Inspection, Monitoring & Maintenance Plan Stormwater Management System

William Stanley Business Park of The Berkshires South Side Park

City of Pittsfield Berkshire County, Massachusetts

CHA Project Number: 13772

Prepared for:
Pittsfield Economic Development Authority (PEDA)
81 Kellogg Street
Pittsfield, MA 01201

Prepared by:

III Winners Circle
Albany, New York 12205
(518) 453-4500

May 2013

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1.0 INTRODUCTION

1.1 PURPOSE OF MANUAL

This manual has been developed to familiarize responsible personnel with the inspection, monitoring and maintenance of the Stormwater Management System located in the William Stanley Business Park, South Side Park, in Pittsfield, Massachusetts, owned and operated by the Pittsfield Economic Development Authority (PEDA).

The owner/operator is responsible to maintain optimal operating conditions for the Stormwater Management System. The manual outlines procedures and checklists as guidelines for the inspection, monitoring and maintenance.

1.2 USE AND UPDATING INFORMATION

This manual has been developed for the present operating and maintenance conditions. The manual is an evolving document and requires updating and improvements as conditions change within the Stormwater Management System. As such, the manual has been presented in a format to facilitate updating including:

1. Binding in a 3-ring binder to allow easy insertion of additional information
2. Provision of wide margins to facilitate note taking

The manual shall be updated to comply with any amendments, modifications, or renewals of PEDA's NPDES Permit.

1.3 PROJECT DESCRIPTION

The William Stanley Business Park consists of two parks (North and South) separated by the CSX Railroad Corridor. The North Side Park includes the areas referred to as the former 19s

Complex and former 40s Complex and the South Side Park includes the former 20s Complex and former 30s Complex. The South Side Park is approximately 24 acres and bound to the north and east by CSX railroad, to the west by Silver Lake Boulevard and to the south by East Street. This manual addresses the Stormwater Management System that serves the entire William Stanley Business Park as well as additional off-site city area. The Stormwater Management System is located in the South Side Park. (Refer to Figure 1 for Overall Site Map).

The South Side Park is located on a former GE manufacturing facility which produced transformers containing large amounts of poly-chlorinated biphenyls (PCBs). Pursuant to a special act of the Massachusetts Legislature, Pittsfield formed the Pittsfield Economic Development Authority (PEDA) to plan and implement the redevelopment of the site. PEDA currently owns a total of 50 acres agreed to in the Definitive Economic Development Agreement. These include the 19's, 20's, 30's and 40's Complexes and Woodlawn Avenue.

The pre-existing stormwater management system was abandoned and refurbished to comply with the current Massachusetts Department of Environmental Protection (MADEP) Stormwater Management Standards.

1.4 STORMWATER MANAGEMENT SYSTEM DESCRIPTION

The Stormwater Management system is designed to treat stormwater discharges from the site in accordance with the MADEP Stormwater Management Standards (MGL C131 §40 and C21 §§26-53) and any applicable National Pollutant Discharge Elimination System (NPDES) Discharge Permit for the site.

The Stormwater Management System includes the following components:

- Water Quality Basin (Refer to Figure 2)
    - Forebays
    - Spillways
    - Permanent Pool
    - Box Culvert Outfall

- Collection System (Refer to Figure 3)
    - Step Pools
    - Deep Sump Catch Basins & Area Drains
    - Storm Collection Pipe & Manholes

The Water Quality Basin collects stormwater from the entire William Stanley Business Park site, including Woodlawn Avenue (24 acres from South Side Park and 26 acres from North Side Park) and additional offsite city area (91 acres), which totals to approximately 141 acres. The refurbished Collection System collects the stormwater within the South Side Park and conveys it to the Water Quality Basin via the North and South Forebays. The North Side Park and off-site city area are collected via the existing drainage system and converge with the South Side Park stormwater at an existing 48" conduit prior to discharge to the North Forebay of the Water Quality Basin. Refer to Figure 1 for an overall map of the William Stanley Business Park.

