

SOIL MANAGEMENT PLAN

International Marine Terminal Site
West Commercial Street
Portland, Maine

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Revision	Date	Description
0	Mar 2015	MaineDOT Ownership – Initial Issue

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List of Acronyms and Abbreviations

AMEC	AMEC Environment & Infrastructure, Inc.
CGRM	coal gasification-related material
HAZWOPER	Hazardous Waste Operations and Emergency Response Standard
IMT	International Marine Terminal
MaineDOT	Maine Department of Transportation
MEDEP	Maine Department of Environmental Protection
MGP	manufactured gas plant
NAPL	Non-Aqueous Phase Liquid
NGL	NGL Energy Partners LP
NU	Northern Utilities, Inc. d/b/a Unitil
O&M	Operations and Maintenance
OSHA	U.S. Occupational Safety & Health Administration
Property	Former Unitil and Pan Am parcels – West Commercial Street
RAG	Remedial Action Guidelines
SMP	Soil Management Plan
SSHSP	Site Specific Health and Safety Plan
SVOC	semi-volatile organic compounds
VRAP	Voluntary Response Action Program
ESA	Environmental Site Assessment

1. Introduction

The Maine Department of Transportation (MaineDOT) is currently expanding the existing International Marine Terminal (IMT) along the Fore River in Portland, Maine (see Figure 1, Project Locus). The proposed expansion plans consisted of the acquisition of properties located to the west of the existing IMT facility that included parcels formerly operated by Northern Utilities, Inc., d/b/a Unitil (Unitil) and properties formerly owned by New Yard, LLC and Pan Am Railroad. The acquired Unitil parcel was historically occupied and utilized by the Portland Gas Works operations that resulted in several environmental conditions and concerns that were effectively addressed through Unitil's participation in MEDEP's Voluntary Response Action Program (VRAP). The remedial approach implemented at the Unitil property was outlined in a MEDEP issued VRAP No Action Assurance letter dated 1 June 2012 and incorporated into the amended Soil Management Plan (SMP).

The recently acquired property from New Yard is located immediately west of the IMT facility and bisects the former Unitil parcel; the former Pan-Am parcel is located to the west of the new boat yard facility being constructed along the Fore River adjacent to the western portion of the former Unitil property. Previously completed investigations on the former New Yard and Pan Am parcels did not identify significant environmental issues related to the former manufactured gas plant (MGP) operations. However, completed analytical soil testing collected from near surface samples identified soil impacts from historical railroad operations resulting in slightly elevated levels of semi-volatile organic compounds (PAHs) and select metals; similar to the detected soil impacts addressed by the Unitil VRAP. Due to the similarly encountered environmental conditions and to ensure consistency, MaineDOT requested MEDEP approval to utilize the remedial actions presented in the 1 June 2012 No Action Assurance letter for construction activities associated with the former New Yard and Pan Am property. In a letter dated 19 September 2014, MEDEP granted approval that the proposed remedial actions previously outlined for the Unitil property in the 1 June 2012 VRAP No Action Assurance letter is appropriate for similar conditions encountered on the acquired Pan Am parcels.

This Soil Management Plan (SMP) was prepared by Haley & Aldrich for MaineDOT to recognize the change in the property owner and incorporate the former New Yard and Pan Am properties as part of the Site. To ensure consistency, MaineDOT used information contained in the SMP originally developed by Unitil for this plan. As previously indicated, this SMP is intended for construction and maintenance activities associated with excavations on all the parcels associated with the IMT Expansion project.

1.1 SITE DESCRIPTION AND BACKGROUND

The IMT property expansion/acquisition consists of approximately 17.9 acres that includes two separate parcels acquired from Unitil located in the eastern area of the site property and two parcels acquired from Pan Am (see Figure 2). The two former Unitil properties, separated by former Pan Am property, consist of a northern triangular-shaped parcel (Inland Parcel) that includes the existing propane storage/distribution facility and a southern irregular shaped parcel along the Fore River (Shoreline Parcel). The northern parcel acquired from Unitil currently includes the propane storage/distribution facility occupying the western portion of this parcel.

The acquired eastern Pan Am property extends from the Casco Bay Bridge with two finger-like extensions to the west; the southern extension includes the property between the two Unitil parcels; and the northern finger extending from the northern boundary of the Inland Unitil parcel to West Commercial Street continuing in a westerly direction to the northwest corner of the New Yard, LLC property (see Figure 2). The acquired western Pan Am parcel is approximately 50 to 100 ft in width extending from the intersection of Cassidy Point Drive and West Commercial Street to the west, traversing in an easterly direction parallel to West Commercial Street extending to the western boundary of the New Yard LLC property and the above-mentioned Pan Am parcel (see Figure 2).

1.1.1 Former Unitil Parcels

This portion of the site property consists of two parcels of land, formerly identified as being located at 40 West Commercial Street in Portland, Maine. These include the Inland and Shoreline parcels and are the location of a former manufactured gas plant operated by Portland Gas Works, which began operations in the mid-Nineteenth Century. In the mid-1960's, soon after the formation of Northern Utilities (NU), natural gas was introduced to the area and the plant ceased operation. The facility was subsequently decommissioned and demolished.

A portion of this property is currently occupied by an active propane storage facility and a regulator station housed in one of two remaining MGP buildings within the Inland parcel. Access to the parcel is controlled by a series of perimeter fences.

NU applied for, and in early 1999, was granted entry to the Voluntary Remedial Action Program (VRAP) for the former Portland Gas Works site. This program allows the owner to voluntarily investigate and correct environmental conditions at a site in cooperation with Maine Department of Environmental Protection (MEDEP). NU completed a Phase I Site Investigation of environmental conditions at the Property in 1999. NU met with MEDEP in September 1999 and reported the results of the Phase I Site Investigation indicated the presence of gas-manufacturing by-products. It was agreed that further site characterization was warranted. At that time, NU recommended, and MEDEP concurred, that the site be fenced to prevent further trespassing. In 2000, NU obtained permission from Guilford Transportation (Pan Am) to erect a security fence around the Property and to conduct a supplemental investigation on the abutter's property to determine whether coal gas residues may have migrated onto its parcel.

The fieldwork for NU's Phase II Site Investigation was completed in 2002 and a report was submitted to MEDEP in November 2002. MEDEP reviewed the report and some limited supplemental field data collection activities were implemented during 2003 to address MEDEP comments.

Based on the results of investigations conducted at the Property between 1999 and 2003, six primary source areas of coal gasification-related material (CGRM) were identified. These source areas included:

- A gravel mound underlain by CGRM;
- A subsurface Non-Aqueous Phase Liquid (NAPL)/seep area;
- A former tar well/gas holder;

- A former tar processing area;
- Tar scabs along the shoreline of the Fore River; and
- Purifier box waste.

The results of the investigations, characterization, conceptual model, and risk evaluation were summarized in an Investigation Summary Report dated April 2003. The Gravel Mound was addressed in a study dated May 12, 2004 and under went remediation in June 2004. To address the remediation of the other five areas, technologies were identified and remedies were selected based on the findings of a Focused Feasibility Study/Response Action Plan dated July 2004.

Remediation activities were executed on four of the source areas during the winter of 2006/2007. These activities included:

- Containment and minimization of NAPL migration from the upgradient source area to the seep area and groundwater by installing a NAPL collection and storage system;
- Removal of 400 tons of liquid tar from the tar well and subsequent backfill and stabilization of the well;
- Removal of shoreline tar scabs and debris and installation of a rip-rap revetment on the shoreline;
- Removal of the gravel mound; and
- Removal of approximately 5,700 tons of tar impacted soil and debris in the tar processing area.

Property ownership changed in December 2008 when Unitil acquired Northern Utilities, Inc. from NiSource – the then parent company of NU - in a common stock sale.

Further remediation of the seep area and the purifier box waste area were to be addressed in future remedial actions under the VRAP program. These were subsequently noted in the current No Action Assurance letter issued by the MEDEP in May 2012.

Additional investigations related to contamination in the former gravel mound, purifier box waste area, the inland parcel tar scab area, and shoreline parcel seep area were conducted in 2012. The information from these investigations was used to:

- Confirm that the gravel mound contaminated soil had been removed and have a certificate of completion issued for that portion of the former inland parcel,
- Develop remedial design plans for the excavation and removal of the former purifier box waste area the construction for which was completed in January 2014, and

- Develop remedial designs plans for the shoreline seep area, the construction for which will be completed in Fall of 2015.

1.1.2 Former Pan Am Railroad Properties

The western portion of the existing site property that was previously owned and operated by Pan Am consisted of undeveloped overgrown areas that included a primary rail line, a parallel rail line spur and an existing gravel roadway that was also likely a former rail line. The primary rail line was most recently used to service the adjacent Northern Utilities/Unitil propane/natural gas facility located to the east.

As part of the redevelopment of this area, Haley & Aldrich completed a Phase I and II Environmental Site Assessment (ESA) of a portion of the Pan Am property for MaineDOT in 2013. The portion of the Pan Am property entailing the ESA included the entire western parcel extending from West Commercial Street to the Fore River, to the north and south, respectively; to the intersection of West Commercial Street and Cassidy Point to the west; and to the southern boundary of the New Yard and eastern Pan Am parcel boundaries. The results of the ESA are included in a report to MaineDOT dated 13 December 2013.

Historically, the site property was developed for railroad related purposes in the 1850s. This railroad property is currently referred to as a portion of the Yard 8 Property formerly operated by the Portland Terminal Company since the early 1900s. The Portland Terminal Company was a terminal railroad notable for its control of switching activity for the Maine Central Railroad and Boston & Maine railroads for Portland, South Portland and Westbrook. Portland Terminal Company was acquired by Guilford Transportation Industries in 1981 and continued as a subsidiary of Pan Am to the present. Additional details related to historical site and vicinity operations and uses are included in the 13 December 2013 ESA report.

As part of the Phase II ESA, a series of test pit excavations were performed to investigate subsurface conditions beneath this portion of the Pan Am property. The thirty-six completed test pit excavations, designated TP-101 through TP-136, are shown on Figure 3 (2 sheets). The purpose of the test pits was to assess the degree and extent of anticipated fill material and potential environmental impacts associated with past railroad operations and adjoining property uses. In addition, selected soil samples collected from the excavations were submitted for chemical analyses.

Encountered subsurface conditions for each of the test pit excavations are summarized in Table 1. The excavations were completed to depths ranging from approximately 6.5 to 12.0 ft below ground surface (BGS). Encountered soils included two distinct units of fill material, typically overlain by a thin layer of vegetative cover material soils described as follows:

- Rail Yard Fill – Fill material related to former rail yard operations was encountered in almost all of the completed excavations at a uniform depth extending to approximately 2.0 ft BGS. The encountered rail yard fill material consisted primarily of gray to black ash, cinders, clinkers and coal pieces intermixed with a medium to fine SAND with silt and occasional ballast material.

- Tidal Area Fill – Fill material related to the historic filling of the tidal area for the development of the waterfront area adjacent to the Fore River consisted of a mixture of granular soils and marine deposits consisting of fine sands, silt and clay. The granular fill material typically overlain the finer grained marine deposits, likely for additional bearing capacity related to the railroad operations. The thickness of the tidal fill material could not be determined due to the presence of tidally influenced groundwater in the excavations and cave-ins of the excavation sidewalls. It is likely that the placed tidal fill material may have extended to depths greater than the completed test pit excavations and/or was similar material and indistinguishable (>12 ft BGS).

