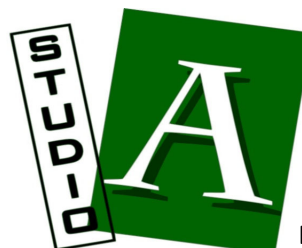


Operation and Maintenance Manual

*Building 2
I-65 South Commerce Park*

August 11, 2022

Prepared by:
Studio A of Indianapolis, Inc.
9511 East 96th Street
Indianapolis, IN 46256



Civil Engineering
Site Development
Landscape Architecture
Environmental Documents

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1.0 INTRODUCTION

This document defines responsibilities for operating, inspecting and maintaining the Post-Construction stormwater Best Management Practices (BMPs) located at the I-65 South Commerce Park – Building 2 site located at the northeast corner of I-65 and SR 44 within Johnson County, Indiana. The only post-construction BMP on the site will be wet pond BMPs. The purpose of the BMPs are to provide natural and sustainable water quality improvement, passive recreation and aesthetic landscape value, as well as habitat to support wildlife and native plants. In order to maintain water quality and productive vegetation within the BMPs, inspection and light maintenance activities will be required. Figure 1, included at the conclusion of this chapter, indicates the location of the BMPs. Per Johnson County Ordinance, stormwater quality facilities shall be maintained in good condition, in accordance with the Operation and Maintenance procedures and schedules listed in the Johnson County Stormwater Technical Standards manual and shall not be subsequently altered, revised or replaced except in accordance with the approved stormwater permit, or in accordance with approved amendments or revisions to the permit. Routine inspections of and annual reporting on the conditions of each BMP are the responsibility of the Owner. Monthly inspections are recommended. Sample stormwater BMP inspection logs are included at the end of this Manual. Monthly inspection logs and annual reports shall be kept on file by the BMP owner, where they can be produced for inspection if requested by the Johnson County Surveyor's Office or the City of Franklin. If deficiencies are found in the stormwater BMPs, the owner of the BMP facility will be notified by the Surveyor and will be required to take action to correct the deficiencies. Unless the wet pond BMP is donated to a unit of government designated by the Johnson County Drainage Board for ownership and permanent maintenance, the Owner of the stormwater BMPs is responsible for all costs associated with maintaining the BMPs, per Johnson County Ordinance. If the owner fails to correct the deficiencies within the allowed time period as specified in the notification letter, said owner may be in violation of this ordinance. Johnson County Personnel shall have a blanket ingress/egress easement right to inspect and maintain all Post-Construction BMPs should the Owner fail to maintain these structures as required. All costs associated with said maintenance shall be billed to the Owner.

BMP Owner Contact Information: Justin Furr
Sunbeam Development Corporation
11800 Exit Five Parkway, Suite 110
Fishers, Indiana 46037

Owner's Signature: _____

2.0 MONTHLY INSPECTIONS, WET POND BMP

Stormwater settling ponds are landscape features that remove coarser sediments (sand and some silt), and which can reduce biochemical oxygen demand (BOD), nutrients, and trace metals in stormwater runoff. These water quality benefits are achieved by creating sufficient residence time to settle out particulates, and by microbial processes that occur over time in sediments and in the water column. Including a wetland zone at the inlet, outlet or fringe of a stormwater pond can enhance the efficiency of water quality treatment. The following observation and maintenance measures should be performed monthly:

2.0.1 *Inspection of Wetland and Littoral Vegetation*

Planted wetland areas, and littoral areas of settling ponds (up to 18 inches deep at normal pool), should have a minimum of 75% cover with emergent vegetation after the second growing season. The vegetation should be healthy and the species should be consistent with landscaping plans. Certain plant species, including reed canary grass (*Phalaris arundinacea*), purple loosestrife (*Lythrum salicaria*), and common reed (*Phragmites australis*), are considered invasive and should be eradicated within one month of discovery. By inspecting the BMP regularly, chances of discovering invasive plants early are increased, and successful eradication of these species will be more likely. When removing purple loosestrife, care should be taken not to release seeds from the plants. Removed plants should either be burned, or disposed of in a sealed plastic bag to prevent further spread of seeds. Invasive species should be documented during the monthly inspections. Photos of common invasive species are included at the end of this report for reference.

