

**OPERATIONS & MAINTENANCE STATUS REPORT  
PERIOD: JULY 12, 2006 THROUGH MARCH 22, 2007**

**OPERABLE UNIT I  
FORMER WASTEWATER TREATMENT AREA  
METRO NORTH RAILROAD HARMON YARD  
CROTON-ON-HUDSON, NEW YORK**

**Prepared for:** Metro-North Railroad  
347 Madison Avenue  
New York, New York 10017

**Prepared by:** Day Engineering, P.C.  
40 Commercial Street  
Rochester, New York 14614

**Date:** March 2007

**Project No.:** 04-3135I (46)

APR 18 2007

## TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	BACKGROUND	2
3.0	OPERATION AND MAINTENANCE	4
3.1	Asphalt Cover	4
3.2	Slopes around the Asphalt Cover	4
3.3	Drainage Channel	5
3.4	Perimeter Fencing	5
4.0	SCHEDULE	6

### FIGURES

Figure 1	Project Locus
Figure 2	OU-I Site Plan
Figure 3	OU-I Site Drainage Modification Profile, Section and Detail

### ATTACHMENTS

Attachment A	OU-I Remedy Inspection Form: March 22, 2007, Site Sketch, and Site Photographs
--------------	---

## 1.0 INTRODUCTION

The operation and maintenance requirements for the remedial construction completed to address the former Harmon Railroad Yard Wastewater Treatment Area [i.e., identified as Operable Unit-I (OU-I)] are described in a document titled, *Operable Unit I, Operations and Maintenance Plan, Harmon Railroad Yard, Croton-On-Hudson, New York* dated July 7, 1999 as revised August 1999 (O & M Plan). A project locus map showing the location of OU-I (the "Site") is included as Figure 1 and a Site Plan depicting OU-I features is included as Figure 2.

As described in the O & M Plan, the following features of the OU-I remedy are evaluated/maintained on a routine basis as part of the remedial program:

- asphalt cover over the geocomposite cap;
- slopes around the asphalt cover;
- drainage channel; and
- perimeter fencing.

This document describes the work completed during the monitoring period between July 12, 2006 through March 31, 2007 to evaluate and maintain the above features. Specific inspection and maintenance procedures conducted during the monitoring period to address these components are discussed in Section 3.0.

## 2.0 BACKGROUND

The Harmon Railroad Yard (i.e., the "Yard") is located in the Village of Croton-on-Hudson, New York, and it is bound by Route 9 on the east and Croton Point Park to the west. The Yard is approximately 100 acres in size, and has been in operation for over 100 years. Currently, Metro North Railroad (MNR) operates the Yard.

The OU-I remedial action was completed in September 1996 and it addressed remediation and closure of the former wastewater treatment plant lagoon and excavation of surface soil from specific areas around the lagoon. Remediation and closure of the lagoon and the areas surrounding the lagoon entailed the following key items:

- excavation of soil surrounding the wastewater treatment plant lagoon (i.e., identified as Zone A);
- installation of permanent sheeting around the lagoon perimeter;
- water removal from the wastewater treatment plant lagoon;
- removal of sludge from within the lagoon;
- placement of a lower backfill layer, consisting of 3.5 feet of clean backfill, over the native soil at the bottom of the lagoon;
- installation of a high density polyethylene (HDPE) geomembrane liner over the lower backfill layer;
- placement of a middle backfill layer, consisting of a one foot layer of clean fill overlain by a 10-inch layer of Zone A soil having polychlorinated biphenyl (PCB) concentrations up to 10 parts per million (ppm), overlain by a two to five foot thick layer of clean backfill, over the HDPE liner;
- installation of an HDPE geomembrane cap over the middle backfill layer;
- installation of a geocomposite drainage net over the HDPE geomembrane cap;
- placement of a top backfill layer, consisting of a one foot thick sand drainage layer and one foot of clean backfill, over the drainage net;
- installation of a reinforcement geotextile, overlain by a 6.5-inch thick asphalt cover at the final surface;
- installation of a riprap-lined drainage channel along the northern edge of the asphalt cover;
- installation of a system of manholes and pipes to carry storm water from the drainage channel to the existing Harmon Yard storm sewer system;
- transport and off-site disposal of all excavated sludge, and Zone A soil containing PCBs at concentrations greater than 10 ppm (i.e., Zone A1 soil); and
- decontamination and demolition of the Old Wastewater Treatment Plant.

