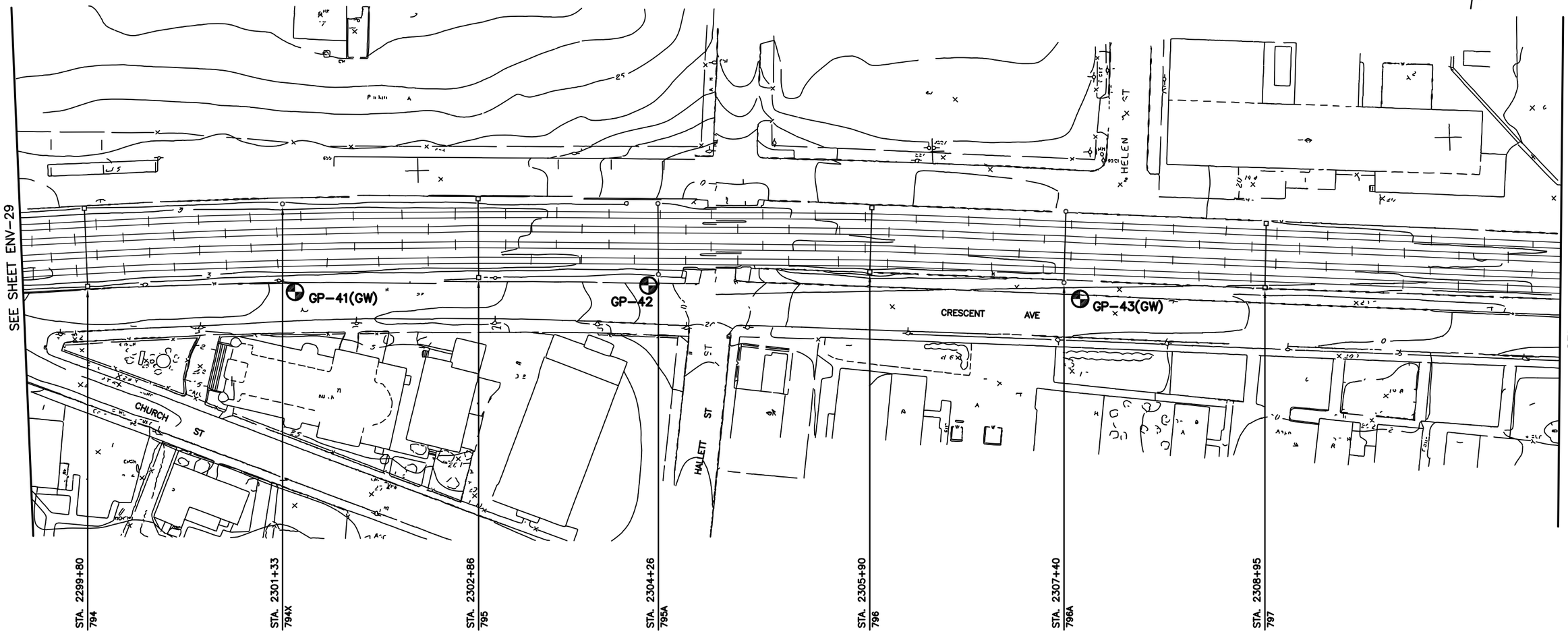
NEW HAVEN LINE – SECTION C-2
CATENARY REPLACEMENT BETWEEN
PECK BRIDGE AND STRUCTURE 863

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE CITY OF BRIDGEPORT

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO.
ENV-29
SHEET 29 OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HWY\301-0045\Section C-2\19097_10hn029C-2.dwg PLOT DATE: Jul 26,2012-2:15PM



LEGEND

- GP–# – GEOPROBE SAMPLE LOCATION
- GP–#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects/Engineers/Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

CONNECTICUT DOT

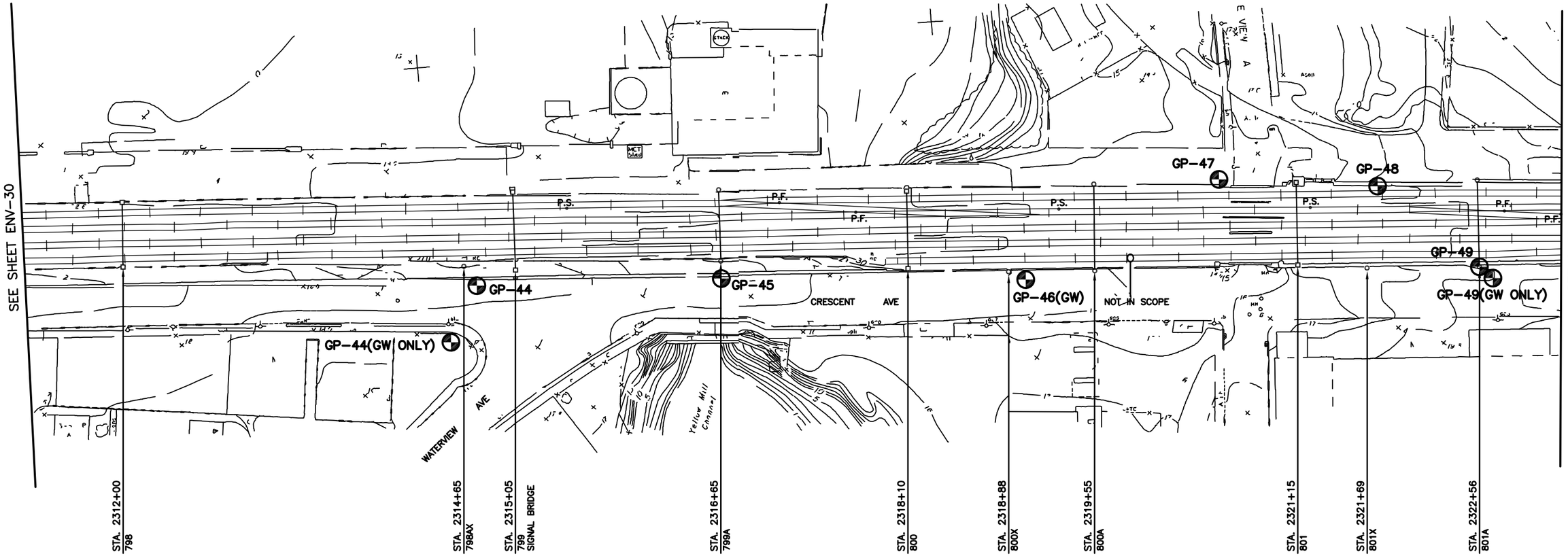
NEW HAVEN LINE – SECTION C–2
CATENARY REPLACEMENT BETWEEN
PECK BRIDGE AND STRUCTURE 863

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE CITY OF BRIDGEPORT

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO.
ENV–30
SHEET 30 OF 47

DRAWING FILE: G:\JOBS\19097.10–EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HIWY\301–0045\Section C–2\19097_10hn030C–2.dwg PLOT DATE: Jul 26,2012–2:16PM



LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects/Engineers/Planners
2080 Silas Deane Highway
Rocky Hill, Connecticut 06067

CONNECTICUT DOT

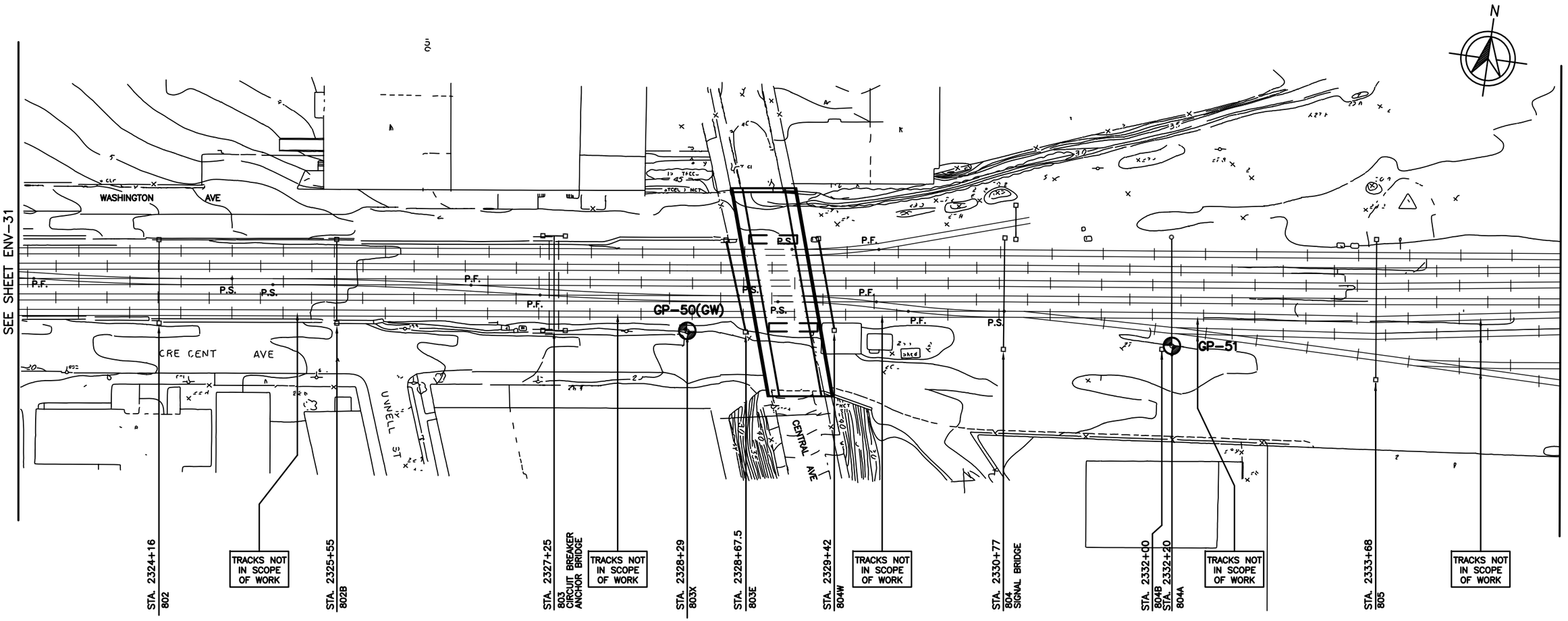
NEW HAVEN LINE – SECTION C-2
CATENARY REPLACEMENT BETWEEN
PECK BRIDGE AND STRUCTURE 863

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE CITY OF BRIDGEPORT

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO. ENV-31
SHEET 31 OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HWY\301-0045\Section C-2\19097_10hn031C-2.dwg PLOT DATE: Jul 26,2012-2:34PM



LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

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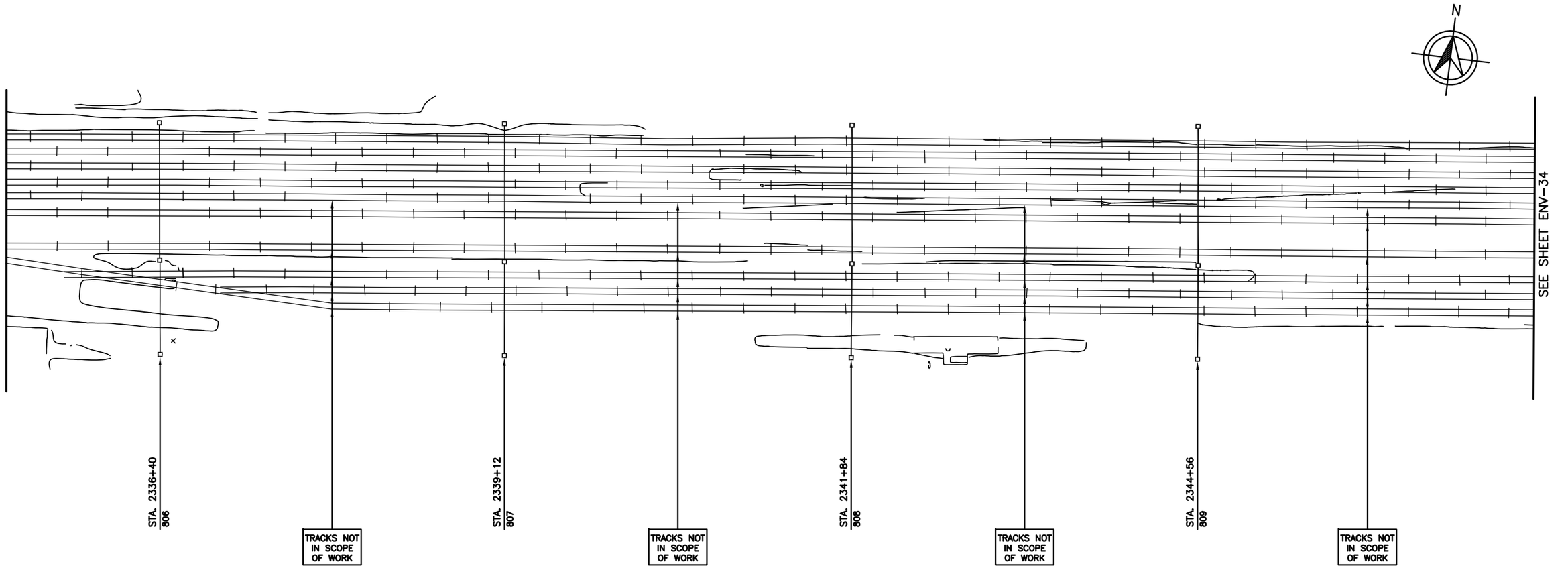
NEW HAVEN LINE – SECTION C-2
CATENARY REPLACEMENT BETWEEN
PECK BRIDGE AND STRUCTURE 863

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE CITY OF BRIDGEPORT

SCALE:	1"=80'
DRAWN BY:	MJB
CHK'D BY:	DRS
DATE:	JULY 2012

PROJ. NO. 19097
DWG. NO. **ENV-32**
SHEET **32** OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HWY\301-0045\Section C-2\19097_10hn032C-2.dwg PLOT DATE: Jul 26,2012-2:38PM



NO GEOPROBE LOCATIONS ON THIS SHEET

LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

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NEW HAVEN LINE – SECTION C-2
CATENARY REPLACEMENT BETWEEN
PECK BRIDGE AND STRUCTURE 863

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE CITY OF BRIDGEPORT

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO.
ENV-33
SHEET 33 OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HWY\301-0045\Section C-2\19097_10hn033C-2.dwg PLOT DATE: Jul 26,2012-2:39PM

SEE SHEET ENV-33

SEE SHEET ENV-35

N

GP-53(GW ONLY)

GP-53

GP-52

BISHOP

NE AVE

STA. 2347+28
810

TRACKS NOT IN SCOPE OF WORK

STA. 2350+00
810A

TRACKS NOT IN SCOPE OF WORK

STA. 2352+72
811

TRACKS NOT IN SCOPE OF WORK

STA. 2354+97
812

STA. 2355+72
812X

TRACKS NOT IN SCOPE OF WORK

STA. 2356+57
812A

STA. 2358+07
813

TRACKS NOT IN SCOPE OF WORK

LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

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NEW HAVEN LINE – SECTION C-2
CATENARY REPLACEMENT BETWEEN
PECK BRIDGE AND STRUCTURE 863

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE CITY OF BRIDGEPORT

SCALE: 1"=80'

DRAWN BY: MJB

CHK'D BY: DRS

DATE: JULY 2012

PROJ. NO. 19097

DWG. NO.
ENV-34

SHEET 34 OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HIWY\301-0045\Section C-2\19097_10hn034C-2.dwg PLOT DATE: Jul 26,2012-2:41PM

SEE SHEET ENV-34

SEE SHEET ENV-36

N

GP-54

GP-54(GW ONLY)

GP-55

GP-55 (GW ONLY)

SEYMOUR ST

P.S.

P.F.

P.F.

P.S.

BRUCE AVE

TAN

AVE

STA. 2359+57
813A

TRACKS NOT IN SCOPE OF WORK

STA. 2361+17
814
CIRCUIT BREAKER ANCHOR BRIDGE

TRACKS NOT IN SCOPE OF WORK

STA. 2362+77
814B

STA. 2364+21
815

TRACKS NOT IN SCOPE OF WORK

STA. 2367+25
816

TRACKS NOT IN SCOPE OF WORK

STA. 2370+29
817

BRIDGEPORT
STRATFORD

LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

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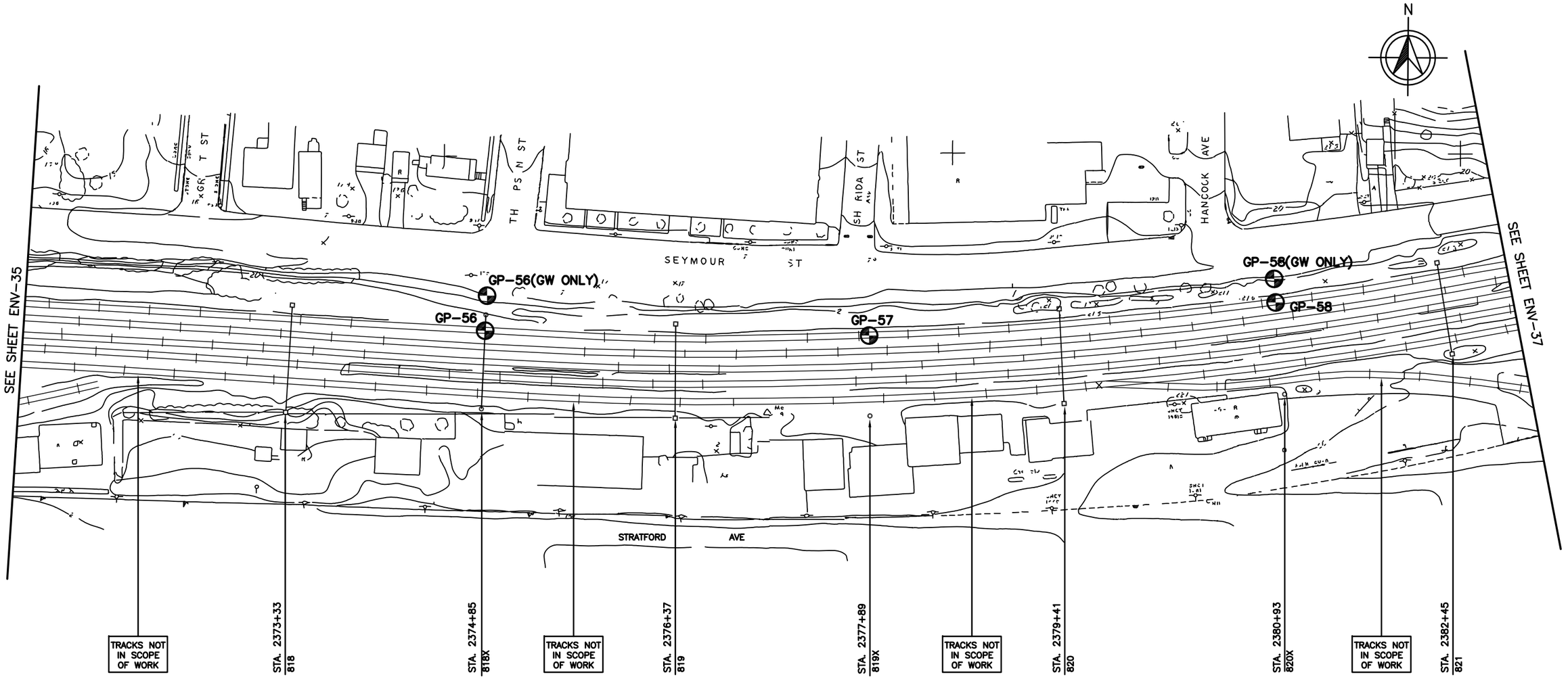
NEW HAVEN LINE – SECTION C-2
CATENARY REPLACEMENT BETWEEN
PECK BRIDGE AND STRUCTURE 863

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE CITY OF BRIDGEPORT/STRATFORD

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO.
ENV-35
SHEET 35 OF 47



LEGEND

- GP–# – GEOPROBE SAMPLE LOCATION
- GP–#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects/Engineers/Planners
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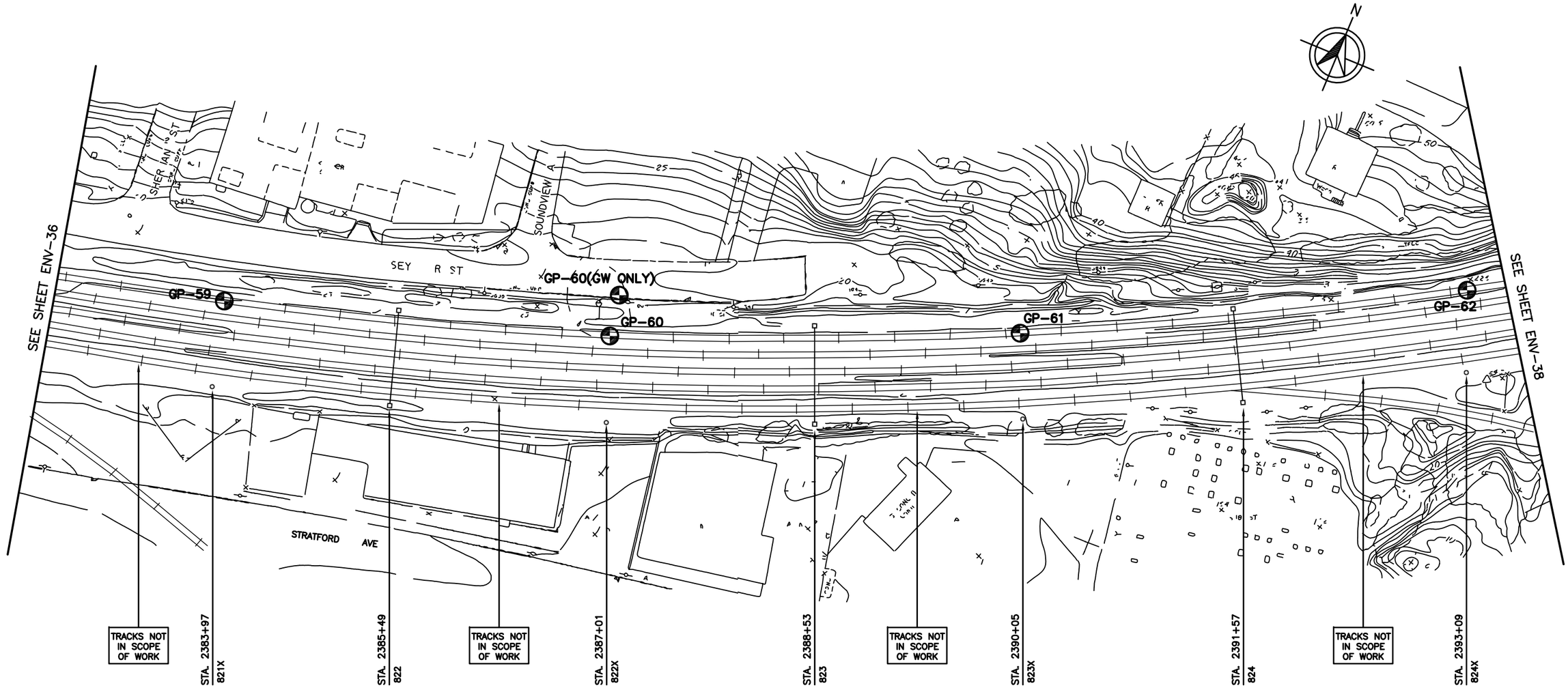
CONNECTICUT DOT