Landscaped areas of the banks that are eroded or on which bare earth is exposed shall be restored to proper grade, stabilized and re-seeded with the appropriate seed mixtures. Water depth should be consistent with that specified in the settling pond or stormwater wetland BMP plan, and should be appropriate for the plant species specified in the landscape plan.

2.0.2 *Permanent Pool and Deepwater Areas*

Undesirable plant growth (e.g. dense algae) should be noted. Floating and floatable debris, and other visible pollutants and trash, should be removed.

2.0.3 *Embankment and Emergency Spillway*

Erosion should be noted and amended. Animal burrows should be noted, and damage caused by burrowing must be repaired as soon as possible. If burrowing mammals are present in densities that endanger the integrity of the embankment, they may need to be controlled or eradicated. Such measures will be confined to the embankment; control of burrowing mammals in other areas of the BMP may not be necessary. Any burrowing mammal control effort will need to be carefully planned and executed to avoid negative impacts to adjacent ecosystems, habitats and wildlife.

Cracking, bulging or displacement of the embankment should be noted and remedied. The emergency spillway should be clear of obstructions or debris.

2.0.4 Riser and Principal Spillway

Neither the top casting (if present) of the riser, nor any orifices should be obstructed. If present, trash racks should not be obstructed with debris.

2.0.5 Inlet and Forebays

Inlets and forebay areas should be inspected for obstructions and debris that could disrupt flow into the stormwater pond. Debris should be removed immediately and disposed of properly, complying with relevant local, state and federal waste disposal regulations.

2.0.6 Outfalls

Gravel or other energy dissipater should remain in place and be functioning as intended. If erosion is noted, it should be amended

2.0.7 Visible Debris or Pollutants

Remove visible pollution such as oily sheens. Note discoloration, and cloudy or muddy water.

2.0.8 Erosion

Areas of severe erosion or other conditions that may constitute a public hazard or a failure of functioning of the BMP should be corrected as soon as possible and prior to the next monthly inspection.

2.1 ANNUAL INSPECTION AND MAINTENANCE REPORTS, STORMWATER PONDS

Stormwater basins should be cleaned out after the construction phase is completed, specifically areas near inlets with visible signs of sediment accumulation. Should sediment require removal, it should be removed and disposed of properly, complying with relevant local, state and federal waste disposal regulations. Areas that are disturbed during sediment removal will require stabilization to prevent further erosion and sedimentation.

Annual monitoring reports will be prepared, beginning one year after completion of construction, to document inspections of stormwater ponds, remediation actions required, and completion of those actions. The following information shall be collected and included in the annual monitoring report:

- Assessment of results of any past maintenance or corrective actions.
- Monitoring forms, photos, a summary of monthly inspections, and recommendations for routine or special maintenance activities.

Annual reports shall be maintained by the BMP Owner, and produced if requested by the Johnson County Surveyor's Office or the City of Franklin. If deficiencies are found that are not included in the report, or that are included but not addressed in a timely manner, the owner of the BMP may face enforcement action from the County or City.

3.0 SUMMARY

The objective of this operation and maintenance manual is to assist the owner of the Stormwater BMP in the operation, inspection and maintenance of these systems, located east of Jim Black Road and north of SR 44 in Johnson County, Indiana. Inspection Checklists are included to facilitate the carrying out of maintenance required for maintaining the integrity and design features of the BMPs.

PHOTOS OF COMMON INVASIVE PLANT SPECIES



Typha angustifolia - Narrowleaf Cattail



Lythrum salicaria - Purple Loosestrife



Phalaris arundinacea – Reed Canarygrass



Phragmites australis - Common Reed

Stormwater Pond Operation, Maintenance, and Management Inspection Checklist for BMP Owners

Project: _____ Owner Change since last inspection? Y N

Owner Name, Address, Phone _____

Number _____

Location: _____

Site Status: ____

Date: _____

Time: _____

Inspector: _____

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
Embankment and Emergency Spillway (Inspect annually and after major storms)		
1. Vegetation		
2. Erosion on embankment		
3. Animal burrows		
4. Cracking, bulging or sliding of dam		
A. Location:		
B. Describe		
5. Drains clear and functioning		
6. Leaks or seeps on embankment		
A. Location		
B. Describe		
7. Slope protection failure		
8. Emergency spillway clear of obstructions		
9. Other (describe)		