Nine collected soil samples were submitted for chemical analyses. Four of the samples tested were collected within the rail yard fill materials (i.e., from TP-101, TP-107, TP-117 and TP-112), one of the samples was collected near the location of the existing crane structure (from TP-129A), and four samples were collected within the tidal fill materials (from TP-133 through TP-136; adjacent to the New Yard LLC property and not a portion of the Pan Am acquired property). The rail yard fill samples were analyzed for semi-volatile organic compounds (SVOCs), PCBs and RCRA metals. The tidal fill samples were analyzed for VOCs, SVOCs and RCRA metals. The soil testing results are summarized on Table 2, and are compared to MDEP Remedial Action Guidelines (RAGs). The results are summarized as follows:

Rail Yard Fill Samples – PCBs were not detected in any of the samples. Detected metals in each of the samples included arsenic, barium, chromium and lead; mercury was detected in each of the samples with the exception of TP-117. The detected metals concentrations in all of the samples were within the common range typically found in soils. With the exception of arsenic, all detected metals were below MDEP Remedial Action Guidelines (RAGs). The detected arsenic concentrations were within a similar range and likely represent background concentrations. With the exception of the sample from TP-117, several SVOCs (PAHs) were detected in the rail yard fill samples exceeding the Residential, Park User and Commercial Worker RAGs. The detected concentration of benzo(a)pyrene in the sample from TP-101 exceeded the Residential and Park User RAGs. The remaining detected SVOCs in the rail yard fill samples were detected at concentrations below the RAGs.

Crane Structure Sample – No VOCs, SVOCs or PCBs were detected in the sample from TP-129A. Detected metals included arsenic, barium, chromium and lead at concentrations within the typically range of metals, and with the exception of arsenic, below the RAGs. Similar to the rail yard samples, the detected arsenic concentration likely is representative of background arsenic concentrations.

Tidal Fill Samples from the Eastern Portion of the Site – No VOCs were detected in any of the eastern area samples. Detected metals included arsenic, barium, chromium and lead at concentrations within the typically range of metals, and with the exception of arsenic which likely represents background, below the RAGs. No SVOCs were detected in TP-135 or TP-136. In samples TP-133 and TP-134 several SVOCs were detected above the Residential and/or the Park User RAGs. Field observations indicated that detected SVOCs in TP-133 and TP-134 were likely attributed to the migration of upgradient CGRM impacted groundwater.

1.2 POINTS OF CONTACT

For construction related questions associated with the IMT expansion project contact:

MaineDOT Multimodal Program Office
Phone (207) 624-3420

For environmental related concerns call:

MaineDOT Office of Safety and Compliance
Phone (207) 624-3004

Maine Department of Environmental Protection
VRAP Program – Mr. Nick Hodgkins – Project Manager
Phone (207) 287-4854

2. Excavation and Segregation

The primary goal of excavation and segregation activities is to return stockpiled impacted soil back into the excavation, as close as possible to the point of origin. Criteria for soil segregation at the point of excavation are based on depth and visual inspection. Details of the excavation and segregation criteria are described below.

This SMP focuses only on the requirements of handling site soil, and does not address other worker safety requirements. A SSHSP must be prepared and implemented, as needed, to address applicable state and federal regulatory requirements.

Excavations completed on the former Unitil parcels may encounter soil containing tar and/or oily debris, and may include, but is not limited to, the following:

- excavated material containing a greater percentage of tar than soil;
- pooling of oily material within, or draining from, the stockpile; or
- tar or oily material flowing into the excavation from the sidewalls.

If this type of impacted soil is temporarily stockpiled for off-site treatment and disposal at a licensed facility, the soils must be managed in accordance with applicable state and federal regulations. If such conditions are encountered, the appropriate points of contact should be immediately notified (see Section 1.3 above).

Excavations completed on the former Pan Am railway property will encounter rail yard fill material containing ash, cinders, clinkers and coal pieces intermixed with sand, silt and ballast material from the ground surface to approximately 2.0 ft BGS. Rail yard fill material encountered during excavation activities will be segregated and stockpiled for use as backfill material in the completed excavation. Excess rail yard fill material will be stockpiled and covered for potential on-site re-use and/or off-site treatment or disposal at a licensed facility.

At depths below approximately 2.0 ft BGS, tidal area fill consisting of granular native material at thicknesses ranging from approximately 6 to 8 ft is anticipated. Based on previous analytical results, excess tidal area fill can be removed from the site by the contractor for uses approved by the MEDEP. However, if any rail operations related material, (i.e., ash, demolition debris, etc.) is observed the MaineDOT Site Manager will be notified and upon direction this material will be segregated for on-site reuse or sampled for analytical analysis and the disposition will be determined based on the comparison of the results to MEDEP Remedial Action Guidelines.

Although not observed in previously completed subsurface investigations, there is the potential that petroleum impacted conditions may be encountered from former railroad related operations that would

require notification of the appropriate points of contact. In addition, any tar and/or oily material encountered beneath the adjacent former Pan Am property, likely at depths below the water table and downgradient from the former MGP operations shall also require site contact notification.

2.1 EXCAVATION PROTOCOL

If the excavation occurs in an area of pavement or crushed rock, this material is first removed and stockpiled for reuse. Soil removed from the excavation shall be initially-separated based on visual inspection of the soil. Soil removed from the ground surface to a depth where soils are visually impacted with MGP materials shall be placed to one side of the excavation. Rail yard fill material impacted soils excavated from the point of visual staining to the bottom of the excavation shall be placed on the opposite side of the excavation (see Figure 4).

Tidal fill material that visually displays no impacts will be side cast for future reuse or for off-site management.

Site workers shall employ dust control measures, as needed, to minimize the creation of airborne dust during the excavation process.

2.2 SEGREGATION ACTIVITIES

To the extent necessary and possible, excavated material associated with the Project shall be grouped into one of four categories: (1) Visually clean soil material, (2) soil containing ash and clinkers; (3) soil containing visible tar or oily debris; and (4) oversized debris. Each is described in more detail below.

2.2.1 Visually Clean Soil

Soil material designated as clean through observation shall be stockpiled in areas separate for other soil storage locations. This material may be reused at any on-site location or may be taken off-site for reuse as approved by the MEDEP and after appropriate characterization.

2.2.2 Soil Containing Ash and Clinkers

Shallow soils across the project area, including the tidal area fill material, excavated above the water table at the site is expected to be visually clean, or mixed with ash and/or clinkers (rail yard fill). This type of soil may be temporarily stockpiled right next to the excavation. These soils can be returned to any depth in the excavation, but should be reserved for backfilling the upper 24 inches.

2.2.3 Soil Containing Tar, Oil, and/or Wood Chips

Soil containing limited amounts of tar, oily debris, and/or wood chips can be temporarily stockpiled near the excavation, as long as it will be returned to the excavation. To the extent feasible, soil containing limited amounts of tar and/or oily debris should be stockpiled away from the cleaner material described above.

If the excavation ceases because heavy tar and/or oil are found in the soil (free-product and/or saturated soils), stockpiled material should be immediately returned to the excavation. If it is not feasible to return this material to the excavation, the stockpiled material must be secured to the extent feasible (to minimize exposure to this material). The disposition of this encountered material will be determined in consultation with the MEDEP.

2.2.4 Oversized Debris

Oversized debris includes material such as pieces of concrete, refractory, abandoned piping, or lumber, which may be coated with tar or oily debris. If a large amount of oversized debris coated with such material is excavated and cannot be returned to the excavation, the material must be moved to a short-term storage area and secured to the extent feasible (to minimize exposure to this material).

2.3 BACKFILLING

Visually-impacted soil (e.g., tar, oil, wood chips) shall be returned to the deeper portions of the excavation, and lesser impacted material may be reused as backfill at any depth in the excavation. Visually 'clean' soil as described in Section 2.2.1 may be returned to the upper portion of the excavation (see Figure 3) or it may be taken off site for reuse.

3. Storage and Stockpiling

This section describes storage and stockpiling requirements for the Property. Stockpiling shall be conducted in a manner to prevent rain infiltration, erosion, and dust generation.

3.1 GENERAL REQUIREMENTS

Excavated soils at the IMT Expansion Project shall be handled and stored as follows:

- Soil containing MGP residuals shall be stored in a secure manner to prevent exposure to humans and the environment, immediately adjacent to the excavation, where possible.
- Soil will be covered, as necessary, to minimize infiltration of precipitation, to limit dust, to control odors, and/or to prevent erosion of the stockpile. Covered materials shall be properly secured and possess the necessary physical strength to resist tearing by the wind.
- As needed during periods of heavy rain, erosion control procedures shall be used to prevent erosion of materials to nearby catch basins or other stormwater drainage structures.

3.2 TEMPORARY STOCKPILING

During excavation, soil shall be placed next to the excavation. For most excavations it is expected that the material will be returned to the excavation. Rail yard fill material, in addition to soil containing limited amounts of tar and oily debris or oversized debris affected by tar and oil, can also be stored adjacent to the excavation, provided it is returned to the excavation.

3.3 INTERIM STOCKPILING

Interim storage procedures shall be used when excavated soil is held outside of the excavation for an extended period of time. Interim storage may be located adjacent to or near the excavation. Erosion control procedures shall be employed on the stockpiles to prevent runoff, if necessary. In addition, any tidal area fill material segregated due to the presence of observed non-native debris shall be stored in accordance with these guidelines.

3.4 ON-SITE STORAGE

On-site storage is only required for excess soil that cannot be returned to the excavation or spread out at the ground surface adjacent to the excavation areas. The VRAP for the properties allows for the on-site storage of impacted material in “landscape berms.” These berms will be strategically located on the site property and will be constructed to minimize potential long term impacts to the environment or human health.

4. On-Site Reuse or Off-Site Disposal

Excavated soil will either be reused on-site or transported off-site for management. Soil reused on-site may be managed by site workers. Activities associated with off-site management must be conducted and approved by MaineDOT in accordance with this SMP.

4.1 ON-SITE REUSE

Excess soil that is visibly clean (i.e., contains no staining, tar, or oily material) may be appropriate for on-site reuse or taken off-site for reuse. Impacted soils may be placed back into the excavation, taken off site for disposal or placed into landscape berms on the property. The location and dimensions of several proposed landscape berms, designated 1A, 1B, 2A, 2B, 2C and 2D, are summarized on the table and figures included in Appendix B. Other locations may be defined on site as the project progresses.

4.2 OFF-SITE DISPOSAL

Excess soil containing tar, oil, and/or wood chips that cannot be placed back into the excavation of origin or stored on-site in landscape berms requires off-site disposal. This material must be characterized in accordance with state and federal regulations and requirements of the receiving facility.

Segregated tidal fill material containing non-native material will only be removed from the site upon review of associated analytical results of collected composite soil samples. The off-site disposal location will be determined based on the visual characteristics of the material and the comparison of the analytical results to applicable MEDEP soil guidelines.

5. New Condition Discovery

Excavation activities at the Property may expose subsurface conditions, such as the presence of oily liquids or the discovery of a buried structure containing MGP wastes. If such conditions are discovered, the related work shall stop, as necessary, and the appropriate points of contact shall be notified of the finding.

6. Updating the Soil Management Plan

This SMP will be updated as necessary based on changes at the site such as remedial actions or changes in ownership. Revisions to the plan shall be noted on the cover page.