NEW HAVEN LINE – SECTION C–2
CATENARY REPLACEMENT BETWEEN
PECK BRIDGE AND STRUCTURE 863

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF STRATFORD

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO.
ENV–36
SHEET **36** OF 47



LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects/Engineers/Planners
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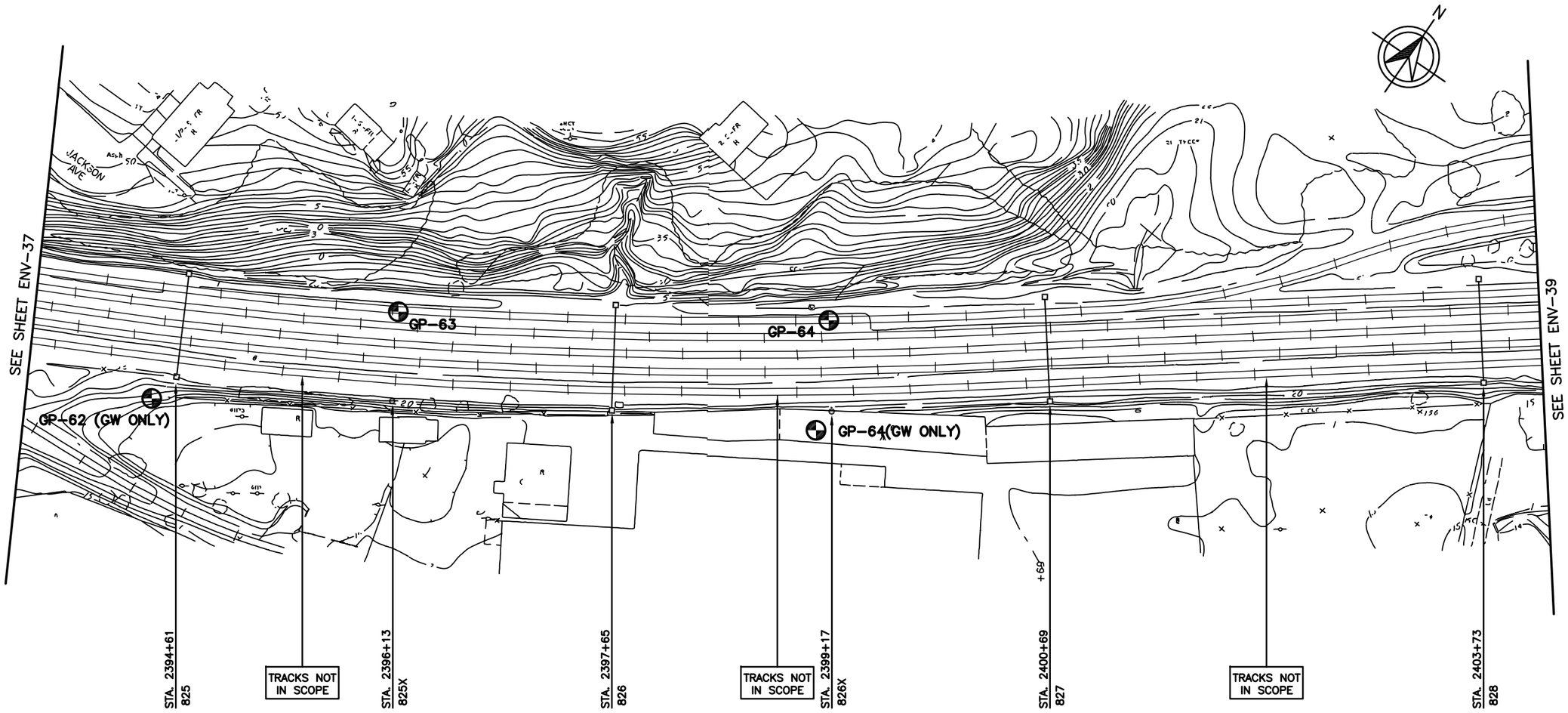
NEW HAVEN LINE – SECTION C-2
CATENARY REPLACEMENT BETWEEN
PECK BRIDGE AND STRUCTURE 863

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF STRATFORD

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO. ENV-37
SHEET 37 OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HWY\301-0045\Section C-2\19097_10hn037C-2.dwg PLOT DATE: Jul 26,2012-3:53PM



LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
Architects/Engineers/Planners
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Rocky Hill, Connecticut 06067

CONNECTICUT DOT

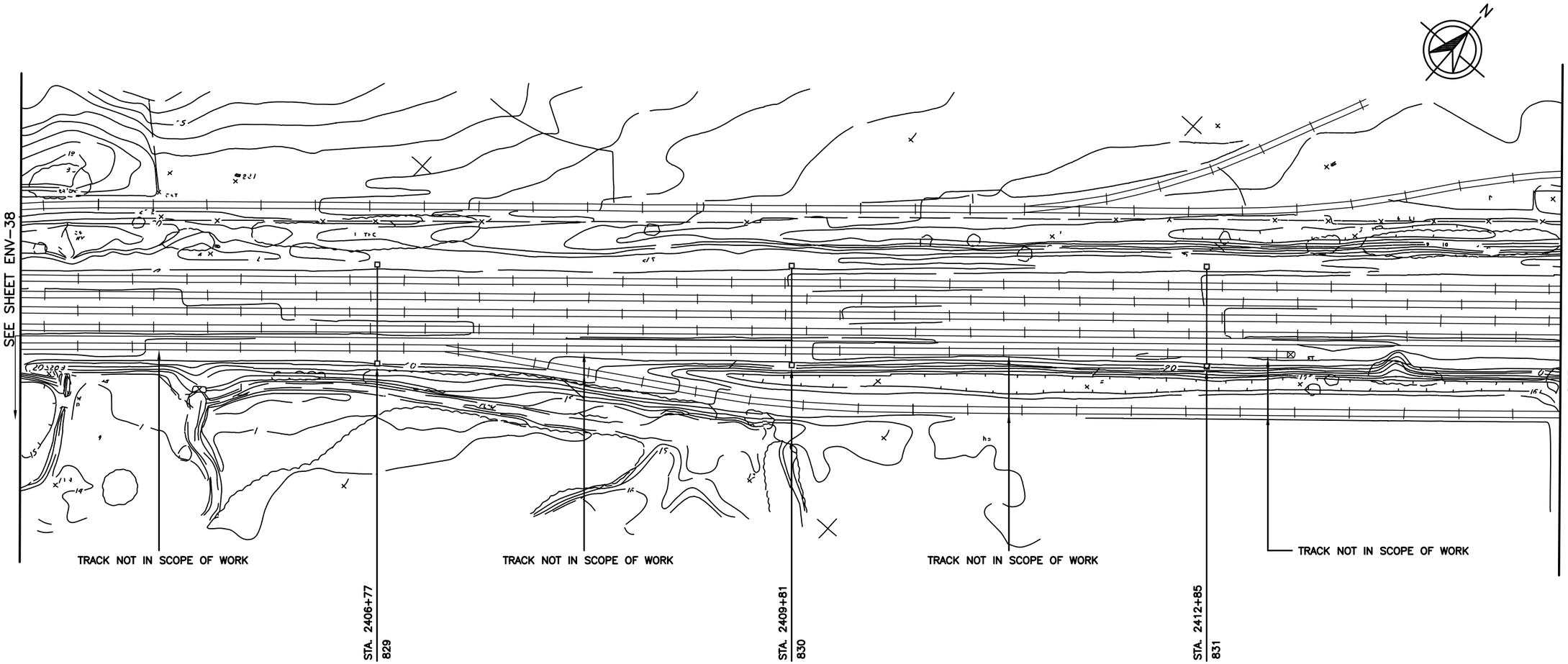
NEW HAVEN LINE – SECTION C-2
CATENARY REPLACEMENT BETWEEN
PECK BRIDGE AND STRUCTURE 863

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF STRATFORD

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO.
ENV-38
SHEET 38 OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HWY\301-0045\Section C-2\19097_10hn036C-2.dwg PLOT DATE: Jul 26,2012-3:55PM



NO GEOPROBE LOCATIONS ON THIS SHEET

LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

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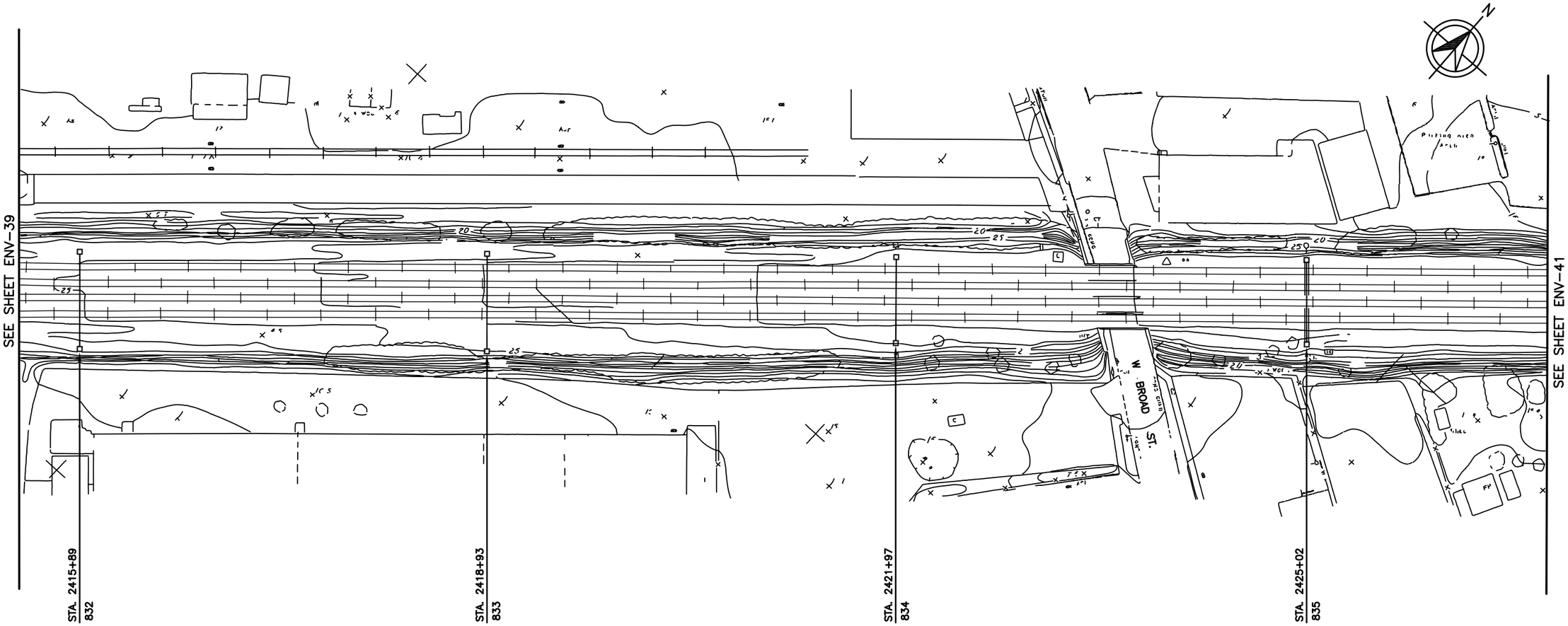
NEW HAVEN LINE – SECTION C-2
CATENARY REPLACEMENT BETWEEN
PECK BRIDGE AND STRUCTURE 863

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF STRATFORD

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO.
ENV-39
SHEET 39 OF 47



NO GEOPROBE LOCATIONS ON THIS SHEET

LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

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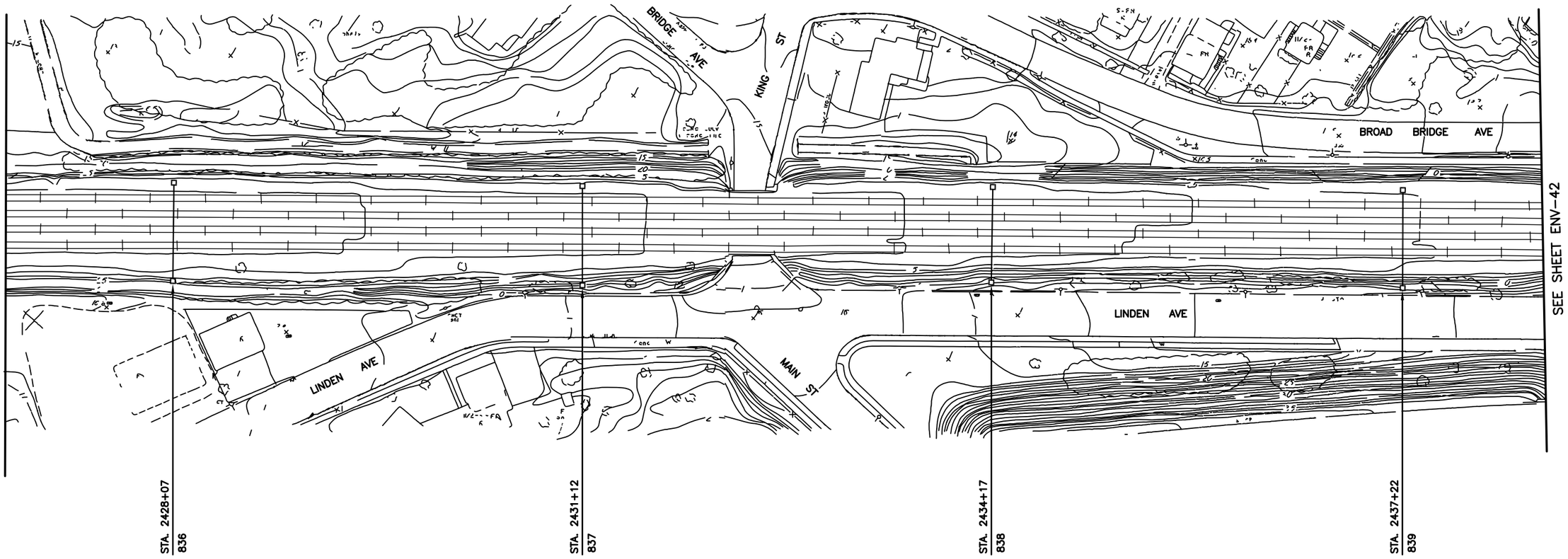
NEW HAVEN LINE – SECTION C-2
CATENARY REPLACEMENT BETWEEN
PECK BRIDGE AND STRUCTURE 863

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF STRATFORD

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO.
ENV-40
SHEET **40** OF 47



NO GEOPROBE LOCATIONS ON THIS SHEET

LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

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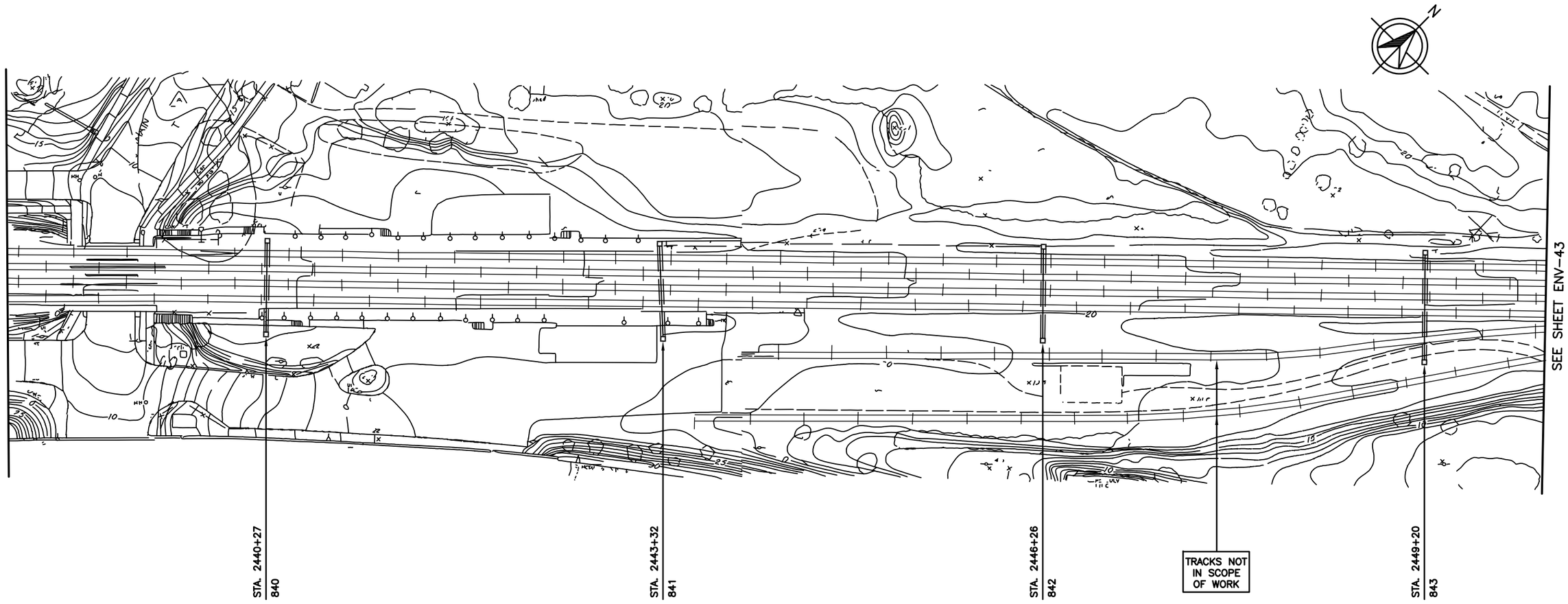
CONNECTICUT DOT

NEW HAVEN LINE – SECTION C-2
CATENARY REPLACEMENT BETWEEN
PECK BRIDGE AND STRUCTURE 863

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF STRATFORD

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO. ENV-41
SHEET 41 OF 47



NO GEOPROBE LOCATIONS ON THIS SHEET

LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

Maguire Group Inc.
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CONNECTICUT DOT

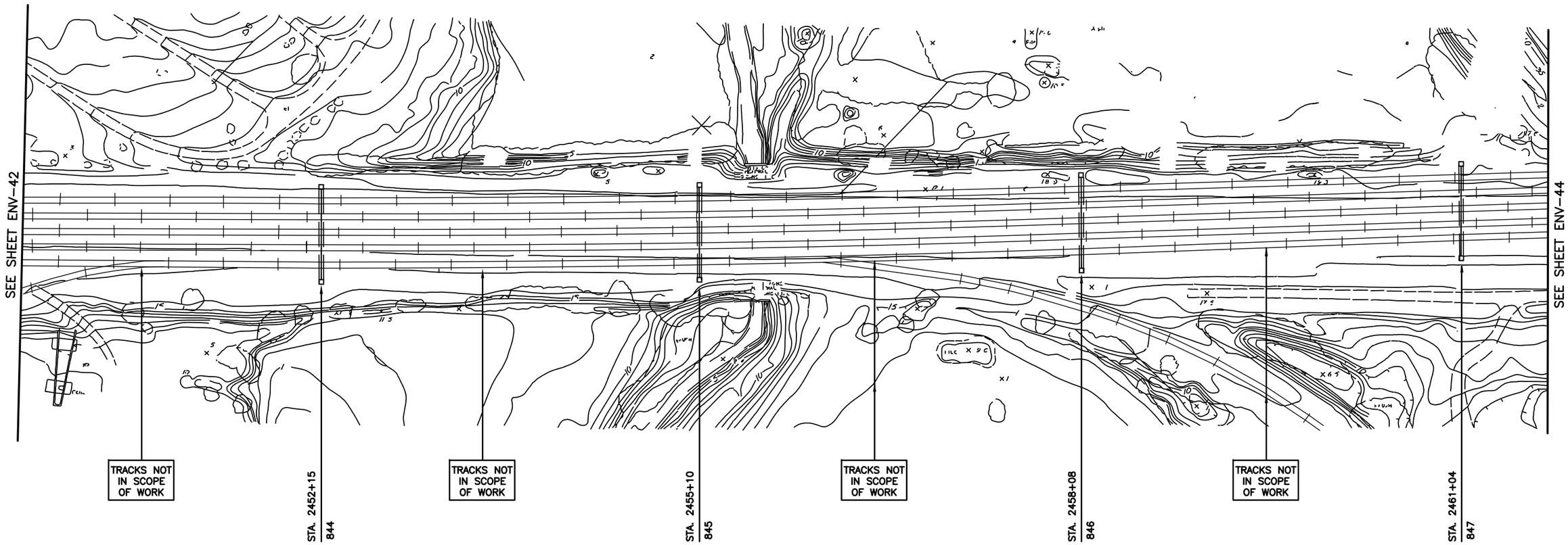
NEW HAVEN LINE – SECTION C-2
CATENARY REPLACEMENT BETWEEN
PECK BRIDGE AND STRUCTURE 863