Due to the settlement over time, a pronounced depression occurred in the center of the asphalt cap that collected water. A drainage modification system was installed to correct the effects that this depression had on the drainage of the asphalt cap. This drainage system modification system was installed in November-December 2005 to continuously drain water away from the depression in the asphalt cover. This system consists of a sump box installed within the depression that is connected to 4-inch diameter PVC piping, installed within the asphalt cover and above the HDPE liner, this piping drains via

gravity into the existing Harmon Yard storm sewer system. The location of the drainage modification is shown on Figure 2 and a sheet depicting the profile, section and detail of the drainage modification is presented as Figure 3. [Note: This drainage system was installed as an alternative to re-paving the asphalt cap, which was deemed to be an excessive cost that would not serve to eliminate future settlement or degradation of the OU-I cover system.]

Piping and wells for an air sparge/soil vapor extraction system were installed into and below the lower backfill soil layer to address petroleum related compounds in soil beneath the lower backfill layer. Prior to implementation of the OU-I remedy, regulation of this soil (i.e., soil located beneath the lower backfill soil layer containing petroleum related compounds) was transferred by NYSDEC, from the Division of Inactive Hazardous Waste Disposal Sites to the Bureau of Spill Prevention and Response. As such, operation and maintenance of the air sparge/soil vapor extraction system, if required, is not a component of the OU-I remedy and, therefore, is not included in the O&M plan.

### **3.0 OPERATION AND MAINTENANCE**

This section presents a summary of observations of the OU-I remedy, and maintenance work conducted during the July 12, 2006 through March 31, 2007 monitoring period. Representatives of the MNR Structures Department are at the Site daily Monday through Friday to complete field measurements and to undertake oil removal activities associated with Operable Unit-II of the former Harmon Railroad Yard Wastewater Treatment Area. In conjunction with this work, the condition of the elements of the OU-I remedy are routinely observed and repairs are conducted as necessary. Generally, the Site conditions have appeared consistent throughout this monitoring period; therefore, one detailed inspection was conducted at the end of the monitoring period. This detailed inspection of the OU-I remedial elements was conducted on March 22, 2007 and the results of this inspection are discussed below. The OU-I Remedy Inspection Form completed during the March 22, 2007 inspection and associated photographs are included in Attachment A.

#### **3.1 Asphalt Cover**

Based upon observations made through March 31, 2007, the asphalt cover is generally in good condition and appears similar to that observed during previous inspections described in the status report dated August 2006. The area of settling observed during previous inspections appeared similar during the March 22, 2007 inspection. During the March 22, 2007 inspection, surface water ponding approximately two inches deep covered an area approximately eight feet in diameter around this low spot in the asphalt cover. Since this depression does not appear to affect the overall drainage of the asphalt cover and has not continued to settle it is not being identified as a concern at this time. However, if continued settlement of the depression occurs in the future that appears to affect the drainage of the OU-I remedy a corrective action may be recommended.

There were no differences in elevation observed around the grouted manhole covers with in the asphalt cover during this time period.

Shallow surficial cracking radiating concentrically from the low spot in the center of the asphalt cover (i.e., in the area of the sump box, refer to Site Sketch, Location 2) to various locations throughout the asphalt cap was noted during this monitoring period. There are plans to seal this cracking in the asphalt cover during the summer of 2007.

#### **3.2 Slopes around the Asphalt Cover**

The slopes that surround the lagoon cap system and asphalt cover provide erosion protection for the portion of the asphalt cover that is not located over the sheeting wall that was left in place around the former lagoon area. These slopes are routinely observed by MNR Structures Department representatives for evidence of erosion and accumulated debris. [Note: When the OU-I remedy was implemented in 1996, it was anticipated that the slopes would be covered with vegetation to reduce erosion. However, access restrictions and the presence of deer ticks in the Yard precluded establishment of a vegetative cover. As such, herbicide is applied to the slopes around the asphalt cover to keep the area free of vegetation.]

On March 22, 2007, minor erosion rivulets were observed on the slopes south of the L4 Blower Building. However, no evidence of washouts or soil slides was observed during the inspection. Repair of these erosion rivulets will occur during the spring or summer of 2007 when the ground is dryer. A small amount of debris (i.e., miscellaneous solid waste) was observed on the slopes during the March 22, 2007 inspection. This material will be removed as necessary.

