

Stormwater / BMP Operations and Maintenance Reserve at Ronald Reagan Infrastructure Phase 1



VICINITY MAP
No Scale



February 16, 2026

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1. Administrative Information:

a. BMP Owner Information

Name: R2 Corridor, LLC
Primary Contact: Steve Pittman
Street Address: 9589 Valparaiso Ct.
City/State/Zip Code: Indianapolis, IN 46264
Business Phone Number: (317) 580-9693

b. Cost Responsibility

As a condition of the Brownsburg, Indiana Stormwater Management Ordinance, it must be stated that any cost incurred during the maintenance of any of the following described Best Management Practices, BMPs, shall be incurred by the owner listed above. If at the time of this submittal no owner is listed, one shall be provided once construction of the BMP is completed. In the event that ownership changes, responsibility for maintaining the BMPs shall change accordingly. It is the responsibility of the preceding owner to pass the information contained within this document to the new owner.

c. Right-of-Entry

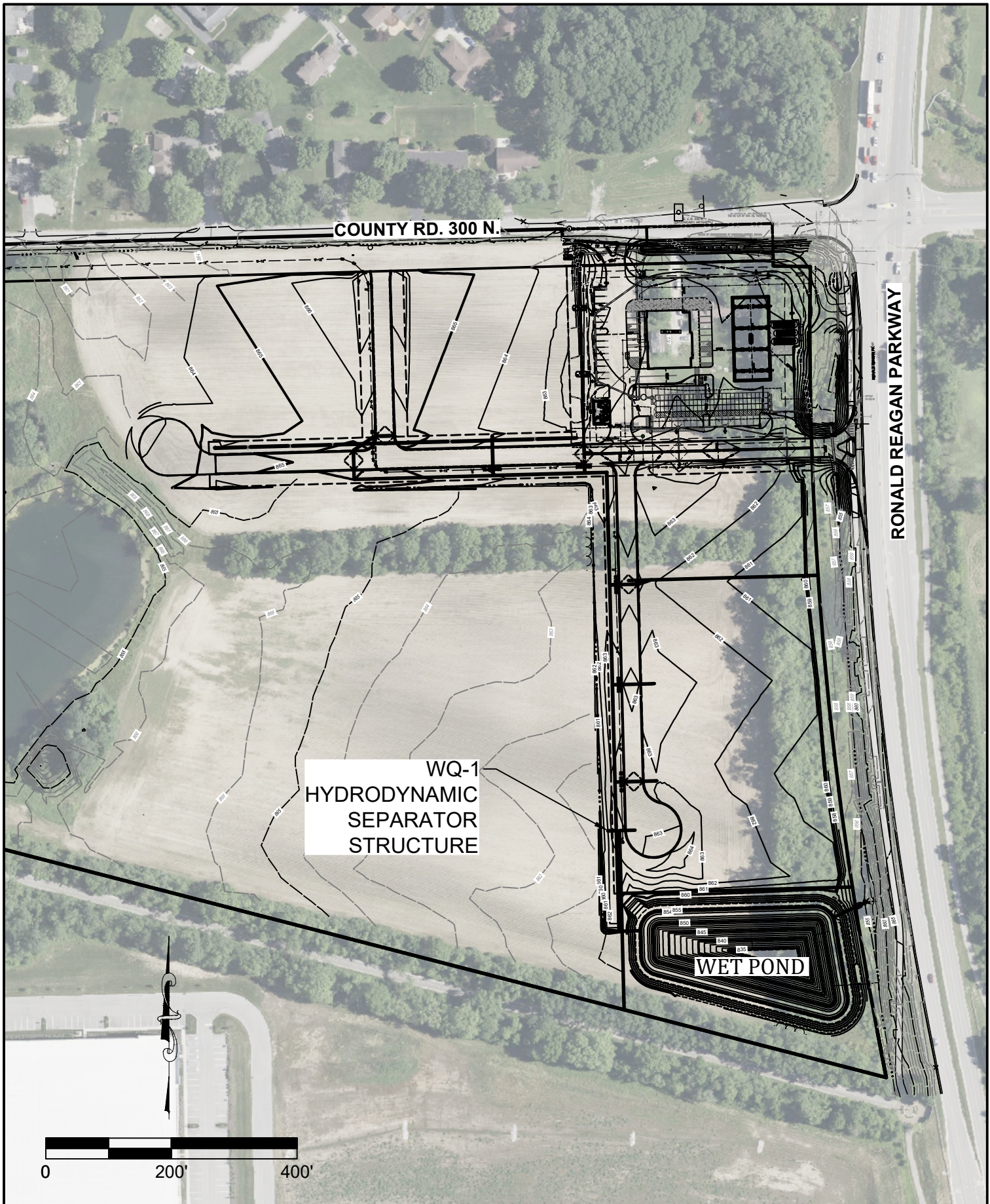
As a condition of the Brownsburg, Indiana Stormwater Management Ordinance, it must be stated that the owner declared above shall allow entry by Town of Brownsburg representatives to inspect the BMPs described within this manual. Volume control facilities and BMPs shall be inspected semi-annually and after significant rainfall events exceeding one and one-half (1.5) inches. Documentation of inspections shall be maintained and must be produced upon the request of the Town Personnel, within forty-eight hours of the request.