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF STRATFORD

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO. ENV-42
SHEET 42 OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HWY\301-0045\Section C-2\19097_10hn042C-2.dwg PLOT DATE: Jul 26,2012-4:06PM



NO GEOPROBE LOCATIONS ON THIS SHEET

LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

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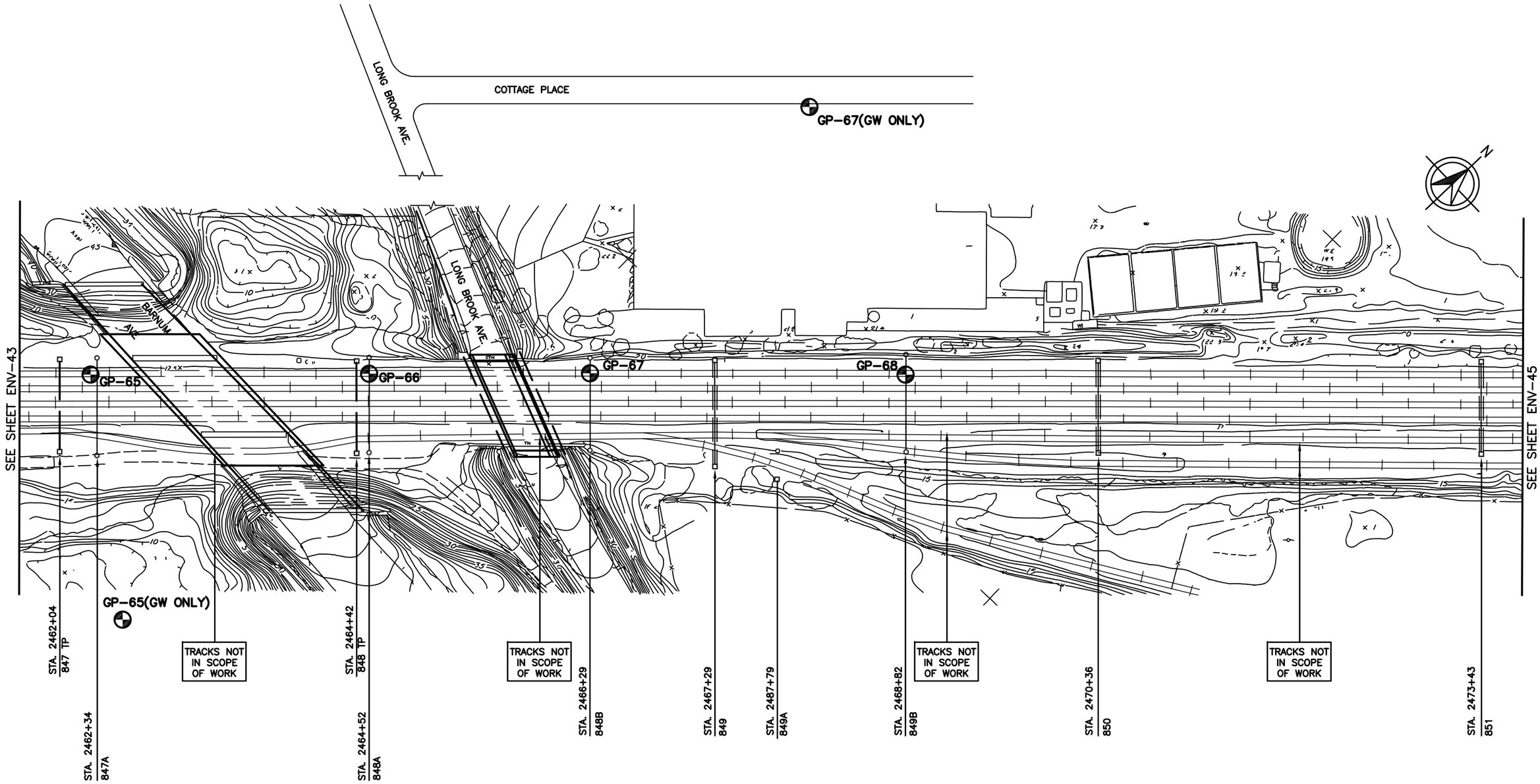
NEW HAVEN LINE – SECTION C-2
CATENARY REPLACEMENT BETWEEN
PECK BRIDGE AND STRUCTURE 863

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF STRATFORD

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO.
ENV-43
SHEET **43** OF 47



LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

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NEW HAVEN LINE – SECTION C-2
CATENARY REPLACEMENT BETWEEN
PECK BRIDGE AND STRUCTURE 863

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF STRATFORD

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO. ENV-44
SHEET 44 OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HWY\301-0045\Section C-2\19097_10hn044C-2.dwg PLOT DATE: Jul 26,2012-4:08PM

SEE SHEET ENV-44

SEE SHEET ENV-46

GP-69

GP-70

GP-69(GW ONLY)

TRACKS NOT IN SCOPE OF WORK

TRACKS NOT IN SCOPE OF WORK

TRACKS NOT IN SCOPE OF WORK

TRACKS NOT IN SCOPE OF WORK

STA. 2476+50
852

STA. 2479+57
853

STA. 2481+11
853X

STA. 2482+64
854

STA. 2484+17
854X

STA. 2485+71
855

LEGEND

GP-# – GEOPROBE SAMPLE LOCATION

GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

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NEW HAVEN LINE – SECTION C-2
CATENARY REPLACEMENT BETWEEN
PECK BRIDGE AND STRUCTURE 863

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF STRATFORD

SCALE: 1"=80'

DRAWN BY: MJB

CHK'D BY: DRS

DATE: JULY 2012

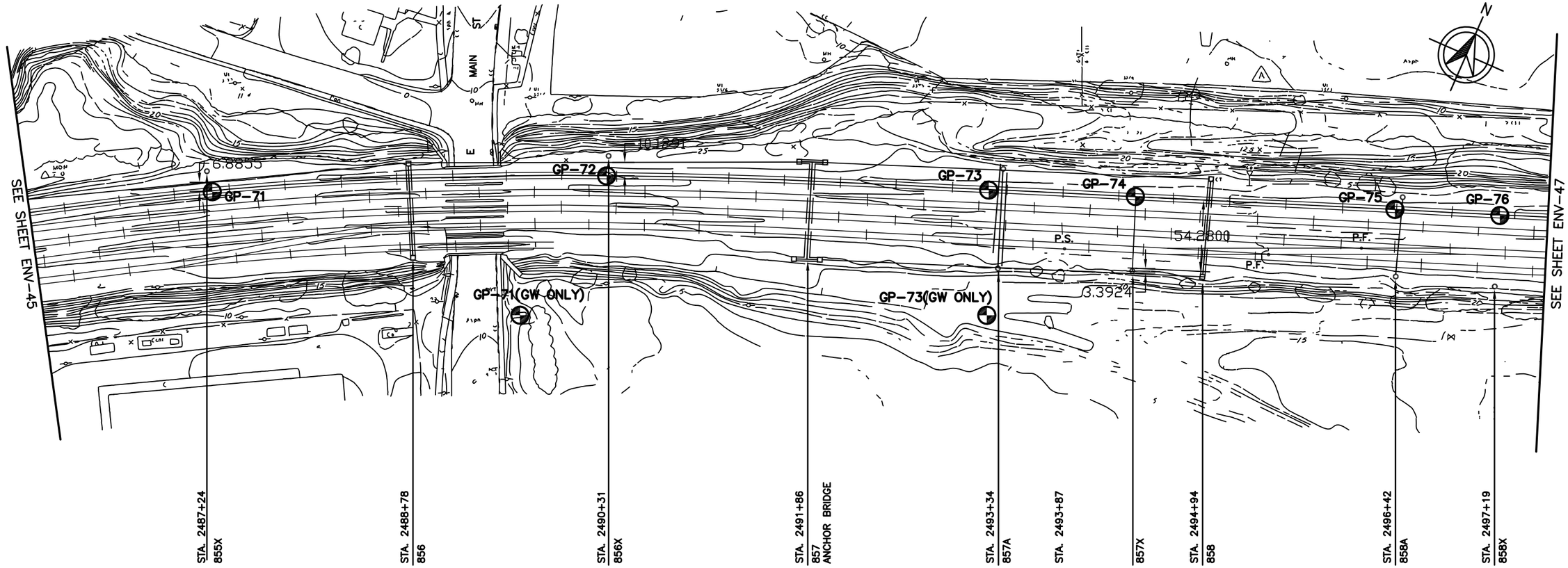
PROJ. NO. 19097

DWG. NO.

ENV-45

SHEET 45 OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HWY\301-0045\Section C-2\19097_10hn045C-2.dwg PLOT DATE: Jul 26,2012-4:10PM



LEGEND

- GP–# – GEOPROBE SAMPLE LOCATION
- GP–#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

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NEW HAVEN LINE – SECTION C–2
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TASK 210: PROJECT AREA &
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IN THE TOWN OF STRATFORD

SCALE: 1"=80'
DRAWN BY: MJB
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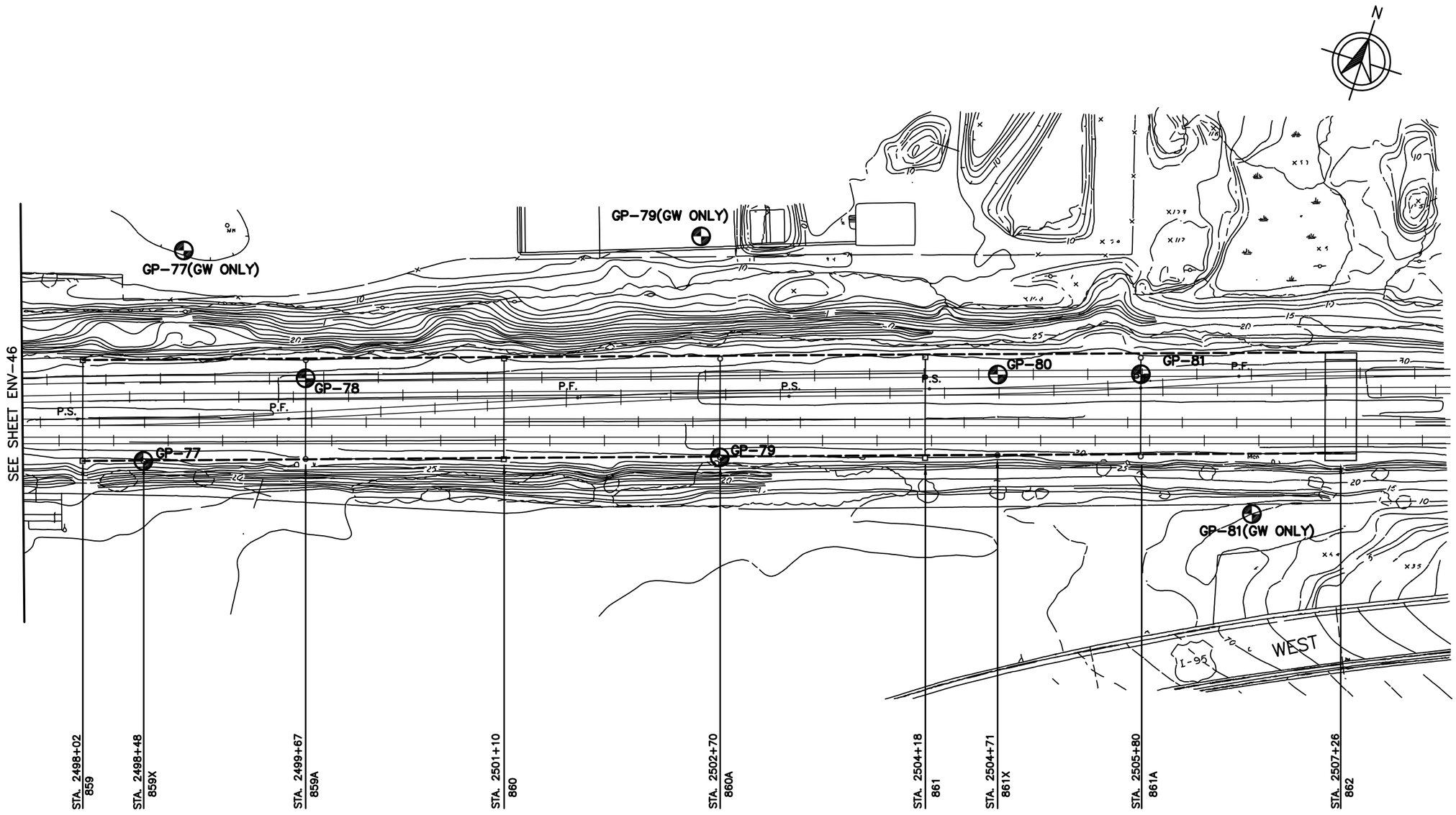
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO.
ENV–46
SHEET 46 OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HWY\301-0045\Section C-2\19097_10hn046C-2.dwg PLOT DATE: Jul 26,2012-4:11PM



LEGEND

- GP-# – GEOPROBE SAMPLE LOCATION
- GP-#(GW) – GEOPROBE SAMPLE AND GROUND WATER SAMPLE LOCATION

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Architects/Engineers/Planners
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Rocky Hill, Connecticut 06067

CONNECTICUT DOT

NEW HAVEN LINE – SECTION C-2
CATENARY REPLACEMENT BETWEEN
PECK BRIDGE AND STRUCTURE 863

TASK 210: PROJECT AREA &
SAMPLING LOCATION PLAN
IN THE TOWN OF STRATFORD

SCALE: 1"=80'
DRAWN BY: MJB
CHK'D BY: DRS
DATE: JULY 2012

PROJ. NO. 19097
DWG. NO.
ENV-47
SHEET **47** OF 47

DRAWING FILE: G:\JOBS\19097.10-EOC4_4191_MNRR_Catenary_C1a_C2_210\ACAD\HIWY\301-0045\Section C-2\19097_10hn047C-2.dwg PLOT DATE: Jul 26,2012-4:12PM

TABLES

TABLE 1(a) - Results of Geoprobe® Boring Soil Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Boring I.D.: Sample Depth: GW Classification: Sample Date:	GP-1 1'-3' GB 5/14/12	GP-2 1'-3' GB 5/14/12	GP-3 1'-3' GB 5/14/12	GP-4 2'-4' GB 5/14/12	CTDEEP PMC GB Groundwater Area	CTDEEP DEC Residential/ Commercial & Industrial
CT ETPH - (mg/kg)	490	400	ND	ND	2,500 mg/kg	500/2,500 mg/kg
VOCs - Method 8260 (mg/kg)	ND	ND	ND	ND		
SVOCs - Method 8270 (mg/kg)						
Acenaphthylene	1.0	1.5	ND	ND	84 mg/kg	1,000/2,500 mg/kg
Anthracene	0.68	1.3	ND	ND	400 mg/kg	1,000/2,500 mg/kg
Benzo(a)anthracene	***2.3***	***6.4***	ND	ND	**1 mg/kg**	**1**/7.8 mg/kg
Benzo(a)pyrene	***2.6***	***6.4***	0.3	ND	**1 mg/kg**	**1/1 mg/kg**
Benzo(b)fluoranthene	***5.0***	***12.0***	0.38	0.25	**1 mg/kg**	**1/7.8 mg/kg**
Benzo(g,h,i)perylene	1.3	1.7	ND	ND	42 mg/kg	1,000/2,500 mg/kg
Benzo(k)fluoranthene	1.0	***3.1***	ND	ND	**1 mg/kg**	8.4/78 mg/kg
Bis(2-ethylhexyphthalate)	0.69	ND	ND	ND	11 mg/kg	44/410 mg/kg
Carbazole	ND	0.56	ND	ND	1 mg/kg	31/290 mg/kg
Chrysene	***2.9***	***7.7***	ND	ND	**1 mg/kg**	84/780 mg/kg
Dibenz(a,h)anthracene	ND	0.74	ND	ND	1 mg/kg	1/1 mg/kg
Fluoranthene	4.9	10.0	ND	ND	56 mg/kg	1,000/2,500 mg/kg
Indeno(1,2,3-cd)pyrene	***1.2***	***2.0***	ND	ND	**1 mg/kg**	**1**/7.8 mg/kg
Naphthalene	ND	0.35	ND	ND	56 mg/kg	1,000/2,500 mg/kg
Phenanthrene	1.9	2.7	ND	ND	40 mg/kg	1,000/2,500 mg/kg
Pyrene	4.3	9.2	ND	ND	40 mg/kg	1,000/2,500 mg/kg
Total SVOCs	29.77	65.65	0.68	0.25		
PCBs – Method 8082 (mg/kg)					Not Applicable	
PCB-1260	ND	0.82	ND	ND		1/10 mg/kg
Total PCBs	ND	0.82	ND	ND		1/10 mg/kg
Pesticides – Method 8081A (mg/kg)	ND	ND	ND	ND		
Herbicides – Method 8151 (mg/kg)	ND	ND	ND	ND		
Total RCRA 8 Metals – mg/kg					Not Applicable	
Arsenic	3.87	***26.7***	1.43	2.18		**10/10 mg/kg**
Barium	90.8	66.8	70.7	68.2		4,700/140,000 mg/kg
Cadmium	0.44	ND	ND	ND		34/1,000 mg/kg
Chromium	17.0	26.4	18.8	19.5		None Established
Lead	305	166	9.18	10.9		500/1,000 mg/kg
Mercury	0.27	0.3	ND	ND		20/610 mg/kg
SPLP Metals – mg/L						Not Applicable
Arsenic	0.015	0.012	ND	ND	0.5 mg/L	
Barium	0.243	0.035	0.031	0.042	10.0 mg/L	
Chromium	0.027	ND	ND	ND	0.5 mg/L	
Lead	***1.47***	0.09	ND	0.011	**0.15 mg/L**	
Mercury	0.0011	ND	ND	ND	0.02 mg/L	

ND Not Detected at a concentration exceeding the laboratory's detection limit (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

TABLE 1(b) - Results of Geoprobe® Boring Soil Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Boring I.D.: Sample Depth: GW Classification: Sample Date:	GP-5 1'-3' GB 5/14/12	GP-6 1'-3' GB 5/15/12	GP-7 2'-4' GB 5/14/12	GP-8 2'-4' GB 5/14/12	CTDEEP PMC GB Groundwater Area	CTDEEP DEC Residential/ Commercial & Industrial
CT ETPH - (mg/kg)	ND	330	***900***	***750***	2,500 mg/kg	**500**/2,500 mg/kg
VOCs - Method 8260 (mg/kg)						
Toluene	ND	0.0073	ND	ND	67 mg/kg	500/1,000 mg/kg
SVOCs - Method 8270 (mg/kg)						
Acenaphthylene	ND	ND	3.2	3.8	84 mg/kg	1,000/2,500 mg/kg
Anthracene	ND	ND	3.5	3.5	400 mg/kg	1,000/2,500 mg/kg
Benzo(a)anthracene	ND	0.95	***12.0***	***13.0***	**1 mg/kg**	**1/7.8 mg/kg**
Benzo(a)pyrene	ND	***1.1***	***14.0***	***12.0***	**1 mg/kg**	**1/1 mg/kg**
Benzo(b)fluoranthene	ND	***2.0***	***25.0***	***26.0***	**1 mg/kg**	**1/7.8 mg/kg**
Benzo(g,h,i)perylene	ND	0.73	4.2	3.6	42 mg/kg	1,000/2,500 mg/kg
Benzo(k)fluoranthene	ND	0.46	***7.1***	***7.3***	**1 mg/kg**	8.4/78 mg/kg
Carbazole	ND	ND	***1.6***	***ND****	**1 mg/kg**	31/290 mg/kg
Chrysene	ND	***1.2***	***16.0***	***16.0***	**1 mg/kg**	84/780 mg/kg
Dibenz(a,h)anthracene	ND	ND	***1.7***	***1.5***	**1 mg/kg**	**1/1 mg/kg**
Fluoranthene	ND	1.5	20.0	18.0	56 mg/kg	1,000/2,500 mg/kg
Indeno(1,2,3-cd)pyrene	ND	0.64	***4.8***	***4.0***	**1 mg/kg**	**1**/7.8 mg/kg
Naphthalene	ND	ND	0.69	ND	56 mg/kg	1,000/2,500 mg/kg
Phenanthrene	ND	0.7	6.5	5.8	40 mg/kg	1,000/2,500 mg/kg
Pyrene	ND	1.3	18.0	17.0	40 mg/kg	1,000/2,500 mg/kg
Total SVOCs	ND	10.58	138.29	131.5		
PCBs – Method 8082 (mg/kg)					Not Applicable	
PCB-1260	ND	ND	0.7	***1.2***		**1**/10 mg/kg
Total PCBs	ND	ND	0.7	***1.2***		**1**/10 mg/kg
Pesticides – Method 8081A (mg/kg)	ND	ND	ND	*		
Herbicides – Method 8151 (mg/kg)	ND	ND	ND	ND		
Total RCRA 8 Metals – mg/kg					Not Applicable	
Arsenic	1.54	4.17	***32.3***	***39.5***		**10/10 mg/kg**
Barium	53.8	50.9	64.0	139		4,700/140,000 mg/kg
Chromium	16.3	18.4	28.9	40.1		None Established
Lead	5.5	90.3	189	300		500/1,000 mg/kg
Mercury	ND	0.19	0.41	0.59		20/610 mg/kg
SPLP Metals – mg/L						Not Applicable
Arsenic	ND	0.016	0.011	0.033	0.5 mg/L	
Barium	0.052	0.157	0.027	0.057	10.0 mg/L	
Chromium	0.01	0.026	ND	0.015	0.5 mg/L	
Lead	ND	***0.412***	0.085	***0.28***	**0.15 mg/L**	
Mercury	ND	0.0007	ND	0.0006	0.02 mg/L	

ND Not Detected at a concentration exceeding the laboratory's detection limit (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

* The detection limit for the pesticide Dieldrin was 0.25 mg/kg, which exceeds its GB PMC of 0.007 mg/kg and RDEC of 0.036 mg/kg.