TABLES

TABLE 1
SUMMARY OF TEST PIT EXPLORATIONS
PAN AM PROPERTY - WEST COMMERCIAL STREET
PORTLAND, MAINE

Test Pit Designation	Depth (feet)	Description	Notes
TP-101	0.0-0.2	Vegetative cover - brownish-gray, dry, sandy SILT with rootlets	
	0.2-2.1	Gray to dark gray, dry, ash and cinders with clinkers and coal pieces	S1 1.0-2.0 ft BGS
	2.1-9.0	Brown, moist to wet, gravelly medium to fine sand, little coarse sand, trace silt	Water @ 9.0 ft BGS
	9.0-11.5	Gray, wet, fine sandy SILT, with occasional gravel fragments <i>Bottom of exploration at 11.5 ft, no refusal. No elevated PID readings detected.</i>	
TP-102	0.0-0.5	Vegetative cover - brownish-gray, dry, sandy SILT with rootlets, cinders and ballast material	
	0.5-2.2	Dark gray, dry, coarse to fine SAND, little silt, with ash, cinders, coal pieces and clinkers	
	2.2-4.0	Brown, moist, gravelly coarse to fine SAND, intermixed with grayish-brown fine sandy SILT	Water seeping in at 4.0 ft BGS
	4.0-6.0	Brownish-gray, moist, clayey SILT, trace fine sand, with mottling and blocky texture	
	6.0-8.5	Gray, wet, silty CLAY <i>Bottom of exploration at 8.5 ft, no refusal. No elevated PID readings detected.</i>	
TP-103	0.0-0.2	Vegetative cover - rootlets and ballast material	
	0.2-2.0	Dark gray, dry, ash, cinders, coal pieces and clinkers intermixed with coarse to fine SAND, little silt	
	2.0-7.0	Brown, moist, silty fine SAND, trace medium sand, intermixed with gray-brown gravelly medium to fine SAND, trace coarse sand and silt, with brick pieces	S-1 2.5-3.0 ft BGS
	7.0-12.0	Brown, damp to wet, coarse to fine SAND, trace gravel <i>Bottom of exploration at 12.0 ft, no refusal. No elevated PID readings detected.</i>	Water @10.5 ft BGS
TP-104	0.0-0.5	Vegetative cover - rootlets and ballast material and clinkers	
	0.5-2.0	Dark gray to black, dry, ash, cinders, coal and clinker pieces	
	2.0-5.0	Brown, moist, gravelly coarse to fine SAND, intermixed with grayish-brown, silty medium to fine SAND, with occasional boulders	
	5.0-5.5	Brownish-gray, moist to damp, fine sandy SILT to clayey SILT	
	5.5-11.0	Brown, wet, gravelly coarse to fine SAND, with boulders <i>Bottom of exploration at 11.0 ft, no refusal. No elevated PID readings detected.</i>	Water at 8.5 ft BGS
TP-105	0.0-0.4	Vegetative cover - rootlets and ballast material and cinders	
	0.4-1.9	Dark gray to black, dry, ash, cinders with clinkers and coal pieces	
	1.9-4.0	Rusty brown, dry to moist, coarse to fine SAND, intermixed with grayish-brown, silty fine SAND	S1 2.5-3.0 ft BGS
	4.0-11.5	Brown, damp to wet, coarse to fine SAND, trace gravel <i>Bottom of exploration at 11.5 ft, no refusal. No elevated PID readings detected.</i>	Water at 10.0 ft BGS
TP-106	0.0-0.2	Vegetative cover - rootlets and ballast material	
	0.2-2.1	Dark gray to black, dry, ash, cinders with clinkers and coal pieces	
	2.1-8.5	Brown to rusty brown, moist to damp, coarse to fine SAND, little gravel, with cobbles, intermixed with silty fine SAND with brick fragments	
	8.5-11.0	Gray, wet, silty CLAY to clayey SILT, intermixed with brown, coarse to fine SAND, little gravel <i>Bottom of exploration at 11.0 ft, no refusal. No elevated PID readings detected.</i>	Water at 9.0 ft BGS

TABLE 1
SUMMARY OF TEST PIT EXPLORATIONS
PAN AM PROPERTY - WEST COMMERCIAL STREET
PORTLAND, MAINE

Test Pit Designation	Depth (feet)	Description	Notes
TP-107	0.0-0.5	Vegetative cover - rootlets and ballast material	
	0.5-2.1	Dark gray to black, dry, ash, cinders with ballast, clinkers and coal pieces	S1 1.0-2.0 ft BGS
	2.1-7.0	Rusty brown to brown, moist to damp, medium to fine SAND, little gravel, trace coarse sand and silt, intermixed with gray-brown fine sandy SILT	
	7.0-9.0	Brownish-gray, damp to wet, fine sandy SILT to clayey SILT <i>Bottom of exploration at 9.0 ft, no refusal. No elevated PID readings detected.</i>	
TP-108	0.0-0.5	Vegetative cover - rootlets and ballast material	
	0.5-1.8	Dark gray to black, dry, ash, cinders, clinkers and coal pieces intermixed with medium to fine SAND	
	1.8-2.3	Brown, dry to moist, coarse to fine SAND, little gravel, trace silt	
	2.3-5.0	Gray, damp to wet, silty CLAY (CL), mottling to 6.5 ft BGS	
	5.0-10.0	Gray, damp to wet, clayey SILT, trace fine sand <i>Bottom of exploration at 10.0 ft, no refusal. No elevated PID readings detected.</i>	
TP-109	0.0-2.1	Dark gray to black, dry, ash, cinders with ballast, clinkers and coal pieces	
	2.1-6.5	Grayish-brown, moist to damp, medium to fine SAND, little gravel, trace coarse sand and silt grading to a grayish-brown silty medium to fine SAND, trace gravel <i>Bottom of exploration at 6.5 ft, no refusal. No elevated PID readings detected.</i>	
TP-110	0.0-0.4	Vegetative cover - rootlets with ash, cinders and ballast material	
	0.4-2.0	Dark gray to black, dry, ash, cinders/clinkers and coal pieces with ballast material	
	2.0-4.2	Brown, dry to moist, gravelly medium to fine SAND, little coarse sand, trace silt	
	4.2-6.5	Grayish-brown, damp to moist, clayey SILT, trace fine sand, with mottling <i>Bottom of exploration at 6.5 ft, no refusal. No elevated PID readings detected.</i>	
TP-111	0.0-0.4	Vegetative cover - rootlets and black ash material and cinders	
	0.4-1.8	Dark gray to black, dry, ash, cinders with ballast, clinkers and coal pieces	
	1.8-4.5	Rusty brown to brown, moist, coarse to fine sandy GRAVEL, with brick pieces	S1 2.0-3.0 ft BGS
	4.5-8.5	Brown-gray, moist to wet, medium to fine SAND intermixed with gray clayey SILT <i>Bottom of exploration at 8.5 ft, no refusal. No elevated PID readings detected.</i>	
TP-112	0.0-0.2	Vegetative cover - rootlets and black ash, cinders and ballast material	
	0.2-1.7	Dark gray to black, dry, ash, cinders with ballast, clinkers and coal pieces	
	1.7-4.5	Light brown to rusty brown, moist, coarse to fine SAND, little gravel, with cobbles and boulders	
	4.5-8.0	Gray, moist to damp, clayey SILT, trace fine sand <i>Bottom of exploration at 8.0 ft, no refusal. No elevated PID readings detected.</i>	
TP-113	0.0-0.2	Vegetative cover - rootlets and black ash, cinders and ballast material	
	0.2-0.5	Dark gray to black, dry, ash, cinders with clinkers and coal pieces	
	0.5-3.0	Grayish-brown, moist, coarse to fine sandy GRAVEL, with cobbles	S1 0.6-0.9 ft BGS
	3.0-7.0	Light brown, moist, medium to fine SAND, trace gravel and silt, with cobbles	
	7.0-9.0	Brownish-gray, wet, fine sandy SILT, grading to a gray clayey SILT <i>Bottom of exploration at 9.0 ft, no refusal. No elevated PID readings detected.</i>	

TABLE 1
SUMMARY OF TEST PIT EXPLORATIONS
PAN AM PROPERTY - WEST COMMERCIAL STREET
PORTLAND, MAINE

Geoprobe Number	Depth (feet)	Description	Notes
TP-114	0.0-0.8	Vegetative cover - rootlets and black ash, cinders, clinkers and coal pieces	
	0.8-5.5	Light brown to brown, dry to moist, gravelly coarse to fine SAND	
	5.5-10.5	Gray, damp to wet, clayey SILT, trace fine sand, grading to a gray silty CLAY	
		<i>Bottom of exploration at 10.5 ft, no refusal. No elevated PID readings detected.</i>	
TP-115	0.0-2.2	Dark gray to black, dry, ash, cinders, clinkers and coal pieces, mixed with glass fragments and metal pieces, with an a layer of apparent white ash material	<i>S1-white ash layer from 1.8-2.2 ft BGS</i>
	2.2-6.5	Brown, moist to damp, medium to fine SAND, trace gravel with cobbles	
	6.5-8.0	Gray, damp to wet, fine sandy SILT to clayey SILT	
		<i>Bottom of exploration at 8.0 ft, no refusal. No elevated PID readings detected.</i>	
TP-116	0.0-0.5	Dark brown, dry, silty SAND with ash, cinders, clinkers and coal pieces	
	0.5-1.5	Light brown, dry to moist, coarse to fine sandy GRAVEL	
	1.5-3.0	Dark gray, moist, ash, cinders with clinkers, coal and brick pieces, in a fine sandy SILT matrix	
	3.0-8.0	Cobble and boulder sized granite pieces	<i>Water at 7.5 ft BGS</i>
		<i>Bottom of exploration at 8.0 ft, no refusal. No elevated PID readings detected.</i>	
TP-117	0.0-0.3	Vegetative cover - rootlets and black ash, cinders, clinkers and coal pieces	
	0.3-2.0	Dark gray to black, dry, ash, cinders, coal pieces and clinkers	
	2.0-2.5	Light brown, moist, coarse to fine SAND, trace gravel	<i>S1 2.0-2.5 ft BGS</i>
	2.5-8.0	Grayish-brown, damp to wet, fine SAND to a clayey SILT	
	8.0-9.5	Brown, wet, coarse to fine SAND, trace gravel	<i>Water at 8.0 ft BGS</i>
		<i>Bottom of exploration at 9.5 ft, no refusal. No elevated PID readings detected.</i>	
TP-118	0.0-0.2	Vegetative cover - dark brown silty fine SAND with rootlets	
	0.2-1.2	Light gray, dry to moist, sandy GRAVEL, trace silt, with ash, cinders and clinkers	
	1.2-2.5	Dark gray to black, dry, ash, cinders, coal pieces and clinkers	
	2.5-5.0	Grayish-brown, moist, silty fine SAND, with occasional gravel pieces	
	5.0-6.5	Cobbles and boulders in a dark brown, silty fine SAND matrix	
		<i>Bottom of exploration at 6.5 ft, no refusal. No elevated PID readings detected.</i>	
TP-119	0.0-0.5	Vegetative cover - rootlets and black ash, cinders, clinkers and coal pieces	
	0.5-2.0	Dark gray to black, dry, ash, cinders, coal pieces and clinkers	<i>S1 1.5-2.0 ft BGS</i>
	2.0-10.0	Light brown to brown, gravelly coarse to fine SAND with cobbles and boulders	<i>Water at 8.5 ft BGS</i>
		<i>Bottom of exploration at 10.0 ft, no refusal. No elevated PID readings detected.</i>	