The Water Quality Basin includes two forebays (North and South), two rock spillways between the forebays and permanent pool, a permanent pool and a box culvert outfall. The forebays provide pre-treatment of the stormwater runoff before entering the permanent pool through the rock spillways. The permanent pool is the primary stormwater treatment feature and ranges in depth from 1'-2'. The stormwater exits the system through a 4' x 8' reinforced concrete box culvert to Silver Lake. The box culvert has been retrofitted with monitoring equipment.

The refurbished Collection System for the South Side Park consists of step pools, ten (10) 4' deep sump catch basins, eighteen (18) drain manholes (1' sump), eleven (11) area drains (6" sump) and high-density polyethylene storm collection pipe ranging in size from 12" to 36" diameter. Prior to discharge to the South Forebay, the step pools provide additional pre-treatment of the stormwater.

2.0 OWNER/OPERATOR RESPONSIBILITIES

2.1 RESPONSIBLE PARTY

The owner/operator of Stormwater Management System is PEDA. The Executive Director is Corydon Thurston (phone: 413-494-7332; email: cthurston@williamstanleybp.com

2.2 RESPONSIBILITIES

PEDA is responsible for the management and oversight of the Stormwater Management System including implementation of the Inspection, Monitoring & Maintenance Plan. These responsibilities include:

- Providing and preparing adequate budget for management, operation and maintenance.
- Allocation of appropriate skilled staff to ensure proper oversight, operation and maintenance.
- Providing safe work conditions including implementation of health and safety program for operation and maintenance.
- Creating and implementing operator training programs specific to the water quality treatment system operation & maintenance and health & safety requirements.
- Maintaining efficient facility operation and maintenance by following correct procedures and updating manual as needed.
- Maintaining adequate records to support operation and improve efficiency.
- Providing proper equipment and tools required.
- Maintaining good public relations through appearance and upkeep of facility and providing appropriate information regarding facilities purpose and function.
- Create and update plan for future system needs anticipating long and short-term requirements for upkeep and operation.
- Follow-up and coordination of failure investigations, updating of manual and establishing prevention plans.

3.0 INSPECTION & MAINTENANCE

Inspection and maintenance of all components is required to ensure the Stormwater Management System functions as designed. All inspections and maintenance conducted pursuant to this Plan shall be done in accordance with the requirements of the Amended Grant of Environmental Restriction and Easement for the William Stanley Business Park (30s Complex). The following inspection and maintenance schedule shall be adhered to:

AFTER SIGNIFICANT RAIN EVENT

A significant rain event is classified as 2" or greater of rainfall within a 24-hour period..

- Water Quality Basin
  - Inspect rock spillways and repair as required.
  - Inspect permanent pool and forebay floors and sidewall for damage caused by falling trees, storms and accidents. Repair and stabilize damage immediately.
- Stormwater Collection System
  - Remove blockages from catch basin grates.

MONTHLY

- Water Quality Basin
  - Inspect rock spillways and repair as required.
  - Inspect permanent pool and forebay floors and sidewall for damage caused by falling trees, storms and accidents. Repair and stabilize damage immediately.
  - Inspect forebays for signs of rilling and gullying and repair as needed.
  - Remove trash and debris from forebays, permanent pool, and weir.
  - Mow upper stage, side slopes and embankment of permanent pool and forebays.
- Stormwater Collection System
  - Inspect step pools and repair as required.
  - Remove trash and debris from step pools.

BI-ANNUAL INSPECTIONS

- Notice
    - Fifteen (15) days in advance of any scheduled inspection, provide written notice to MADEP of the date and time that such activities will occur.
- Water Quality Basin
    - Remove sediment from forebays down to the underlying rock layer. Replace any vegetation damaged during the clean-out by either reseeding or resodding.
    - Note any changes to the permanent pool or contributing watershed that may affect performance of basin.
    - Box Culvert
        - Inspect for blockages and damage and repair as required.
        - Inspect for damage to monitoring equipment per manufacturer schedule.
        - Clear weir of accumulated sediment.
        - Inspect stone outfall for damage. Report any damage.
- Stormwater Collection System
    - Inspect catch basin and area drain grates and remove blockages.
    - Clean sumps at William Stanley Business Park of sediment and debris when the depth of deposits is greater than or equal to half of the depth from the bottom of the invert to the lowest pipe in the basin.