The project is located at the southwest corner E County Road 300 N and Ronald Reagan Parkway in Hendricks County, Brownsburg, Indiana.

a. Driving Directions

From the intersection of U.S. Highway 136 and Ronald Reagan Parkway in Brownsburg, IN, travel south along Ronald Reagan Parkway for approximately 1.5 miles to the intersection of E County Road 300 N. Turn right and travel for approximately 800 feet to the entrance of Reserve at Ronald Reagan on the south side of E CR 300 N.

**b. BMP and Stormwater Facility Location Map
(see following pages)**



Drawn By: WCZ
 Date: 1/20/2026
 Project No.: 22370
 Scale: AS SHOWN
 Page: 1 of 1

BMP LOCATION MAP
 RESERVE AT RONALD REAGAN
 INFRASTRUCTURE PHASE 1
 HENDRICKS COUNTY
 BROWNSBURG, INDIANA

BANNING
 ENGINEERING
 853 COLUMBIA ROAD, SUITE #101
 PLAINFIELD, IN 46168
 BUS: (317) 707-3700, FAX: (317) 707-3800
 E-MAIL: Banning@BanningEngineering.com
 WEB: www.BanningEngineering.com

3. Wet Ponds:

a. Description

The wet pond or retention pond is a facility which removes sediment, Biochemical Oxygen Demand (BOD), organic nutrients, and trace metals from stormwater runoff. This is accomplished by slowing down stormwater using an in-line permanent pool or pond effecting settling of pollutants. The wet pond is similar to a dry pond, except that a permanent volume of water is incorporated into the design. The drainage area should be such that an adequate base flow is maintained in the pond. Biological processes occurring in the permanent pond pool aid in reducing the amount of soluble nutrients present in the water, such as nitrate and ortho-phosphorus (Schueler, 1987)

b. Landscaping

Grass or other suitable vegetative cover shall be provided along the banks of the detention storage basin. Vegetative cover around detention facilities should be maintained as appropriate. The Town will not be responsible for maintenance of the detention pond and bank slopes.

c. Inspection / Maintenance Schedule

Regular maintenance and inspection practices are needed. The Inspection / Maintenance Schedule on the following page outline these practices.