### **3.3 Drainage Channel**

The drainage channel that traverses the northern edge of the asphalt cover and connects to the Harmon Yard storm sewer system diverts water away from the lagoon. Visual observation of the condition of this channel and the evaluation of the need for maintenance (e.g., removal of debris) is conducted in conjunction with the observation and maintenance of the asphalt cover. During the July 13, 2006 through March 31, 2007 monitoring period, the drainage channel appeared to be in good condition and the repair/replacement of the underlying geotextile, in this channel was not deemed necessary. Additionally, significant sedimentation was not observed in the drainage channel.

### **3.4 Perimeter Fencing**

Access to the former Harmon Railroad Yard Wastewater Treatment Area is controlled by perimeter fencing with locked gates to prevent unauthorized entry into the OU-I area. MNR Structures Department personnel observe the perimeter fencing on a daily basis (i.e., Monday through Friday). During the March 22, 2007 inspection, there was no damage to the fence noted and the gate locks were present and in good condition.

#### 4.0 SCHEDULE

The periodic observation and maintenance of the asphalt cover; slopes surrounding the asphalt cover; the drainage channel; and the perimeter fencing will continue to be conducted on a routine basis. As part of this work, the inspection form included in Attachment A will be completed to document the condition of the OU-I remedial system.

A report summarizing the operation and maintenance activities conducted at OU-I from March 31, 2007 through June 30, 2007 will be submitted on or before July 15, 2007. It is anticipated that site inspections will be completed on/ or about April 30, 2007 and June 15, 2007 during this time period.