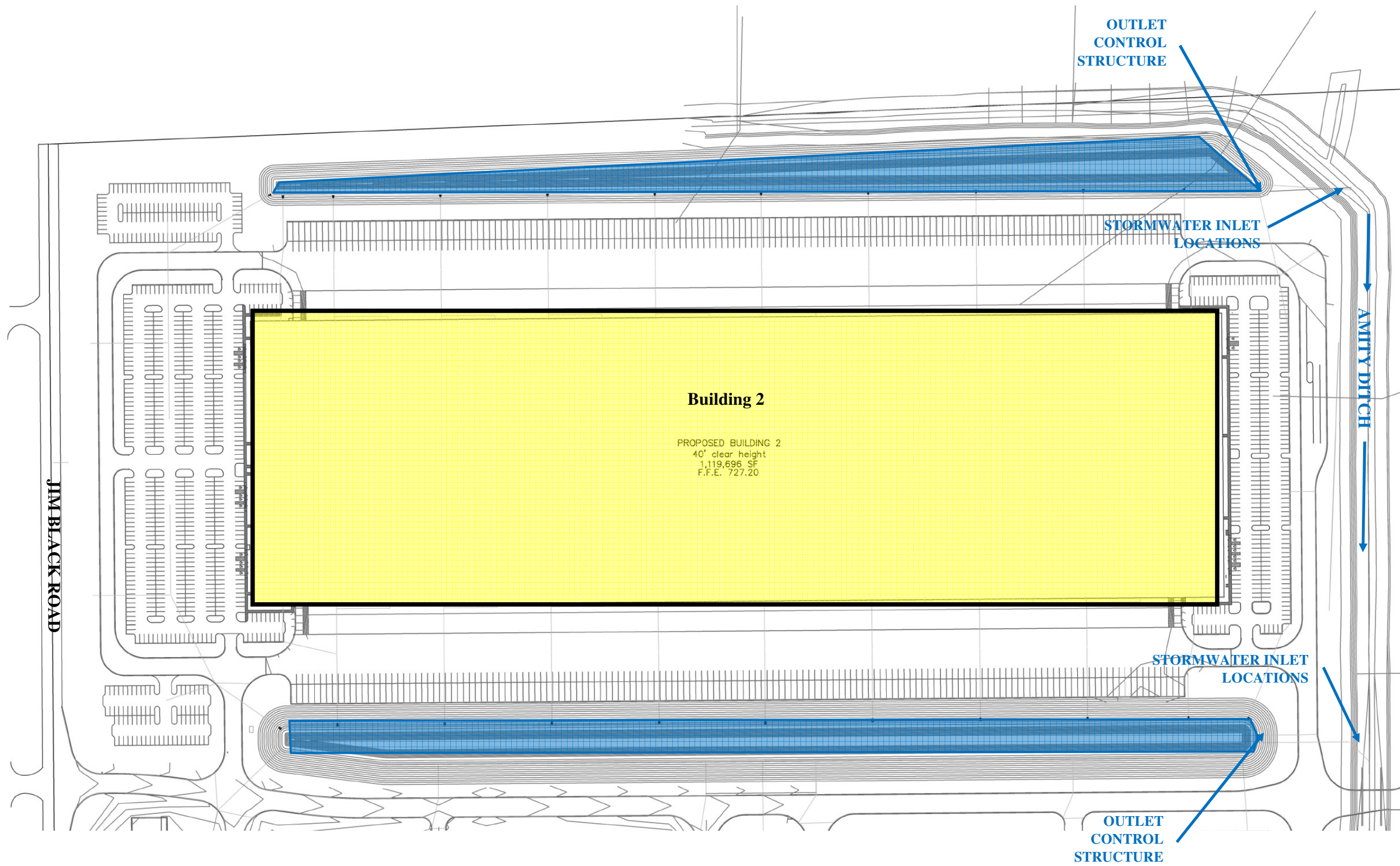
Maintenance Item	Satisfactory/ Unsatisfactory	Comments
Riser and Principal spillway (Inspect annually)		
Circle Type: Reinforced concrete, corrugated pipe, masonry		
1. Low flow orifice blocked		
2. Trash rack		
A. debris removal needed		
B. corrosion noted		
3. Excessive sediment buildup in riser		
4. Concrete/Masonry condition		
A. cracks or displacement		
B. spalling		
5. Metal pipe condition		
6. Control Valve operational		
7. Pond drain valve operational		
8. Outfall channels functioning		
9. Other (describe)		
Permanent Pool (Inspect monthly)		
1. Undesirable vegetative growth		
2. Floatable debris removal needed		
3. Visible pollution		
4. Shoreline problem		
5. Other (describe)		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
<u>Sediment Forebays</u>		
1. Sedimentation noted		
2. Sediment cleanout needed (over 50% full)		
Other (Inspect monthly)		
1. Erosion at outfalls into pond		
2. Headwalls and endwalls		
3. Encroachment into pond or easement area		
4. Complaints from residents		
5. Public hazards (describe)		