ANNUAL INSPECTIONS

- Notice
    - Fifteen (15) days in advance of any scheduled inspection, provide written notice to DEP of the date and time that such activities will occur.
- Water Quality Basin
    - Inspect permanent pool. Remove sediment if the pond has become eutrophic or pool volume has been reduced by 25% due to sediment accumulation. Otherwise, sediment shall be removed every 20 years to restore basin to original elevations. Refer to Figure 2 for Water Quality Basin elevation.
- Stormwater Collection System

- Visually inspect storm collection pipe. If sediment buildup, water backup at manholes, or groundwater infiltration is observed, pipe shall be inspected for damage or blockage through closed-circuit television (CCTV) and repaired as required.
- Remove sediment from step pools.

GENERAL MAINTENANCE NOTES

- Prior to repair of any feature of the Water Quality Basin, stabilize the floor and sidewalls to ensure safe use of equipment.
- Deep sump catch basins and drain manholes shall be cleaned at the end of foliage season and at the end of snow removal season.

3.1 SEDIMENT REMOVAL

No soil shall be removed from the site without proper characterization and analysis consistent with Soil Management Protocols set forth in the Grant of Environmental Restriction and Easement (ERE) documents for the 20s and 30s Complex.

Soil characterization and disposal requirements shall be established by a Licensed Site Professional (LSP). Sediment shall be pre-characterized prior to removal off the site. Characterization shall be consistent with the ERE and shall include one (1) composite sample per 100 cubic yards analyzed for PCBs as a minimum of sediment removal.

The south forebay, north forebay and sumps located in the William Stanley Business Park shall each be considered separate entities and require separate composite samples when disposal is required.

All soil/sediment removed from the site pursuant to the IMM plan will be properly disposed of at an off-site disposal facility.

Refer to Appendix C for Sediment Removal Log.

3.2 HOUSEKEEPING

General housekeeping and cleaning around stormwater management system and collection system is essential to maintaining a safe work environment. Housekeeping shall be completed on each visit including proper storing of equipment and clean-up of debris. Appropriate storage facilities and waste disposal receptacles shall be provided on-site for maintenance employee's use. Refer to Section 3.0 for proper disposal of sediment. Proper housekeeping shall be part of the health and safety plan and is regulated by OSHA (29 CFR 1910.22 Housekeeping).

4.0 RECORDKEEPING

4.1 IMPORTANCE OF RECORD KEEPING

Keeping accurate, legible, and up to date records is essential to the proper operation of the water quality treatment system, safety of employees, longevity components and economical costs of operation.

The operator can utilize records to optimize operating conditions, confirm past performance history and recognize problems for preventative maintenance. Records serve as a basis for determining necessary expenditures, operations and maintenance decisions and changes to the current budget requirements.

The importance of record keeping cannot be overemphasized. The operator shall be aware that the records are legal documents and no information entered shall be assumed or inferred.

4.2 LOCATION OF RECORDS

All records shall be kept at PEDA's office at 81 Kellogg Street, Pittsfield, MA.

4.3 RECORDKEEPING PROCEDURES

Records shall be maintained by PEDA. Both hard copy and electronic copies shall be maintained. A back-up and archive system shall be implemented for all records.

4.4 TYPES OF RECORDS AND FORMS

Inspection and Maintenance logs and reports have been included in Appendix A and Appendix B of this manual and shall be completed as described in Section 3.0.

5.0 SAFETY

The purpose of this section is to establish minimum personnel protection standards and safety practices and procedures for operating and maintaining the water quality treatment system to be addressed within a Site Specific Health and Safety Plan. Practices and procedures shall be amended as required as conditions change or as supplemental information becomes available.

Safety regulations within the water quality treatment system fall under the Occupational Safety and Health Act (OSHA 29 CFR 1910). Appropriate sections of the regulations should be made available at PEDA's office and be kept up to date.