** The detection limit for Carbazole was 2.8 mg/kg, which exceeds its GB PMC of 1 mg/kg.

TABLE 1(c) - Results of Geoprobe® Boring Soil Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Boring I.D.: Sample Depth: GW Classification: Sample Date:	GP-9 2'-4' GA 5/29/12	GP-10 1'-3' GA 5/29/12	GP-11 1'-3' GA 5/29/12	GP-12 1'-3' GA 5/29/12	CTDEEP PMC GA Groundwater Area	CTDEEP DEC Residential/ Commercial & Industrial
CT ETPH - (mg/kg)	92	180	160	120	500 mg/kg	500/2,500 mg/kg
VOCs - Method 8260 (mg/kg)	ND	ND	ND	ND		
SVOCs Method 8270 (mg/kg)						
Acenaphthylene	ND	0.67	0.59	0.28	8.4 mg/kg	1,000/2,500 mg/kg
Anthracene	ND	0.59	0.5	ND	40 mg/kg	1,000/2,500 mg/kg
Benzo(a)anthracene	1.0	***3.3***	***1.8***	0.78	**1 mg/kg**	**1**/7.8 mg/kg
Benzo(a)pyrene	0.92	***3.2***	***1.6***	0.65	**1 mg/kg**	**1/1 mg/kg**
Benzo(b)fluoranthene	***1.8***	***5.1***	***3.6***	***1.3***	**1 mg/kg**	**1**/7.8 mg/kg
Benzo(g,h,i)perylene	0.65	1.7	0.77	0.3	4.2 mg/kg	1,000/2,500 mg/kg
Benzo(k)fluoranthene	0.6	***1.6***	1.0	0.37	**1 mg/kg**	8.4/78 mg/kg
Bis(2-ethylhexyphthalate)	ND	0.39	ND	ND	1 mg/kg	44/410 mg/kg
Chrysene	***1.6***	***3.4***	***2.5***	0.92	**1 mg/kg**	84/780 mg/kg
Dibenz(a,h)anthracene	ND	0.66	0.35	ND	1 mg/kg	1/1 mg/kg
Dibenzofuran	ND	ND	0.35	ND	1 mg/kg	270/2,500 mg/kg
Fluoranthene	1.9	4.5	3.3	1.1	5.6 mg/kg	1,000/2,500 mg/kg
Indeno(1,2,3-cd)pyrene	0.59	***1.7***	0.8	0.33	**1 mg/kg**	**1**/7.8 mg/kg
2-Methylnaphthalene	0.25	ND	***1.0***	0.38	**0.98 mg/kg**	474/2 500 mg/kg
Naphthalene	ND	ND	0.72	0.33	5.6 mg/kg	1,000/2,500 mg/kg
Phenanthrene	1.3	2.2	2.4	0.66	4 mg/kg	1,000/2,500 mg/kg
Pyrene	1.7	4.0	2.7	1.1	4 mg/kg	1,000/2,500 mg/kg
Total SVOCs	12.31	33.01	23.98	8.5		
PCBs – Method 8082 (mg/kg)	ND	ND	ND	ND	Not Applicable	1/10 mg/kg
Pesticides – Method 8081A (mg/kg)						
4,4-DDT	ND	ND	0.038	ND	None Established	1.8/17 mg/kg
Herbicides – Method 8151 (mg/kg)	ND	ND	ND	ND		
Total RCRA 8 Metals – mg/kg					Not Applicable	
Arsenic	7.81	3.93	***51.0***	***19.2***		**10/10 mg/kg**
Barium	79.6	110	52.1	111		4,700/140,000 mg/kg
Cadmium	ND	ND	1.21	1.42		34/1,000 mg/kg
Chromium	13.4	36.5	89.1	37.1		None Established
Lead	142	144	***4,950***	***3,130***		**500/1,000 mg/kg**
Mercury	1.01	1.34	0.57	0.25		20/610 mg/kg
SPLP Metals – mg/L						Not Applicable
Arsenic	ND	ND	ND	0.014	0.05 mg/L	
Barium	0.051	0.021	0.013	0.053	1.0 mg/L	
Chromium	ND	ND	ND	***0.063***	**0.05 mg/L**	
Lead	ND	0.011	***0.147***	***1.5***	**0.015 mg/L**	
Mercury	ND	ND	ND	0.0007	0.002 mg/L	
TCLP Lead – mg/L	NA	NA	***17.4***	***5.06***	**0.015 mg/L**	**Hazardous Limit – 5.0 mg/L**

ND Not Detected at a concentration exceeding the laboratory's detection limit (see laboratory reports for compound specific detection limits)

NA Not analyzed.

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

TABLE 1(d) - Results of Geoprobe® Boring Soil Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Boring I.D.: Sample Depth: GW Classification: Sample Date:	GP-13 1'-3' GA 5/29/12	GP-14 1'-3' GA 5/29/12	GP-15 1'-3' GA 5/29/12	GP-16 1'-3' GA 5/30/12	CTDEEP PMC GA Groundwater Area	CTDEEP DEC Residential/ Commercial & Industrial
CT ETPH - (mg/kg)	ND	390	58	370	500 mg/kg	500/2,500 mg/kg
VOCs - Method 8260 (mg/kg)	ND	ND	ND	ND		
SVOCs - Method 8270 (mg/kg)						
Acenaphthylene	ND	2.0	0.36	0.44	8.4 mg/kg	1,000/2,500 mg/kg
Anthracene	ND	1.5	ND	0.28	40 mg/kg	1,000/2,500 mg/kg
Benzo(a)anthracene	ND	***6.1***	***1.2***	***1.7***	**1 mg/kg**	**1**/7.8 mg/kg
Benzo(a)pyrene	ND	***5.3***	***1.1***	***1.5***	**1 mg/kg**	**1/1 mg/kg**
Benzo(b)fluoranthene	0.34	***11.0***	***2.4***	***3.2***	**1 mg/kg**	**1/7.8 mg/kg**
Benzo(g,h,i)perylene	ND	3.4	0.8	1.3	4.2 mg/kg	1,000/2,500 mg/kg
Benzo(k)fluoranthene	ND	***3.4***	0.57	0.88	**1 mg/kg**	8.4/78 mg/kg
Carbazole	ND	0.74	ND	ND	1 mg/kg	31/290 mg/kg
Chrysene	0.35	***8.1***	***1.5***	***2.8***	**1 mg/kg**	84/780 mg/kg
Dibenz(a,h)anthracene	ND	***1.5***	0.31	0.56	**1 mg/kg**	**1/1 mg/kg**
Dibenzofuran	ND	0.32	ND	0.39	1 mg/kg	270/2,500 mg/kg
Fluoranthene	0.32	***11.0***	1.9	3.0	**5.6 mg/kg**	1,000/2,500 mg/kg
Indeno(1,2,3-cd)pyrene	ND	***3.7***	0.78	***1.2***	**1 mg/kg**	**1**/7.8 mg/kg
2-Methylnaphthalene	ND	0.67	ND	***1.2***	0.98 mg/kg	474/2,500 mg/kg
Naphthalene	ND	0.53	ND	1.2	5.6 mg/kg	1,000/2,500 mg/kg
Phenanthrene	0.33	3.3	0.81	1.9	4 mg/kg	1,000/2,500 mg/kg
Pyrene	0.32	***11.0***	1.6	2.7	**4 mg/kg**	1,000/2,500 mg/kg
Total SVOCs	1.66	73.56	13.33	24.25		
PCBs – Method 8082 (mg/kg)	ND	ND	ND	ND	Not Applicable	1/10 mg/kg
Pesticides – Method 8081A (mg/kg)						
4,4-DDT	ND	0.085	ND	ND	None Established	1.8/17 mg/kg
Herbicides – Method 8151 (mg/kg)	ND	ND	ND	ND		
Total RCRA 8 Metals – mg/kg					Not Applicable	
Arsenic	8.91	***114***	***19.1***	***42.5***		**10/10 mg/kg**
Barium	36.3	77.9	40.7	123		4,700/140,000 mg/kg
Cadmium	ND	0.77	ND	ND		34/1,000 mg/kg
Chromium	122	112	22.7	13.8		None Established
Lead	***1,880***	***5,730***	99.2	192		**500/1,000 mg/kg**
Mercury	0.14	0.83	0.05	ND		20/610 mg/kg
Selenium	ND	1.7	ND	ND		340/10,000 mg/kg
SPLP Metals – mg/L						Not Applicable
Barium	0.042	0.056	0.01	0.185	1.0 mg/L	
Chromium	0.025	ND	ND	ND	0.05 mg/L	
Lead	***0.444***	***0.15***	ND	ND	**0.015 mg/L**	
TCLP Lead – mg/L	3.96	***14.8***	NA	NA	**0.015 mg/L**	**Hazardous Limit – 5.0 mg/L**

ND Not Detected at a concentration exceeding the laboratory's detection limit (see laboratory reports for compound specific detection limits)

NA – Not analyzed.

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

TABLE 1(e) - Results of Geoprobe® Boring Soil Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Boring I.D.: Sample Depth: GW Classification: Sample Date:	GP-17 1'-3' GA 5/30/12	GP-18 1'-3' GA 5/30/12	GP-19 1'-3' GA 5/30/12	GP-20 1'-3' GA 5/29/12	CTDEEP PMC GA Groundwater Area	CTDEEP DEC Residential/ Commercial & Industrial
CT ETPH - (mg/kg)	76	480	190	***910***	**500 mg/kg**	**500**/2,500 mg/kg
VOCs - Method 8260 (mg/kg)	ND	ND	ND	ND		
SVOCs - Method 8270 (mg/kg)						
Acenaphthylene	ND	1.1	0.33	4.5	8.4 mg/kg	1,000/2,500 mg/kg
Anthracene	ND	0.71	ND	3.1	40 mg/kg	1,000/2,500 mg/kg
Benzo(a)anthracene	***1.2***	***3.9***	***1.2***	***13.0***	**1 mg/kg**	**1/7.8 mg/kg**
Benzo(a)pyrene	1.0	***2.9***	0.92	***11.0***	**1 mg/kg**	**1/1 mg/kg**
Benzo(b)fluoranthene	***1.9***	***4.9***	***1.8***	***19.0***	**1 mg/kg**	**1/7.8 mg/kg**
Benzo(g,h,i)perylene	0.84	1.9	0.71	***4.9***	**4.2 mg/kg**	1,000/2,500 mg/kg
Benzo(k)fluoranthene	0.63	***1.1***	0.48	***6.0***	**1 mg/kg**	8.4/78 mg/kg
Carbazole	ND	ND	ND	***ND****	**1 mg/kg**	31/290 mg/kg
Chrysene	***1.5***	***5.7***	***2.2***	***15.0***	**1 mg/kg**	84/780 mg/kg
Dibenz(a,h)anthracene	0.31	0.74	ND	***1.8***	**1 mg/kg**	**1/1 mg/kg**
Dibenzofuran	ND	0.44	ND	***ND****	**1 mg/kg**	270/2,500 mg/kg
Fluoranthene	2.3	4.9	1.7	***25.0***	**5.6 mg/kg**	1,000/2,500 mg/kg
Indeno(1,2,3-cd)pyrene	0.77	***1.7***	0.61	***5.1***	**1 mg/kg**	**1**/7.8 mg/kg
2-Methylnaphthalene	ND	***1.3***	0.77	ND	**0.98 mg/kg**	474/2,500 mg/kg
Naphthalene	ND	1.5	0.71	1.7	5.6 mg/kg	1,000/2,500 mg/kg
Phenanthrene	0.95	3.9	1.6	***7.5***	**4 mg/kg**	1,000/2,500 mg/kg
Pyrene	1.9	***5.6***	1.7	***25.0***	**4 mg/kg**	1,000/2,500 mg/kg
Total SVOCs	13.3	42.29	14.73	142.6		
PCBs – Method 8082 (mg/kg)	ND	ND	ND	ND	Not Applicable	1/10 mg/kg
Pesticides – Method 8081A (mg/kg)						
4,4-DDT	ND	ND	ND	0.11	None Established	1.8/17 mg/kg
Herbicides – Method 8151 (mg/kg)	ND	ND	ND	ND		
Total RCRA 8 Metals – mg/kg					Not Applicable	
Arsenic	***17.8***	***17.9***	***25.0***	***33.9***		**10/10 mg/kg**
Barium	47.5	70.9	70.4	42.8		4,700/140,000 mg/kg
Cadmium	ND	ND	ND	0.85		34/1,000 mg/kg
Chromium	15.1	14.4	11.3	145		None Established
Lead	111	483	318	***20,700***		**500/1,000 mg/kg**
Mercury	ND	0.19	0.19	0.3		20/610 mg/kg
SPLP Metals – mg/L						Not Applicable
Arsenic	ND	0.005	0.007	0.005	0.05 mg/L	
Barium	0.019	0.011	ND	ND	1.0 mg/L	
Chromium	ND	ND	ND	0.038	0.05 mg/L	
Lead	***0.019***	***0.103***	***0.089***	***1.15***	**0.015 mg/L**	
Mercury	0.0009	0.0008	0.0005	ND	0.002 mg/L	
TCLP Lead – mg/L	NA	NA	NA	***38.2***	**0.015 mg/L**	**Hazardous Limit – 5.0 mg/L**

ND Not Detected at a concentration exceeding the laboratory's detection limit (see laboratory reports for compound specific detection limits)

NA – Not analyzed.

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

** The detection limits for Carbazole and Dibenzofuran exceed their respective GB PMC.

TABLE 1(f) - Results of Geoprobe® Boring Soil Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Boring I.D.: Sample Depth: GW Classification: Sample Date:	GP-21 1'-3' GA 5/29/12	GP-22 1'-3' GA 5/29/12	GP-23 2'-4' GA 5/30/12	GP-24 1'-3' GA 5/30/12	CTDEEP PMC GA Groundwater Area	CTDEEP DEC Residential/ Commercial & Industrial
CT ETPH - (mg/kg)	220	***1,200***	240	***1,000***	**500 mg/kg**	**500/2**,500 mg/kg
VOCs - Method 8260 (mg/kg)	ND	ND	ND	ND		
SVOCs - Method 8270 (mg/kg)						
Acenaphthylene	***12.0***	5.6	0.7	3.0	**8.4 mg/kg**	1,000/2,500 mg/kg
Anthracene	9.5	4.1	0.49	2.2	40 mg/kg	1,000/2,500 mg/kg
Benzo(a)anthracene	***50.0***	***20.0***	***2.9***	***11.0***	**1 mg/kg**	**1/7.8 mg/kg**
Benzo(a)pyrene	***38.0***	***16.0***	***2.3***	***7.9***	**1 mg/kg**	**1/1 mg/kg**
Benzo(b)fluoranthene	***77.0***	***27.0***	***3.9***	***13.0***	**1 mg/kg**	**1/7.8 mg/kg**
Benzo(g,h,i)perylene	***13.0***	***6.5***	1.6	3.3	**4.2 mg/kg**	1,000/2,500 mg/kg
Benzo(k)fluoranthene	***20.0***	***9.3***	***1.5***	***2.8***	**1 mg/kg**	**8.4**/78 mg/kg
Carbazole	***ND****	***ND****	ND	0.9	**1 mg/kg**	31/290 mg/kg
Chrysene	***51.0***	***21.0***	***3.2***	***15.0***	**1 mg/kg**	84/780 mg/kg
Dibenz(a,h)anthracene	***6.2***	***ND****	0.66	***1.7***	**1 mg/kg**	**1/1 mg/kg**
Dibenzofuran	***ND****	***ND****	ND	0.81	**1 mg/kg**	270/2,500 mg/kg
Fluoranthene	***110***	***36.0***	4.3	***16.0***	**5.6 mg/kg**	1,000/2,500 mg/kg
Indeno(1,2,3-cd)pyrene	***14.0***	***7.3***	***1.6***	***3.4***	**1 mg/kg**	**1/7.8 mg/kg**
2-Methylnaphthalene	ND	ND	ND	***2.9***	**0.98 mg/kg**	474/2,500 mg/kg
Naphthalene	ND	ND	ND	3.3	5.6 mg/kg	1,000/2,500 mg/kg
Phenanthrene	***8.8***	***11.0***	1.8	***6.7***	**4 mg/kg**	1,000/2,500 mg/kg
Pyrene	***110***	***32.0***	3.5	***21.0***	**4 mg/kg**	1,000/2,500 mg/kg
Total SVOCs	519.5	195.8	28.45	114.91		
PCBs – Method 8082 (mg/kg)	ND	ND	ND	ND	Not Applicable	1/10 mg/kg
Pesticides – Method 8081A (mg/kg)	**					
4,4-DDT	ND	0.23	ND	ND	None Established	1.8/17 mg/kg
Herbicides – Method 8151 (mg/kg)	ND	ND	ND	ND		
Total RCRA 8 Metals – mg/kg					Not Applicable	
Arsenic	***11.4***	***28.0***	***10.4***	***76.6***		**10/10 mg/kg**
Barium	80.7	54.2	27.1	90.8		4,700/140,000 mg/kg
Cadmium	6.95	0.77	ND	ND		34/1,000 mg/kg
Chromium	20.2	147	47.6	26.5		None Established
Lead	***1,400***	***14,600***	***6,180***	***1,970***		**500/1,000 mg/kg**
Mercury	0.13	0.26	ND	0.33		20/610 mg/kg
SPLP Metals – mg/L						Not Applicable
Arsenic	0.011	0.01	ND	0.005	0.05 mg/L	
Barium	0.02	0.012	0.01	0.012	1.0 mg/L	
Chromium	0.024	***0.054***	ND	ND	**0.05 mg/L**	
Lead	***0.756***	***3.22***	***0.93***	***0.071***	**0.015 mg/L**	
Mercury	0.0006	ND	ND	ND	0.002 mg/L	
TCLP Lead – mg/L	NA	***44.7***	NA	0.55	**0.015 mg/L**	**Hazardous Limit – 5.0 mg/L**

ND Not Detected at a concentration exceeding the laboratory's detection limit (see laboratory reports for compound specific detection limits)

NA – Not analyzed.

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

* The detection limit for these SVOCs exceeds their respective RSR criteria.

** The detection limit for several pesticides including dieldrin, chlordane, and heptachlor epoxide exceed their respective GB PMC.

TABLE 1(g) - Results of Geoprobe® Boring Soil Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Boring I.D.: Sample Depth: GW Classification: Sample Date:	GP-25 1'-3' GA 5/30/12	GP-26 1'-3' GA 5/30/12	GP-27 1'-3' GA 5/30/12	GP-28 2'-4' GA 5/30/12	CTDEEP PMC GA Groundwater Area	CTDEEP DEC Residential/ Commercial & Industrial
CT ETPH - (mg/kg)	340	420	380	430	500 mg/kg	500/2,500 mg/kg
VOCs - Method 8260 (mg/kg)	ND	ND	ND	ND		
SVOCs - Method 8270 (mg/kg)						
Acenaphthylene	0.88	0.56	1.1	1.2	8.4 mg/kg	1,000/2,500 mg/kg
Anthracene	0.63	0.49	0.88	1.0	40 mg/kg	1,000/2,500 mg/kg
Benzo(a)anthracene	***2.8***	***1.9***	***3.3***	***3.8***	**1 mg/kg**	**1**/7.8 mg/kg
Benzo(a)pyrene	***2.3***	***1.5***	***2.7***	***3.1***	**1 mg/kg**	**1/1 mg/kg**
Benzo(b)fluoranthene	***3.9***	***2.6***	***5.3***	***5.6***	**1 mg/kg**	**1**/7.8 mg/kg
Benzo(g,h,i)perylene	1.1	0.79	1.3	1.2	4.2 mg/kg	1,000/2,500 mg/kg
Benzo(k)fluoranthene	0.95	0.84	***2.0***	***1.1***	**1 mg/kg**	8.4/78 mg/kg
Chrysene	***3.9***	***2.4***	***5.3***	***5.4***	**1 mg/kg**	84/780 mg/kg
Dibenz(a,h)anthracene	0.55	0.37	0.59	0.51	1 mg/kg	1/1 mg/kg
Dibenzofuran	0.4	0.53	0.47	0.45	1 mg/kg	270/2,500 mg/kg
Fluoranthene	3.8	3.0	4.9	5.1	5.6 mg/kg	1,000/2,500 mg/kg
Fluorene	ND	0.28	ND	ND	5.6 mg/kg	1,000/2,500 mg/kg
Indeno(1,2,3-cd)pyrene	***1.1***	0.76	***1.3***	***1.2***	**1 mg/kg**	**1**/7.8 mg/kg
2-Methylnaphthalene	***1.2***	***1.6***	***1.5***	***1.4***	**0.98 mg/kg**	474/2,500 mg/kg
Naphthalene	1.1	1.4	1.3	1.4	5.6 mg/kg	1,000/2,500 mg/kg
Phenanthrene	3.8	3.4	4.1	4.0	4 mg/kg	1,000/2,500 mg/kg
Pyrene	***4.1***	2.5	***5.3***	***5.8***	**4 mg/kg**	1,000/2,500 mg/kg
Total SVOCs	32.51	24.92	41.34	42.26		
PCBs – Method 8082 (mg/kg)	ND	ND	ND	ND	Not Applicable	1/10 mg/kg
Pesticides – Method 8081A (mg/kg)	ND	ND	ND	ND		
Herbicides – Method 8151 (mg/kg)	ND	ND	ND	ND		
Total RCRA 8 Metals – mg/kg					Not Applicable	
Arsenic	***20.4***	***25.6***	***22.7***	***22.8***		**10/10 mg/kg**
Barium	66.5	96.9	97.2	60.6		4,700/140,000 mg/kg
Cadmium	ND	ND	0.66	ND		34/1,000 mg/kg
Chromium	14.3	31.7	22.2	14.9		None Established
Lead	363	***1,910***	***1,150***	424		**500/1,000 mg/kg**
Mercury	0.27	0.17	0.32	0.18		20/610 mg/kg
SPLP Metals – mg/L						Not Applicable
Arsenic	ND	ND	ND	0.004	0.05 mg/L	
Barium	0.013	0.1	0.013	0.02	1.0 mg/L	
Lead	***0.046***	***0.193***	***0.09***	***0.071***	**0.015 mg/L**	
TCLP Lead – mg/L	NA	2.78	0.22	0.55	**0.015 mg/L**	**Hazardous Limit – 5.0 mg/L**