**FIGURES**

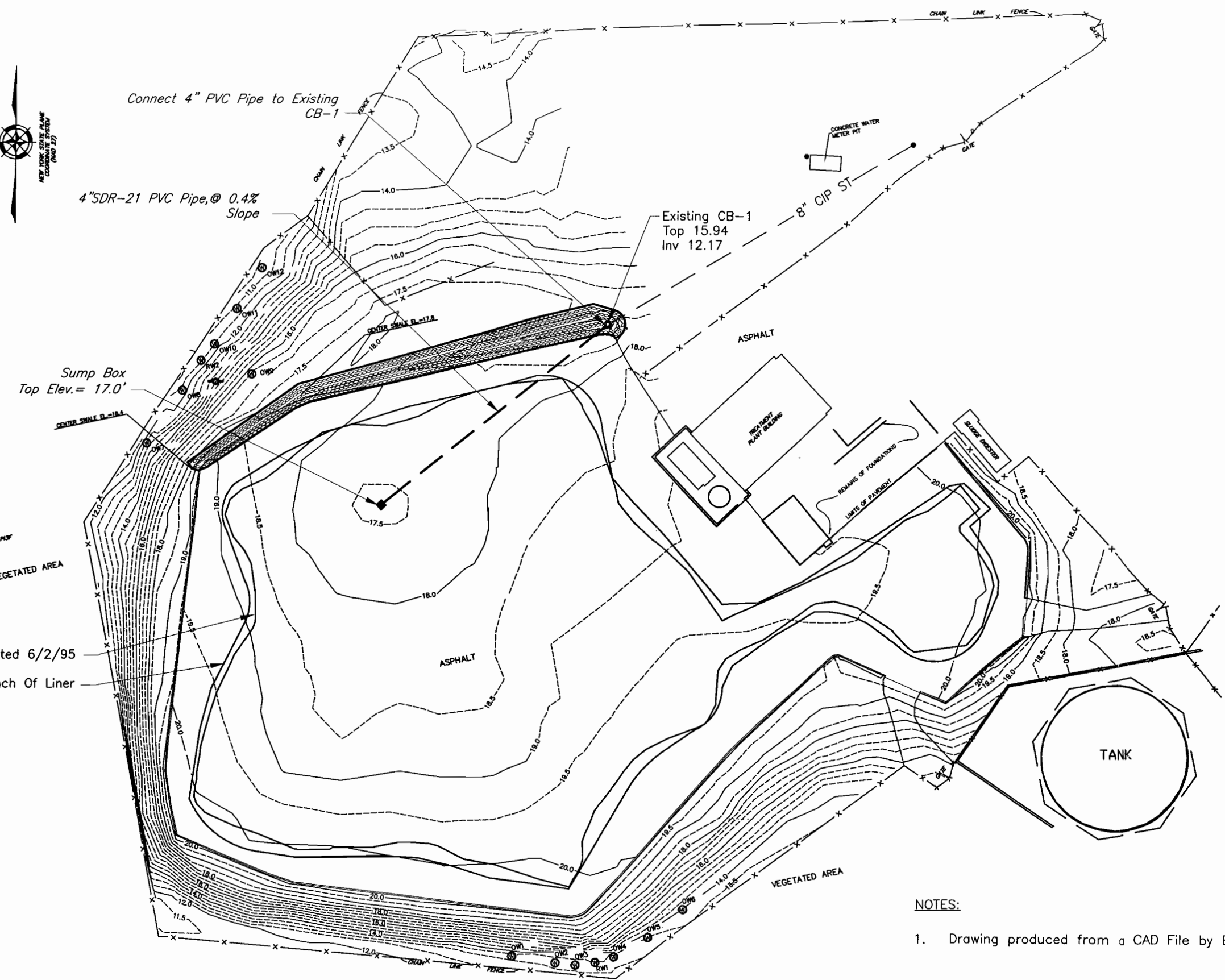


3-D TopoQuads Copyright © 1999 DeLorme Vermont, NTE 0-0094 Sources Data: USGS 1:500 ft Scale: 1:19,200 Detail: 146 Datum: WGS84

Drawing Produced From: 3-D TopoQuads, DeLorme Map Co., referencing USGS quad maps Haverstraw (NY) 1979 and Ossining (NY) 1979. Site Lat/Long: N41d-11.46' - W73d-53.33'

DATE <b>02-27-2006</b>	 <b>DAY ENGINEERING, P.C.</b> ENVIRONMENTAL ENGINEERING CONSULTANTS ROCHESTER, NEW YORK 14614-1008	PROJECT TITLE <b>METRO-NORTH RAILROAD          HARMON YARD (OU-I)          CROTON-ON-HUDSON, NEW YORK</b> PROGRESS REPORT	PROJECT NO. <b>04-3135I (46)</b>  <b>FIGURE 1</b>  SHEET <b>1</b> OF <b>1</b>
DRAWN BY <b>RJM</b>		DRAWING TITLE <b>PROJECT LOCUS MAP</b>	

Time Plotted: Tue Aug 15 12:50 2006  
 File Name: Harmon\CB Lagoon-Ref66\Figure-1.dwg  
 Xerox432AnsiB-2; 11 x 17  
 Layout Name: Layout 1  
 Ref1: Base-1.dwg  
 Ref2:  
 Ref3:  
 Ref4:  
 Ref5:  
 Ref6:



NOTES:  
 1. Drawing produced from a CAD File by ERM.

1 SITE PLAN  
 FIG-1 1" = 60'

DATE	10-2004
Designing	TKH
DATE DRAWN	10-25-2004
DRAWN BY	LRP/TW
DATE ISSUED	08-15-2006
SCALE	As Noted

**day**  
 DAY ENGINEERING, P.C.  
 ENVIRONMENTAL ENGINEERING CONSULTANTS  
 ROCHESTER, NEW YORK 14614-1008  
 NEW YORK, NEW YORK 10165-1617

PROJECT TITLE  
 METRO-NORTH RAILROAD  
 HARMON YARD  
 CROTON-ON-HUDSON  
 OU-1 SITE DRAINAGE PLAN  
 DRAWING TITLE  
 Partial Site Plan

PROJECT NO.  
 04-31351 (46)