**Wet Pond
Inspection / Maintenance Schedule**

Wet Pond Installation Date: _____

Inspection Schedule	Inspection Items	Maintenance / Corrective Action
Weekly (Spring thru Fall) to Monthly	Pond Banks	<ul style="list-style-type: none"> • Mow Grass
Monthly to Quarterly or after storms > 1”	Pond Inlet & Outlet Structures	<ul style="list-style-type: none"> • Clean and Remove Debris
	Permanent Pool	<ul style="list-style-type: none"> • Remove Trash & Debris
	Shoreline / Pond Banks	<ul style="list-style-type: none"> • Repair eroded and bare soil areas • Humanely Remove Animals Causing Damage • Repair Damage caused by Animals • Remove Invasive Plants
Annual	Pond Inlet & Outlet Structures	<ul style="list-style-type: none"> • Repair Pipes/Structures
	Permanent Pool	<ul style="list-style-type: none"> • Manage removal of excess hydrocarbon / algae build-up
	Forebay	<ul style="list-style-type: none"> • Remove sediment at or before 50% occupies the forebay
20 to 50 Years	Pond Bottom	<ul style="list-style-type: none"> • Monitor sediment accumulations, and remove sediment when the pool volume has become reduced significantly (25% reduction of design volume measured from normal pool elevation). Also, the presence of algae overgrowth due to a high concentration of Nitrates and Phosphates (Eutrophication) is an indicator that sedimentation has accumulated and has significantly reduced the volume of water.

d. Wet Pond Maintenance & Inspection Checklist

Detention BMP Inspection Checklist*

Project Location: _____ Date/Time: _____

Maintenance Item	Satisfactory/ Unsatisfactory	Recommended Inspection Frequency	Comments
Inlet/Outlet Pipes			
Structural integrity of inlet/outlet (Are any inlet pipes broken, crumbling, separated?) List Approximate Diameter and Type of Material of Inlet Pipes Inlet Pipe 1 _____ Inlet Pipe 2 _____ Inlet Pipe 3 _____ Outlet Pipe Size/Type _____		A	
Riprap at inlet pipe (Is the riprap still present? Is it visible and not covered with sediment?)		A	
Stone around outlet pipe (Is the stone clogged with debris and/or sediment?)		A	
Trash or debris blocking inlet/outlet (Inspect to ensure no major obstructions hindering general functionality)		M	
Inspect/clean catch basin upstream of the BMP if accessible.		A	
Inspect inlets and outlet for erosion (Are there eroded areas around the pipes?)		A	
Inspect overflow spillway for signs of erosion.		A	
Pretreatment (if applicable). This might include sediment forebay, upstream catch basin, bioswale, rain garden, swirl concentrator			
Device functioning to trap/collect sediment			
Remove accumulated sediment as appropriate for the pretreatment device. forebay		A	
Detention Pond		A	

Inspection frequency key — A = Annual, M = Monthly, S = After major storm

* It is recommended to review and inspect the basin with the engineering as-built plans.

Reserve at Ronald Reagan Infrastructure Phase I, Lincoln Township, Hendricks County, Indiana

Maintenance Item	Satisfactory / Unsatisfactory		Recommended Inspection	Comments
Inspect side slopes, berms and emergency overflow for erosion			A	
Reestablish permanent native vegetation on eroded slopes			As Needed	
Inspect for excess sediment accumulation in pond if not			A	
Overall functionality				
Ensure pond is functioning properly (Professional Civil Engineer is recommended)			A	
Ensure the outlet is functioning properly (Professional Civil Engineer is recommended)			A	
Optional/Enhancements				
Maintain 15-20 feet "no mow and chemical free" zone			A	
Mow (or burn) the "no mow" zone			A	
Inspect basin and "no mow" zone for invasive species.			A	
Qualified professional applicator selectively herbicide invasive			A	
Increase plant diversity by planting additional vegetation in and around			A	
Complaints from residents (note on 1/1/1)			S	
Encroachment on pond/no- mow zone.			A	
Unauthorized plantings			A	
Aesthetics (e.g., graffiti, unkempt maintenance)			A	

Inspection frequency key — A = Annual, M = Monthly, S = After major storm

* It is recommended to review and inspect the basin with the engineering as-built plans.