TABLE 1
SUMMARY OF TEST PIT EXPLORATIONS
PAN AM PROPERTY - WEST COMMERCIAL STREET
PORTLAND, MAINE

Geoprobe Number	Depth (feet)	Description	Notes
TP-120	0.0-0.5	Vegetative cover - rootlets and ash, cinders, clinkers and coal pieces, with ballast	
	0.5-1.8	Dark gray to black, dry, ash, cinders, coal pieces and clinkers	
	1.8-3.3	Light brown, moist, gravelly coarse to fine SAND, with cobbles	
	3.3-4.1	Layer of black peastone-sized coal and clinker pieces	
	4.1-8.0	Granular fill material consisting of granite boulders and brick pieces	bricks from 5-7 ft BGS
	8.0-10.5	Gray, wet, silty fine SAND, little gravel with shell fragments <i>Bottom of exploration at 10.5 ft, no refusal. No elevated PID readings detected.</i>	water @ 8.5 ft BGS
TP-121	0.0-0.2	Vegetative cover - brown loamy SAND with rootlets and ballast material	
	0.2-2.2	Dark gray to brown, dry, ash, cinders, coal pieces and clinkers	
	2.2-2.8	Brown, moist, gravelly medium to fine sand	
	2.8-6.5	Grayish-brown, moist to wet, ash, cinders, clinkers and coal pieces in a coarse to fine SAND matrix with glass fragments	S1 3.0-4.0 ft BGS
	6.5-8.5	Sand and gravel, significant groundwater infiltration <i>Bottom of exploration at 8.5 ft, no refusal. No elevated PID readings detected.</i>	water at 6.5 ft BGS
TP-122	0.0-0.3	Vegetative cover - rootlets and ash, cinders, clinkers and coal pieces, with ballast	
	0.3-1.5	Dark gray to black, dry, ash, cinders, coal and clinkers with ballast material	
	1.5-3.5	Brown to rusty brown, damp, coarse to fine SAND, little gravel	
	3.5-6.5	Gray, moist, clayey SILT to silty CLAY, trace fine sand, with blocky texture	
	6.5-10.0	Brown, wet, coarse to fine SAND, little silt, trace gravel <i>Bottom of exploration at 10.0 ft, no refusal. No elevated PID readings detected.</i>	water at 7.0 ft BGS
TP-123	0.0-0.4	Vegetative cover - rootlets and dark gray ash, cinders and coal pieces	
	0.4-1.5	Dark gray to black, dry, ash, cinders, coal and clinkers with ballast material	
	1.5-1.8	Light gray, moist, ash, cinders and coal pieces	S1 1.5-1.8 ft BGS
	1.8-10.5	Brown, moist to damp, coarse to fine SAND, with cobbles and boulders <i>Bottom of exploration at 10.5 ft, no refusal. No elevated PID readings detected.</i>	cave-ins
TP-124	0.0-0.2	Vegetative cover - rootlets with ash, cinders and coal pieces	
	0.2-1.0	Dark gray to black, dry, ash, cinders, coal and clinkers with ballast material	
	1.0-12.0	Light brown, moist to wet, medium to fine SAND, trace gravel and coarse sand <i>Bottom of exploration at 12.0 ft, no refusal. No elevated PID readings detected.</i>	Water at 11.0 ft BGS
TP-125	0.0-1.0	Light brown, dry to moist, silty fine SAND with rootlets	Adj. to former structure
	1.0-6.5	Light brown, moist, coarse to fine SAND, little gravel	
	6.5-8.5	Gray, moist to damp, silty fine SAND (collapsing side-walls) <i>Bottom of exploration at 8.5 ft, no refusal. No elevated PID readings detected.</i>	cave-ins
TP-126	0.0-0.2	Vegetative cover - ash, cinders, clinkers and ballast material	Adj. to former structure
	0.2-2.2	Dark gray to black, dry, ash, cinders with clinkers, coal and brick pieces	
	2.2-2.6	Light gray, moist, ash material with clinkers and coal pieces	S1 2.2-2.6 ft BGS
	2.6-6.5	Mixture of ash, cinders, clinkers, coal and brick pieces, with granite pieces and miscellaneous wire remnants	
	6.5-11.0	Gray, damp to wet, clayey SILT to silty CLAY, with vertical wooden piles <i>Bottom of exploration at 11.0 ft, no refusal. No elevated PID readings detected.</i>	Water at 10.5 ft BGS

TABLE 1
SUMMARY OF TEST PIT EXPLORATIONS
PAN AM PROPERTY - WEST COMMERCIAL STREET
PORTLAND, MAINE

Test Pit Designation	Depth (feet)	Description	Notes
TP-127	0.0-0.3	Vegetative cover - brownish-gray, rootlets within ash, cinders, coal and loamy fine SAND	
	0.3-2.4	Light gray, dry, ash and cinders with clinkers, coal and brick pieces	S1 1.4-2.4 ft BGS
	2.4-5.5	Dark gray to black, moist, ash, cinders with clinkers, coal and ballast material	
	5.5-10.5	Brown to gray, damp to wet, medium to fine SAND, little silt and gravel mixed with fine sandy SILT and silty CLAY	
		Bottom of exploration at 10.5 ft, no refusal. No elevated PID readings detected.	
TP-128	0.0-0.8	Gray, dry, ash and cinders mixed with ballast material	Adj. to crane structure
	0.8-1.3	Light brown, dry, medium to fine SAND	
	1.3-1.5	Dark gray to black, dry, ash, cinders, clinkers and coal pieces	
	1.5-3.8	Brown, moist, gravelly coarse to fine SAND	
	3.8-9.0	Grayish-brown, moist to damp, silty medium to fine SAND, little gravel, trace coarse sand (encountered footing of former crane structure)	water from structure encountered at 9.0 ft BGS
		Bottom of exploration at 9.0 ft, no refusal. No elevated PID readings detected.	
TP-129	0.0-0.7	Dark gray to black, dry, ash, cinders, coal and clinker pieces	Adj. to crane structure
	0.7-8.0	Brown, moist, coarse to fine SAND, little gravel, with cobbles and boulders	concrete foundation extends to 8 ft BGS
	8.0-11.5	Gray, damp to wet, silty CLAY	Cave-ins
		Bottom of exploration at 11.5 ft, no refusal. No elevated PID readings detected.	
		Completed adjacent excavation, designated TP-129A for collection of soil samples.	
TP-130	0.0-0.8	Dark gray to black, dry, ash, cinders, coal and clinker pieces with ballast	
	0.8-3.5	Brown, moist, medium to fine SAND, trace silt, with cobbles and bricks	brick foundation wall encountered
	3.5-4.5	Grayish-brown, moist, fine sandy SILT with brick pieces	
	4.5-12.0	Light brown to gray, moist to wet, coarse to fine SAND, trace gravel	Water at 10.0 ft BGS
		Bottom of exploration at 12.0 ft, no refusal. No elevated PID readings detected.	
TP-131	0.0-1.8	Dark gray to black, dry, ash, cinders with clinkers and coal pieces	
	1.8-11.0	Brown, damp to wet, medium to fine SAND, trace silt intermixed with grayish-brown fine sandy SILT, with gravel pieces	timber pile @ 8 ft BGS
		Bottom of exploration at 11.0 ft, no refusal. No elevated PID readings detected.	
TP-132	0.0-2.5	Dark gray to black, dry, ash, cinders with clinkers and coal pieces, with rootlets	
	2.5-12.0	Rusty brown to gray, moist to wet, medium to fine SAND, little gravel, trace coarse sand and silt	water @ 10 ft BGS
		Bottom of exploration at 12.0 ft, no refusal. No elevated PID readings detected.	

TABLE 1
SUMMARY OF TEST PIT EXPLORATIONS
PAN AM PROPERTY - WEST COMMERCIAL STREET
PORTLAND, MAINE

Test Pit Designation	Depth (feet)	Description	Notes
TP-133	0.0-0.3	Vegetative cover - rootlets with ash, cinders, clinkers and coal pieces	
	0.3-2.2	Gray to dark gray, dry, ash and cinders with clinkers, coal pieces and ballast	
	2.2-3.2	Light brown, moist, coarse to fine SAND, trace gravel	S1 2.2-3.2 ft BGS
	3.2-7.5	Grayish-brown, moist to damp, silty fine SAND, with mottling	water at 7.5 ft BGS
	7.5-10.0	Gray, wet, clayey SILT intermixed with coarse to fine SAND, trace gravel, with black staining and oil-like material (OLM), with naphtha-like odor <i>Bottom of exploration at 11.5 ft, no refusal. No elevated PID readings detected from soils between 0 to 7.5 ft BGS.</i>	S2 8.0-9.0 ft BGS PID=15 ppm
TP-134	0.0-1.5	Gray to dark gray, dry, ash and cinders with clinkers, coal pieces and brick pieces	
	1.5-6.5	Brown, moist to damp, gravelly coarse to fine SAND, trace silt	
	6.5-9.0	Dark gray, damp to wet, gravelly coarse to fine SAND, mixed with fine sandy SILT, with black staining and OLM, with naphtha-like odor <i>Bottom of exploration at 9.0 ft, no refusal. No elevated PID readings detected from soils between 0 to 7.5 ft BGS.</i>	water at 7.5 ft BGS S1 7.5-8.5 ft BGS PID=24 ppm
TP-135	0.0-3.0	Gray to dark gray, dry, ash and cinders with clinkers, coal pieces and brick pieces	
	3.0-6.0	Grayish-brown, moist to damp, medium to fine SAND, with bricks and granite pieces	vertical wooden piles encountered
	6.0-10.0	Brown to gray, damp to wet, coarse to fine SAND, little gravel, mixed with gray clayey SILT, trace fine sand, with organics <i>Bottom of exploration at 10.0 ft, no refusal. No elevated PID readings detected.</i>	S-1 7.5-8.5 ft BGS Water @ 8.5 ft BGS
TP-136	0.0-1.2	Gray to dark gray, dry to moist, ash and cinders with clinkers, coal and brick pieces	
	1.2-6.0	Brown, moist to damp, coarse to fine SAND	
	6.0-9.0	Gray, damp to wet, medium to fine SAND, trace gravel, mixed with fine sandy SILT <i>Bottom of exploration at 9.0 ft, no refusal. No elevated PID readings detected.</i>	Water at 7.5 ft BGS S1 7.5-8.5 ft BGS

NOTES:

1. Test pit explorations were completed between 19 and 23 August 2013 by Mackenzie Landscaping of Winslow, Maine and were monitored by Haley & Aldrich personnel.
2. Soil samples were screened for VOCs with a MiniRAE PID.
3. Refer to Figure 3 for locations of completed test pit excavations.