Additional Comments

Actions to be taken:

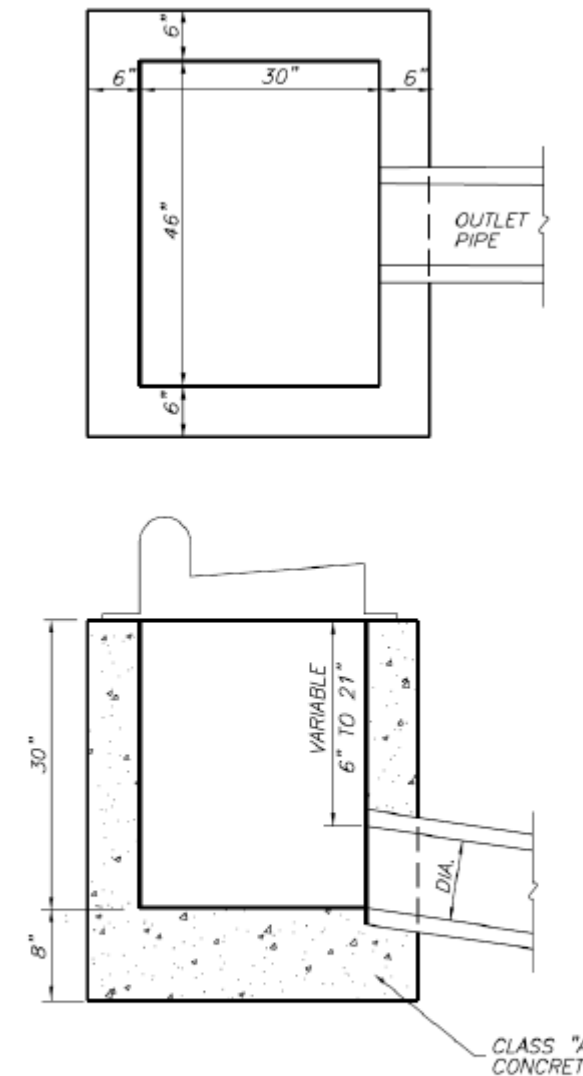
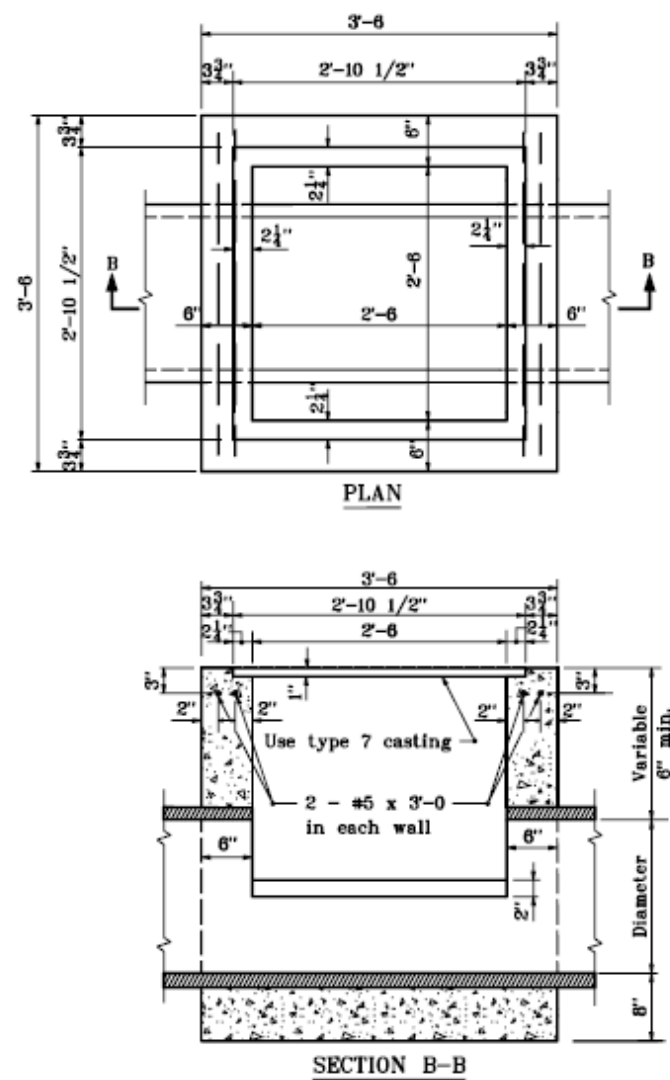
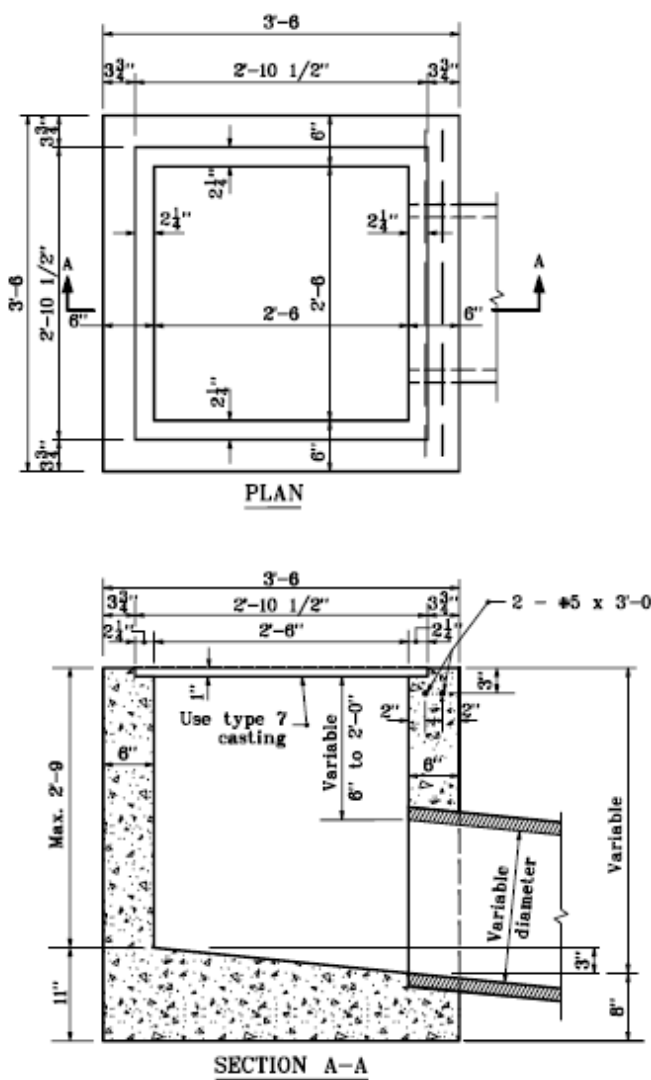
Timeframe:



BMP LOCATION MAP

Franklin Properties - Lot 1 - Building 2
JOHNSON COUNTY, INDIANA

Figure 1



NOTE: 6" CONC. PRECAST OR
POURED IN PLACE

NO SCALE

INLET TYPE "B"

INDIANA DEPARTMENT OF TRANSPORTATION	
INLETS TYPE E AND F	
SEPTEMBER 1997	
STANDARD DRAWING NO. E 720-INST-04	
DETAILS PLACED IN THIS FORMAT 11-15-98	
	/s/ Anthony L. Uremovitch 11-15-98 DESIGN STANDARD ENGINEER DATE
	/s/ Pirooz Zandi 11-15-98 DESIGN STANDARD ENGINEER DATE
ORIGINALLY APPROVED	9-12-97