Summary

Inspector's remarks:

Overall condition of facility (acceptable or unacceptable): _____

Dates any maintenance must be completed by: ____

4. Aqua-Swirl Hydrodynamic Separator

a. General Information

AquaShield™ recommends that periodic system inspections be performed to determine whether the disposal of captured material is needed to ensure proper operation of the Aqua-Swirl™ treatment system. It is important to keep in mind that all BMPs require some degree of maintenance. Maintenance cycles are ultimately dependent on site-specific pollutant loading conditions.

Upon installation and during construction, it is recommend that an Aqua-Swirl™ be inspected every three months and cleaned as needed. A typical maintenance event for the cleaning of the swirl chamber can be accomplished with a vacuum truck. The unit should be inspected and cleaned at the end of construction regardless of whether it has reached its capacity for sediment or oil storage. During the first year post-construction, the unit should again be inspected every three months and cleaned as needed. It is also recommended that the system be inspected and cleaned once annually regardless of whether it has reached its sediment or floatable pollutant storage capacity. For the second and subsequent years post-construction, the Aqua-Swirl™ can be inspected and cleaned once annually if the system did not reach full sediment or floatable pollutant capacity in the first year post-construction. If the Aqua-Swirl™ reached full sediment or floatable pollutant capacity in less than 12 months in the first year post-construction, the system should be inspected once every six months and cleaned as needed. AquaShield™ further recommends that external bypass (diversion) and convergence structures should be inspected and cleaned when feasible during inspection and maintenance events.

Essential elements of a swirl chamber inspection include observing floating materials and measuring the accumulated sediment at the base of the swirl chamber. These two activities can be performed at the ground surface and there is no need to enter the device. A typical maintenance event includes the vacuuming and disposal of floatable pollutants and sediment from the swirl chamber. Proper health and safety protocols should be followed during all inspection and maintenance events. AquaShield™ recommends that all materials removed during the maintenance process be handled and disposed in accordance with all applicable federal, state and local guidelines. Depending on the influent pollutant characteristics of the system drainage area, it may be appropriate to perform Toxicity Characteristics Leaching Procedure (TCLP) analyses on representative samples of the removed material to ensure that the handling and disposition of materials complies with applicable environmental regulations.

b. Details

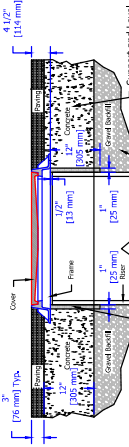
(See the following pages)

c. Inspection and Maintenance Manual

(See the following pages)

Aqua-Swirl High Density Polyethylene (HDPE) Stormwater Treatment System

If traffic loading (H-20) is required or anticipated, a concrete pad must be placed over the entire Stormwater Treatment System per concrete design as calculated by engineer. Sample details of concrete pad available upon request.

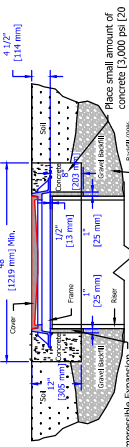


Support and Level manhole frame with OT allow manhole frame to rest upon HDPE riser.

Manhole Frame & Cover Detail For H-20 Traffic Loading Areas
NTS

Wipe Compressible Expansion Joint material to a minimum 1-inch (25 mm) thickness around top of riser to allow transfer of traffic loading from manhole cover to concrete slab.

Unless other traffic barriers are present, bollards shall be placed around access riser(s) in non-traffic areas to prevent inadvertent loading by maintenance vehicles.



Wipe Compressible Expansion Joint material to a minimum 1-inch (25 mm) thickness around top of riser to allow transfer of non-traffic loading from manhole cover to concrete slab.