ND Not Detected at a concentration exceeding the laboratory's detection limit (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

TABLE 1(h) - Results of Geoprobe® Boring Soil Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Boring I.D.: Sample Depth: GW Classification: Sample Date:	GP-29 1'-3' GA 5/30/12	GP-30 1'-3' GA 5/30/12	GP-31 1'-3' GA 5/30/12	GP-32 1'-3' GA 5/30/12	CTDEEP PMC GA Groundwater Area	CTDEEP DEC Residential/ Commercial & Industrial
CT ETPH - (mg/kg)	220	130	140	170	500 mg/kg	500/2,500 mg/kg
VOCs - Method 8260 (mg/kg)	ND	ND	ND	ND		
SVOCs - Method 8270 (mg/kg)						
Acenaphthylene	0.7	0.61	0.63	0.82	8.4 mg/kg	1,000/2,500 mg/kg
Anthracene	0.41	0.41	0.41	0.55	40 mg/kg	1,000/2,500 mg/kg
Benzo(a)anthracene	***1.8***	***2.0***	***2.3***	***2.1***	**1 mg/kg**	**1**/7.8 mg/kg
Benzo(a)pyrene	***1.3***	***1.6***	***1.8***	***1.8***	**1 mg/kg**	**1/1 mg/kg**
Benzo(b)fluoranthene	***2.2***	***3.1***	***3.8***	***3.0***	**1 mg/kg**	**1**/7.8 mg/kg
Benzo(g,h,i)perylene	0.69	0.76	0.95	0.77	4.2 mg/kg	1,000/2,500 mg/kg
Benzo(k)fluoranthene	0.62	0.92	0.82	0.81	1 mg/kg	8.4/78 mg/kg
Chrysene	***2.4***	***2.8***	***3.3***	***3.2***	**1 mg/kg**	84/780 mg/kg
Dibenz(a,h)anthracene	0.33	0.39	0.44	0.37	1 mg/kg	1/1 mg/kg
Dibenzofuran	0.32	ND	ND	ND	1 mg/kg	270/2,500 mg/kg
Fluoranthene	1.8	2.7	4.0	2.7	5.6 mg/kg	1,000/2,500 mg/kg
Indeno(1,2,3-cd)pyrene	0.64	0.82	1.0	0.78	1 mg/kg	1/7.8 mg/kg
2-Methylnaphthalene	0.93	0.57	0.55	0.51	0.98 mg/kg	474/2,500 mg/kg
Naphthalene	1.0	0.61	0.58	0.56	5.6 mg/kg	1,000/2,500 mg/kg
Phenanthrene	1.9	1.9	1.6	1.5	4 mg/kg	1,000/2,500 mg/kg
Pyrene	2.3	2.7	3.6	3.3	4 mg/kg	1,000/2,500 mg/kg
Total SVOCs	19.34	21.89	25.78	22.77		
PCBs – Method 8082 (mg/kg)	ND	ND	ND	ND	Not Applicable	1/10 mg/kg
Pesticides – Method 8081A (mg/kg)	ND	ND	ND	ND		
Herbicides – Method 8151 (mg/kg)	ND	ND	ND	ND		
Total RCRA 8 Metals – mg/kg					Not Applicable	
Arsenic	***20.8***	***38.2***	***28.5***	***26.4***		**10/10 mg/kg**
Barium	73.3	76.2	69.2	72.0		4,700/140,000 mg/kg
Cadmium	0.59	ND	ND	ND		34/1,000 mg/kg
Chromium	16.5	15.2	16.4	14.4		None Established
Lead	***1,360***	365	286	325		**500/1,000 mg/kg**
Mercury	0.13	0.1	0.13	0.1		20/610 mg/kg
SPLP Metals – mg/L						Not Applicable
Barium	0.016	0.014	0.015	0.016	1.0 mg/L	
Lead	***0.016***	0.012	***0.017***	***0.017***	**0.015 mg/L**	
TCLP Lead – mg/L	1.2	NA	NA	NA	**0.015 mg/L**	**Hazardous Limit – 5.0 mg/L**

ND Not Detected at a concentration exceeding the laboratory's detection limit (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

TABLE 1(i) - Results of Geoprobe® Boring Soil Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Boring I.D.: Sample Depth: GW Classification: Sample Date:	GP-33 1'-3' GA 5/30/12	GP-34 1'-3' GA 5/30/12	GP-35 1'-3' GA 5/30/12	GP-36 1'-3' GA 5/30/12	CTDEEP PMC GA Groundwater Area	CTDEEP DEC Residential/ Commercial & Industrial
CT ETPH - (mg/kg)	370	***680***	400	88	**500 mg/kg**	**500**/2,500 mg/kg
VOCs - Method 8260 (mg/kg)	ND	ND	ND	ND		
SVOCs - Method 8270 (mg/kg)						
Acenaphthylene	1.2	2.7	1.6	0.45	8.4 mg/kg	1,000/2,500 mg/kg
Anthracene	0.94	2.0	1.1	0.33	40 mg/kg	1,000/2,500 mg/kg
Benzo(a)anthracene	***4.1***	***7.4***	***5.1***	***1.3***	**1 mg/kg**	**1**/7.8 mg/kg
Benzo(a)pyrene	***3.0***	***5.8***	***3.8***	***1.2***	**1 mg/kg**	**1/1 mg/kg**
Benzo(b)fluoranthene	***5.9***	***10.0***	***6.2***	***2.3***	**1 mg/kg**	**1/7.8 mg/kg**
Benzo(g,h,i)perylene	1.3	1.8	1.4	0.57	4.2 mg/kg	1,000/2,500 mg/kg
Benzo(k)fluoranthene	***1.8***	***3.7***	***2.0***	0.8	**1 mg/kg**	8.4/78 mg/kg
Carbazole	ND	***1.2***	ND	ND	**1 mg/kg**	31/290 mg/kg
Chrysene	***5.8***	***11.0***	***6.3***	***2.0***	**1 mg/kg**	84/780 mg/kg
Dibenz(a,h)anthracene	0.56	1.0	0.71	ND	1 mg/kg	1/1 mg/kg
Dibenzofuran	0.45	0.7	0.38	ND	1 mg/kg	270/2,500 mg/kg
Fluoranthene	***5.7***	***11.0***	***8.5***	1.9	**5.6 mg/kg**	1,000/2,500 mg/kg
Fluorene	ND	0.56	ND	ND	5.6 mg/kg	1,000/2,500 mg/kg
Indeno(1,2,3-cd)pyrene	***1.3***	***2.0***	***1.5***	0.57	**1 mg/kg**	**1**/7.8 mg/kg
2-Methylnaphthalene	***1.5***	***2.1***	***1.1***	0.67	**0.98 mg/kg**	474/2,500 mg/kg
Naphthalene	1.4	2.7	1.3	0.56	5.6 mg/kg	1,000/2,500 mg/kg
Phenanthrene	4.0	***7.0***	***4.8***	1.4	4 mg/kg	1,000/2,500 mg/kg
Pyrene	***6.1***	***14.0***	***9.3***	1.9	**4 mg/kg**	1,000/2,500 mg/kg
Total SVOCs	45.05	86.66	55.09	15.95		
PCBs – Method 8082 (mg/kg)	ND	ND	ND	ND	Not Applicable	1/10 mg/kg
Pesticides – Method 8081A (mg/kg)						
Dieldrin	ND	***0.03***	ND	ND	**0.007 mg/kg**	0.038/0.36 mg/kg
Herbicides – Method 8151 (mg/kg)	ND	ND	ND	ND		
Total RCRA 8 Metals – mg/kg					Not Applicable	
Arsenic	***22.7***	***52.1***	***15.1***	***28.7***		**10/10 mg/kg**
Barium	81.6	78.6	81.5	93.2		4,700/140,000 mg/kg
Cadmium	0.75	ND	ND	ND		34/1,000 mg/kg
Chromium	22.2	19.3	12.5	12.5		None Established
Lead	***1,300***	***1,620***	311	298		**500/1,000 mg/kg**
Mercury	0.29	0.24	0.22	0.18		20/610 mg/kg
SPLP Metals – mg/L						Not Applicable
Arsenic	ND	0.009	ND	ND	0.05 mg/L	
Barium	ND	0.015	0.015	0.013	1.0 mg/L	
Lead	***0.064***	***0.106***	***0.065***	***0.021***	**0.015 mg/L**	
TCLP Lead – mg/L	0.36	NA	NA	NA	**0.015 mg/L**	**Hazardous Limit – 5.0 mg/L**

ND Not Detected at a concentration exceeding the laboratory's detection limit (see laboratory reports

for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

TABLE 1(j) - Results of Geoprobe® Boring Soil Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Boring I.D.: Sample Depth: GW Classification: Sample Date:	GP-37 10'-12' GB 5/1/12	GP-38 10'-12' GB 5/1/12	GP-39 10'-12' GB 5/1/12	GP-40 10'-12' GB 5/1/12	CTDEEP PMC GB Groundwater Area	CTDEEP DEC Residential/ Commercial & Industrial
CT ETPH - (mg/kg)	***910***	ND	ND	ND	2,500 mg/kg	**500**/2,500 mg/kg
VOCs - Method 8260 (mg/kg)						
Naphthalene	8.3	ND	ND	ND	56 mg/kg	1,000/2,500 mg/kg
SVOCs - Method 8270 (mg/kg)						
Acenaphthene	5.1	ND	ND	ND	85 mg/kg	1,000/2,500 mg/kg
Acenaphthylene	10.0	ND	ND	ND	84 mg/kg	1,000/2,500 mg/kg
Anthracene	19.0	ND	ND	ND	400 mg/kg	1,000/2,500 mg/kg
Benzo(a)anthracene	***41.0***	ND	ND	ND	**1 mg/kg**	**1/7.8 mg/kg**
Benzo(a)pyrene	***35.0***	ND	ND	ND	**1 mg/kg**	**1/1 mg/kg**
Benzo(b)fluoranthene	***44.0***	ND	ND	ND	**1 mg/kg**	**1/7.8 mg/kg**
Benzo(g,h,i)perylene	9.0	ND	ND	ND	42 mg/kg	1,000/2,500 mg/kg
Benzo(k)fluoranthene	***17.0***	ND	ND	ND	**1 mg/kg**	**8.4**/78 mg/kg
Carbazole	***11.0***	ND	ND	ND	**1 mg/kg**	31/290 mg/kg
Chrysene	***36.0***	ND	ND	ND	**1 mg/kg**	84/780 mg/kg
Dibenzofuran	***11.0***	ND	ND	ND	**5.6 mg/kg**	270/2,500 mg/kg
Fluoranthene	***96.0***	ND	ND	ND	**56 mg/kg**	1,000/2,500 mg/kg
Fluorene	11.0	ND	ND	ND	56 mg/kg	1,000/2,500 mg/kg
Indeno(1,2,3-cd)pyrene	***8.8***	ND	ND	ND	**1 mg/kg**	**1/7.8 mg/kg**
2-Methylnaphthalene	7.9	ND	ND	ND	9.8 mg/kg	474/2,500 mg/kg
Naphthalene	32.0	ND	ND	ND	56 mg/kg	1,000/2,500 mg/kg
Phenanthrene	***94.0***	ND	ND	ND	**40 mg/kg**	1,000/2,500 mg/kg
Pyrene	***81.0***	ND	ND	ND	**40 mg/kg**	1,000/2,500 mg/kg
Total SVOCs	568.8	ND	ND	ND		
PCBs – Method 8082 (mg/kg)	ND	ND	ND	ND	Not Applicable	1/10 mg/kg
Pesticides – Method 8081A (mg/kg)	ND	ND	ND	ND		
Herbicides – Method 8151 (mg/kg)	ND	ND	ND	ND		
Total RCRA 8 Metals – mg/kg					Not Applicable	
Arsenic	5.0	2.57	1.91	1.77		10/10 mg/kg
Barium	121	18.9	15.9	24.2		4,700/140,000 mg/kg
Cadmium	0.45	ND	ND	ND		34/1,000 mg/kg
Chromium	19.6	7.83	6.16	7.99		None Established
Lead	***520***	5.25	4.34	3.84		**500/1,000 mg/kg**
Mercury	0.35	ND	ND	ND		20/610 mg/kg
SPLP Metals – mg/L						Not Applicable
Arsenic	0.02	ND	ND	ND	0.5 mg/L	
Barium	0.405	ND	ND	ND	10.0 mg/L	
Chromium	0.053	ND	ND	ND	0.5 mg/L	
Lead	***1.37***	ND	ND	ND	**0.15 mg/L**	
Mercury	0.001	ND	ND	ND	0.02 mg/L	

ND Not Detected at a concentration exceeding the laboratory's detection limit (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

TABLE 1(k) - Results of Geoprobe® Boring Soil Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Boring I.D.: Sample Depth: GW Classification: Sample Date:	GP-41 10'-12' GB 5/2/12	GP-42 10'-12' GB 5/2/12	GP-43 10'-12' GB 5/2/12	GP-44 10'-12' GB 4/30/12	CTDEEP PMC GB Groundwater Area	CTDEEP DEC Residential/ Commercial & Industrial
CT ETPH - (mg/kg)	ND	ND	ND	ND	2,500 mg/kg	500/2,500 mg/kg
VOCs - Method 8260 (mg/kg)						
Naphthalene	0.3	ND	ND	ND	56 mg/kg	1,000/2,500 mg/kg
Trichloroethene	ND	ND	0.93	ND	1 mg/kg	56/520 mg/kg
SVOCs - Method 8270 (mg/kg)	ND	ND	ND	ND		
PCBs – Method 8082 (mg/kg)	ND	ND	ND	ND	Not Applicable	1/10 mg/kg
Pesticides – Method 8081A (mg/kg)	ND	ND	ND	ND		
Herbicides – Method 8151 (mg/kg)	ND	ND	ND	ND		
Total RCRA 8 Metals – mg/kg					Not Applicable	
Arsenic	1.99	2.91	3.82	1.91		10/10 mg/kg
Barium	25.1	50.5	39.4	20.5		4,700/140,000 mg/kg
Chromium	13.7	16.4	12.5	6.16		None Established
Lead	11.3	11.0	47.1	24.4		500/1,000 mg/kg
SPLP Metals – mg/L						Not Applicable
Arsenic	0.029	0.005	0.025	0.009	0.5 mg/L	
Barium	0.167	0.066	0.215	0.057	10.0 mg/L	
Chromium	0.056	0.018	0.029	0.01	0.5 mg/L	
Lead	0.081	0.016	***0.637***	***0.172***	**0.15 mg/L**	
Mercury	ND	ND	0.0007	ND	0.02 mg/L	

ND Not Detected at a concentration exceeding the laboratory's detection limit (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

TABLE 1(l) - Results of Geoprobe® Boring Soil Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Boring I.D.: Sample Depth: GW Classification: Sample Date:	GP-45 10'-12' GB 4/30/12	GP-46 10'-12' GB 4/30/12	GP-47 2'-4' GB 4/30/12	GP-48 2'-4' GB 4/30/12	CTDEEP PMC GB Groundwater Area	CTDEEP DEC Residential/ Commercial & Industrial
CT ETPH - (mg/kg)	ND	ND	***560***	310	2,500 mg/kg	**500**/2,500 mg/kg
VOCs - Method 8260 (mg/kg)	ND	ND	ND	ND		
SVOCs - Method 8270 (mg/kg)						
Acenaphthylene	ND	ND	2.5	0.88	84 mg/kg	1,000/2,500 mg/kg
Anthracene	ND	ND	1.8	0.71	400 mg/kg	1,000/2,500 mg/kg
Benzo(a)anthracene	ND	ND	***6.3***	***3.2***	**1 mg/kg**	**1**/7.8 mg/kg
Benzo(a)pyrene	ND	ND	***6.4***	***3.0***	**1 mg/kg**	**1/1 mg/kg**
Benzo(b)fluoranthene	ND	ND	***22.0***	***5.3***	**1 mg/kg**	**1**/7.8 mg/kg
Benzo(g,h,i)perylene	ND	ND	3.0	1.8	42 mg/kg	1,000/2,500 mg/kg
Benzo(k)fluoranthene	ND	ND	***5.1***	***1.9***	**1 mg/kg**	8.4/78 mg/kg
Carbazole	ND	ND	***1.2***	ND	**1 mg/kg**	31/290 mg/kg
Chrysene	ND	ND	***6.8***	***3.6***	**1 mg/kg**	84/780 mg/kg
Dibenz(a,h)anthracene	ND	ND	0.97	0.6	1 mg/kg	1/1 mg/kg
Dibenzofuran	ND	ND	1.0	ND	5.6 mg/kg	70/2,500 mg/kg
Fluoranthene	ND	ND	12.0	5.1	56 mg/kg	1,000/2,500 mg/kg
Indeno(1,2,3-cd)pyrene	ND	ND	***3.1***	***1.8***	**1 mg/kg**	**1**/7.8 mg/kg
2-Methylnaphthalene	ND	ND	1.1	ND	9.8 mg/kg	474/2,500 mg/kg
Naphthalene	ND	ND	1.1	ND	56 mg/kg	1,000/2,500 mg/kg
Phenanthrene	ND	ND	4.3	1.3	40 mg/kg	1,000/2,500 mg/kg
Pyrene	ND	ND	9.3	4.4	40 mg/kg	1,000/2,500 mg/kg
Total SVOCs	ND	ND	87.97	33.59		
PCBs – Method 8082 (mg/kg)						
PCB-1254	ND	ND	0.7	ND		
Total PCBs	ND	ND	0.7	ND	Not Applicable	1/10 mg/kg
Pesticides – Method 8081A (mg/kg)	ND	ND	ND	ND		
Herbicides – Method 8151 (mg/kg)	ND	ND	ND	ND		
Total RCRA 8 Metals – mg/kg					Not Applicable	
Arsenic	2.63	2.39	***30.1***	***12.3***		**10/10 mg/kg**
Barium	21.4	13.8	90.0	56.0		4,700/140,000 mg/kg
Cadmium	ND	ND	1.15	ND		34/1,000 mg/kg
Chromium	8.27	5.68	98.8	34.7		None Established
Lead	43.5	11.1	***10,100***	213		**500/1,000 mg/kg**
Mercury	ND	ND	0.38	0.15		20/610 mg/kg
SPLP Metals – mg/L						Not Applicable
Arsenic	ND	ND	0.005	0.03	0.5 mg/L	
Barium	0.036	ND	0.024	0.17	10.0 mg/L	
Chromium	ND	ND	0.021	0.043	0.5 mg/L	
Lead	0.144	ND	***0.886***	***0.706***	**0.15 mg/L**	
Mercury	0.0005	ND	ND	0.0008	0.02 mg/L	

ND Not Detected at a concentration exceeding the laboratory's detection limit (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

TABLE 1(m) - Results of Geoprobe® Boring Soil Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Boring I.D.: Sample Depth: GW Classification: Sample Date:	GP-49 2'-4' GB 4/30/12	GP-50 2'-4' GB 4/30/12	GP-51 1'-3' GB 4/30/12	GP-52 2'-4' GB 4/30/12	CTDEEP PMC GB Groundwater Area	CTDEEP DEC Residential/ Commercial & Industrial
CT ETPH - (mg/kg)	180	***600***	300	110	2,500 mg/kg	**500**/2,500 mg/kg
VOCs - Method 8260 (mg/kg)	ND	ND	ND	ND		
SVOCs - Method 8270 (mg/kg)						
Acenaphthylene	ND	0.93	ND	0.32	84 mg/kg	1,000/2,500 mg/kg
Anthracene	ND	1.3	0.53	0.32	400 mg/kg	1,000/2,500 mg/kg
Benzo(a)anthracene	***1.4***	***3.5***	***1.6***	***1.1***	**1 mg/kg**	**1**/7.8 mg/kg
Benzo(a)pyrene	***1.3***	***3.1***	***1.6***	1.0	**1 mg/kg**	**1/1 mg/kg**
Benzo(b)fluoranthene	***2.8***	***6.7***	***2.8***	***2.2***	**1 mg/kg**	**1**/7.8 mg/kg
Benzo(g,h,i)perylene	0.77	1.6	1.2	0.64	42 mg/kg	1,000/2,500 mg/kg
Benzo(k)fluoranthene	0.62	***1.4***	0.95	0.53	**1 mg/kg**	8.4/78 mg/kg
Bis(2-ethylhexyphthalate)	ND	1.8	ND	ND	11 mg/kg	44/410 mg/kg
Chrysene	***1.9***	***4.6***	***2.0***	***1.4***	**1 mg/kg**	84/780 mg/kg
Dibenz(a,h)anthracene	ND	0.62	0.41	ND	1 mg/kg	1/1 mg/kg
Dibenzofuran	ND	ND	0.47	0.31	5.6 mg/kg	70/2,500 mg/kg
Fluoranthene	2.6	5.1	3.0	1.7	56 mg/kg	1,000/2,500 mg/kg
Indeno(1,2,3-cd)pyrene	0.76	***1.8***	***1.1***	0.66	**1 mg/kg**	**1**/7.8 mg/kg
2-Methylnaphthalene	ND	0.62	1.1	0.62	9.8 mg/kg	474/2,500 mg/kg
Naphthalene	ND	0.6	0.85	0.57	56 mg/kg	1,000/2,500 mg/kg
Phenanthrene	1.8	2.0	2.4	1.1	40 mg/kg	1,000/2,500 mg/kg
Pyrene	2.0	4.3	2.6	1.4	40 mg/kg	1,000/2,500 mg/kg
Total SVOCs	15.95	39.97	22.61	13.87		
PCBs – Method 8082 (mg/kg)						
PCB-1254	ND	0.64	ND	ND		
Total PCBs	ND	0.64	ND	ND	Not Applicable	1/10 mg/kg
Pesticides – Method 8081A (mg/kg)	ND	ND	ND	ND		
Herbicides – Method 8151 (mg/kg)	ND	ND	ND	ND		
Total RCRA 8 Metals – mg/kg					Not Applicable	
Arsenic	***21.1***	***19.1***	***26.7***	***31.9***		**10/10 mg/kg**
Barium	112	95.4	179	79.6		4,700/140,000 mg/kg
Cadmium	ND	1.25	2.91	ND		34/1,000 mg/kg
Chromium	29.9	45.2	36.2	35.8		None Established
Lead	***850***	***1,230***	***1,140***	**513**		**500/1,000 mg/kg**
Mercury	0.37	0.75	12.4	2.98		20/610 mg/kg
SPLP Metals – mg/L						Not Applicable
Arsenic	0.023	0.021	0.008	0.018	0.5 mg/L	
Barium	0.099	0.096	0.046	0.045	10.0 mg/L	
Chromium	0.026	0.039	0.011	0.013	0.5 mg/L	
Lead	***1.45***	***1.67***	***0.357***	***0.352***	**0.15 mg/L**	
Mercury	0.0011	0.0006	0.0062	ND	0.02 mg/L	