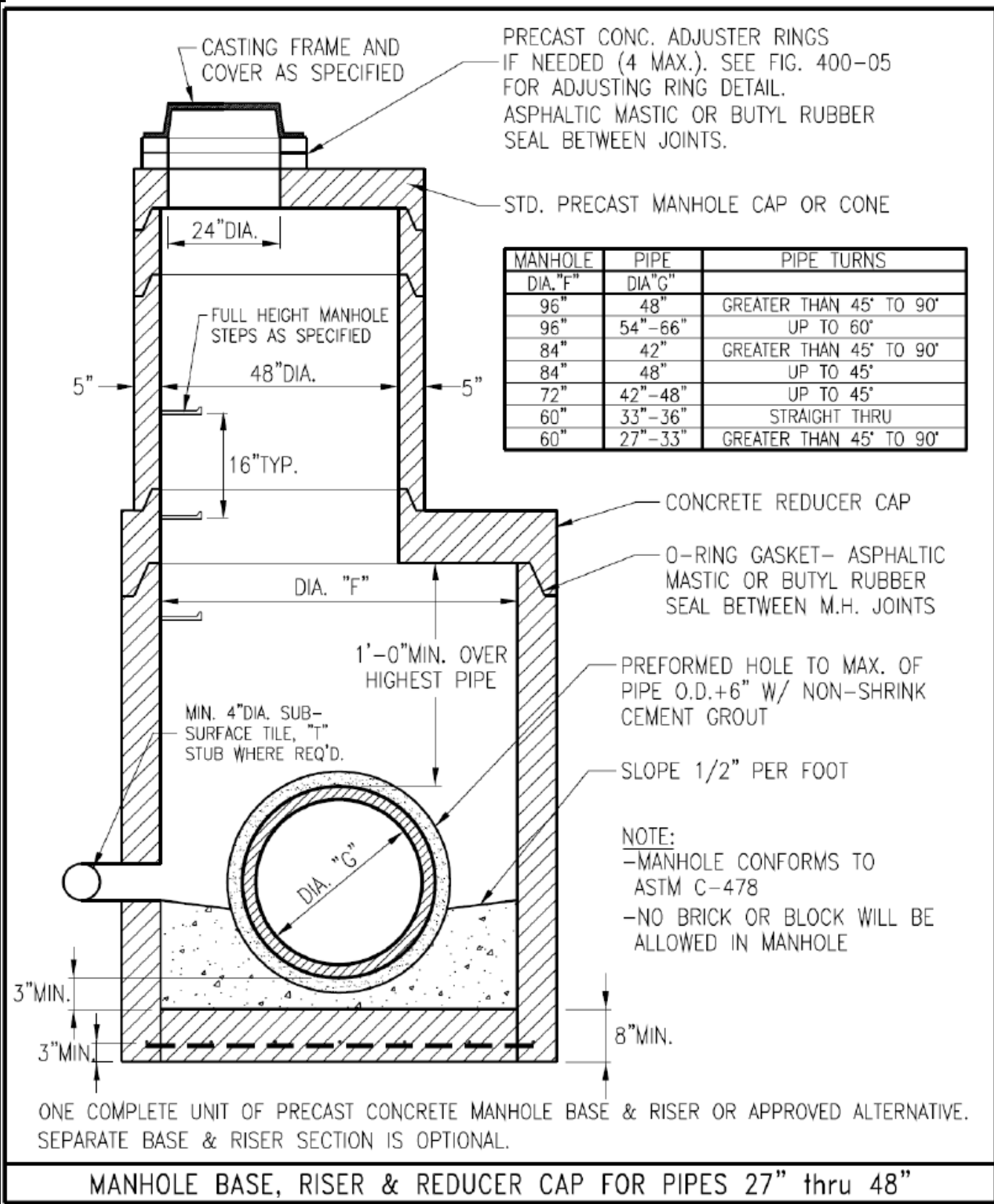
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Infrastructure Details