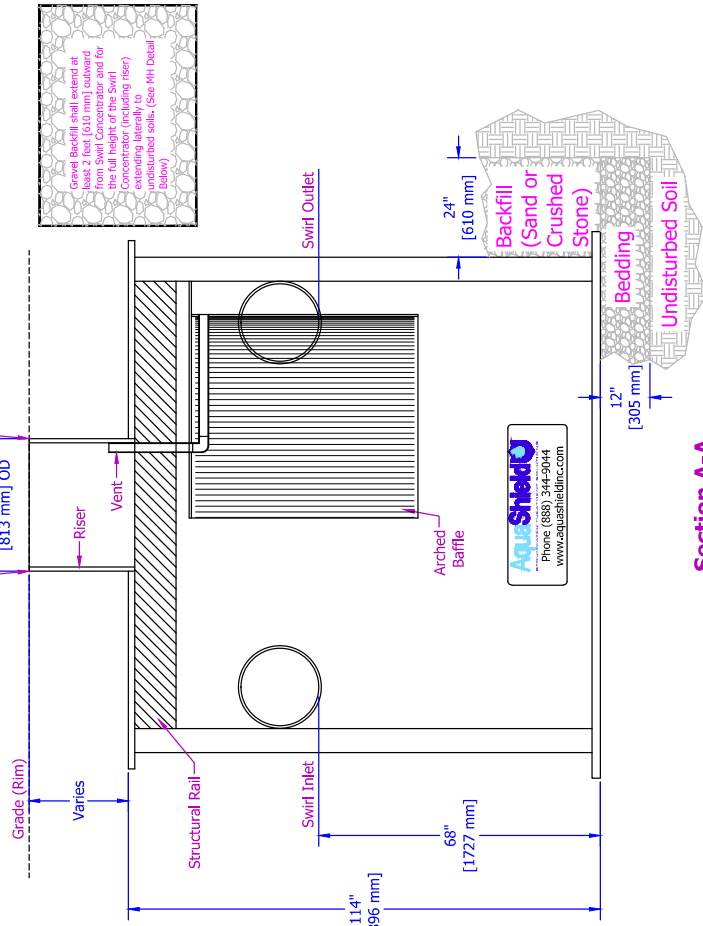
Manhole Frame & Cover Detail For Non-Traffic Loading Areas ONLY
NTS

Place small amount of concrete (3,000 psi [20 MPa] (mm)) to support riser. Use level manhole frame. DO NOT use level manhole frame to rest upon riser.

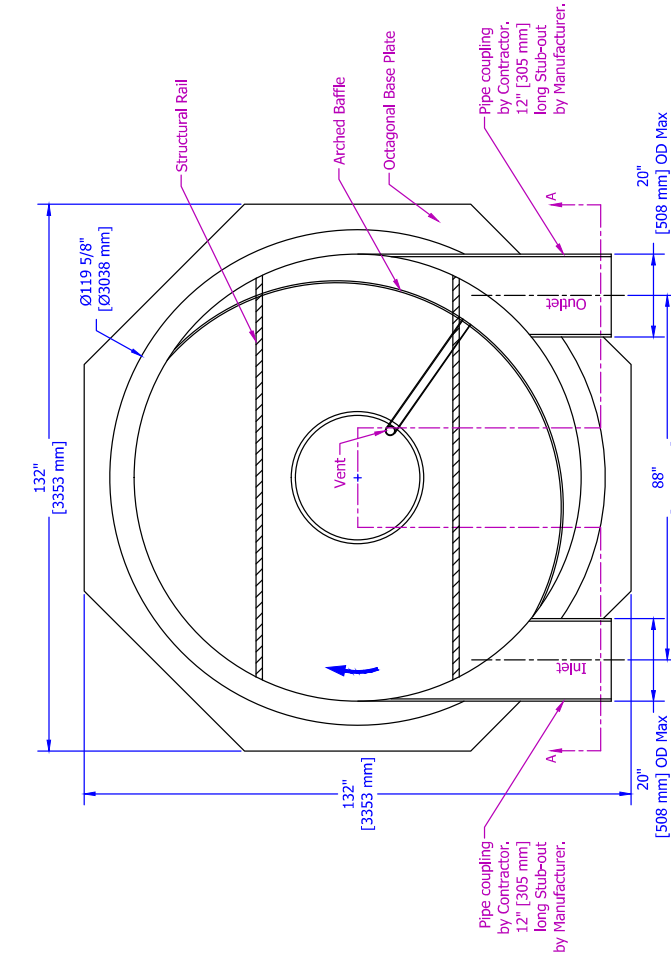
- * Please see accompanied Aqua-Swirl specification notes.
- * See Site Plan for actual system orientation.
- ** Orientation may vary from 90°, 180°, or custom angles to meet site conditions.