ND Not Detected at a concentration exceeding the laboratory's detection limit (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

TABLE 1(n) - Results of Geoprobe® Boring Soil Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Boring I.D.: Sample Depth: GW Classification: Sample Date:	GP-53 2'-4' GB 4/30/12	GP-54 2'-4' GB 4/30/12	GP-55 2'-4' GB 4/30/12	GP-56 3'-5' GB 4/18/12	CTDEEP PMC GB Groundwater Area	CTDEEP DEC Residential/ Commercial & Industrial
CT ETPH - (mg/kg)	240	180	150	ND	2,500 mg/kg	500/2,500 mg/kg
VOCs - Method 8260 (mg/kg)						
Toluene	ND	ND	ND	0.0066	67 mg/kg	500/1,000 mg/kg
SVOCs - Method 8270 (mg/kg)						
Acenaphthylene	0.39	0.33	ND	ND	84 mg/kg	1,000/2,500 mg/kg
Anthracene	0.35	0.3	ND	ND	400 mg/kg	1,000/2,500 mg/kg
Benzo(a)anthracene	***1.3***	0.98	0.84	ND	**1 mg/kg**	**1**/7.8 mg/kg
Benzo(a)pyrene	***1.2***	0.92	0.8	ND	**1 mg/kg**	**1/1 mg/kg**
Benzo(b)fluoranthene	***2.4***	***1.9***	***1.7***	ND	**1 mg/kg**	**1**/7.8 mg/kg
Benzo(g,h,i)perylene	0.67	0.66	ND	ND	42 mg/kg	1,000/2,500 mg/kg
Benzo(k)fluoranthene	0.58	0.44	0.52	ND	1 mg/kg	8.4/78 mg/kg
Chrysene	***1.5***	***1.2***	***1.2***	ND	**1 mg/kg**	84/780 mg/kg
Dibenzofuran	0.42	0.41	ND	ND	5.6 mg/kg	70/2,500 mg/kg
Fluoranthene	1.7	1.4	1.3	ND	56 mg/kg	1,000/2,500 mg/kg
Indeno(1,2,3-cd)pyrene	0.67	0.64	ND	ND	1 mg/kg	1/7.8 mg/kg
2-Methylnaphthalene	0.78	0.74	ND	ND	9.8 mg/kg	474/2,500 mg/kg
Naphthalene	0.49	0.66	ND	ND	56 mg/kg	1,000/2,500 mg/kg
Phenanthrene	1.4	1.5	0.92	ND	40 mg/kg	1,000/2,500 mg/kg
Pyrene	1.5	1.2	1.1	ND	40 mg/kg	1,000/2,500 mg/kg
Total SVOCs	15.35	13.28	8.38	ND		
PCBs – Method 8082 (mg/kg)	ND	ND	ND	ND	Not Applicable	1/10 mg/kg
Pesticides – Method 8081A (mg/kg)	ND	ND	ND	ND		
Herbicides – Method 8151 (mg/kg)	ND	ND	ND	ND		
Total RCRA 8 Metals – mg/kg						
Arsenic	***20.5***	***20.5***	***15.2***	3.78	Not Applicable	**10/10 mg/kg**
Barium	60.6	70.4	86.6	24.3		4,700/140,000 mg/kg
Cadmiun	ND	ND	0.56	ND		34/1,000 mg/kg
Chromium	28.6	39.8	22.2	10.3		None Established
Lead	490	***606***	***692***	9.8		**500**/1,000 mg/kg
Mercury	ND	0.11	0.13	ND		34/1,000 mg/kg
SPLP Metals – mg/L						Not Applicable
Arsenic	0.028	0.007	ND	ND	0.5 mg/L	
Barium	0.09	0.031	0.021	0.015	10.0 mg/L	
Chromium	0.027	ND	ND	ND	0.5 mg/L	
Lead	***0.962***	***0.154***	0.099	ND	**0.15 mg/L**	

ND Not Detected at a concentration exceeding the laboratory's detection limit (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

TABLE 1(o) - Results of Geoprobe® Boring Soil Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Boring I.D.: Sample Depth: GW Classification: Sample Date:	GP-57 3'-5' GB 4/18/12	GP-58 3'-5' GB 4/18/12	GP-59 3'-5' GB 4/18/12	GP-60 3'-5' GB 4/18/12	CTDEEP PMC GB Groundwater Area	CTDEEP DEC Residential/ Commercial & Industrial
CT ETPH - (mg/kg)	ND	ND	100	ND	2,500 mg/kg	500/2,500 mg/kg
VOCs - Method 8260 (mg/kg)						
Toluene	0.0086	ND	ND	ND	67 mg/kg	500/1,000 mg/kg
SVOCs - Method 8270 (mg/kg)						
Acenaphthylene	ND	ND	1.1	ND	84 mg/kg	1,000/2,500 mg/kg
Anthracene	ND	ND	0.52	ND	400 mg/kg	1,000/2,500 mg/kg
Benzo(a)anthracene	ND	ND	***1.5***	ND	**1 mg/kg**	**1**/7.8 mg/kg
Benzo(a)pyrene	ND	ND	***1.4***	ND	**1 mg/kg**	**1/1 mg/kg**
Benzo(b)fluoranthene	ND	ND	***2.3***	0.55	**1 mg/kg**	**1**/7.8 mg/kg
Benzo(g,h,i)perylene	ND	ND	0.74	ND	42 mg/kg	1,000/2,500 mg/kg
Benzo(k)fluoranthene	ND	ND	0.74	ND	1 mg/kg	8.4/78 mg/kg
Chrysene	ND	ND	***2.3***	0.44	**1 mg/kg**	84/780 mg/kg
Fluoranthene	ND	ND	2.8	0.54	56 mg/kg	1,000/2,500 mg/kg
Indeno(1,2,3-cd)pyrene	ND	ND	0.71	ND	1 mg/kg	1/7.8 mg/kg
2-Methylnaphthalene	ND	ND	0.51	ND	9.8 mg/kg	474/2,500 mg/kg
Naphthalene	ND	ND	0.64	ND	56 mg/kg	1,000/2,500 mg/kg
Phenanthrene	ND	ND	1.5	ND	40 mg/kg	1,000/2,500 mg/kg
Pyrene	ND	ND	3.0	0.5	40 mg/kg	1,000/2,500 mg/kg
Total SVOCs	ND	ND	19.76	2.03		
PCBs – Method 8082 (mg/kg)	ND	ND	ND	ND	Not Applicable	1/10 mg/kg
Pesticides – Method 8081A (mg/kg)	ND	ND	ND	ND		
Herbicides – Method 8151 (mg/kg)	ND	ND	ND	ND		
Total RCRA 8 Metals – mg/kg					Not Applicable	
Arsenic	3.49	5.79	3.41	9.97		10/10 mg/kg
Barium	56.2	44.0	39.2	203		4,700/140,000 mg/kg
Chromium	15.0	15.5	9.93	18.3		None Established
Lead	10.9	12.1	20.3	85.3		500/1,000 mg/kg
Mercury	ND	ND	0.07	ND		20/610 mg/kg
SPLP Metals – mg/L						Not Applicable
Arsenic	0.018	ND	0.008	0.006	0.5 mg/L	
Barium	0.144	ND	0.177	0.091	10.0 mg/L	
Chromium	0.049	ND	ND	ND	0.5 mg/L	
Lead	0.053	ND	0.079	0.061	0.15 mg/L	

ND Not Detected at a concentration exceeding the laboratory's detection limit (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

TABLE 1(p) - Results of Geoprobe® Boring Soil Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Boring I.D.: Sample Depth: GW Classification: Sample Date:	GP-61 1'-3' GB 4/18/12	GP-62 6'-8' GB 4/18/12	GP-63 3'-5' GB 4/18/12	GP-64 3'-5' GB 4/18/12	CTDEEP PMC GB Groundwater Area	CTDEEP DEC Residential/ Commercial & Industrial
CT ETPH - (mg/kg)	ND	ND	30	ND	2,500 mg/kg	500/2,500 mg/kg
VOCs - Method 8260 (mg/kg)	ND	ND	ND	ND		
SVOCs - Method 8270 (mg/kg)						
Acenaphthylene	ND	ND	0.5	ND	84 mg/kg	1,000/2,500 mg/kg
Anthracene	ND	ND	0.86	ND	400 mg/kg	1,000/2,500 mg/kg
Benzo(a)anthracene	0.53	ND	***2.4***	ND	**1 mg/kg**	**1**/7.8 mg/kg
Benzo(a)pyrene	0.46	ND	***1.9***	ND	**1 mg/kg**	**1/1 mg/kg**
Benzo(b)fluoranthene	0.76	ND	***3.2***	ND	**1 mg/kg**	**1**/7.8 mg/kg
Benzo(g,h,i)perylene	ND	ND	1.1	ND	42 mg/kg	1,000/2,500 mg/kg
Benzo(k)fluoranthene	ND	ND	***1.1***	ND	**1 mg/kg**	8.4/78 mg/kg
Chrysene	0.63	ND	***4.1***	ND	**1 mg/kg**	84/780 mg/kg
Dibenz(a,h)anthracene	ND	ND	0.45	ND	1 mg/kg	1/1 mg/kg
Fluoranthene	1.5	ND	1.8	ND	56 mg/kg	1,000/2,500 mg/kg
Indeno(1,2,3-cd)pyrene	ND	ND	***1.1***	ND	**1 mg/kg**	**1**/7.8 mg/kg
Phenanthrene	0.77	ND	0.72	ND	40 mg/kg	1,000/2,500 mg/kg
Pyrene	1.2	ND	2.5	ND	40 mg/kg	1,000/2,500 mg/kg
Total SVOCs	5.85	ND	21.73	ND		
PCBs – Method 8082 (mg/kg)	ND	ND	ND	ND	Not Applicable	1/10 mg/kg
Pesticides – Method 8081A (mg/kg)	ND	ND	ND	ND		
Herbicides – Method 8151 (mg/kg)	ND	ND	ND	ND		
Total RCRA 8 Metals – mg/kg					Not Applicable	
Arsenic	5.05	3.29	2.99	3.71		10/10 mg/kg
Barium	59.3	60.0	39.7	32.7		4,700/140,000 mg/kg
Chromium	17.8	15.2	10.4	11.9		None Established
Lead	26.1	12.3	24.2	12.9		500/1,000 mg/kg
SPLP Metals – mg/L						Not Applicable
Arsenic	ND	ND	0.016	0.005	0.05 mg/L	
Barium	0.015	0.021	0.183	0.065	10.0 mg/L	
Chromium	ND	ND	0.028	ND	0.5 mg/L	
Lead	ND	ND	***0.201***	***0.212***	**0.15 mg/L**	

ND Not Detected at a concentration exceeding the laboratory's detection limit (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

TABLE 1(q) - Results of Geoprobe® Boring Soil Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Boring I.D.: Sample Depth: GW Classification: Sample Date:	GP-65 3'-5' GB 4/16/12	GP-66 3'-5' GB 4/16/12	GP-67 3'-5' GB 4/16/12	GP-68 3'-5' GB 4/16/12	CTDEEP PMC GB Groundwater Area	CTDEEP DEC Residential/ Commercial & Industrial
CT ETPH - (mg/kg)	ND	ND	ND	ND	2,500 mg/kg	500/2,500 mg/kg
VOCs - Method 8260 (mg/kg)						
Trichloroethene	ND	0.014	ND	0.0076	1 mg/kg	56/520 mg/kg
SVOCs - Method 8270 (mg/kg)	ND	ND	ND	ND		
PCBs – Method 8082 (mg/kg)	ND	ND	ND	ND	Not Applicable	1/10 mg/kg
Pesticides – Method 8081A (mg/kg)	ND	ND	ND	ND		
Herbicides – Method 8151 (mg/kg)	ND	ND	ND	ND		
Total RCRA 8 Metals – mg/kg					Not Applicable	
Arsenic	***10.7***	1.79	1.59	3.99		**10/10 mg/kg**
Barium	24.8	23.9	19.0	31.6		4,700/140,000 mg/kg
Chromium	8.95	8.88	6.29	10.9		None Established
Lead	8.46	8.41	4.89	7.06		500/1,000 mg/kg
SPLP Metals – mg/L						Not Applicable
Barium	0.023	ND	ND	0.025	10.0 mg/L	
Lead	0.013	ND	ND	0.011	0.15 mg/L	

ND Not Detected at a concentration exceeding the laboratory's detection limit (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

TABLE 1(r) - Results of Geoprobe® Boring Soil Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Boring I.D.: Sample Depth: GW Classification: Sample Date:	GP-69 5'-7' GB 4/16/12	GP-70 3'-5' GB 4/16/12	GP-71 3'-5' GB 4/16/12	GP-72 2'-4' GB 4/16/12	CTDEEP PMC GB Groundwater Area	CTDEEP DEC Residential/ Commercial & Industrial
CT ETPH - (mg/kg)	ND	ND	ND	ND	2,500 mg/kg	500/2,500 mg/kg
VOCs - Method 8260 (mg/kg)	ND	ND	ND	ND		
SVOCs - Method 8270 (mg/kg)	ND	ND	ND	ND		
PCBs – Method 8082 (mg/kg)	ND	ND	ND	ND	Not Applicable	1/10 mg/kg
Pesticides – Method 8081A (mg/kg)	ND	ND	ND	ND		
Herbicides – Method 8151 (mg/kg)	ND	ND	ND	ND		
Total RCRA 8 Metals – mg/kg					Not Applicable	
Arsenic	6.3	7.55	2.69	3.52		10/10 mg/kg
Barium	40.7	17.1	37.0	28.4		4,700/140,000 mg/kg
Chromium	15.6	6.27	11.4	10.8		None Established
Lead	19.2	6.08	5.93	7.48		500/1,000 mg/kg
SPLP Metals – mg/L						Not Applicable
Barium	0.029	ND	0.013	ND	10.0 mg/L	
Lead	0.027	ND	ND	ND	0.15 mg/L	

ND Not Detected at a concentration exceeding the laboratory's detection limit (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

TABLE 1(s) - Results of Geoprobe® Boring Soil Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Boring I.D.: Sample Depth: GW Classification: Sample Date:	GP-73 2'-4' GB 4/17/12	GP-74 2'-4' GB 4/17/12	GP-75 2'-4' GB 4/17/12	GP-76 3'-5' GB 4/17/12	CTDEEP PMC GB Groundwater Area	CTDEEP DEC Residential/ Commercial & Industrial
CT ETPH - (mg/kg)	ND	ND	ND	ND	2,500 mg/kg	500/2,500 mg/kg
VOCs - Method 8260 (mg/kg)	ND	ND	ND	ND		
SVOCs - Method 8270 (mg/kg)						
Benzo(b)fluoranthene	ND	ND	ND	0.28	1 mg/kg	1/7.8 mg/kg
Chrysene	ND	ND	ND	0.26	1 mg/kg	84/780 mg/kg
Fluoranthene	ND	ND	ND	0.58	56 mg/kg	1,000/2,500 mg/kg
Pyrene	ND	ND	ND	0.49	40 mg/kg	1,000/2,500 mg/kg
Total SVOCs	ND	ND	ND	1.61		
PCBs – Method 8082 (mg/kg)	ND	ND	ND	ND	Not Applicable	1/10 mg/kg
Pesticides – Method 8081A (mg/kg)	ND	ND	ND	ND		
Herbicides – Method 8151 (mg/kg)	ND	ND	ND	ND		
Total RCRA 8 Metals – mg/kg					Not Applicable	
Arsenic	4.8	2.91	3.02	2.34		10/10 mg/kg
Barium	27.2	22.3	31.6	19.7		4,700/140,000 mg/kg
Chromium	10.9	8.87	8.38	7.08		None Established
Lead	6.32	6.54	9.61	5.53		500/1,000 mg/kg
SPLP Metals – mg/L						Not Applicable
Arsenic	0.017	0.007	0.012	0.011	0.5 mg/L	
Barium	0.062	0.043	0.111	0.044	10.0 mg/L	
Chromium	0.011	ND	0.013	0.011	0.5 mg/L	
Lead	0.032	0.019	0.065	0.032	0.15 mg/L	
Mercury	0.0005	ND	ND	ND	0.02 mg/L	

ND Not Detected at a concentration exceeding the laboratory's detection limit (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

TABLE 1(t) - Results of Geoprobe® Boring Soil Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Boring I.D.: Sample Depth: GW Classification: Sample Date:	GP-77 2'-4' GB 4/17/12	GP-78 2'-4' GB 4/17/12	GP-79 2'-4' GB 4/17/12	GP-80 2'-4' GB 4/17/12	CTDEEP PMC GB Groundwater Area	CTDEEP DEC Residential/ Commercial & Industrial
CT ETPH - (mg/kg)	ND	ND	ND	ND	2,500 mg/kg	500/2,500 mg/kg
VOCs - Method 8260 (mg/kg)	ND	ND	ND	ND		
SVOCs - Method 8270 (mg/kg)	ND	ND	ND	ND		
PCBs – Method 8082 (mg/kg)	ND	ND	ND	ND	Not Applicable	1/10 mg/kg
Pesticides – Method 8081A (mg/kg)	ND	ND	ND	ND		
Herbicides – Method 8151 (mg/kg)	ND	ND	ND	ND		
Total RCRA 8 Metals – mg/kg					Not Applicable	
Arsenic	3.37	3.03	5.61	7.08		10/10 mg/kg
Barium	18.0	23.9	21.9	20.0		4,700/140,000 mg/kg
Chromium	7.02	7.79	7.19	7.13		None Established
Lead	4.38	5.43	4.78	4.09		500/1,000 mg/kg
SPLP Metals – mg/L						Not Applicable
Arsenic	ND	ND	0.004	ND	0.5 mg/L	
Barium	ND	ND	0.02	0.01	10.0 mg/L	

ND Not Detected at a concentration exceeding the laboratory's detection limit (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

TABLE 1(u) - Results of Geoprobe® Boring Soil Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Boring I.D.: Sample Depth: GW Classification: Sample Date:	GP-81 2'-4' GB 4/17/12	GP-82 1'-3' GB 5/15/12	GP-83 2'-4' GB 5/15/12	GP-84 2'-4' GB 5/15/12	CTDEEP PMC GB Groundwater Area	CTDEEP DEC Residential/ Commercial & Industrial
CT ETPH - (mg/kg)	ND	400	240	500	2,500 mg/kg	500/2,500 mg/kg
VOCs - Method 8260 (mg/kg)						
Toluene	ND	0.0074	0.019	0.015	67 mg/kg	500/1,000 mg/kg
Xylenes (total)	ND	0.0063	0.011	0.011	19.5 mg/kg	500/1,000 mg/kg
SVOCs - Method 8270 (mg/kg)						
Acenaphthylene	ND	1.7	ND	1.4	84 mg/kg	1,000/2,500 mg/kg
Anthracene	ND	1.4	ND	1.1	400 mg/kg	1,000/2,500 mg/kg
Benzo(a)anthracene	ND	***5.7***	***1.4***	***5.8***	**1 mg/kg**	**1**/7.8 mg/kg
Benzo(a)pyrene	ND	***6.2***	***1.6***	***5.8***	**1 mg/kg**	**1/1 mg/kg**
Benzo(b)fluoranthene	ND	***7.6***	***2.7***	***11.0***	**1 mg/kg**	**1/7.8 mg/kg**
Benzo(g,h,i)perylene	ND	2.4	0.75	2.3	42 mg/kg	1,000/2,500 mg/kg
Benzo(k)fluoranthene	ND	***3.4***	0.89	***2.9***	**1 mg/kg**	8.4/78 mg/kg
Bis(2-ethylhexyphthalate)	ND	4.6	ND	1.1	11 mg/kg	44/410 mg/kg
Carbazole	ND	***ND****	ND	***ND****	**1 mg/kg**	31/290 mg/kg
Chrysene	ND	***7.8***	***1.6***	***6.0***	**1 mg/kg**	84/780 mg/kg
Dibenz(a,h)anthracene	ND	0.59	ND	0.87	1 mg/kg	1/1 mg/kg
Fluoranthene	ND	11.0	2.1	7.2	56 mg/kg	1,000/2,500 mg/kg
Indeno(1,2,3-cd)pyrene	ND	***2.4***	0.68	***2.4***	**1 mg/kg**	**1**/7.8 mg/kg
2-Methylnaphthalene	ND	0.65	ND	ND	0.98 mg/kg	474/2,500 ppm
Naphthalene	ND	0.57	ND	ND	56 mg/kg	1,000/2,500 mg/kg
Phenanthrene	ND	7.7	0.77	2.1	40 mg/kg	1,000/2,500 mg/kg
Pyrene	ND	9.5	1.8	8.0	40 mg/kg	1,000/2,500 mg/kg
Total SVOCs	ND	73.21	14.29	57.97		
PCBs – Method 8082 (mg/kg)	ND	ND	ND	ND	Not Applicable	1/10 mg/kg
Pesticides – Method 8081A (mg/kg)	ND	ND	ND	ND		
Herbicides – Method 8151 (mg/kg)	ND	ND	ND	ND		
Total RCRA 8 Metals – mg/kg					Not Applicable	
Arsenic	2.65	5.4	3.84	***11.3***		**10/10 mg/kg**
Barium	19.7	247	53.6	81.0		4,700/140,000 mg/kg
Cadmium	ND	0.72	ND	0.59		34/1,000 mg/kg
Chromium	9.03	21.0	16.2	22.2		None Established
Lead	7.22	***553***	77.1	401		**500**/1,000 mg/kg
Mercury	ND	0.23	0.17	0.32		20/610 mg/kg
SPLP Metals – mg/L						Not Applicable
Arsenic	ND	0.018	0.006	0.012	0.5 mg/L	
Barium	0.012	0.27	0.028	0.187	10.0 mg/L	
Chromium	ND	0.053	ND	0.021	0.5 mg/L	
Lead	ND	***2.16***	0.057	***0.71***	**0.15 mg/L**	
Mercury	ND	0.0014	ND	0.0007	0.02 mg/L	

ND Not Detected at a concentration exceeding the laboratory's detection limit (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

* The detection limit for Carbazole exceeds its GB PMC of 1 mg/kg.