Franklin Properties - Lot 1 - Building 2
JOHNSON COUNTY, INDIANA

Figure 2

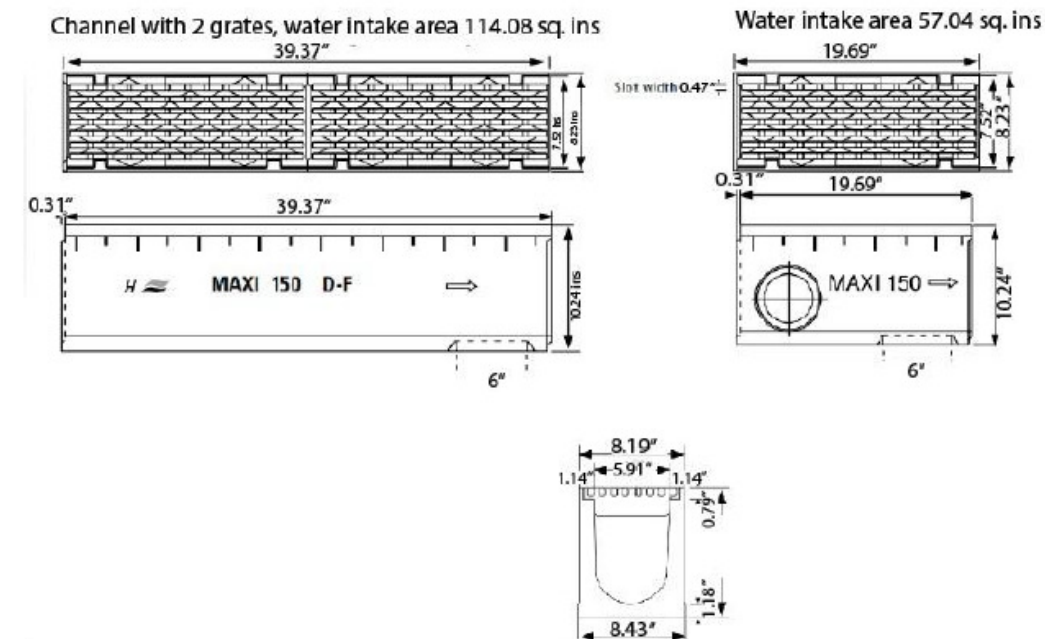


SPECIFICATION SHEET

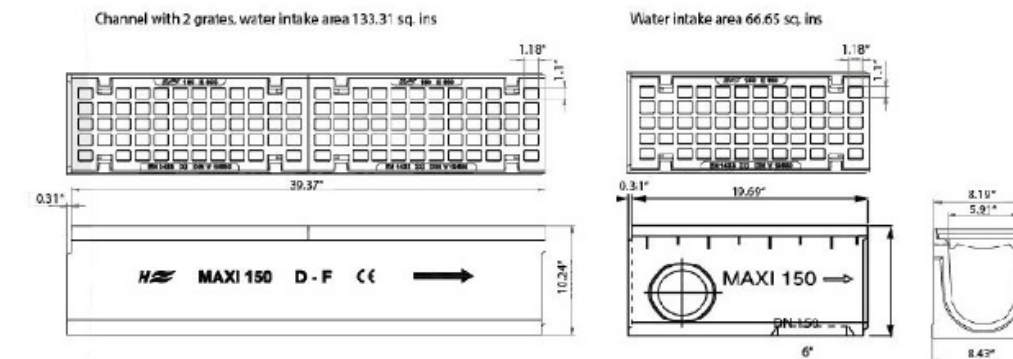
April 2013

MAXI150 SIGMA HYDROTEC

MAXI150 with Ductile Iron ADA Load Class D (Part No. CHG61540-*) and ADA Load Class F (Part No. CHG61560-*)



MAXI150 with Ductile Iron Class E Grate: Part No. CHG62150-*



Catch Basin and End Caps for All MAXI150



SIGMA Corporation
700 Goldman Drive
Cream Ridge, NJ 08514

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Fax: 609 543 2308

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Studio A of Indianapolis, Inc.



Infrastructure Details

Franklin Properties - Lot 1 - Building 2
JOHNSON COUNTY, INDIANA

Figure 3