Manhole Frame and Cover by Manufacturer. (See Details)

Rim elevations to match finished grade. HDPE risers can be field cut by Contractor.



Gravel Backfill shall extend at least 2 feet (610 mm) outward from Swirl Concentrator and for HDPE riser. Backfill shall extend laterally to undisturbed soils. (See HPI Detail Below)



Plan View

Section A-A

<p>STORMWATER TREATMENT SOLUTIONS 2733 Kalaasata Drive, Suite 111, Chattanooga, TN 37343 Phone (865) 344-2112 www.aquashieldinc.com</p>	Document: AS-9 STD
	Drawn By: JCW
	Scale: 1:30
	Date: 03/25/15
	U.S. Patent No. 6524473 and other Patent Pending

Aqua-Swirl Concentrator Model AS-9 Horseshoe HDPE Standard Detail

Aqua-Swirl™ Inspection & Maintenance Manual

Site and Owner Information

Site Name: _____ Change in ownership since last inspection? Y N

Owner Name: _____

Owner Address: _____

Owner Phone Number: _____

Emergency Phone Number: _____

Location: _____

Date: _____

Time: _____

Inspector Name: _____

Maintenance Items

Inspection

Floatable Debris and Oil

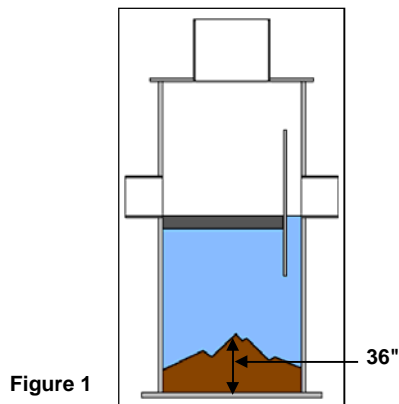
1. Remove manhole lid to expose liquid surface of Aqua-Swirl™.
2. Remove floatable debris with basket or net if any is present.
3. If a hydrocarbon spill has occurred, (e.g. more than a sheen of oil or gas is present) the system should be cleaned immediately (see "Cleaning" Figure 3).

Note: Water in an Aqua-Swirl™ can appear black like oil due to the dark body of the surrounding structure. Oil appears darker than water in the system and is usually accompanied by debris (e.g. Styrofoam, etc.) with obvious signs of oil stains. The depth of oil can be measured with an oil/water interface probe, a stadia rod with water phyllic paste, a coliwasa, or by simply collecting a representative sample with a jar attached to a rod.

4. If hydrocarbon absorbant floc or pads are used, these should be inspected to determine whether they are loaded with hydrocarbons. This will be indicated by a dark coloration of the pad or floc. Pads and/or floc should be removed and disposed of in accordance with local City/Town and any applicable state and/or federal laws if they contain hydrocarbons.

Sediment Accumulation

Lower a dipstick tube equipped with a ball valve (e.g. Sludge Judge or similar device) into Aqua-Swirl™ through the service access provided. Measure the depth of the sludge. At a maximum, the sludge should not exceed 36" depth before maintenance. See Figures 1 and 2.



Inspection (continued)

Diversion Structures

If an external diversion structure is present on the site, this should be inspected for the following items.