TABLE 1(v) - Results of Geoprobe® Boring Soil Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Boring I.D.: Sample Depth: GW Classification: Sample Date:	GP-85 1'-3' GB 5/15/12	GP-86 2'-4' GB 5/15/12	GP-87 2'-4' GB 5/15/12	CTDEEP PMC GB Groundwater Area	CTDEEP DEC Residential/ Commercial & Industrial
CT ETPH - (mg/kg)	310	320	230	2,500 mg/kg	500/2,500 mg/kg
VOCs - Method 8260 (mg/kg)					
1,2,4-Trimethylbenzene	0.0058	ND	0.0065	70 mg/kg	500/1,000 mg/kg
Toluene	0.017	0.018	0.017	67 mg/kg	500/1,000 mg/kg
Xylenes (total)	0.013	0.023	0.013	19.5 mg/kg	500/1,000 mg/kg
SVOCs - Method 8270 (mg/kg)					
Acenaphthylene	0.76	0.77	ND	84 mg/kg	1,000/2,500 mg/kg
Anthracene	0.55	0.58	ND	400 mg/kg	1,000/2,500 mg/kg
Benzo(a)anthracene	***2.5***	***2.5***	***1.8***	**1 mg/kg**	**1**/7.8 mg/kg
Benzo(a)pyrene	***2.8***	***2.7***	***1.9***	**1 mg/kg**	**1/1 mg/kg**
Benzo(b)fluoranthene	***5.3***	***4.8***	***3.1***	**1 mg/kg**	**1**/7.8 mg/kg
Benzo(g,h,i)perylene	1.3	1.2	0.84	42 mg/kg	1,000/2,500 mg/kg
Benzo(k)fluoranthene	***1.5***	***1.4***	***1.3***	**1 mg/kg**	8.4/78 mg/kg
Benzyl Butyl Phthalate	0.84	ND	ND	200 mg/kg	1,000/2,500 mg/kg
Chrysene	***3.3***	***3.1***	***2.2***	**1 mg/kg**	84/780 mg/kg
Fluoranthene	4.5	4.1	3.7	56 mg/kg	1,000/2,500 mg/kg
Indeno(1,2,3-cd)pyrene	***1.4***	***1.2***	0.83	**1 mg/kg**	**1**/7.8 mg/kg
Phenanthrene	2.0	2.0	1.8	40 mg/kg	1,000/2,500 mg/kg
Pyrene	4.1	3.7	2.9	40 mg/kg	1,000/2,500 mg/kg
Total SVOCs	30.85	28.05	20.37		
PCBs – Method 8082 (mg/kg)	ND	ND	ND	Not Applicable	1/10 mg/kg
Pesticides – Method 8081A (mg/kg)	ND	ND	ND		
Herbicides – Method 8151 (mg/kg)	ND	ND	ND		
Total RCRA 8 Metals – mg/kg				Not Applicable	
Arsenic	8.68	4.83	4.29		10/10 mg/kg
Barium	128	76.0	48.0		4,700/140,000 mg/kg
Cadmium	0.63	0.69	ND		34/1,000 mg/kg
Chromium	28.4	60.5	21.3		None Established
Lead	422	484	97.8		500/1,000 mg/kg
Mercury	0.2	0.27	0.13		20/610 mg/kg
SPLP Metals – mg/L					Not Applicable
Arsenic	0.008	0.009	0.007	0.5 mg/L	
Barium	0.067	0.132	0.026	10.0 mg/L	
Chromium	0.023	0.034	ND	0.5 mg/L	
Lead	***0.536***	***1.01***	0.117	**0.15 mg/L**	
Mercury	ND	0.0007	ND	0.02 mg/L	

ND Not Detected at a concentration exceeding the laboratory's detection limit (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

TABLE 2(a) - Results of Groundwater Grab Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Sample I.D.: Sample Date:	GP-1 GW 5/16/12	GP-4 GW 5/16/12	GP-5 GW 5/16/12	CTDEEP GP to "A" Surface Water Effluent Limits	CTDEEP GP to Sanitary Sewer Effluent Limits
CT ETPH (mg/L)	1.7	1.5	1.8	5 mg/L	100 mg/L
VOCs - Method 8260 (ug/L)					
1,2,4-Trimethylbenzene	2.7	1.8	1.9	None Established	None Established
4-Methyl-2-pentanone	14	10	11	None Established	None Established
Acetone	110	80	87	None Established	None Established
Benzene	1.7	1.2	1.3	None Established	None Established
Ethylbenzene	1.8	1.3	1.3	None Established	None Established
Methyl Ethyl Ketone (MEK)	32	22	25	None Established	None Established
Naphthalene	2.1	2.0	2.1	None Established	None Established
Tetrahydrofuran	27	21	20	None Established	None Established
Toluene	13	9.0	9.9	None Established	None Established
Xylenes (total)	16.7	9.4	7.4	None Established	None Established
Total VOCs	***221.0***	***157.7***	***166.9***	**10 ug/L**	5,000 ug/L
SVOCs - Method 8270 (ug/L)					
2-Methylphenol (o-cresol)	27	17	ND	None Established	None Established
Acetophenone	ND	ND	7.6	None Established	None Established
Diethyl Phthalate	51	40	38	None Established	None Established
Dimethylphthalate	7.3	6.3	6.4	None Established	None Established
Di-n-butylphthalate	7.7	7.5	6.1	None Established	None Established
Isophorone	14	7.6	7.3	None Established	None Established
n-Nitrosodiphenylamine	5.2	ND	ND	None Established	None Established
Phenol	420	230	250	None Established	None Established
Bis(2-ethylhexyl)phthalate	2.5	3	1.8	5.9 ug/L	None Established
Acenaphthylene	ND	0.06	ND	None Established	None Established
Phenanthrene	0.15	0.16	0.18	None Established	None Established
Total PAHs	0.15	0.22	0.18	5 ug/L	500 ug/L
Total Phthalates	66.0	56.8	52.3	100 ug/L	2,000 ug/L
Total Phenols	***447***	***247***	***250***	**5.0 ug/L**	1,000 ug/L
Total BNAs	***14***	7.6	***14.9***	**10.0 ug/L**	2,000 ug/L
PCBs - Method 8080 (ug/L)	ND	ND	ND	0.1 ug/L	1.0 ug/L
Pesticides – Method 8081A (ug/L)	ND	ND	ND		
Herbicides – Method 8151 (ug/L)	ND	ND	ND		
Total RCRA 8 Metals –mg/L	ND	ND	ND		
Dissolved RCRA 8 Metals – mg/L	ND	ND	ND		

ND – Not Detected (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

GP General Permit Discharge Limits

TABLE 2(b) - Results of Groundwater Grab Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Sample I.D.: Sample Date:	GP-7 GW 5/3/12	GP-9 GW 4/4/12	GP-11 GW 4/9/12	CTDEEP GP to "A" Surface Water Effluent Limits	CTDEEP GP to Sanitary Sewer Effluent Limits
CT ETPH (mg/L)	ND	ND	ND	5 mg/L	100 mg/L
VOCs - Method 8260 (ug/L)	ND	ND	ND		
SVOCs - Method 8270 (ug/L)					
Benzo(a)anthracene	0.04	0.09	0.06	0.49 ug/L	None Established
Benzo(b)fluoranthene	ND	ND	0.08	None Established	None Established
Chrysene	ND	0.08	ND	None Established	None Established
Dibenz(a,h)anthracene	ND	ND	0.01	0.01 ug/L	None Established
Phenanthrene	ND	ND	0.07	None Established	None Established
Total PAHs	0.04	0.17	0.22	5 ug/L	500 ug/L
PCBs - Method 8080 (ug/L)	ND	ND	ND	0.1 ug/L	1.0 ug/L
Pesticides – Method 8081A (ug/L)	ND	ND	ND		
Herbicides – Method 8151 (ug/L)	ND	ND	ND		
Total RCRA 8 Metals –mg/L					
Arsenic	ND	***0.014***	***0.105***	**0.000021 mg/L**	**0.1 mg/L**
Barium	0.075	0.103	0.501	None Established	5.0 mg/L
Cadmium	ND	ND	0.001	0.01 mg/L	0.1 mg/L
Chromium	0.001	0.019	0.11	0.342 mg/L	1.0 mg/L
Lead	ND	***0.012***	***0.119***	**0.0098 mg/L**	**0.1 mg/L**
Dissolved RCRA 8 Metals – mg/L					
Barium	0.059	0.046	0.036	None Established	5.0 mg/L

ND – Not Detected (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

GP General Permit Discharge Limits

TABLE 2(c) - Results of Groundwater Grab Sample Analyses
Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Sample I.D.: Sample Date:	GP-13 GW 4/4/12	GP-15 GW 4/4/12	GP-16 GW 4/4/12	CTDEEP GP to "A" Surface Water Effluent Limits	CTDEEP GP to Sanitary Sewer Effluent Limits
CT ETPH (mg/L)	ND	ND	ND	5 mg/L	100 mg/L
VOCs - Method 8260 (ug/L)	ND	ND	ND		
SVOCs - Method 8270 (ug/L)	ND	ND	ND		
PCBs - Method 8080 (ug/L)	ND	ND	ND	0.1 ug/L	1.0 ug/L
Pesticides – Method 8081A (ug/L)	ND	ND	ND		
Herbicides – Method 8151 (ug/L)	ND	ND	ND		
Total RCRA 8 Metals –mg/L					
Barium	0.049	ND	0.016	None Established	5.0 mg/L
Chromium	ND	ND	0.001	0.342 mg/L	1.0 mg/L
Dissolved RCRA 8 Metals – mg/L					
Barium	0.047	0.023	0.015	None Established	5.0 mg/L

ND – Not Detected (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

GP General Permit Discharge Limits

TABLE 2(d) - Results of Groundwater Grab Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Sample I.D.: Sample Date:	GP-18 GW 4/4/12	GP-19 GW 4/4/12	GP-20 GW 4/9/12	CTDEEP GP to "A" Surface Water Effluent Limits	CTDEEP GP to Sanitary Sewer Effluent Limits
CT ETPH (mg/L)	ND	ND	ND	5 mg/L	100 mg/L
VOCs - Method 8260 (ug/L)	ND	ND	ND		
SVOCs - Method 8270 (ug/L)					
Benzo(a)anthracene	ND	0.06	ND	0.49 ug/L	None Established
Phenanthrene	ND	0.08	ND	None Established	None Established
Total PAHs	ND	0.14	ND	5 ug/L	500 ug/L
PCBs - Method 8080 (ug/L)	ND	ND	ND	0.1 ug/L	1.0 ug/L
Pesticides – Method 8081A (ug/L)	ND	ND	ND		
Herbicides – Method 8151 (ug/L)	ND	ND	ND		
Total RCRA 8 Metals –mg/L					
Barium	0.015	0.016	ND	None Established	5.0 mg/L
Chromium	0.002	0.002	ND	0.342 mg/L	1.0 mg/L
Dissolved RCRA 8 Metals – mg/L					
Barium	0.017	0.031	ND	None Established	5.0 mg/L

ND – Not Detected (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

GP General Permit Discharge Limits

TABLE 2(e) - Results of Groundwater Grab Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Sample I.D.: Sample Date:	GP-21 GW 4/9/12	GP-22 GW 4/9/12	GP-24 GW 5/3/12	CTDEEP GP to "A" Surface Water Effluent Limits	CTDEEP GP to Sanitary Sewer Effluent Limits
CT ETPH (mg/L)	ND	ND	ND	5 mg/L	100 mg/L
VOCs - Method 8260 (ug/L)	ND	ND	ND		
SVOCs - Method 8270 (ug/L)					
Acenaphthene	ND	ND	0.42	None Established	None Established
Acenaphthylene	ND	ND	0.09	None Established	None Established
Benzo(a)anthracene	0.25	0.16	0.07	0.49 ug/L	None Established
Benzo(a)pyrene	0.23	0.14	ND	0.49 ug/L	None Established
Benzo(b)fluoranthene	0.43	0.28	0.05	None Established	None Established
Benzo(k)fluoranthene	0.11	0.06	ND	0.49 ug/L	None Established
Bis(2-ethylhexyl)phthalate	2.4	1.6	ND	5.9 ug/L	None Established
Chrysene	0.27	0.17	0.06	None Established	None Established
Dibenz(a,h)anthracene	***0.03***	***0.02***	ND	**0.01 ug/L**	None Established
Indeno(1,2,3-cd)pyrene	0.18	0.12	ND	0.49 ug/L	None Established
Phenanthrene	0.38	0.25	1.4	None Established	None Established
Total PAHs	1.88	1.2	2.09	5 ug/L	500 ug/L
Total Phthalates	2.4	1.6	ND	100 ug/L	2,000 ug/L
PCBs - Method 8080 (ug/L)	ND	ND	ND	0.1 ug/L	1.0 ug/L
Pesticides – Method 8081A (ug/L)					
Dieldrin	ND	ND	0.003	0.0042 ug/L	10 ug/L
Herbicides – Method 8151 (ug/L)	ND	ND	ND		
Total RCRA 8 Metals –mg/L					
Barium	0.049	0.076	0.046	None Established	5.0 mg/L
Cadmium	ND	0.001	ND	0.01 mg/L	0.1 mg/L
Chromium	0.005	0.011	0.021	0.342 mg/L	1.0 mg/L
Lead	***0.027***	***0.079***	0.007	**0.0098 mg/L**	0.1 mg/L
Dissolved RCRA 8 Metals – mg/L					
Barium	0.034	0.029	0.112	None Established	5.0 mg/L

ND – Not Detected (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

GP General Permit Discharge Limits

TABLE 2(f) - Results of Groundwater Grab Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Sample I.D.: Sample Date:	GP-26 GW 5/3/12	GP-28 GW 5/4/12	GP-30 GW 5/4/12	CTDEEP GP to "A" Surface Water Effluent Limits	CTDEEP GP to Sanitary Sewer Effluent Limits
CT ETPH (mg/L)	ND	ND	ND	5 mg/L	100 mg/L
VOCs - Method 8260 (ug/L)	ND	ND	ND		
SVOCs - Method 8270 (ug/L)					
Acenaphthene	0.34	ND	ND	None Established	None Established
Acenaphthylene	0.07	ND	ND	None Established	None Established
Benzo(a)anthracene	0.07	0.06	ND	0.49 ug/L	None Established
Benzo(b)fluoranthene	0.06	ND	ND	None Established	None Established
Chrysene	0.06	ND	ND	None Established	None Established
Phenanthrene	1.2	ND	ND	None Established	None Established
Total PAHs	1.8	0.06	ND	5 ug/L	500 ug/L
PCBs - Method 8080 (ug/L)	ND	ND	ND	0.1 ug/L	1.0 ug/L
Pesticides – Method 8081A (ug/L)					
Dieldrin	***0.005***	ND	ND	**0.0042 ug/L**	10 ug/L
Herbicides – Method 8151 (ug/L)	ND	ND	ND		
Total RCRA 8 Metals –mg/L					
Arsenic	***0.023***	***0.007***	***0.008***	**0.000021 mg/L**	0.1 mg/L
Barium	0.522	0.077	0.164	None Established	5.0 mg/L
Cadmium	0.004	ND	ND	0.01 mg/L	0.1 mg/L
Chromium	0.16	0.012	0.03	0.342 mg/L	1.0 mg/L
Lead	***0.099***	***0.004***	***0.009***	**0.0098 mg/L**	0.1 mg/L
Dissolved RCRA 8 Metals – mg/L					
Barium	0.12	0.073	0.014	None Established	5.0 mg/L

ND – Not Detected (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

GP General Permit Discharge Limits

TABLE 2(g) - Results of Groundwater Grab Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Sample I.D.: Sample Date:	GP-32 GW 4/13/12	GP-34 GW 4/13/12	GP-36 GW 5/3/12	CTDEEP GP to "A" Surface Water Effluent Limits	CTDEEP GP to Sanitary Sewer Effluent Limits
CT ETPH (mg/L)	ND	ND	ND	5 mg/L	100 mg/L
VOCs - Method 8260 (ug/L)	ND	ND	ND		
SVOCs - Method 8270 (ug/L)					
Acenaphthene	ND	ND	1.6	None Established	None Established
Acenaphthylene	ND	ND	0.46	None Established	None Established
Benzo(a)anthracene	0.06	ND	0.48	0.49 ug/L	None Established
Benzo(a)pyrene	ND	ND	0.36	0.49 ug/L	None Established
Benzo(b)fluoranthene	ND	ND	0.49	None Established	None Established
Benzo(k)fluoranthene	ND	ND	0.14	0.49 ug/L	None Established
Chrysene	ND	ND	0.48	None Established	None Established
Dibenz(a,h)anthracene	ND	ND	***0.06***	**0.01 ug/L**	None Established
Indeno(1,2,3-cd)pyrene	ND	ND	0.18	0.49 ug/L	None Established
Phenanthrene	0.07	ND	5.9	None Established	None Established
Total PAHs	0.13	ND	***10.15***	**5 ug/L**	500 ug/L
PCBs - Method 8080 (ug/L)	ND	ND	ND	0.1 ug/L	1.0 ug/L
Pesticides – Method 8081A (ug/L)					
Dieldrin	ND	ND	***0.011***	**0.0042 ug/L**	10 ug/L
Herbicides – Method 8151 (ug/L)	ND	ND	ND		
Total RCRA 8 Metals –mg/L					
Arsenic	***0.005***	ND	***0.052***	**0.000021 mg/L**	0.1 mg/L
Barium	0.675	ND	0.849	None Established	5.0 mg/L
Cadmium	ND	ND	0.008	0.01 mg/L	0.1 mg/L
Chromium	0.009	0.001	0.313	0.342 mg/L	1.0 mg/L
Lead	***0.045***	ND	***0.179***	**0.0098 mg/L**	**0.1 mg/L**
Dissolved RCRA 8 Metals – mg/L					
Barium	0.165	ND	0.12	None Established	5.0 mg/L
Chromium	ND	0.001	ND	0.342 mg/L	1.0 mg/L

ND – Not Detected (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

GP General Permit Discharge Limits

TABLE 2(h) - Results of Groundwater Grab Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Sample I.D.: Sample Date:	GP-37 GW 5/1/12	GP-39 GW 5/1/12	GP-41 GW 5/2/12	CTDEEP GP to "A" Surface Water Effluent Limits	CTDEEP GP to Sanitary Sewer Effluent Limits
CT ETPH (mg/L)	ND	ND	ND	5 mg/L	100 mg/L
VOCs - Method 8260 (ug/L)					
1,1,1-Trichloroethane	ND	ND	7.1	None Established	None Established
Tetrachloroethene	ND	ND	1.3	None Established	None Established
Trichloroethene	ND	ND	76	None Established	None Established
Naphthalene	3.7	1.4	ND	None Established	None Established
Total Chlorinated VOCs	ND	ND	84.4	None Established	1,000 ug/L
Total VOCs	3.7	1.4	***84.4***	**10 ug/L**	5,000 ug/L
SVOCs - Method 8270 (ug/L)					
Acenaphthene	0.1	ND	0.18	None Established	None Established
Acenaphthylene	0.19	ND	ND	None Established	None Established
Benzo(a)anthracene	0.08	ND	0.06	0.49 ug/L	None Established
Benzo(a)pyrene	0.05	ND	ND	0.49 ug/L	None Established
Benzo(b)fluoranthene	0.08	ND	0.07	None Established	None Established
Chrysene	0.06	ND	0.05	None Established	None Established
Dibenz(a,h)anthracene	0.01	ND	ND	0.01 ug/L	None Established
Phenanthrene	0.54	0.09	0.27	None Established	None Established
Total PAHs	1.11	0.09	0.63	5 ug/L	500 ug/L
PCBs - Method 8080 (ug/L)	ND	ND	ND	0.1 ug/L	1.0 ug/L
Pesticides – Method 8081A (ug/L)					
Dieldrin	ND	ND	***0.005***	**0.0042 ug/L**	10 ug/L
Herbicides – Method 8151 (ug/L)	ND	ND	ND		
Total RCRA 8 Metals –mg/L					
Arsenic	ND	***0.005***	ND	**0.000021 mg/L**	0.1 mg/L
Barium	0.04	0.124	0.077	None Established	5.0 mg/L
Chromium	0.003	0.034	0.005	0.342 mg/L	1.0 mg/L
Lead	0.003	***0.02***	ND	**0.0098 mg/L**	0.1 mg/L
Dissolved RCRA 8 Metals – mg/L					
Barium	0.052	0.031	0.059	None Established	5.0 mg/L
Chromium	0.008	ND	ND	0.342 mg/L	1.0 mg/L
Lead	0.002	ND	ND	0.0098 mg/L	0.1 mg/L