5.1 MANAGEMENT AND OPERATOR RESPONSIBILITIES

The PEDA management is responsible developing and implementing a Site Specific Health and Safety Plan for the Stormwater Management System, providing for required safety training courses and certifications, providing safety meetings and providing required safety equipment for proper operation and maintenance of the Stormwater Management System.

The maintenance staff is required to be familiar with the required Heath & Safety Plan and Soil Management Protocols, maintaining a clean and safe work environment, attending and maintaining appropriate training and certifications, attending all safety meetings and following all safety protocols while operating and maintaining the Stormwater Management System.

All employees shall use the appropriate Personal Protective Equipment (PPE) (29 CFR 1910.132-1910.138) for each operation task and an effective PPE program must be established and administered.

5.2 ROAD HAZARDS AND TRAFFIC CONTROLS

When maintaining Stormwater Management System, employees shall follow the appropriate OSHA guidelines and traffic control procedures detailed in the Manual on Uniform Traffic Control Devices (MUTCD).

6.0 UTILITY CONTACTS

6.1 ELECTRICAL

Questions regarding electrical service or location of buried cable should be directed to Western Massachusetts Electric Company (WMECO):

Daniel M. Thomas (Senior Engineer): 413-499-9003

John S. Tulloch (Manager-Customer Operations): 413-499-9051

6.2 TELEPHONE

Questions regarding telephone service or location of buried cable should be directed to Verizon Planning at 413-499-0062.

6.3 NATURAL GAS

Questions regarding natural gas service or location of buried pipe should be directed to Berkshire Gas Company:

James Peck (Associate Engineer): 800-292-5019 or 413-445-0223

Christopher C. Farrell (Mgr. Corporate Comm. & Government Relations): 413-445-0312

