AGREEMENT FOR MAINTENANCE OF STORM WATER DETENTION SYSTEM

BETWEEN EROP LLC AND THE CITY OF ROCHESTER HILLS

(SIGNATURES ON FOLLOWING PAGES)

AGREEMENT FOR MAINTENANCE OF STORM WATER DETENTION SYSTEM

This agreement is made March 13, 2024, by EROP LLC, an Illinois limited liability company, whose address is 3130 N Kandy Lane, Ste A, Decatur, IL, 62526 and the CITY OF ROCHESTER HILLS (the City), whose address is 1000 Rochester Hills Drive, Rochester Hills, MI 48309.

RECITALS:

WHEREAS, EROP LLC owns and occupies the property described in attached Exhibit A; and

WHEREAS, EROP LLC has proposed, and the City has approved, a storm water drainage and detention system (the system), which includes a detention basin, for the property as described and depicted in the attached Exhibit B; and

WHEREAS, the parties will benefit from the proper use and maintenance of the System and

desire to enter into this agreement to provide for the same.

THEREFORE, the parties agree:

1. Use of the System: Components of the System, including the detention basin, shall be used solely for the purpose of detaining storm and surface water on the property until such time as: (i) The City may determine and advise EROP LLC or EROP LLC's successors, grantees or assigns, in writing that it is no longer necessary to use the detention basin to detain storm or surface water; and (ii) An adequate alternative for draining storm and surface water has been provided which is acceptable to the City and which includes the granting of such easements to the City or third parties for the alternative drainage system as may be necessary.

2. Maintenance:

A. EROP LLC shall be responsible for the proper maintenance, repair and replacement of the System and any part thereof, including the detention basin as detailed in the Maintenance Plan attached as Exhibit C.

B. Proper maintenance of the System shall include, but not limited to: (i) Keeping the bottom of the detention basin free from silt and debris; (ii) Removing harmful algae; (iii) Maintaining steel grating across the basin's inlets; (iv) Controlling the effects of erosion; and (v) Any other maintenance that is reasonable and necessary in order to facilitate or accomplish the intended function and purpose of the System.

3. Action by City: In the event EROP LLC or EROP LLC's successors, grantees, or assigns, neglects or fails at any time to properly maintain the System or any part thereof, the City may notify EROP LLC or EROP LLCs successors, grantees or assigns, in writing, and the notice shall include a listing and description of maintenance deficiencies and a demand that they must be corrected within thirty (30) days. The notice shall further specify the date and place for a hearing to be held at least fourteen (14) days after the date of the notice before the City Council, or such other board or official to whom the City Council may delegate responsibility. At the hearing, the City Council (or other board or official) may endorse or modify the listing and description of deficiencies to be corrected and, for good cause, may extend the time within which the deficiencies must be corrected.

Thereafter, if the maintenance deficiencies are not corrected within the time allowed, the City may undertake and make the necessary corrections, and may maintain the System for a period not to exceed one (1) year. Such maintenance of the System by the City shall not be deemed a taking of the property, nor shall the City's actions be deemed to vest in the public any right to use the property. If the City determines maintenance of the system by the City should continue beyond one year, the City shall hold, and provide advance written notice of, a further hearing at which EROP LLC or EROP LLC's successors, grantees or assigns, will not or cannot properly maintain the System, the City may continue to maintain the System for another year, and subject to a similar hearing and termination, in subsequent years.

In the event the City determines an emergency condition caused by or relating to the System threatens the public health, safety or general welfare, the City shall have the right to immediately and without notice enter the property and undertake appropriate corrective action.

4. Charges: The City shall charge to the current owner of the property the cost of maintenance or other corrective action undertaken by the City in accordance with this agreement, plus a ten percent (10%) administrative fee. If not timely paid, the City may assess the charges on the City's tax roll, which charges shall be a lien on the real property and shall be collectable and enforceable

in the same manner general property taxes are collected and enforced.

5. Notice: Any notices required under this agreement shall be sent by certified mail to the address for each party set forth below, or to such other addresses as such party may notify the other parties in writing:

To EROP LLC	:	Jeff Justice (EROP LLC) 3130 N KANDY LANE DECATUR, IL 62526
To the City:		Clerk City of Rochester Hills 1000 Rochester Hills Drive Rochester Hills, MI 48309

6. Successors and Assigns: This agreement shall bind and inure to the benefit of the parties and their respective successors, grantees and assigns. The rights, obligations and responsibilities hereunder shall run with the land and shall bind all current and future owners of the property.