TABLE 2
SUMMARY OF SOIL TESTING RESULTS
PAN AM PROPERTY - WEST COMMERCIAL STREET
PORTLAND, MAINE

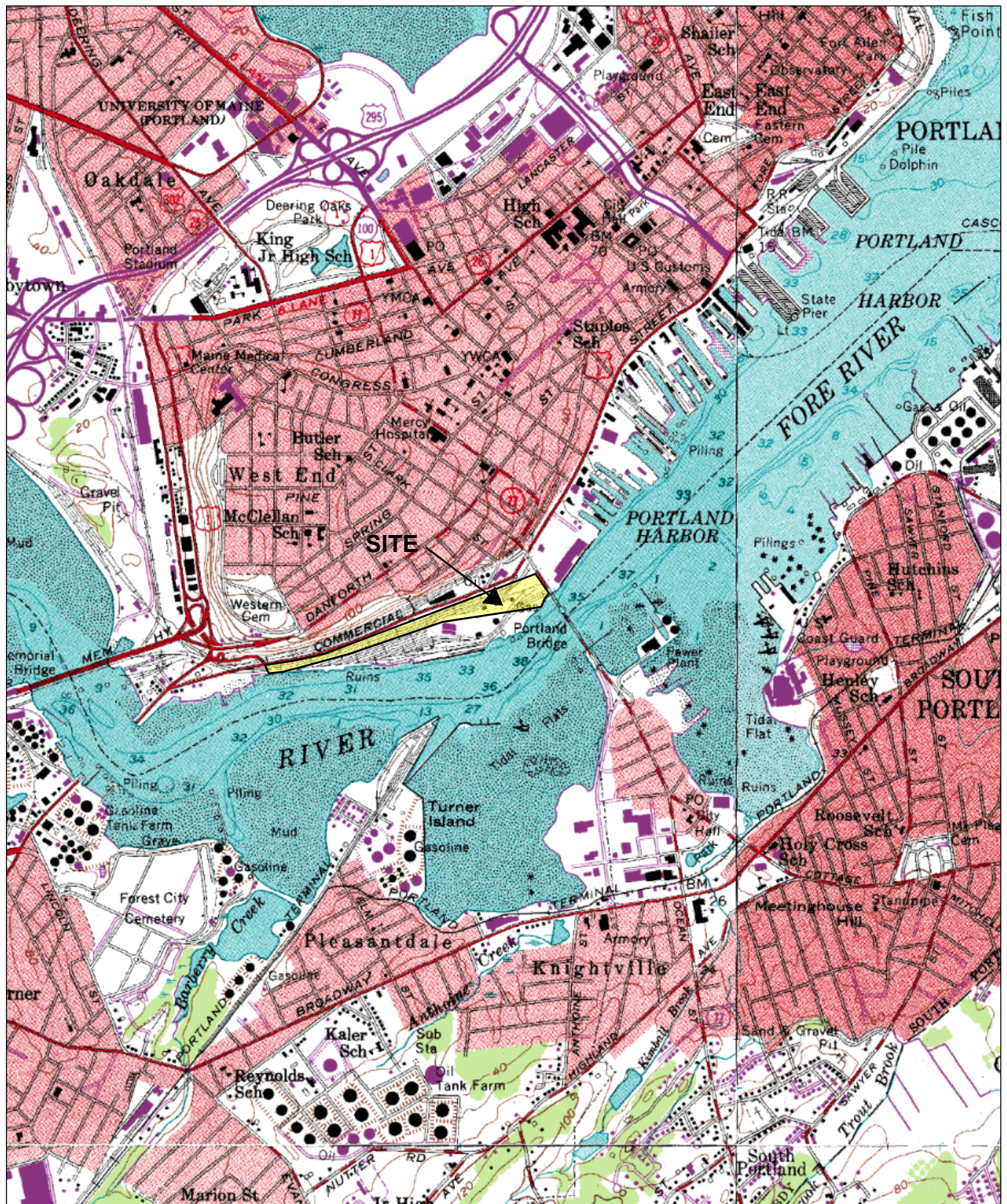
Parameter ⁽¹⁾	Sample Location Depth (ft BGS)									Maine Remedial Action Guidelines			
	TP-101 1.0-2.0	TP-107 1.0-2.0	TP-117 2.0-2.5	TP-121 3.0-4.0	TP-129A 8.0-9.0	TP-133 8.0-9.0	TP-134 7.5-8.5	TP-135 8.0-9.0	TP-136 7.5-8.5	Residential	Park User	Commercial Worker	Construction Worker
Volatile Organic Compounds	--	--	--	--	ND	ND	ND	ND	ND	NA	NA	NA	NA
Semi-Volatile Organic Compounds⁽⁵⁾													
Phenanthrene	0.64	0.43	ND	14.00	ND	77.0	320.0	ND	ND	3,700	6,200	10,000	10,000
Fluoranthene	1.60	0.39	ND	14.00	ND	76.0	83.0	ND	ND	5,000	8,300	10,000	10,000
Pyrene	2.00	ND	ND	12.00	ND	47.0	55.0	ND	ND	3,700	6,200	10,000	10,000
Benzo(a)anthracene	1.00	ND	ND	6.10	ND	9.40	12.0	ND	ND	2.6	4.4	35	430
Chrysene	1.30	0.36	ND	6.30	ND	8.20	12.0	ND	ND	260	440	3,500	10,000
Benzo(b)fluoranthene	1.80	0.38	ND	6.10	ND	3.40	ND>7.2	ND	ND	2.6	4.4	35	430.0
Benzo(k)fluoranthene	0.72	ND	ND	2.40	ND	2.10	ND>7.2	ND	ND	26	44	350	4,300
Benzo(a)pyrene	1.10	ND	ND	4.20	ND	2.40	ND>7.2	ND	ND	0.26	0.44	3.5	43
Indeno(1,2,3-cd)pyrene	0.90	ND	ND	2.30	ND	ND	ND>7.2	ND	ND	2.6	4.4	35	430
Benzo(g,h,i)perylene	0.55	ND	ND	1.30	ND	ND	ND>7.2	ND	ND	3,700	6,200	10,000	10,000
Acenaphthene	ND	ND	ND	1.30	ND	4.50	7.90	ND	ND	7,500	10,000	10,000	9,800
Fluorene	ND	ND	ND	1.40	ND	27.0	67.0	ND	ND	5,000	8,300	10,000	10,000
Anthracene	ND	ND	ND	3.00	ND	93.0	72.0	ND	ND	10,000	10,000	10,000	3,800
Dibenzo(a,h)anthracene	ND	ND	ND	0.70	ND	ND	ND>7.2	ND	ND	0.26	0.44	3.5	43.0
PCBs	ND	ND	ND	ND	ND	--	--	--	--	NA	NA	NA	NA
Metals⁽⁵⁾	Common Range⁽⁴⁾												
Arsenic	1.0-50.0	10.1	13.0	3.5	11.0	7.0	14.0	7.9	10.3	4.8	1.4	2.3	4.2
Barium	100-3,000	116.0	82.8	14.8	96.7	42.8	47.4	21.1	47.1	27.9	10,000	10,000	10,000
Chromium	1.0-1,000	19.8	19.7	7.01	19.1	22.2	25.2	14.0	28.7	17.1	10,000	10,000	10,000
Lead	2.0-200.0	79.9	165.0	48.3	157.0	6.7	6.8	7.2	10.8	3.9	340	530	1,100
Mercury	0.01-0.3	0.437	2.74	ND	1.66	ND	ND	ND	ND	ND	51	85	510

NOTES:

- Results, guidelines and ranges are listed in parts per million (ppm or mg/kg).
 - Refer to Figure 2 of this report for locations of samples collected by Haley & Aldrich from test pit excavations performed on 19-23 August 2013.
 - Source of Information: Appendix 2 - Maine Remedial Action Guidelines for Soil for Multiple Contaminants; Maine Department of Environmental Protection, Revised May 8, 2013.
 - Common Range of Metals in Soil. Source of Information: Table 6.46 - Trace Element Content of Soils, W.L. Lindsay, Chemical Equilibria in Soils, John Wiley & Sons, New York, 1979.
 - Only detected metals and compounds are listed.
- NA - No known guideline or common range or not applicable
-- Sample not analyzed for this parameter
ND - Compound or metal not detected

Rail Yard Fill Material
Tidal Area Fill Material
MGP Impacted Fill Material

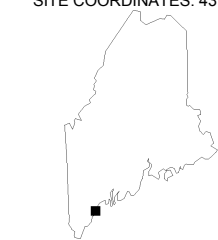
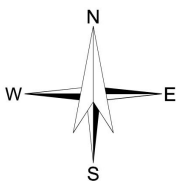
FIGURES



SITE COORDINATES: 43°38'42"N, 70°15'43"W

**HALEY
ALDRICH**

INTERNATIONAL MARINE TERMINAL
WEST COMMERCIAL STREET
PORTLAND, MAINE



U.S.G.S. QUADRANGLE: PORTLAND WEST, ME

PROJECT LOCUS

SCALE: 1:24,000
FEBRUARY 2015

FIGURE 1



NOTES:

1. BASE PLAN OBTAINED FROM GOOGLE EARTH, US DEPT. OF STATE GEOGRAPHER, 2013 GOOGLE.
2. DESIGNATED PROPERTY BOUNDARIES WERE DETERMINED FROM "BOUNDARY & TOPOGRAPHIC SURVEY, WEST COMMERCIAL STREET," DATED 4 APRIL 2014 PREPARED BY OWEN HESKELL, INC. FOR HNTB & MAINE DOT.

LEGEND:

- APPROXIMATE SITE PROPERTY BOUNDARY
- APPROXIMATE PROPERTY BOUNDARY FOR NEW YARD, LLC
- INLAND PARCEL - FORMER UNITIL PROPERTY
- SHORELINE PARCEL - FORMER UNITIL PROPERTY
- EXISTING UNITIL PROPANE STORAGE/ DISTRIBUTION FACILITY
- FORMER PAN AM PROPERTY



**HALEY
ALDRICH**

INTERNATIONAL MARINE TERMINAL
PORTLAND, MAINE

PROPERTY BOUNDARY PLAN

NOT TO SCALE
FEBRUARY 2015

FIGURE 2




BROWN, TYLER
G:\PROJECTS\40151-MDOT\W. COMMERCIAL ST.-PORTLAND\CAD\SMP\40151_SMP.DWG
Printed: 2/17/2015 10:40 AM
Layout: FIGURE 3



NOTES:

1. BASE PLAN OBTAINED FROM GOOGLE EARTH, US DEPT. OF STATE GEOGRAPHER, 2013 GOOGLE.
2. TEST PIT EXCAVATIONS WERE PERFORMED BY MACKENZIE CONSTRUCTION OF WINSLOW, MAINE BETWEEN 19 AND 23 AUGUST 2013. ALL EXPLORATIONS WERE MONITORED BY HALEY & ALDRICH PERSONNEL.
3. TEST PIT LOCATIONS ARE APPROXIMATE AND WERE DETERMINED BY TAPING/PACING DISTANCES FROM EXISTING SITE FEATURES.
4. DESIGNATED PROPERTY BOUNDARIES WERE DETERMINED FROM "BOUNDARY & TOPOGRAPHIC SURVEY, WEST COMMERCIAL STREET," DATED 4 APRIL 2014 PREPARED BY OWEN HESKELL, INC. FOR HNTB & MAINE DOT.

LEGEND:

-  TP-114 DESIGNATION AND APPROXIMATE LOCATION OF COMPLETED TEST PIT EXCAVATION
-  APPROXIMATE SITE PROPERTY BOUNDARY
-  APPROXIMATE PROPERTY BOUNDARY FOR NEW YARD, LLC



**HALEY
ALDRICH**

INTERNATIONAL MARINE TERMINAL
PORTLAND, MAINE

**WESTERN PROPERTY BOUNDARY
SITE AND EXPLORATION LOCATION
PLAN**

NOT TO SCALE
FEBRUARY 2015

FIGURE 3

SHEET 1 OF 2



NOTES:

1. BASE PLAN OBTAINED FROM GOOGLE EARTH, US DEPT. OF STATE GEOGRAPHER, 2013 GOOGLE.
2. TEST PIT EXCAVATIONS WERE PERFORMED BY MACKENZIE CONSTRUCTION OF WINSLOW, MAINE BETWEEN 19 AND 23 AUGUST 2013. ALL EXPLORATIONS WERE MONITORED BY HALEY & ALDRICH PERSONNEL.
3. TEST PIT LOCATIONS ARE APPROXIMATE AND WERE DETERMINED BY TAPING/PACING DISTANCES FROM EXISTING SITE FEATURES.
4. DESIGNATED PROPERTY BOUNDARIES WERE DETERMINED FROM "BOUNDARY & TOPOGRAPHIC SURVEY, WEST COMMERCIAL STREET," DATED 4 APRIL 2014 PREPARED BY OWEN HESKELL, INC. FOR HNTB & MAINE DOT.