1. Inspect weir or other structure for structural decay or damage. Weirs are more susceptible to damage than off-set piping and should be checked to confirm that they are not crumbling or decaying.
2. Inspect diversion structure and by-pass piping for signs of structural damage or blockage from debris or sediment accumulation.
3. Measure elevations on diversion weir or piping to ensure it is consistent with site plan design.
4. Inspect downstream structure in diversion system for signs of blockage or structural failure.

Cleaning

Remove sediments, oils and other floatable pollutants with a vactor. Dispose of all waste in accordance with local City/Town and any applicable state, and/or federal requirements.

Oil should be pumped and removed with any liquids and sediments that have been trapped in the system. These liquids should be taken to an industrial waste water treatment facility for treatment. Liquids and solids pumped from the AquaSwirl™ should not be dumped back into the stormwater system or into a sanitary sewer.



Figure 3

Note: The AquaSwirl™ is designed so that entry to the system is not necessary for inspection or maintenance. If, however, you wish to enter the system, this is an OSHA confined space entry and OSHA confined space entry procedures should be followed to enter the system.

Maintenance Schedule

During Construction

Inspect the AquaSwirl™ every three months (minimum) and clean the system as needed. The AquaSwirl™ should be inspected and cleaned at the end of construction regardless of whether it has reached its sediment or oil storage capacity.

First Year Post-Construction

Inspect the AquaSwirl™ every six months and clean the system as needed.

Inspect and clean the system at least once bi-annually regardless of whether it has reached its sediment or floatable pollutant storage capacity.

Second and Subsequent Years Post-Construction

If the AquaSwirl™ did not reach full sediment or floatable pollutant capacity in the First Year Post-Construction, the system can be inspected once annually and cleaned as needed or bi-annually at a minimum.

If the AquaSwirl™ reached full sediment or floatable pollutant capacity in less than 12 months in the First Year Post-Construction, the system should be inspected once every six months and cleaned as needed. The AquaSwirl™ should be cleaned at least bi-annually regardless of whether it reaches its sediment or floatable pollutant capacity.

Bypass Structures

Bypass structures should be inspected whenever the AquaSwirl™ is inspected and maintained as needed.

Maintenance Company Information

Company Name: _____

Street Address: _____

City, State, Zip: _____

Contact: _____

Office Phone: _____

Mobile Phone: _____

Pager: _____

Activity Log

Date of cleaning: _____ (Next inspection should be 3 months from this date for the first year).

Time of cleaning: _____

Date of next inspection: _____

Floatable debris present (Y/N)? _____

Oil present (Y/N)? _____ Oil depth (inches): _____

Structural Conditions and Comments

Any structural damage?	Y	N	Where? _____
Any evidence of structural wear?	Y	N	Where? _____
Odors present?	Y	N	Describe: _____
Any plugging?	Y	N	Describe: _____

Aqua-Swirl™

TABULAR MAINTENANCE SCHEDULE

Date Construction Started: _____

Date Construction Ended: _____

During Construction												
	Month											
Activity	1	2	3	4	5	6	7	8	9	10	11	12
Inspect and Clean as Needed			X			X			X			X
Inspect Bypass Structures (if applicable) and Maintain As Needed			X			X			X			X
Clean System*												X*

* The AquaSwirl™ should be cleaned once a year regardless of whether it has reached full pollutant storage capacity during the construction phase of the project.

First Year Post-Construction												
	Month											
Activity	1	2	3	4	5	6	7	8	9	10	11	12
Inspect and Clean as Needed						X						X
Inspect Bypass Structures (if applicable) and Maintain As Needed						X						X
Clean System*												X*

* The AquaSwirl™ should be cleaned at the end of the first year post construction if it is at or near its pollutant storage capacity. Otherwise, the system can be cleaned at a later date depending on how quickly the sediment starts to harden.