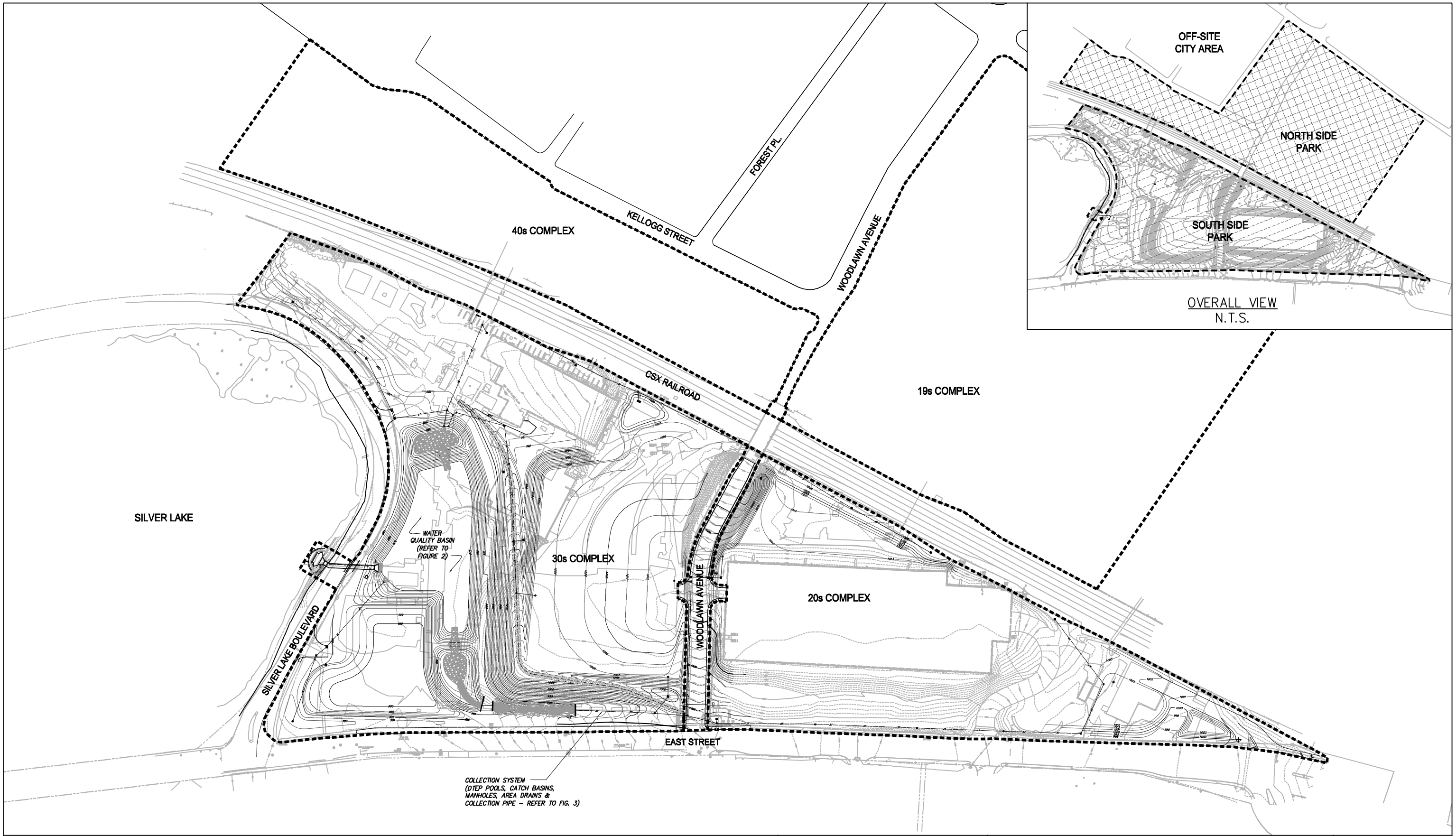
6.4 WATER

Questions regarding water service or location of buried services should be directed to the City of Pittsfield Department of Public Works at 413-499-9330.

7.0 REFERENCES

- Massachusetts Stormwater Handbook, Volume 2; February 2008
  - Chapter 1: The Three Components of Stormwater Management
  - Chapter 2: Structural Best Management Practices Specifications
- National Pollutant Discharge Elimination System (NPDES) Fact Sheet: BMP Inspection & Maintenance
- William Stanley Business Park – Construction Drawings by CHA
- William Stanley Business Park – Stormwater Pollution Prevention Plan by CHA
- Manual on Uniform Traffic Control Devices (MUTCD), Latest Edition
- OSHA 29 CFR 1910