7. Recording of Agreement: This agreement shall be recorded at the Oakland County Register of Deeds.

EROP LLC

By: Jeffry A Justice, Assistant Manager

CALIFORNIA ALL-PURPOSE

CERTIFICATE OF ACKNOWLEDGMENT

A Notary Public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of San Diego

On the 13th day of March 2024 before me, Patricia Rosales, Notary Public, personally appeared Jeffry A Justice who proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity and that by his on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature of Notary Public

PATRICIA ROSALES
Notary Public - California
San Diego County
Commission # 2364819
My Comm. Expires Jul 8, 2025

City of Rochester Hills

By:_____

Bryan K. Barnett, Mayor

STATE OF MICHIGAN
COUNTY OF OAKLAND

The foregoing instrument was acknowledged before me on _____, 2024, by Bryan K. Barnett, Mayor, of the City of Rochester Hills, a Michigan Municipal corporation, on behalf of the corporation.

_____

, Notary Public

Oakland County, Michigan

Drafted By:
Jeff Justice (EROP LLC)
3130 N. Kandy Lane
Decatur, IL 62526

When Recorded Return to:
Clerks Dept.
City of Rochester Hills
1000 Rochester Hills Drive
Rochester Hills, MI 48309

P. Dan Christ
Approved 3/20/24

EXHIBIT 'A'

PROPERTY LEGAL DESCRIPTION

LAND IN THE CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI, DESCRIBED AS FOLLOWS:

A PARCEL OF LAND LOCATED IN THE SOUTHWEST 1/4 OF SECTION 30, TOWN 3 NORTH, RANGE 11 EAST, CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN, MORE PARTICULARLY DESCRIBED AS: COMMENCING AT THE WEST ¼ CORNER OF SAID SECTION 30 (AS REMONUMENTED); THENCE SOUTH 85 DEGREES 49 MINUTES 02 SECONDS WEST, 1.93 FEET ALONG THE WESTERLY EXTENSION OF THE EAST AND WEST ¼ LINE OF SECTION 30 TO A PROPERTY CONTROLLING CORNER (FORMERLY DESCRIBED AS THE WEST 1/4 CORNER OF SECTION 30); THENCE PROCEEDING ALONG THE WEST PROPERTY CONTROLLING LINE OF SAID SECTION 30 (AS MONUMENTED) FORMERLY DESCRIBED AS THE WEST LINE OF SAID SECTION 30 ALSO BEING THE CENTERLINE OF ADAMS ROAD (VARIABLE WIDTH) THE FOLLOWING TWO (2) COURSES: 1) SOUTH 01 DEGREE 30 MINUTES 03 SECONDS EAST, 385.17 FEET AND 2) SOUTH 02 DEGREES 03 MINUTES 12 SECONDS EAST, 632.96 FEET; THENCE NORTH 85 DEGREES 38 MINUTES 28 SECONDS EAST, 271.46 FEET TO A POINT ON THE SOUTHERLY RIGHT OF WAY OF ADAMS ROAD (VARIABLE WIDTH), SAID POINT ALSO BEING THE POINT OF BEGINNING; THENCE FROM SAID POINT OF BEGINNING THE FOLLOWING TWO (2) COURSES ALONG SAID SOUTHERLY RIGHT OF WAY: 1) 753.14 FEET ALONG THE ARC OF A CURVE TO THE RIGHT, RADIUS 760.00 FEET, CENTRAL ANGLE 56 DEGREES 46 MINUTES 43 SECONDS, AND A CHORD THAT BEARS NORTH 70 DEGREES 06 MINUTES 42 SECONDS EAST, 722.70 FEET AND 2) SOUTH 81 DEGREES 29 MINUTES 57 SECONDS EAST, 337.76 FEET; THENCE SOUTH 03 DEGREES 10 MINUTES 24 SECONDS EAST, 118.34 FEET; THENCE SOUTH 85 DEGREES 38 MINUTES 28 SECONDS WEST, 1023.15 FEET
TO THE POINT OF BEGINNING.