FIGURE 2

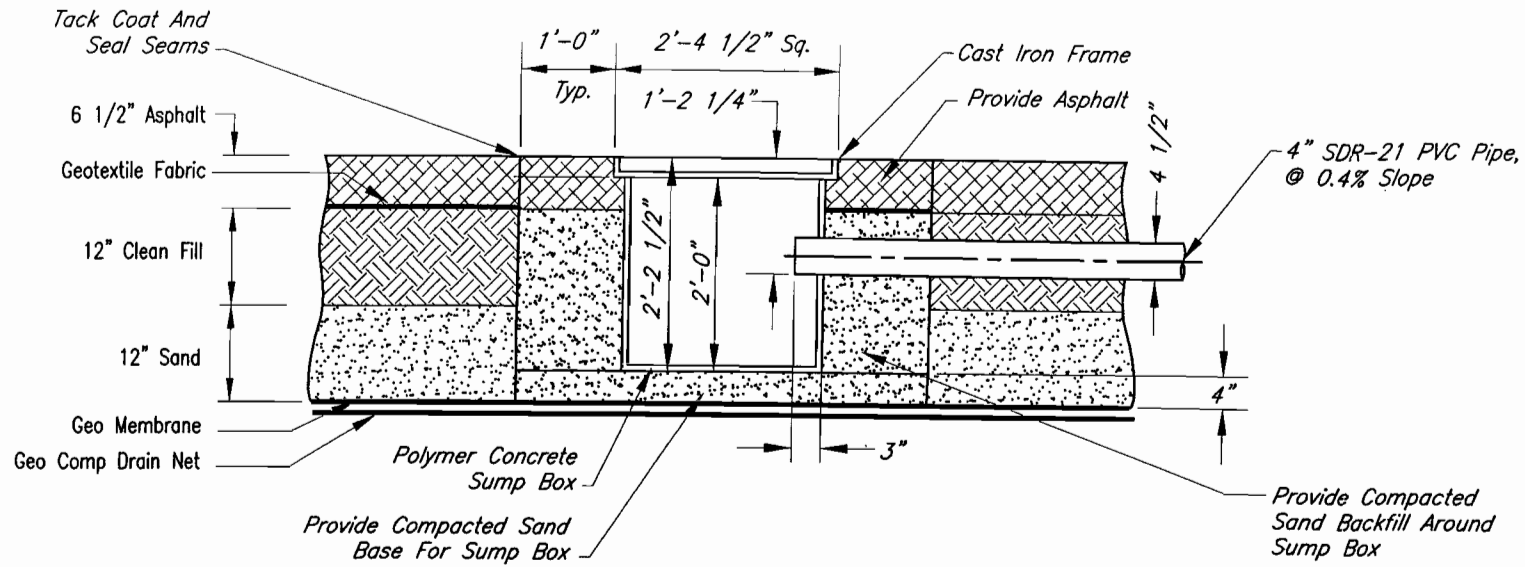
Ref4:  
Ref5:  
Ref6:

Ref1: Base-1.dwg  
Ref2:  
Ref3:

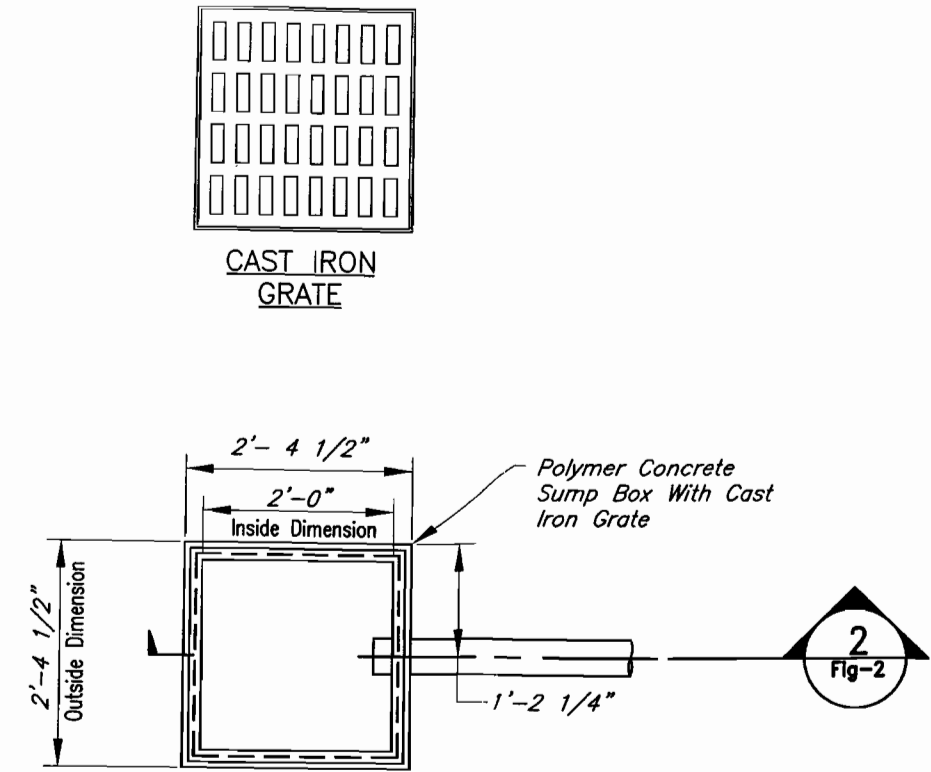
Xerox432AnsiB-2; 11 x 17  
Layout Name: Layout2