LEGEND:

- TP-114 DESIGNATION AND APPROXIMATE LOCATION OF COMPLETED TEST PIT EXCAVATION
- APPROXIMATE SITE PROPERTY BOUNDARY
- APPROXIMATE PROPERTY BOUNDARY FOR NEW YARD, LLC

**HALEY
ALDRICH**

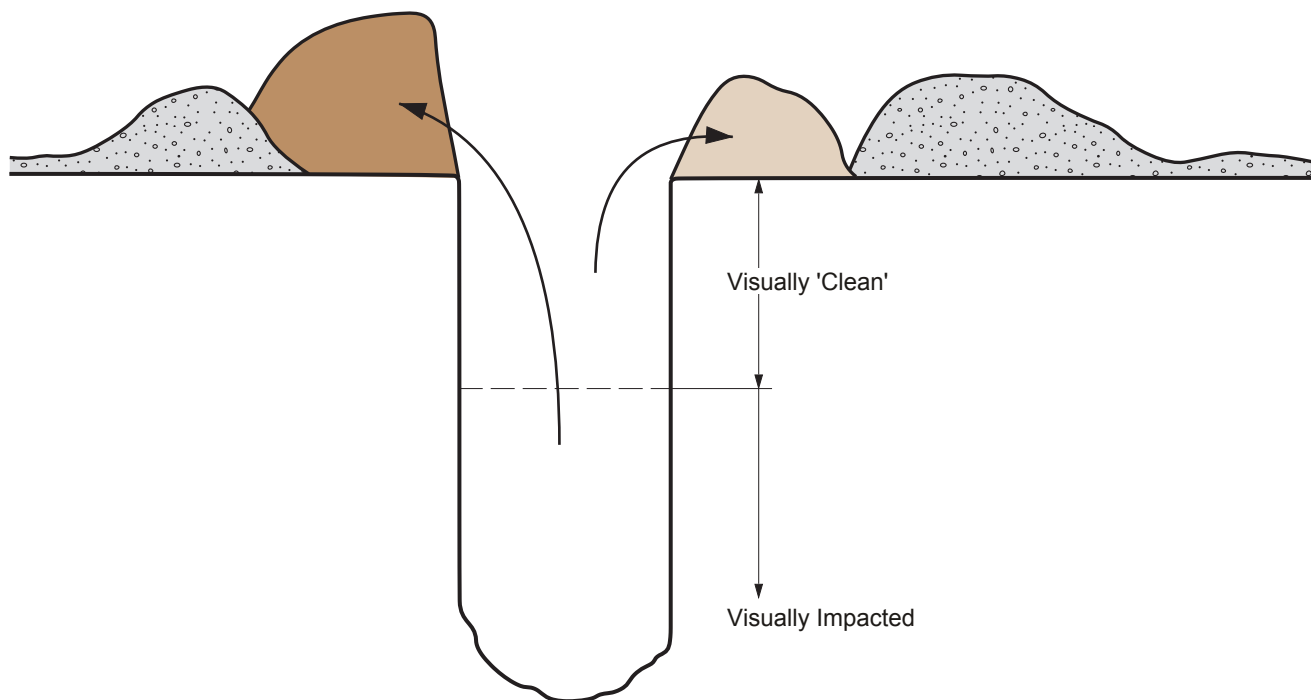
INTERNATIONAL MARINE TERMINAL
PORTLAND, MAINE

**EASTERN PROPERTY BOUNDARY
SITE AND EXPLORATION LOCATION
PLAN**

NOT TO SCALE
FEBRUARY 2015

FIGURE 3

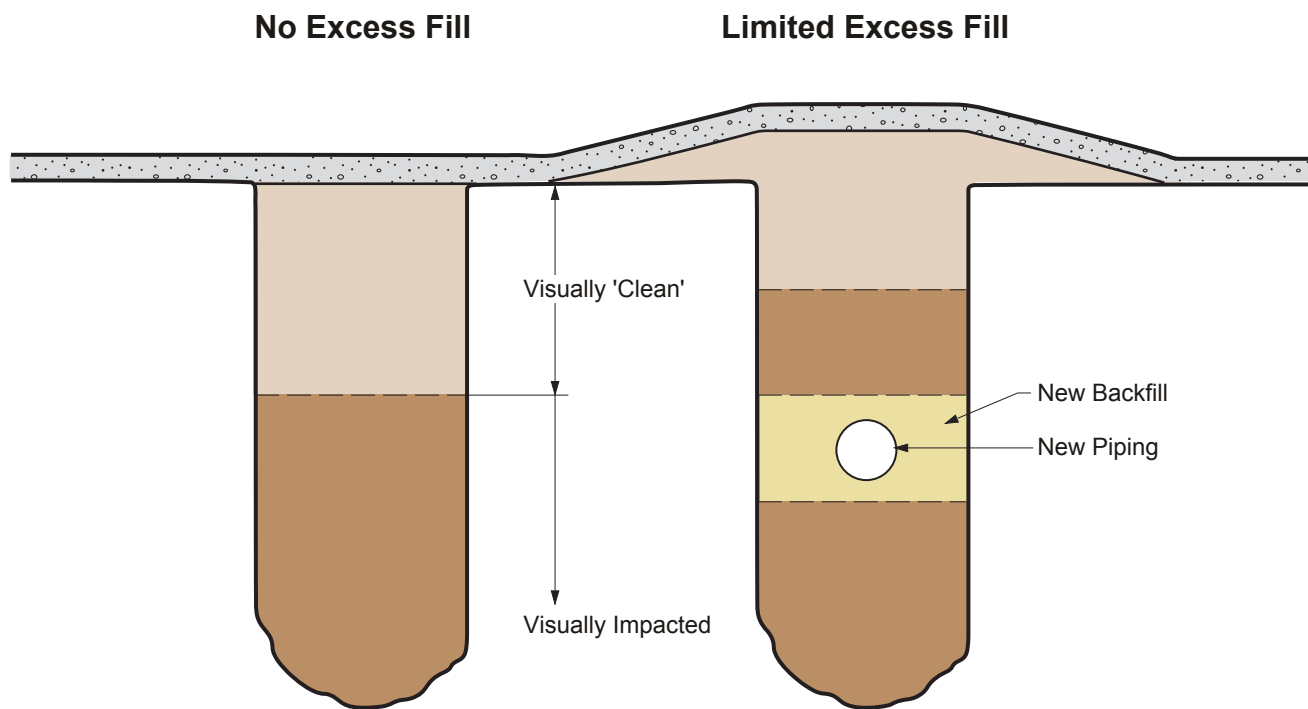
SHEET 2 OF 2



LEGEND

- Visually 'Clean' Soil
- Visually Impacted ('stained') Soil
- Gravel Cover Material

Figure 4
Excavation Protocol
MaineDOT
International Marine Terminal
Portland, ME



LEGEND

- Visually 'Clean' Soil
- Visually Impacted ('stained') Soil
- Imported Backfill
- Gravel Cover Material

Figure 5
Backfilling Protocol
MaineDOT
International Marine Terminal
Portland, ME

APPENDIX A

On-Site Material Storage Information

Common Excavation On-Site Material Storage

General Information

1. Assume the material must be stored on-site in mounds along the railroad corridor.
2. Temporary storage of the material (prior to mounding) may be achieved within the MaineDOT property outside of New Yard access ways.
3. Mounds shall be treated with a surficial application of mulch and/or wild flower seed mix as directed by the MaineDOT.

Revision: REV 01
Updated: July 30, 2014

Mound (Location)	Order of Work	Section View (see graphics)	Sta. - Sta.	Height (ft., approx.)	Side Slopes	Storage Volume (cy, est.)	Surface Area (sy, est.)	Notes (see below)
1A	1	D	53+70 to 61+50	4	2:1	2,400	1,900	(1), (3)
1B	2	A	40+00 to 43+00	6	2:1	4,000	3,000	(1), (4)
2A	3	E	61+70 to 65+00	4	2:1	900	850	(2)
2B	4	C	49+20 to 53+50	6	2:1	4,000	2,750	(2)
2C	5	B	45+25 to 49+00	6	2:1	1,400	1,700	(2)
2D	6	B	43+50 to 49+00	4	2:1	1,800	1,600	(2)
					TOTALS	14,500	11,800	

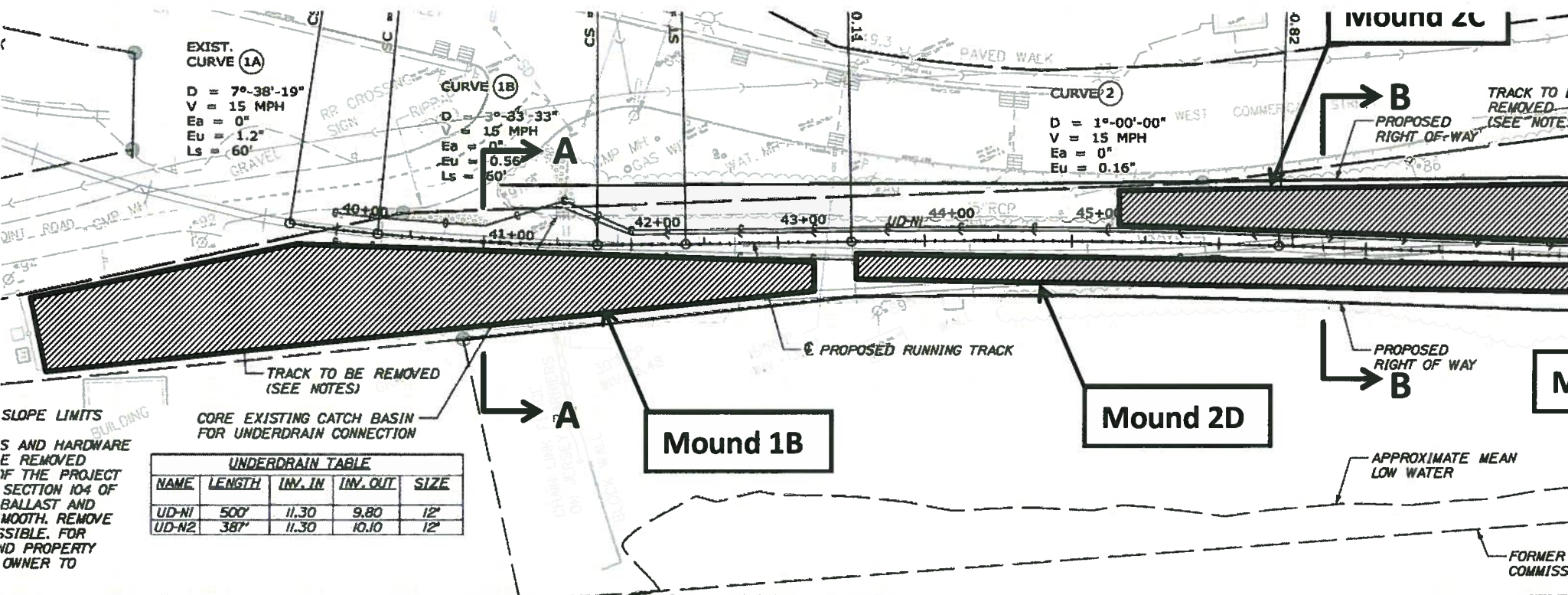
Notes:

1. No schedule restrictions. The mound may be constructed at any time during the project.
2. Schedule restricted. The mound may only be constructed once new track is in service and existing railroad tracks are removed.
3. At proposed 50-ft wide crossing, the mound shall be discontinued in favor of the design materials and dimensions of the crossing.
4. The beginning station extends westward along the Cassidy Point Rd property line as shown on the plan view.