Seth B.
Approved 4/15/2024

J. REID COOKSEY, P.E.
MICHIGAN LICENSE No. 6201069428
LICENSED PROFESSIONAL ENGINEER

STONEFIELD
engineering & design
Detroit, MI - New York, NY - Boston, MA
Princeton, NJ - Tampa, FL - Rutherford, NJ
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

STORMWATER EXHIBIT

PROPOSED CAR WASH

PARCEL ID: 15-30-302-031
2603 SOUTH ADAMS ROAD
CITY OF ROCHESTER HILLS
OAKLAND COUNTY, MICHIGAN

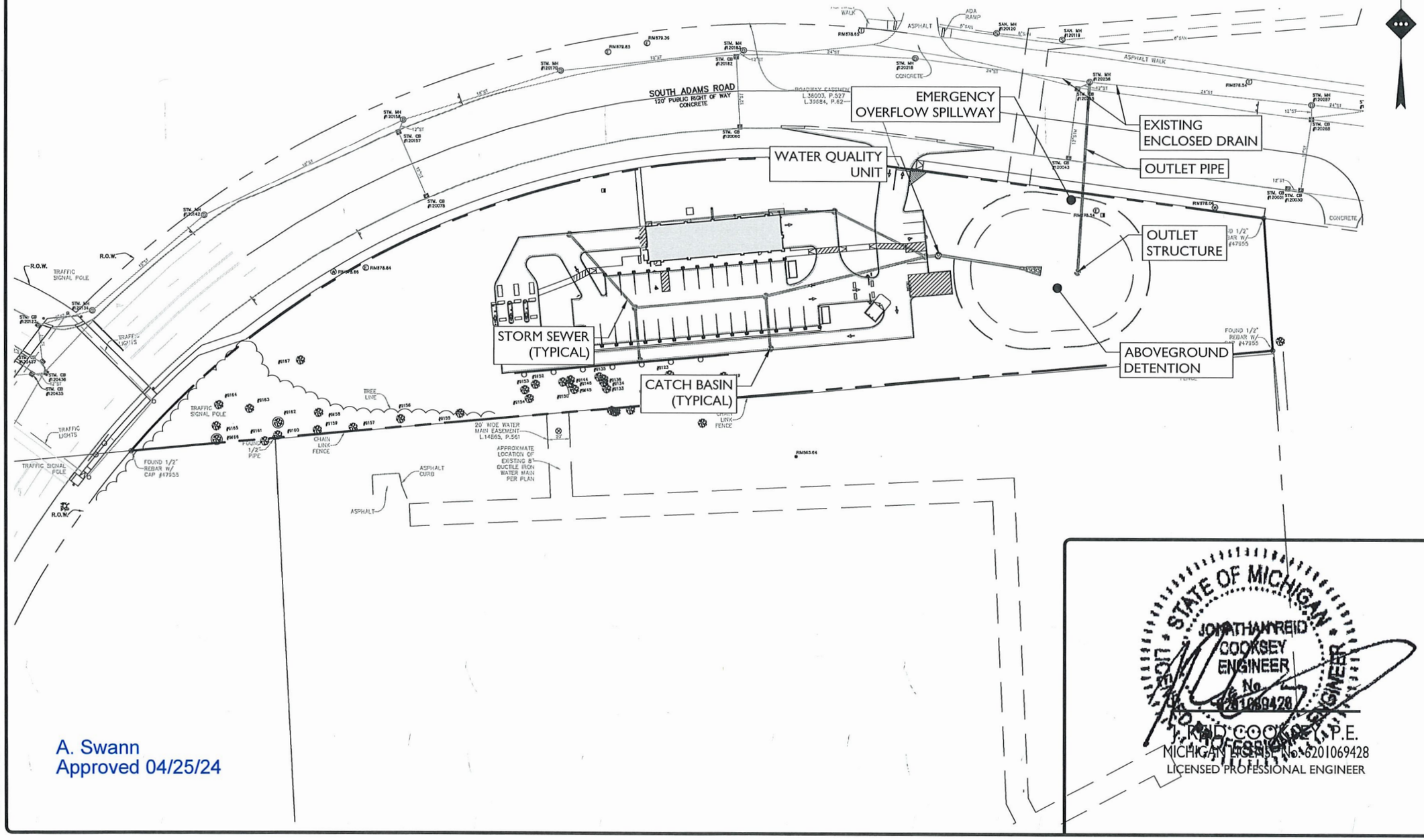
DATE:	03/20/2024
SCALE:	NOT TO SCALE
PROJECT ID:	DET-220436

STONEFIELD engineering & design, llc.