Figure-1.dwg

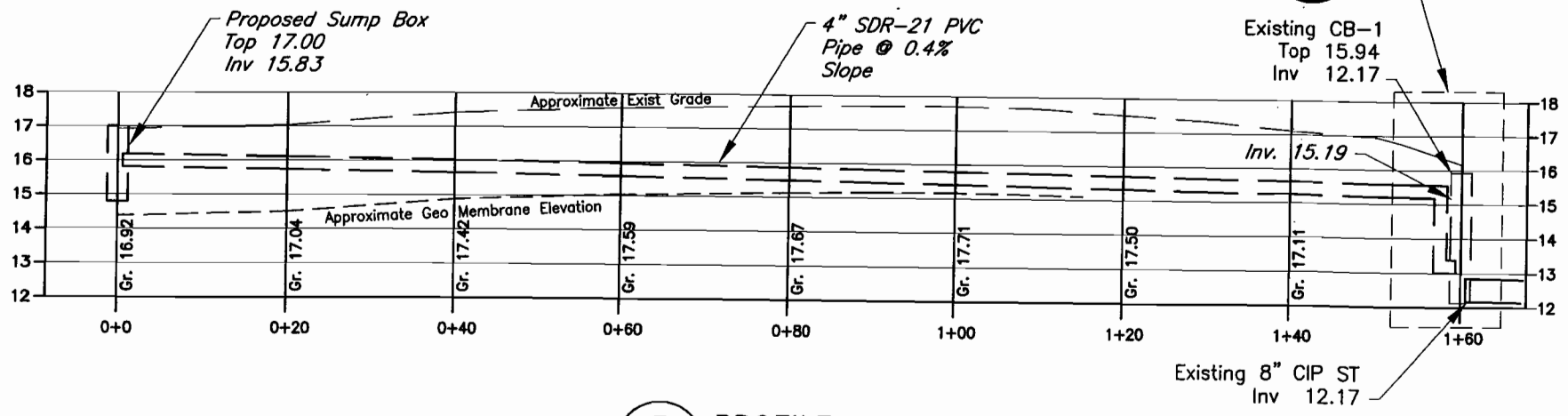
ime Plotted: Tue Mar 7 16:20 2006  
file Name: Harmon\CB Lagoon-Ref66\Figure-1.dwg



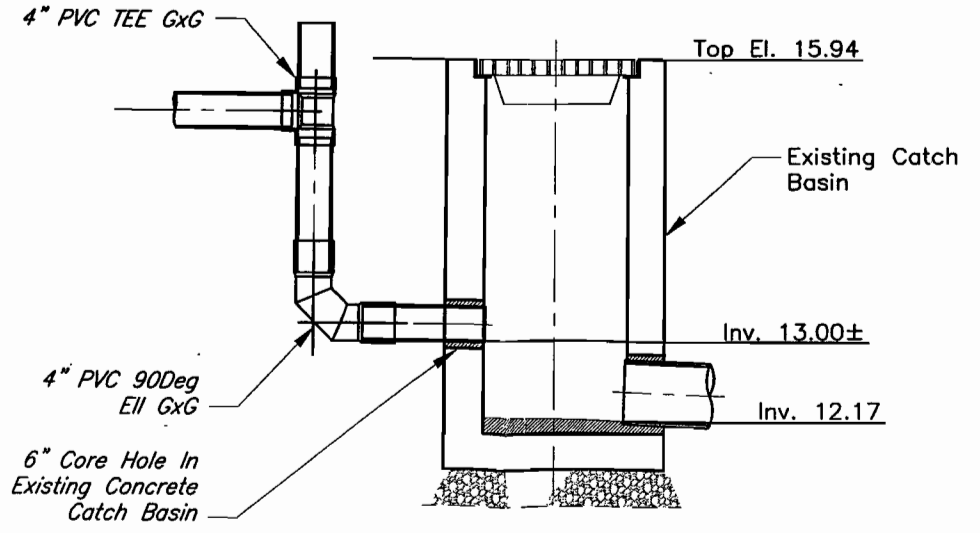
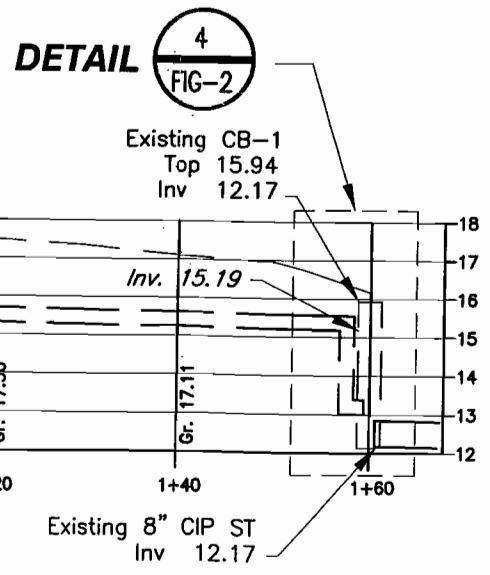
**2 SECTION VIEW**  
FIG-2 1/2" = 1'-0"