ND – Not Detected (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

GP General Permit Discharge Limits

TABLE 2(i) - Results of Groundwater Grab Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Sample I.D.: Sample Date:	GP-43 GW 5/2/12	GP-44 GW 5/1/12	GP-46 GW 5/2/12	CTDEEP GP to "A" Surface Water Effluent Limits	CTDEEP GP to Sanitary Sewer Effluent Limits
CT ETPH (mg/L)	ND	ND	ND	5 mg/L	100 mg/L
VOCs - Method 8260 (ug/L)	ND	ND	ND		
SVOCs - Method 8270 (ug/L)					
Benzo(a)anthracene	0.11	0.05	0.09	0.49 ug/L	None Established
Benzo(a)pyrene	0.08	ND	0.07	0.49 ug/L	None Established
Benzo(b)fluoranthene	0.12	ND	0.11	None Established	None Established
Chrysene	0.09	ND	0.08	None Established	None Established
Dibenz(a,h)anthracene	***0.02***	ND	0.01	**0.01 ug/L**	None Established
Phenanthrene	0.15	0.18	0.1	None Established	None Established
Total PAHs	0.57	0.23	0.46	5 ug/L	500 ug/L
PCBs - Method 8080 (ug/L)					
PCB-1254	ND	ND	***0.3***	**0.00017 ug/L**	1.0 ug/L
Total PCBs	ND	ND	***0.3***	**0.1 ug/L**	1.0 ug/L
Pesticides – Method 8081A (ug/L)					
Aldrin	ND	ND	***0.004***	**0.00014 ug/L**	1.5 ug/L
Dieldrin	0.003	ND	0.003	0.0042 ug/L	10 ug/L
Herbicides – Method 8151 (ug/L)	ND	ND	ND		
Total RCRA 8 Metals –mg/L					
Arsenic	ND	ND	***0.006***	**0.000021 mg/L**	0.1 mg/L
Barium	0.078	0.059	0.12	None Established	5.0 mg/L
Cadmium	ND	ND	0.001	0.01 mg/L	0.1 mg/L
Chromium	0.006	0.01	0.023	0.342 mg/L	1.0 mg/L
Lead	ND	0.003	***0.026***	**0.0098 mg/L**	0.1 mg/L
Dissolved RCRA 8 Metals – mg/L					
Barium	0.058	0.031	0.055	None Established	5.0 mg/L
Chromium	ND	0.001	ND	0.342 mg/L	1.0 mg/L

ND – Not Detected (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

GP General Permit Discharge Limits

TABLE 2(j) - Results of Groundwater Grab Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Sample I.D.: Sample Date:	GP-49 GW 5/2/12	GP-50 GW 5/2/12	GP-53 GW 4/13/12	CTDEEP GP to "A" Surface Water Effluent Limits	CTDEEP GP to Sanitary Sewer Effluent Limits
CT ETPH (mg/L)	ND	ND	ND	5 mg/L	100 mg/L
VOCs - Method 8260 (ug/L)					
cis-1,2-Dichloroethene	ND	ND	3.4	None Established	None Established
1,1,1-Trichloroethane	7.3	ND	ND	None Established	None Established
Tetrachloroethene	1.5	ND	7.9	None Established	None Established
Trichloroethene	76	ND	10	None Established	None Established
Total Chlorinated VOCs	84.8	ND	21.3	None Established	1,000 ug/L
Total VOCs	***84.8***	ND	***21.3***	**10 ug/L**	5,000 ug/L
SVOCs - Method 8270 (ug/L)					
Benzo(a)anthracene	0.04	ND	ND	0.49 ug/L	None Established
Phenanthrene	0.09	0.08	ND	None Established	None Established
Total PAHs	0.13	0.08	ND	5 ug/L	500 ug/L
PCBs - Method 8080 (ug/L)	ND	ND	ND	0.1 ug/L	1.0 ug/L
Pesticides – Method 8081A (ug/L)					
Dieldrin	***0.007***	ND	ND	**0.0042 ug/L**	10 ug/L
Herbicides – Method 8151 (ug/L)	ND	ND	ND		
Total RCRA 8 Metals –mg/L					
Arsenic	***0.016***	ND	***0.007***	**0.000021 mg/L**	0.1 mg/L
Barium	0.164	0.03	0.038	None Established	5.0 mg/L
Cadmium	0.003	ND	0.008	0.01 mg/L	0.1 mg/L
Chromium	0.059	0.009	0.001	0.342 mg/L	1.0 mg/L
Lead	***0.034***	0.003	ND	**0.0098 mg/L**	0.1 mg/L
Dissolved RCRA 8 Metals – mg/L					
Arsenic	ND	**0.016**	**0.006**	**0.000021 mg/L**	0.1 mg/L
Barium	0.029	ND	0.034	None Established	5.0 mg/L
Cadmium	ND	ND	0.006	0.01 mg/L	0.1 mg/L

ND – Not Detected (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

GP General Permit Discharge Limits

TABLE 2(k) - Results of Groundwater Grab Sample Analyses
Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Sample I.D.: Sample Date:	GP-54 GW 4/13/12	GP-55 GW 4/13/12	GP-56 GW 5/4/12	CTDEEP GP to "A" Surface Water Effluent Limits	CTDEEP GP to Sanitary Sewer Effluent Limits
CT ETPH (mg/L)	ND	ND	ND	5 mg/L	100 mg/L
VOCs - Method 8260 (ug/L)					
1,1,1-Trichloroethane	2.1	2.3	ND	None Established	None Established
1,1-Dichloroethane	12	13	ND	None Established	None Established
1,1-Dichloroethene	2.4	2.5	ND	None Established	None Established
cis-1,2-Dichloroethene	91	96	ND	None Established	None Established
Trichloroethene	260	280	1.7	None Established	None Established
Total Chlorinated VOCs	367.5	393.8	1.7	None Established	1,000 ug/L
Total VOCs	***367.5***	***393.8***	1.7	**10 ug/L**	5,000 ug/L
SVOCs - Method 8270 (ug/L)					
4-Nitrophenol	ND	72	ND	None Established	None Established
Benzo(a)anthracene	ND	ND	0.05	0.49 ug/L	None Established
Phenanthrene	ND	ND	0.13	None Established	None Established
Total Phenols	ND	***72***	ND	**5 ug/L**	1,000 ug/L
Total PAHs	ND	ND	0.18	5 ug/L	500 ug/L
PCBs - Method 8080 (ug/L)	ND	ND	ND	0.1 ug/L	1.0 ug/L
Pesticides – Method 8081A (ug/L)	ND	ND	ND		
Herbicides – Method 8151 (ug/L)	ND	ND	ND		
Total RCRA 8 Metals –mg/L					
Arsenic	ND	ND	***0.008***	**0.000021 mg/L**	0.1 mg/L
Barium	0.061	0.059	0.15	None Established	5.0 mg/L
Cadmium	0.002	0.002	ND	0.01 mg/L	0.1 mg/L
Chromium	ND	ND	0.034	0.342 mg/L	1.0 mg/L
Lead	ND	ND	0.006	0.0098 mg/L	0.1 mg/L
Dissolved RCRA 8 Metals – mg/L					
Arsenic	***0.006***	***0.007***	ND	**0.000021 mg/L**	0.1 mg/L
Barium	0.034	0.033	0.015	None Established	5.0 mg/L
Cadmium	0.005	0.007	ND	0.01 mg/L	0.1 mg/L

ND – Not Detected (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

GP General Permit Discharge Limits

TABLE 2(l) - Results of Groundwater Grab Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Sample I.D.: Sample Date:	GP-58 GW 5/4/12	GP-60 GW 4/10/12	GP-62 GW 4/10/12	CTDEEP GP to "A" Surface Water Effluent Limits	CTDEEP GP to Sanitary Sewer Effluent Limits
CT ETPH (mg/L)	ND	ND	ND	5 mg/L	100 mg/L
VOCs - Method 8260 (ug/L)					
Chlorobenzene	ND	ND	2.7	None Established	None Established
cis-1,2-Dichloroethene	ND	ND	1.5	None Established	None Established
Tetrachloroethene	ND	ND	1.3	None Established	None Established
Trichloroethene	ND	2.3	62	None Established	None Established
Total Chlorinated VOCs	ND	2.3	67.5	None Established	1,000 ug/L
Total VOCs	ND	2.3	***67.5***	**10 ug/L**	5,000 ug/L
SVOCs - Method 8270 (ug/L)					
Phenanthrene	0.05	ND	ND	None Established	None Established
Total PAHs	0.05	ND	ND	5 ug/L	500 ug/L
PCBs - Method 8080 (ug/L)	ND	ND	ND	0.1 ug/L	1.0 ug/L
Pesticides – Method 8081A (ug/L)	ND	ND	ND		
Herbicides – Method 8151 (ug/L)	ND	ND	ND		
Total RCRA 8 Metals –mg/L					
Arsenic	***0.009***	ND	ND	**0.000021 mg/L**	0.1 mg/L
Barium	0.071	ND	0.012	None Established	5.0 mg/L
Cadmium	ND	ND	0.002	0.01 mg/L	0.1 mg/L
Chromium	0.014	ND	ND	0.342 mg/L	1.0 mg/L
Lead	0.006	0.004	ND	0.0098 mg/L	0.1 mg/L
Dissolved RCRA 8 Metals – mg/L					
Barium	0.015	ND	0.011	None Established	5.0 mg/L
Cadmium	ND	ND	0.002	0.01 mg/L	0.1 mg/L

ND – Not Detected (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

GP General Permit Discharge Limits

TABLE 2(m) - Results of Groundwater Grab Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Sample I.D.: Sample Date:	GP-64 GW 4/10/12	GP-65 GW 4/10/12	GP-67 GW 4/10/12	CTDEEP GP to "A" Surface Water Effluent Limits	CTDEEP GP to Sanitary Sewer Effluent Limits
CT ETPH (mg/L)	ND	ND	ND	5 mg/L	100 mg/L
VOCs - Method 8260 (ug/L)					
Trichloroethene	3.2	3.4	ND	None Established	None Established
Total Chlorinated VOCs	3.2	3.4	ND	None Established	1,000 ug/L
Total VOCs	3.2	3.4	ND	10 ug/L	5,000 ug/L
SVOCs - Method 8270 (ug/L)					
Benzo(b)fluoranthene	0.05	ND	ND	None Established	None Established
Total PAHs	0.05	ND	ND	5 ug/L	500 ug/L
PCBs - Method 8080 (ug/L)	ND	ND	ND	0.1 ug/L	1.0 ug/L
Pesticides – Method 8081A (ug/L)	ND	ND	ND		
Herbicides – Method 8151 (ug/L)	ND	ND	ND		
Total RCRA 8 Metals –mg/L					
Barium	0.007	0.027	0.023	None Established	5.0 mg/L
Cadmium	ND	***0.022***	ND	**0.01 mg/L**	0.1 mg/L
Chromium	0.007	0.006	ND	0.342 mg/L	1.0 mg/L
Lead	0.008	***0.05***	ND	**0.0098 mg/L**	0.1 mg/L
Dissolved RCRA 8 Metals – mg/L					
Barium	ND	0.023	0.021	None Established	5.0 mg/L
Cadmium	ND	***0.019***	ND	**0.01 mg/L**	0.1 mg/L

ND – Not Detected (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

GP General Permit Discharge Limits

TABLE 2(n) - Results of Groundwater Grab Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Sample I.D.: Sample Date:	GP-69 GW 4/2/12	GP-71 GW 4/2/12	GP-73 GW 4/2/12	CTDEEP GP to "A" Surface Water Effluent Limits	CTDEEP GP to Sanitary Sewer Effluent Limits
CT ETPH (mg/L)	ND	0.092	0.21	5 mg/L	100 mg/L
VOCs - Method 8260 (ug/L)					
1,2,4-Trimethylbenzene	ND	8.0	1.6	None Established	None Established
1,3,5-Trimethylbenzene	ND	1.6	ND	None Established	None Established
Chlorobenzene	ND	1.1	ND	None Established	None Established
Isopropylbenzene	ND	11	1.2	None Established	None Established
n-Propylbenzene	ND	4.4	ND	None Established	None Established
Xylenes (total)	ND	29	ND	None Established	None Established
Total Chlorinated VOCs	ND	1.1	ND	None Established	1,000 ug/L
Total VOCs	ND	***55.1***	2.8	**10 ug/L**	5,000 ug/L
SVOCs - Method 8270 (ug/L)					
Acenaphthene	ND	0.44	0.47	None Established	None Established
Acenaphthylene	0.08	0.27	0.19	None Established	None Established
Benzo(a)anthracene	0.21	0.38	***0.52***	**0.49 ug/L**	None Established
Benzo(a)pyrene	0.31	0.36	0.31	0.49 ug/L	None Established
Benzo(b)fluoranthene	0.48	0.51	0.59	None Established	None Established
Benzo(k)fluoranthene	0.17	0.13	0.17	0.49 ug/L	None Established
Bis(2-ethylhexyl)phthalate	2	1.8	1.8	5.9 ug/L	None Established
Chrysene	0.27	0.4	0.6	None Established	None Established
Dibenz(a,h)anthracene	***0.05***	***0.06***	***0.08***	**0.01 ug/L**	None Established
Indeno(1,2,3-cd)pyrene	0.29	0.32	0.41	0.49 ug/L	None Established
Phenanthrene	0.19	1.1	1.9	None Established	None Established
Total PAHs	2.05	3.97	***5.24***	**5 ug/L**	500 ug/L
Total Phthalates	2	1.8	1.8	100 ug/L	2,000 ug/L
PCBs - Method 8080 (ug/L)					
PCB-1260	***12***	ND	ND	**0.00017 ug/L**	**1.0 ug/L**
PCB-1268	ND	***2.6****	***4.1****	**0.00017 ug/L**	**1.0 ug/L**
Total PCBs	***12***	***2.6***	***4.1***	**0.1 ug/L**	**1.0 ug/L**
Pesticides – Method 8081A (ug/L)	ND	ND	ND		
Herbicides – Method 8151 (ug/L)	ND	ND	ND		
Total RCRA 8 Metals –mg/L					
Arsenic	***0.004***	***0.039***	ND	**0.000021 mg/L**	0.1 mg/L
Barium	0.047	0.354	0.057	None Established	5.0 mg/L
Cadmium	0.001	0.006	0.003	0.01 mg/L	0.1 mg/L
Chromium	0.017	0.082	0.002	0.342 mg/L	1.0 mg/L
Lead	***0.011***	***0.112***	***0.004***	**0.0098 mg/L**	**0.1 mg/L**
Silver	0.003	ND	ND	0.005 mg/L	0.1 mg/L
Dissolved RCRA 8 Metals – mg/L					
Barium	0.017	0.031	0.046	None Established	5.0 mg/L

ND – Not Detected (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

GP General Permit Discharge Limits

* The PCB aroclor detected in the sample was highly weathered, but most closely resembled PCB-1268

TABLE 2(o) - Results of Groundwater Grab Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Sample I.D.: Sample Date:	GP-77 GW 4/2/12	GP-79 GW 4/2/12	GP-81 GW 4/2/12	CTDEEP GP to "A" Surface Water Effluent Limits	CTDEEP GP to Sanitary Sewer Effluent Limits
CT ETPH (mg/L)	ND	ND	ND	5 mg/L	100 mg/L
VOCs - Method 8260 (ug/L)	ND	ND	ND		
SVOCs - Method 8270 (ug/L)					
Benzo(a)anthracene	0.21	***0.55***	***0.78***	**0.49 ug/L**	None Established
Benzo(a)pyrene	0.3	***0.95***	***1.1***	**0.49 ug/L**	None Established
Benzo(b)fluoranthene	0.66	2.1	2.2	None Established	None Established
Benzo(k)fluoranthene	0.16	***0.51***	***0.61***	**0.49 ug/L**	None Established
Bis(2-ethylhexyl)phthalate	**6**	***10***	3.9	**5.9 ug/L**	None Established
Chrysene	0.4	1.2	1.1	None Established	None Established
Dibenz(a,h)anthracene	***0.07***	***0.25***	***0.27***	**0.01 ug/L**	None Established
Indeno(1,2,3-cd)pyrene	0.43	***1.4***	***1.5***	**0.49 ug/L**	None Established
Phenanthrene	0.25	0.72	0.88	None Established	None Established
Total PAHs	2.48	***7.68***	***8.44***	**5 ug/L**	500 ug/L
Total Phthalates	6	10	3.9	100 ug/L	2,000 ug/L
PCBs - Method 8080 (ug/L)	ND	ND	ND	0.1 ug/L	1.0 ug/L
Pesticides – Method 8081A (ug/L)	ND	ND	ND		
Herbicides – Method 8151 (ug/L)	ND	ND	ND		
Total RCRA 8 Metals –mg/L					
Arsenic	***0.007***	***0.014***	ND	**0.000021 mg/L**	0.1 mg/L
Barium	0.054	0.165	0.02	None Established	5.0 mg/L
Cadmium	0.002	0.001	ND	0.01 mg/L	0.1 mg/L
Chromium	0.021	0.055	0.008	0.342 mg/L	1.0 mg/L
Lead	***0.03***	***0.086***	***0.019***	**0.0098 mg/L**	0.1 mg/L
Dissolved RCRA 8 Metals – mg/L					
Barium	0.008	0.011	0.006	None Established	5.0 mg/L
Chromium	ND	0.002	ND	0.342 mg/L	1.0 mg/L

ND – Not Detected (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

GP General Permit Discharge Limits

TABLE 2(p) - Results of Groundwater Grab Sample Analyses

Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Sample I.D.: Sample Date:	GP-83 GW 5/16/12	CTDEEP GP to "A" Surface Water Effluent Limits	CTDEEP GP to Sanitary Sewer Effluent Limits
CT ETPH (mg/L)	0.65	5 mg/L	100 mg/L
VOCs - Method 8260 (ug/L)			
Methyl Ethyl Ketone	6.4	None Established	None Established
Naphthalene	1.7	None Established	None Established
Toluene	1.4	None Established	None Established
Total VOCs	9.5	10 ug/L	5,000 ug/L
SVOCs - Method 8270 (ug/L)			
Diethyl Phthalate	23	None Established	None Established
Dimethylphthalate	6.1	None Established	None Established
Di-n-butylphthalate	9.8	None Established	None Established
Phenanthrene	0.23	None Established	None Established
Total PAHs	0.23	5 ug/L	500 ug/L
Total Phthalates	38.9	100 ug/L	2,000 ug/L
PCBs - Method 8080 (ug/L)	ND		
Pesticides – Method 8081A (ug/L)	ND		
Herbicides – Method 8151 (ug/L)	ND		
Total RCRA 8 Metals –mg/L	ND		
Dissolved RCRA 8 Metals – mg/L	ND		

ND – Not Detected (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

GP General Permit Discharge Limits

TABLE 3(a) - Results of QA/QC Sample Analyses

Trip Blank Samples
Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Sample I.D.:	TB-1	TB-2	TB-3	TB-4	TB-5 Low	TB-6 Low	TB-7 Low
Date:	4/4/12	4/9/12	4/10/12	4/13/12	4/16/12	4/17/12	4/18/12
Matrix:	Aqueous	Aqueous	Aqueous	Aqueous	Soil	Soil	Soil
VOCs - EPA Method 8260	ND	ND	ND	ND	ND	ND	ND

TABLE 3(b) - Results of QA/QC Sample Analyses

Trip Blank Samples
Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Sample I.D.:	TB-8 Low	TB-8 High	TB-9	TB-10	TB-11	TB-12 Low	TB-12 High
Date:	Soil	Soil	Aqueous	Aqueous	Aqueous	Soil	Soil
Matrix:	4/30/12	4/30/12	5/1/12	5/2/12	5/4/12	5/14/12	5/14/12
VOCs - EPA Method 8260	ND	ND	ND	ND	ND	ND	ND

TABLE 3(c) - Results of QA/QC Sample Analyses

Trip Blank Samples
Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Sample I.D.:	TB-13 Low	TB-13 High	TB-14	TB-15	TB-16
Date:	Soil	Soil	Aqueous	Aqueous	Aqueous
Matrix:	5/15/12	5/15/12	5/16/12	5/29/12	5/30/12
VOCs - EPA Method 8260	ND	ND	ND	ND	ND

ND – Not Detected (see laboratory reports for compound specific detection limits)

TABLE 3(d) - Results of QA/QC Sample Analyses

Field Blank Samples
Metro North Railroad, New Haven Line, Catenary Replacement Sections C1a & C2
East Norwalk, Westport, Bridgeport, & Stratford, Connecticut

Sample I.D.:	FB-1	FB-2	FB-3
Sample Date:	4/13/12	5/4/12	5/30/12
Sampling Equipment:	Aqueous	Aqueous	Soil
CT ETPH (ug/L)	ND	ND	ND
VOCs - Method 8260 (ug/L)	ND	ND	ND
SVOCs - Method 8270 (ug/L)	ND	ND	ND
PCBs - Method 8080 (ug/L)	ND	ND	ND
Pesticides – Method 8081A (ug/L)	ND	ND	ND
Herbicides – Method 8151 (ug/L)	ND	ND	ND
Total RCRA 8 Metals –mg/L			
Arsenic	ND	ND	0.004
Barium	ND	ND	0.012
Chromium	ND	ND	0.001
Dissolved RCRA 8 Metals –mg/L	ND	ND	NA

ND Not Detected at a concentration exceeding the laboratory's detection limit (see laboratory reports for compound specific detection limits)

The compounds listed above are those that were detected - please see laboratory reports for full lists of compounds and their specific detection limits.

NA Not Analyzed for this procedure

APPENDIX A
Boring Logs

APPENDIX B
Laboratory Reports
(Volume 2)

APPENDIX C
DQA & DUE Worksheets
(Volume 2)