FIGURES



0 200 400
Scale in feet

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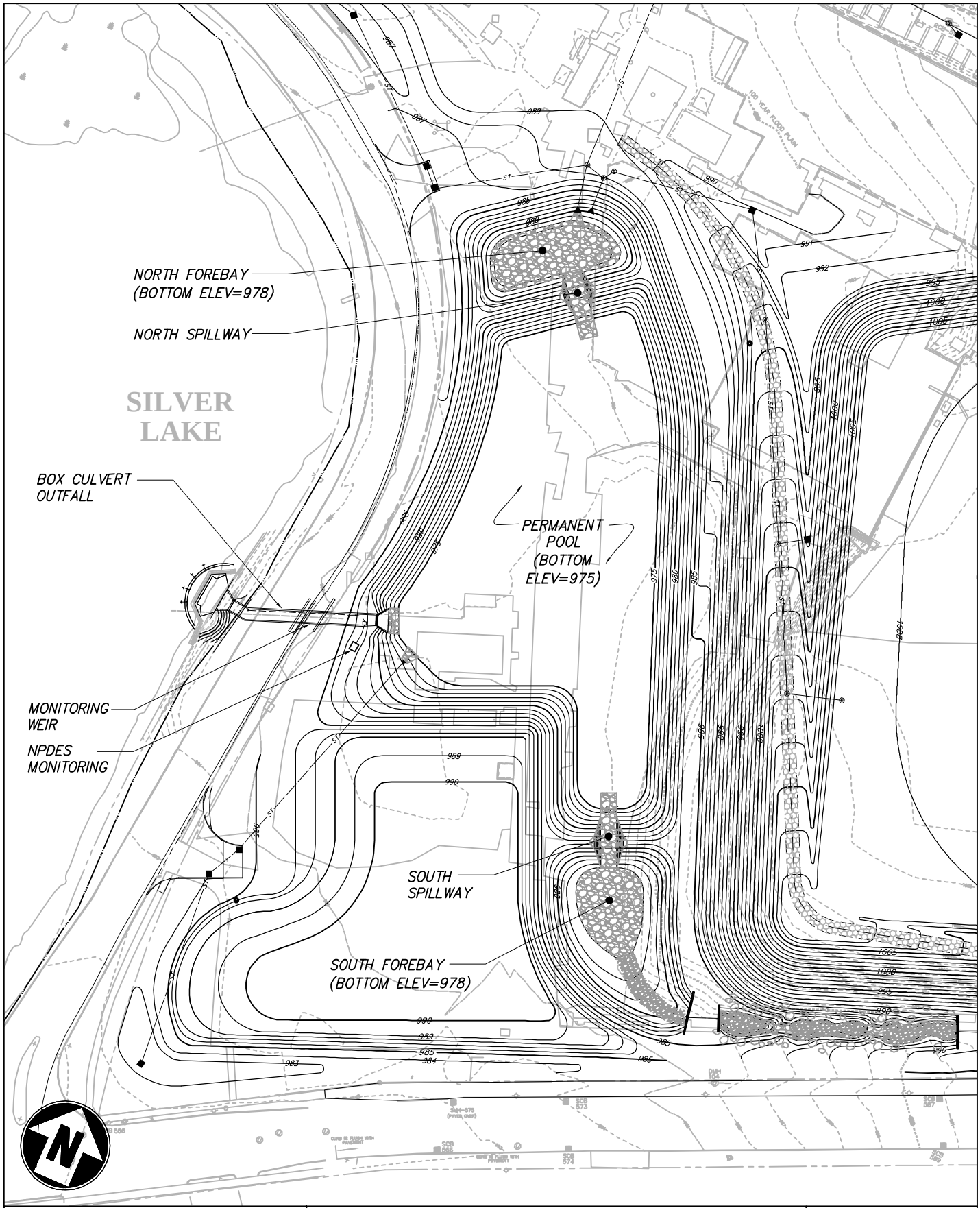
WILLIAM STANLEY BUSINESS PARK
SOUTH SIDE PARK
STORMWATER MANAGEMENT SYSTEM
OVERALL SITE MAP

PROJECT NO. 13772

SEPT. 2010

FIGURE 1



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WILLIAM STANLEY BUSINESS PARK
SOUTH SIDE PARK
STORMWATER MANAGEMENT SYSTEM
WATER QUALITY BASIN

PROJECT NO.
13772

SEPT. 2010

FIGURE 2

AD-5
AD-6
MH-1
AD-2
AD-1
CB-4
MH-2
CB-5
AD-4
CB-4 (DBL)
CB-3
CB-2
CB-1
MH-3
SILVER LAKE
MH-4
AD-3
MH-5
MH-6
MH-19
CB-11
CB-12
AD-8
MH-18
MH-17
CB-6
CB-7
AD-11
MH-16
MH-20
AD-10
AD-7
MH-7
MH-8
AD-9
MH-9
MH-10
MH-11
MH-12
MH-13
STEP POOLS
HDPE PIPE COLLECTION SYSTEM, TYP.

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WILLIAM STANLEY BUSINESS PARK
SOUTH SIDE PARK
STORMWATER MANAGEMENT SYSTEM COLLECTION SYSTEM

PROJECT NO. 13772

SEPT. 2010

FIGURE 3

APPENDIX A

Water Quality Basin Inspection Report

General Information			
Type of Inspection	❑ After Significant Rainfall ❑ Monthly ❑ Bi-Annually ❑ Annually		
Date of Inspection		**Start/End Time**	
Inspector's Name(s)			
Inspector's Title(s)			
Inspector's Contact Information			
Inspector's Qualifications			