**1 SUMP BOX PLAN VIEW**  
FIG-2 1/2" = 1'-0"



**3 PROFILE**  
FIG-2 1" = 20' Horizontal  
1" = 5' Vertical



**4 EXISTING CONCRETE CATCH BASIN**  
FIG-2 1/2" = 1'-0"

**NOTES:**

1. Polymer Concrete Sump Box: Jay R. Smith Mfg. Co., Smith ACO Trench Drain Series, Model 9846 Sump Box, or approved equal.

DATE	10-2004
DATE DRAWN	10-25-2004
DATE ISSUED	3-2006
Design/Tag	TKH
DRAWN BY	LRP/TW
SCALE	As Noted

**day**  
DAY ENGINEERING, P.C.  
ENVIRONMENTAL ENGINEERING CONSULTANTS  
ROCHESTER, NEW YORK 14614-1008  
NEW YORK, NEW YORK 10165-1617

PROJECT TITLE  
METRO-NORTH RAILROAD  
HARMON YARD  
CROTON-ON-HUDSON  
OU-1 SITE DRAINAGE MODIFICATION  
DRAWING TITLE  
Profile, Section, and Details

PROJECT NO.  
04-3135I (46)

**FIGURE 3**

**ATTACHMENT A**

**OU-I Remedy Inspection Form completed on March 22, 2007,  
Site Sketch, and Site Photographs**

**OU-I Remedy Inspection Form**  
**Harmon Railroad Yard, Croton-On-Hudson, NY**

Note the location(s) of any of the inspection findings described below on the attached site sketch.  
 Also attain copies of photographs to document conditions observed at the time of this inspection.

Yes No Corrective Action Needed?

**Asphalt Cover**

- Are there any cracks in the asphalt cover?
- Is there any surface water ponding on the asphalt cover?
- Is there any evidence of settlement?
- Is there any elevation difference at the grouted manhole covers?

✓		
✓		
✓		
	✓	

Specify Correction Actions Needed:

Radial cracks throughout. Minor area of settlement north of new drainage sump. Tentative plans to seal cracks during summer '07.

**Slopes Around the Asphalt Cover**

- Are there any erosion rivulets?
- Is there evidence of any washouts or soil slides?
- Is there debris or other material on the slopes?

✓		
	✓	
✓		

Specify Correction Actions Needed:

Snow covered at time of inspection prevents thorough look at all areas. Minor erosion south of LA blower bldg. will be addressed during Spring/Summer. Some trash observed.

**Drainage Channels**

- Is there any exposed geotextile in the drainage channel?
- If so, is the exposed geotextile damaged?
- Is there significant sedimentation in the drainage channel?

	✓	
	✓	
	✓	

[Given the arrangement of the riprap channel adjacent to the asphalt cover, there should be minimal sedimentation occurring in the channel, and any significant sedimentation should be investigated to determine its source and cause.]

Specify Correction Actions Needed:

**Perimeter Fencing**

- Is there any damaged fencing?
- Is there any vegetation close to the exterior of the fence that should be removed to eliminate a means for access to the Site over the fence?
- Are the gate locks present and in good working condition?