EXIST. CURVE (1A)
 $D = 7^{\circ}38'19''$
 $V = 15 \text{ MPH}$
 $Ea = 0''$
 $Eu = 1.2''$
 $Ls = 60'$

CURVE (1B)
 $D = 3^{\circ}33'33''$
 $V = 15 \text{ MPH}$
 $Ea = 0''$
 $Eu = 0.56''$
 $Ls = 60'$

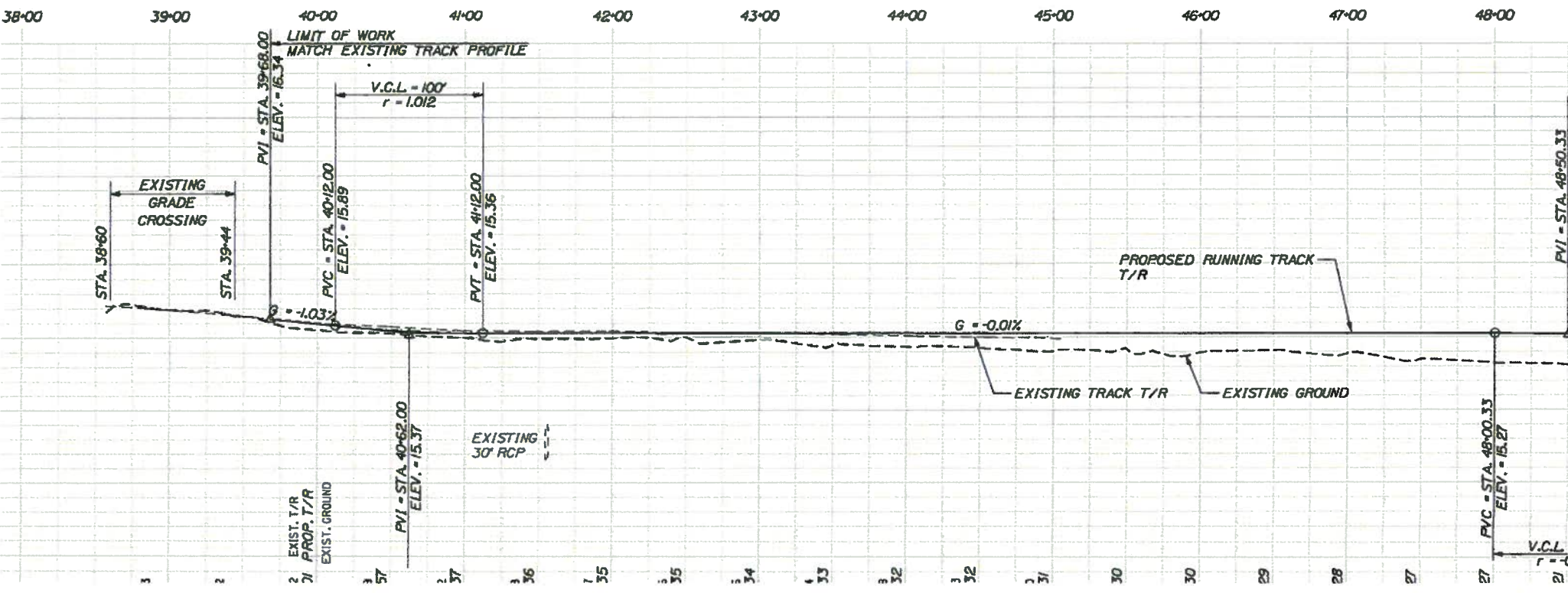
CURVE (2)
 $D = 1^{\circ}00'00''$
 $V = 15 \text{ MPH}$
 $Ea = 0''$
 $Eu = 0.16''$

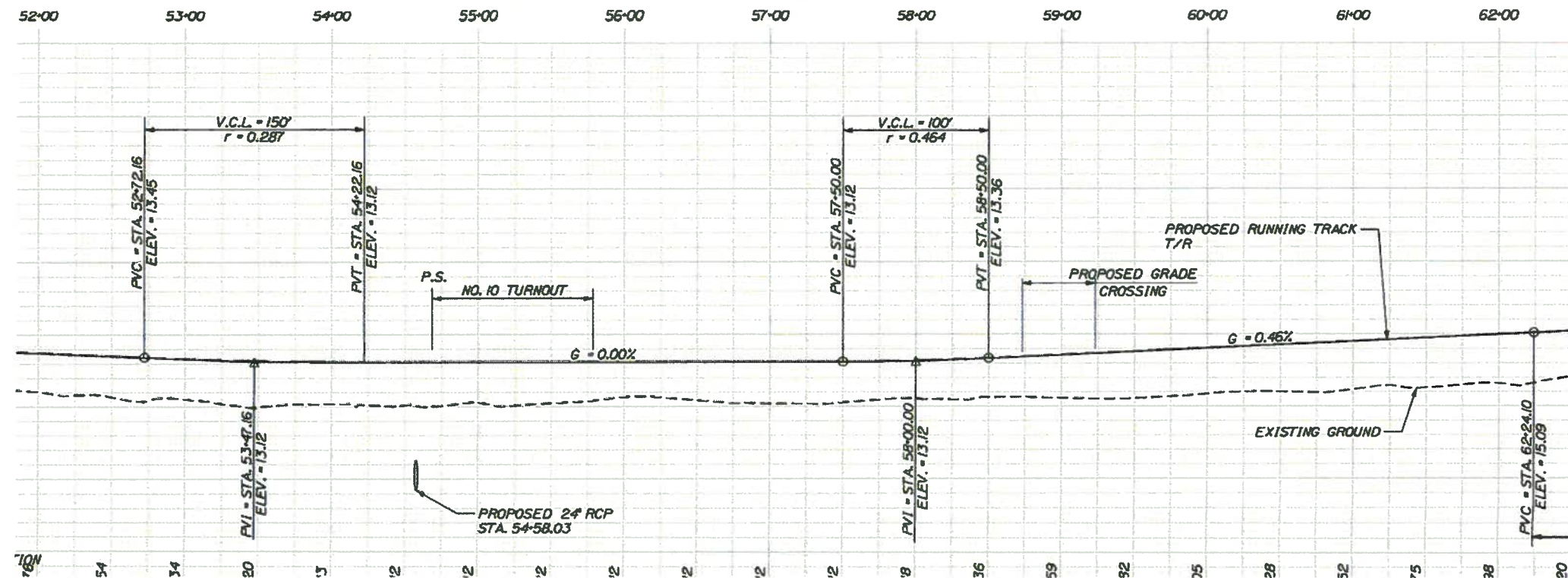
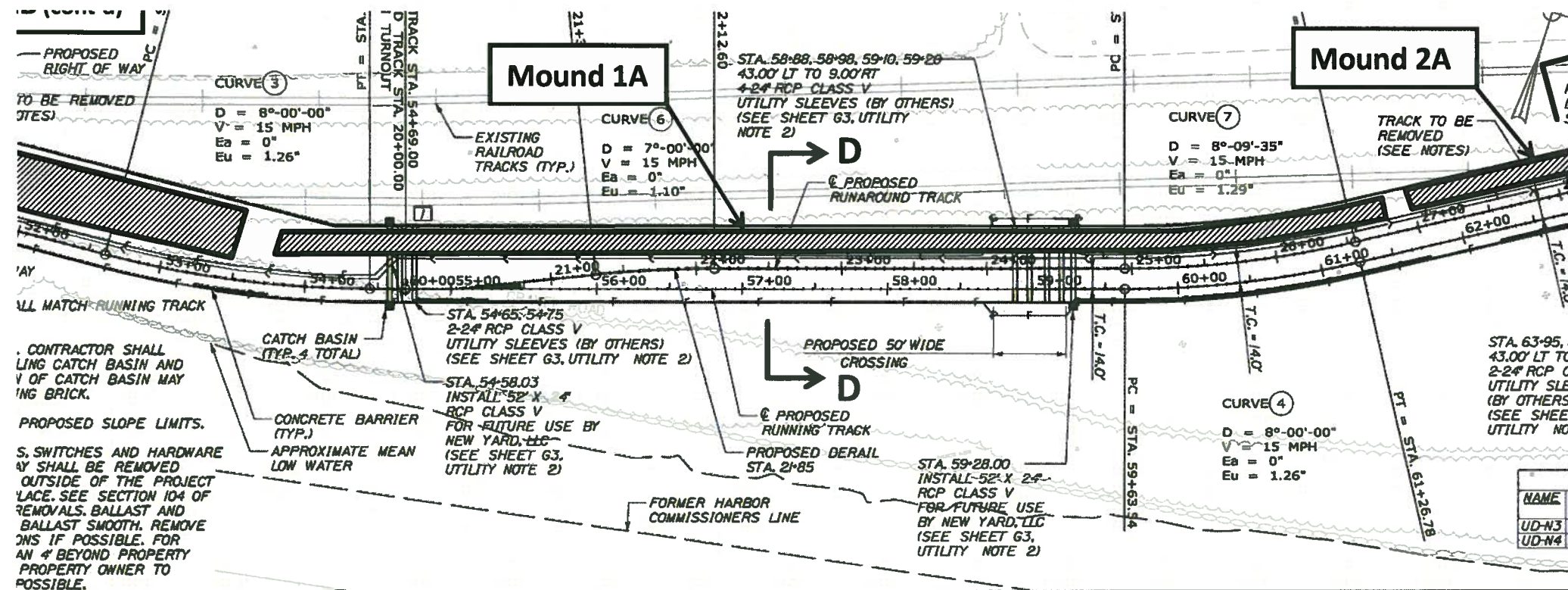