TITLE: **LEGAL DESCRIPTION**

SHEET: **EX-A**

EXHIBIT 'B' - PHYSICAL LIMITS OF STORM WATER CONTROL SYSTEM



A. Swann
Approved 04/25/24

STATE OF MICHIGAN
JONATHAN REID COOKSEY
ENGINEER
No. 6201069428
PROFESSIONAL ENGINEER

JONATHAN REID COOKSEY, P.E.
MICHIGAN LICENSE No. 6201069428
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

Detroit, MI · New York, NY · Boston, MA
Princeton, NJ · Tampa, FL · Rutherford, NJ
www.stonefieldeng.com

607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

STORMWATER EXHIBIT

PROPOSED CAR WASH

PARCEL ID: 15-30-302-031
2603 SOUTH ADAMS ROAD
CITY OF ROCHESTER HILLS
OAKLAND COUNTY, MICHIGAN

DATE:	04/22/2024
SCALE:	NOT TO SCALE
PROJECT ID:	DET-220436

STONEFIELD engineering & design, llc.

TITLE: **LIMITS OF STORMWATER SYSTEM**

SHEET: **EX-B**

EXHIBIT 'C'
OPERATIONS & MAINTENANCE MANUAL

INTRODUCTION

This Stormwater Operations & Maintenance Manual has been prepared to delineate operational and maintenance responsibilities for the stormwater system, as incorporated into, and detailed on the approved construction plans prepared by Stonefield Engineering & Design. In order to comply with the local best management practices (BMP) and requirements, this manual should serve as a minimum performance standard. This manual should be retained intact and read in its entirety by all parties responsible for the operations and maintenance of the on-site BMPs.

OWNER

Jeff Justice
Development Team
EROP LLC
3130 N Kandy Lane
Decatur, IL 62526
217-972-4296

PROPERTY INFORMATION

This Operations and Maintenance Manual covers the storm water systems located at the following subject property:

LEGAL DESCRIPTION:
(See Exhibit 'A' of the Storm Water Maintenance Agreement)

STORMWATER MAINTENANCE EXHIBIT

Exhibit 'B' of the Stormwater Maintenance Agreement is the Physical Limits of Storm Water Control Systems which provides a clear presentation of all components of the stormwater system. This system is subject to the long-term operation and maintenance responsibilities detailed in this manual. This system includes:

- Storm sewer pipes
- Storm sewer structures (manholes, catch basins, cleanouts, yard inlets)
- Outlet control structure
- Water Quality Unit
- Aboveground Detention Pond
- Rip-Rap
- Emergency Overflow Spillway

INSPECTIONS

The person responsible for maintenance shall maintain a detailed log of all preventative and corrective maintenance for the structural stormwater management measures incorporated into the design of the development, including a record of all inspections and copies of all maintenance-related work orders.

A maintenance plan shall include a schedule of regular inspections and tasks, and detailed logs of all preventative and corrective maintenance performed on the stormwater management measure, including all maintenance-related work orders. The person with maintenance responsibility must retain records for a minimum of ten (10) years. A copy of all records shall be provided to the City of Rochester Hills Engineering Division. The records shall include this manual, all inspection sheets, approved construction plans, as-built documents, a maintenance log of work performed to the system(s) and contact information for the system inspector, civil engineer, landscape architect, geotechnical engineer and contractor involved with the system.

STORM WATER SYSTEMS MAINTENANCE

Regular inspection and maintenance of BMP's are necessary if these facilities are to consistently perform up to expectations. Stormwater systems are expected to perform quality and quantity control functions as long as the land use they serve exists. Failure to maintain these systems can create the following adverse impacts:

- Increased pollutants to surrounding surface water features.
- Potential loss of life or property resulting from catastrophic failure of the facility
- Aesthetic or nuisance conditions, such as mosquitoes or reduced property values due to a degraded facility appearance.

Most of these impacts can be avoided through proper and timely inspection and maintenance. A major concern associated with these impacts is the general public's expectations related to the quality of life provided, in part, by construction of these systems. Inadequate maintenance means the general public may have a false sense of security. The most common cause of stormwater system failure is the lack of adequate and proper operation, inspection, maintenance, and management.

Good design and construction can reduce subsequent maintenance needs and costs, but they cannot eliminate the need for maintenance altogether. Maintenance requires a long-term commitment of time, money, personnel and equipment. Monitoring the overall performance of the stormwater management system is a major aspect of any maintenance program. The maintenance responsibilities for these systems lie with the current property owner and transfer with the property in perpetuity. If maintenance of the system is not performed, the City of Rochester Hills reserves the right to enter the property and perform all necessary work at the property owners' cost. Refer to the *Storm Water Maintenance Agreement* for additional details.