Second and Subsequent Years Post-Construction												
	Month											
Activity	1	2	3	4	5	6	7	8	9	10	11	12
Inspect and Clean as Needed*						X						X
Inspect Bypass Structures* (if applicable) and Maintain As Needed						X						X
Clean System*												

*If the AquaSwirl™ did not reach full sediment or floatable pollutant capacity in the First Year Post-Construction, the system can be inspected once annually. If the AquaSwirl™ reached full sediment or floatable pollutant capacity in less than 12 months in the First Year Post-Construction, the system should be inspected as frequently as past history warrants and cleaned as needed. Regardless of whether the AquaSwirl™ reaches full sediment or floatable storage capacity, it should be cleaned frequently enough to prevent captured sediments from hardening. Normally, cleaning once every two to three years should be sufficient to prevent sediments from hardening.

*The bypass system should be inspected with each AquaSwirl™ inspection and maintained as needed.

5. Storm Sewer Conveyance System

a. Inlet Maintenance

Stormwater inlets are provided along streets and in some yard areas. These inlets will need to be inspected monthly and after each storm event for debris buildup and clogging. If the inlet is more than 50% plugged it should be cleaned. This typically can be done by hand.

b. Pipe / Manhole Maintenance

Pipes:

The pipe network is located in several locations throughout the development. Pipes should be inspected visually once per year when the manholes are inspected. If standing water is observed or other noticeable deficiencies, further investigation of the infrastructure is suggested. This may involve video inspection of the pipe in question. Sediment accumulation is limited to $\frac{1}{4}$ the diameter of the pipe.

Manholes:

Manholes are located in several locations throughout the development. Manholes should be checked annually for damage and trash/debris buildup. If damage is noted it should be repaired immediately. Trash and debris should be disposed of properly in receptacles.

c. Vegetated Swales

Vegetated swales are trapezoidal or parabolic grass channels along lot lines that collect and moves surface water towards the overall drainage system. Vegetated swales are designed to act as a buffer between runoff from impervious surfaces to the overall drainage system. The buffer increases infiltration rates and allows some pollutants to settle, which helps keep the pollutants out of the overall drainage system.

Routine inspections should be performed at a minimum of one time every year and within two days after every rain event greater than one inch of rainfall. Inspection and maintenance of the swales are the responsibility of the Owner. Routine inspections shall verify that the swales have no significant sign of erosion, sediment or debris accumulation, or standing water. The swales shall not be blocked, and shall maintain its original longitudinal slope. Grass shall cover the entire swale. Bare areas shall be reseeded. Swales shall be watered and fertilized during dry periods. The swales shall also be routinely mowed as needed, and any litter or debris that accumulates in the swales shall be removed and disposed of properly.

6. Facility and Structure Details:
(see the following pages)

7. References:

- 1) Stormwater Technical Standards Manual, Hendricks County, IN (2016/2017)
- 2) National Menu of Best Management Practices for Stormwater Phase II, July 2005, United States Environmental Protection Agency
- 3) Indiana Storm Water Quality Manual (Published October 2007)

8. Owner Acknowledgement:

This Operation and Maintenance Manual is submitted to Hendricks County with the intent to ensure the proper performance of all stormwater management facilities, including the Wet Pond BMP, hydrodynamic separator structures, and all storm pipes, storm structures, swales, and subsurface drains, being utilized on this site. By submitting this Operation and Maintenance Manual to Hendricks County, the Owner agrees to follow and abide by the inspection schedule and maintenance activities listed in this manual. The BMP owner noted below is financially responsible for any additional maintenance and or repair activities to maintain the function of the stormwater management facilities.

Owner Signature

Date

Printed

STATE OF INDIANA)
)
COUNTY OF _____) SS:

Before me, the undersigned, a Notary Public in and for said County and State, personally appeared _____ Owners/Agent, subscribed and sworn before me this _____ day of _____, _____.

County of Residence

Signature

Commission Expiration Date

Printed Name