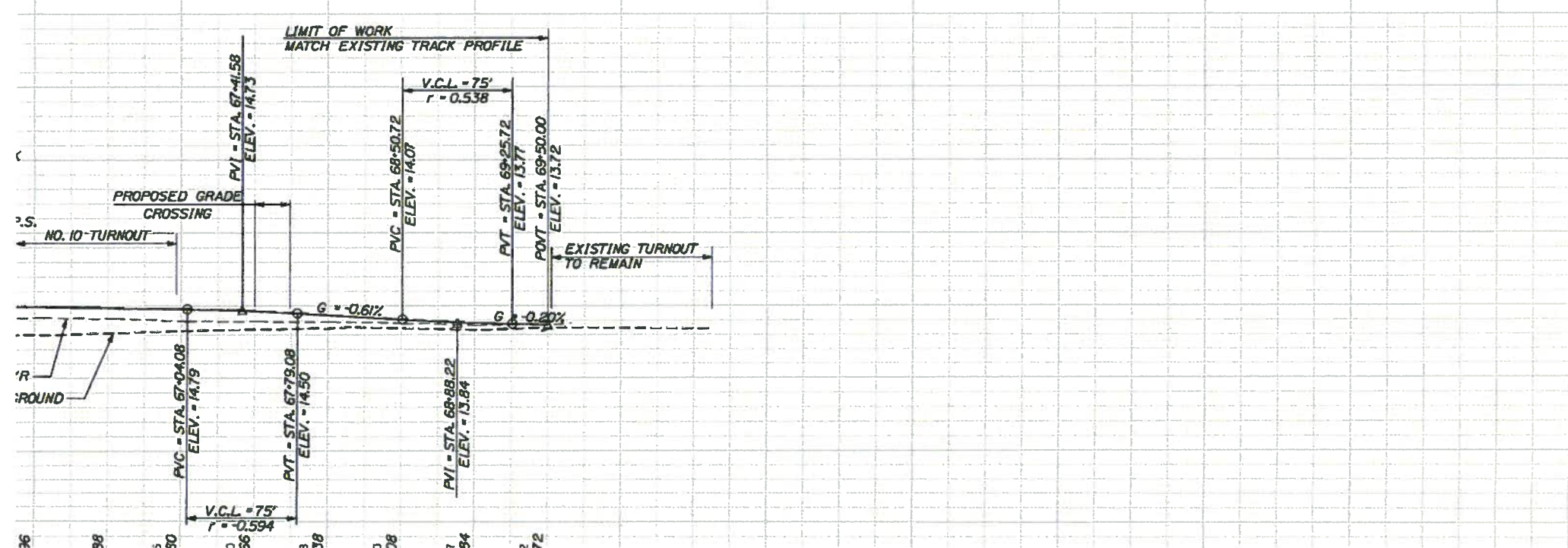
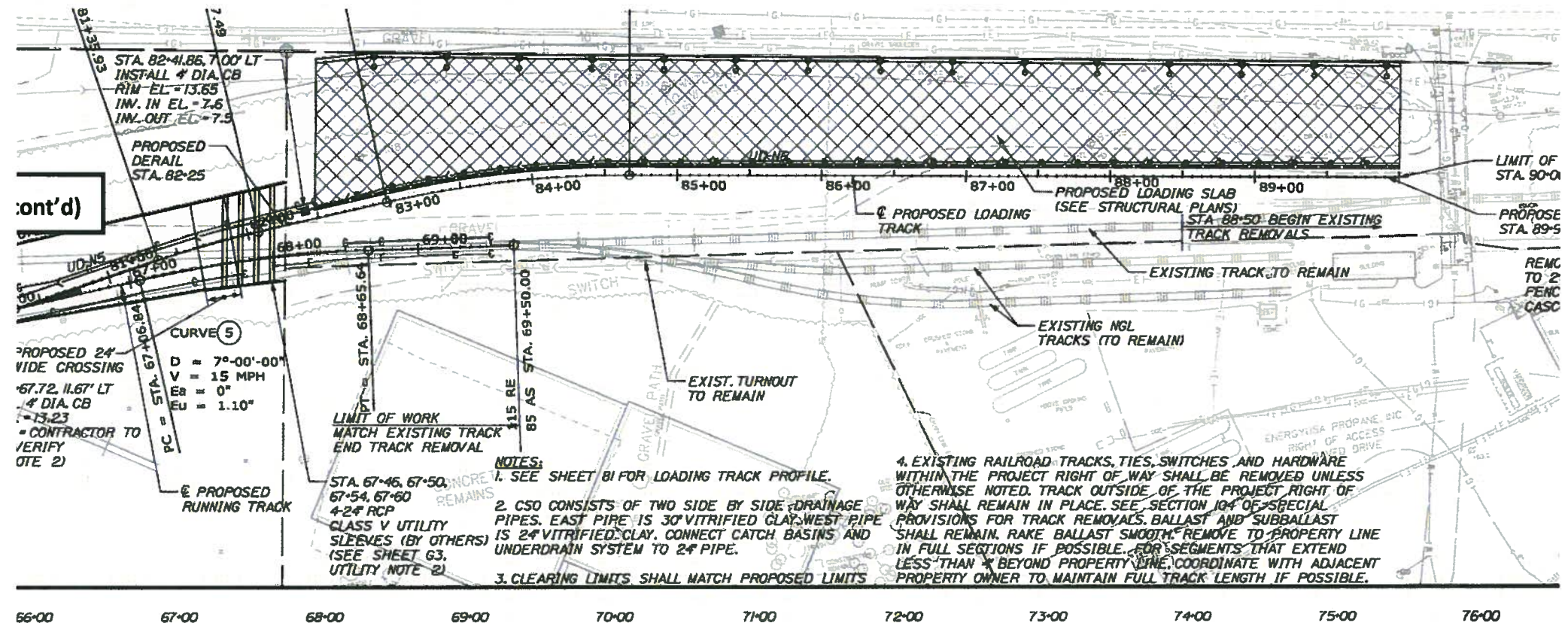
SLOPE LIMITS
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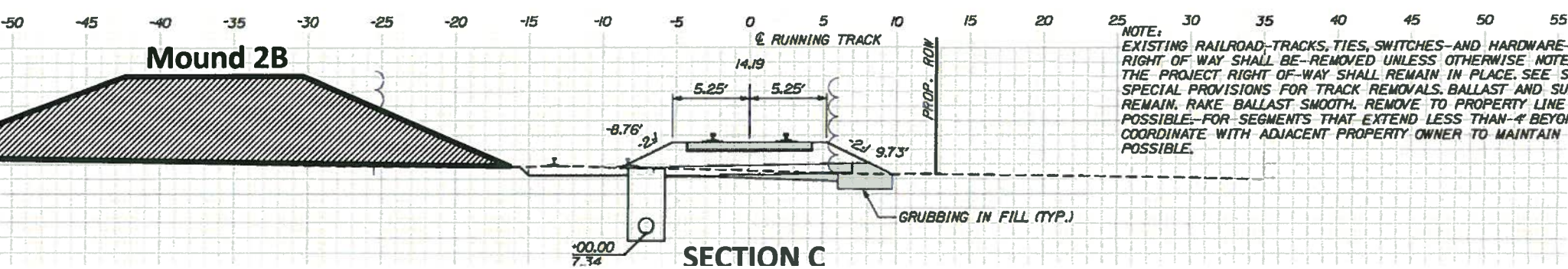
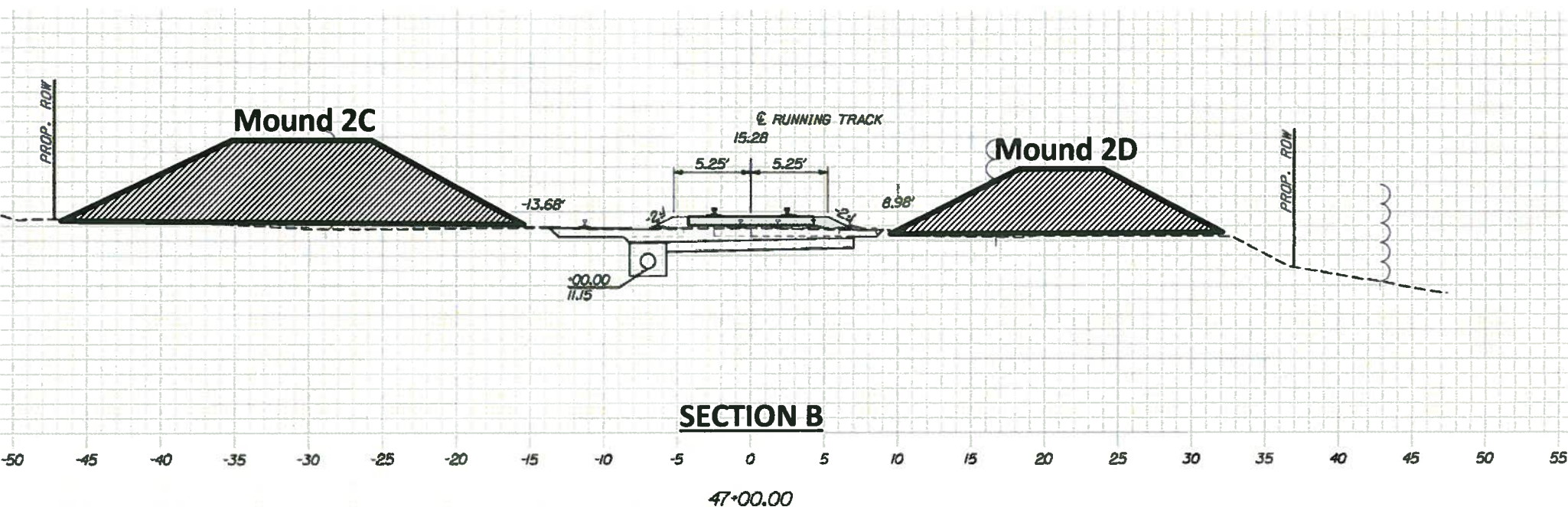
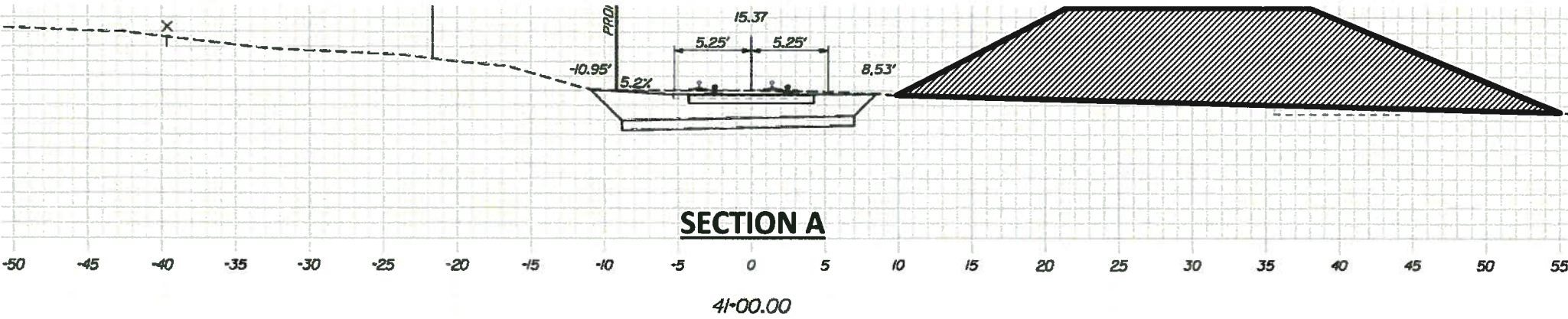
CORE EXISTING CATCH BASIN
 FOR UNDERDRAIN CONNECTION

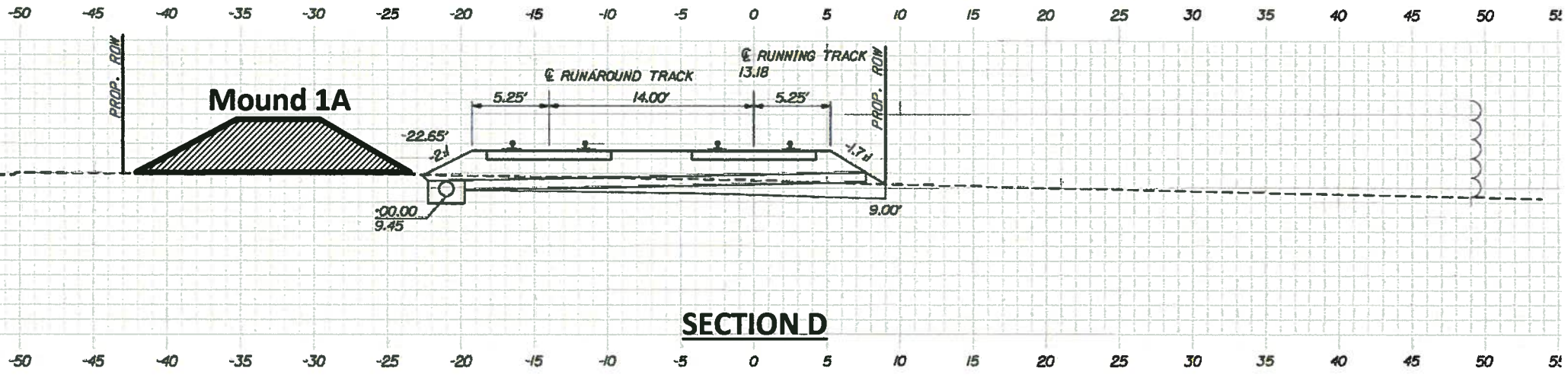
UNDERDRAIN TABLE				
NAME	LENGTH	INV. IN	INV. OUT	SIZE
UD-N1	500'	11.30	9.80	12"
UD-N2	387'	11.30	10.10	12"



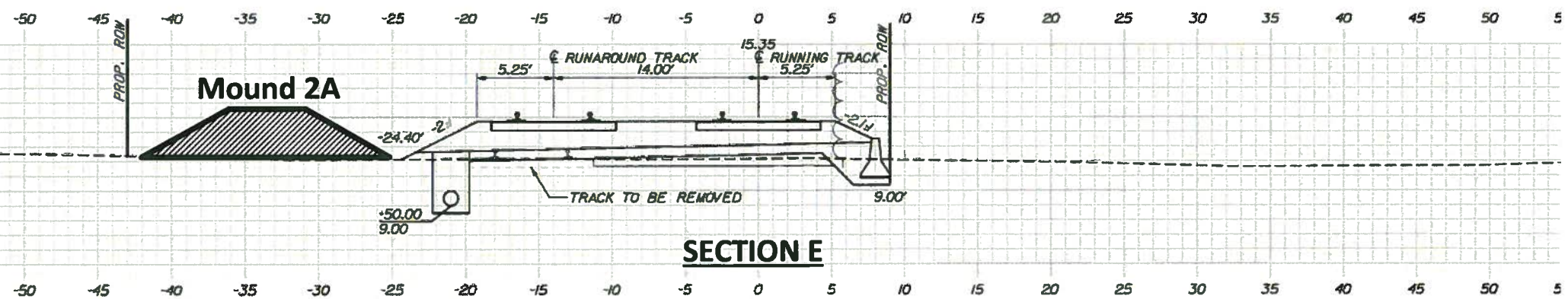








58+00.00



63+50.00