Weather Information
Provide latest storm event information: Storm Start Date & Time: Storm Duration (hrs): Approximate Amount of Precipitation (in):
Weather at time of this inspection? ❑ Clear ❑Cloudy ❑ Rain ❑ Sleet ❑ Fog ❑ Snowing ❑ High Winds ❑ Other: Temperature:

Water Quality Basin Components			
Forebays	**Permanent Pool**	**Rock Spillways**	**Box Culvert**

Inspection Notes
(use additional sheets as necessary)

Print name and title: _____

Signature:_____ Date:_____

Stormwater Management System Inspection Log
Water Quality Basin

Date	Performed By	Component	Type of Inspection	Comments

Stormwater Management System Maintenance Log
Water Quality Basin

Date	Performed By	Component	Maintenance Activity	Comments

APPENDIX B

Storm Collection System Inspection Report

General Information			
Type of Inspection ❑ After Significant Rainfall ❑ Monthly ❑ Bi-Annually ❑ Annually			
Date of Inspection		**Start/End Time**	
Inspector's Name(s)			
Inspector's Title(s)			
Inspector's Contact Information			
Inspector's Qualifications			

Weather Information
Provide latest storm event information: Storm Start Date & Time: Storm Duration (hrs): Approximate Amount of Precipitation (in):
Weather at time of this inspection? ❑ Clear ❑Cloudy ❑ Rain ❑ Sleet ❑ Fog ❑ Snowing ❑ High Winds ❑ Other: Temperature:

Storm Collection Components		
Catch Basins, Manholes & Area Drains	**Step Pools**	**Collection Pipe**

Inspection Notes
Utilize attached logs for catch basin, manhole and area drain inspections. *(use additional sheets as necessary)*

Print name and title: _____

Signature:_____ Date:_____

CATCH BASIN INSPECTION LOG						
Location #	Diameter (ft)	Condition of Structure	Trash/Debris Buildup		Action	Comments
			Depth (in)	Needs Removal?		
CB-1	4'					
CB-2	4'					
CB-3	4'					
CB-4 (Dbl Grate)	Dbl Grate					
CB-4	4'					
CB-5	4'					
CB-6	4'					
CB-7	4'					
CB-11	4'					
CB-12	4'					

Condition Legend

1	Good Condition
2	Damaged but Functioning
3	Not Functioning

MANHOLE INSPECTION LOG						
Location #	Diameter (ft)	Condition of Structure	Trash/Debris Buildup		Action	Comments
			Depth (in)	Needs Removal?		
MH-1	6'					
MH-2	8'					
MH-3	4'					
MH-4	4'					
MH-5	4'					
MH-6	4'					
MH-7	6'					
MH-8	6'					
MH-9	4'					
MH-10	4'					
MH-11 (MDH 18)	4'					
MH-12 (MDH 22)	4'					
MH-13 (MDH 23)	4'					
MH-14 (MDH 24)	4'					
MH-15 (MDH 25)	4'					
MH-16	4'					
MH-17	4'					
MH-18	4'					
MH-19	4'					
MH-20	4'					

Condition Legend

1	Good Condition
2	Damaged but Functioning
3	Not Functioning

AREA DRAIN INSPECTION LOG						
Location #	Diameter (ft)	Condition of Structure	Trash/Debris Buildup		Action	Comments
			Depth (in)	Needs Removal?		
AD-1	2'					
AD-2	2'					
AD-3	2'					
AD-4	2'					
AD-5	2'					
AD-6	2'					
AD-7	2'					
AD-8	2'					
AD-9	2'					
AD-10	2'					
AD-11	2'					

Condition Legend

1	Good Condition
2	Damaged but Functioning
3	Not Functioning

Stormwater Management System Inspection Log
Collection System

Date	Performed By	Component	Type of Inspection	Comments

Stormwater Management System Maintenance Log
Collection System

Date	Performed By	Component	Maintenance Activity	Comments

APPENDIX C

Stormwater Management System Sediment Removal Log

(Attach removal slips to log)

Date	Performed By	Component	Depth of Sediment	Location of Disposal	Comments