	✓	
	✓	
✓		

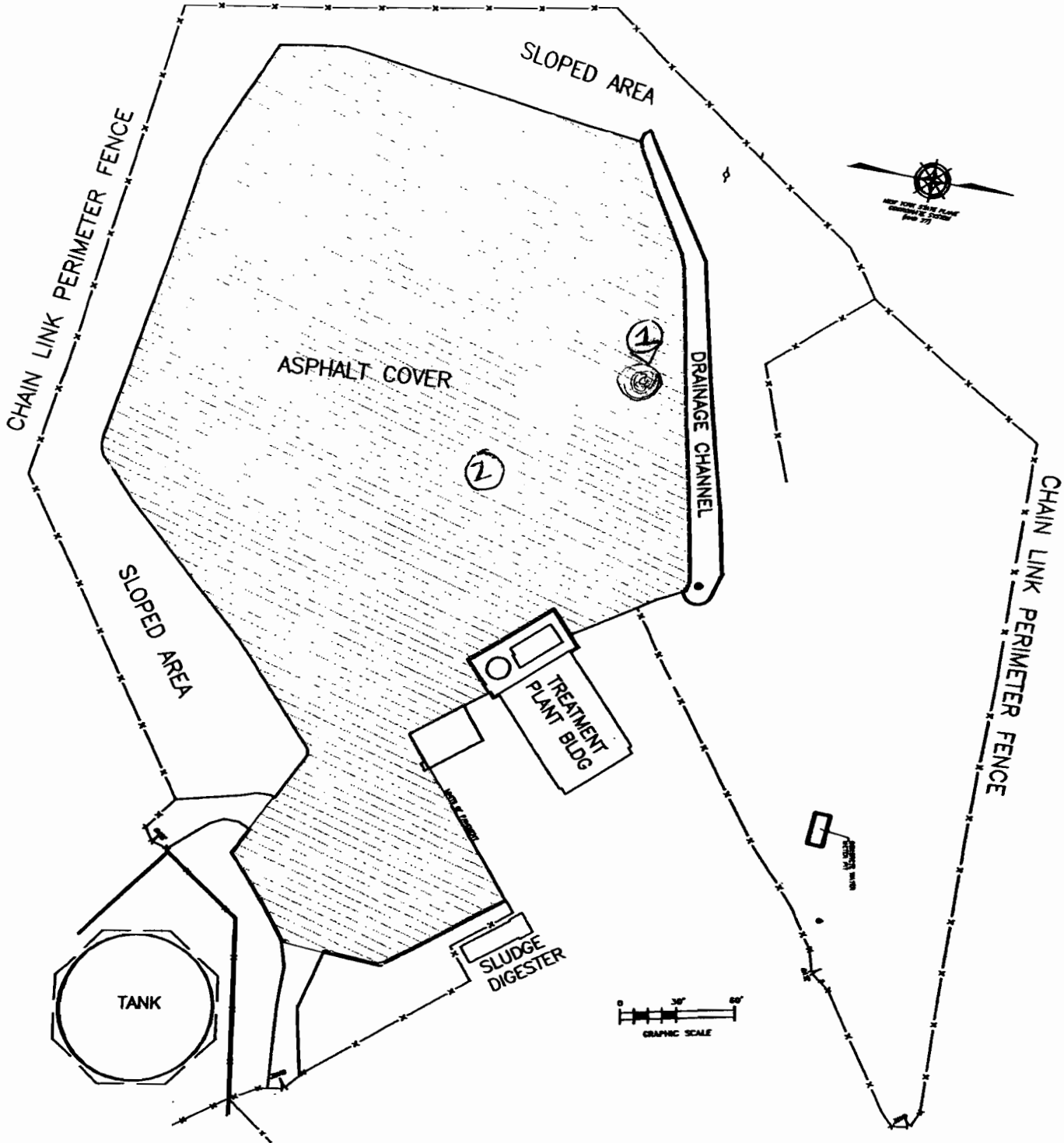
Specify Correction Actions Needed:

Cc: Metro-North Department of Environmental Compliance and Services

Date of Inspection: 3/22/07

Inspection Form Completed By: TOM ROSZAK





File name: Metro-North Commuter Railroad-46\map for Figure 1.dwg

DATE  
03-2006

DRAWN BY  
Tww

SCALE



**DAY ENGINEERING, P.C.**  
 ENVIRONMENTAL ENGINEERING CONSULTANTS  
 ROCHESTER, NEW YORK 14614 1008

PROJECT TITLE  
 METRO-NORTH COMMUTER RAILROAD  
 HARMON YARD  
 CROTON-ON-HUDSON, NY

OU-1  
 DRAWING TITLE

PROJECT NO.  
 3398I-04 (46)

**FIGURE 1**







Location 1

View of depression located approximately 25 feet north of the sump box that drains the asphalt cover.



Location 2

View of minor surficial cracking on asphalt cap surface.