GENERAL MAINTENANCE

The current responsible agent shall ensure that adequate equipment and training is provided to maintenance personnel to perform the required maintenance tasks. Confined Space Entry Certification shall be required by personnel entering underground structures and pipes. The material and equipment necessary for inspection and maintenance activities shall include, but not be limited to, the following:

- *Detention Basins:* Instruments to perform visual inspection of underground pipes and outlet structures, equipment to pump stormwater from the basin in the event of maintenance, vacuum truck and hose for removal of sediment from basin bottom, and necessary safety equipment.
- *Manufactured Treatment Device Equipment:* Inspection probe, scale to measure filter bags, disposal bags, replacement filter modules, skimmer or net and necessary safety equipment.
- *Landscape Areas:* Material and equipment customary in landscape maintenance practices.
- *Street Sweeping:* Litter vacuum or leaf/litter blower to collect sediment from asphalt surface, brooms, and disposal bags.
- *Oil and Grit Interceptors:* Vacuum truck and hose to pump out stormwater for disposal.
- *Hood and Sump Equipment:* Vacuum truck and hose to pump out stormwater for disposal.

In addition to the scheduled inspections for the above referenced stormwater BMPs, the following general maintenance tasks shall be performed:

1. All stormwater inlets and manholes shall be inspected for debris and sediment accumulation and structural integrity at least four (4) times annually. Debris and sediment removal shall be scheduled as required to maintain stormwater runoff conveyance efficiency and disposed of in compliance with all applicable local, state, and federal waste regulations.

2. Street sweeping shall occur at least once (1) monthly in all parking lot areas onsite. Regenerative air equipment shall be used.

3. Trash receptacles onsite shall be emptied, and their liners replaced at a minimum of three (3) times per week.

4. Landscaping within the developed portions of the site shall be trimmed/mowed twice (2) monthly during the growing season. Reforested portions of the site shall be left undisturbed to vegetate naturally.

5. Inlet oil and grit interceptors shall be inspected for debris and sediment accumulation and structural integrity at least four (4) times annually. Debris and sediment removal shall be scheduled as required to maintain stormwater runoff conveyance efficiency and disposed of in compliance with all applicable local, state, and federal waste regulations.

STORMWATER SYSTEM MAINTENANCE ITEMS

DETENTION BASIN

The aboveground detention basin inspections shall be performed by entering the basin area via any of the associated entry points along the basin perimeter. The following maintenance tasks shall be performed for the aboveground basin.

5.2.1 QUARTERLY

All detention basin components which receive, or discharge stormwater must be checked for trapped debris and sediment accumulation at least four (4) times annually as well as after storm events exceeding one (1) inch of precipitation. Disposal of debris and sediment shall be done in compliance with all applicable local, state, and federal waste regulations.

5.2.2 ANNUALLY

All structural components shall be checked at least once (1) annually for cracking, subsidence, spalling, erosion and deterioration.

STORM SEWER PIPES AND STRUCTURES

The conveyance pipe and storm structure maintenance and inspections shall be performed by entering via any manhole / inlet grate. The following maintenance tasks shall be performed for the storm pipes and structures

5.2.1 QUARTERLY

All components which receive, or discharge stormwater must be checked for trapped debris and sediment accumulation at least four (4) times annually as well as after storm events exceeding one (1) inch of precipitation. Disposal of debris and sediment shall be done in compliance with all applicable local, state, and federal waste regulations.

5.2.2 ANNUALLY

All structural components shall be checked at least once (1) annually for cracking, subsidence, spalling, erosion and deterioration.

WATER QUALITY UNIT

The water quality unit maintenance and inspections shall be performed by entering the unit via the manhole. In addition to the attached Contech maintenance manual, the following maintenance tasks shall be performed for water quality unit.

5.5.1 QUARTERLY

All water quality components which receive, or discharge stormwater must be checked for trapped debris and sediment accumulation at least four (4) times annually as well as after storm events exceeding one (1) inch of precipitation. Disposal of debris and sediment shall be done in compliance with all applicable local, state, and federal waste regulations.

5.5.2 ANNUALLY

All structural components shall be checked at least once (1) annually for cracking, subsidence, spalling, erosion and deterioration.

The following pages include the Stormwater Maintenance Schedule and the Water Quality Unit Manufacturer's Guide.

A. Swann
Approved 04/25/24

EXHIBIT 'C' - OPERATIONS & MAINTENANCE MANUAL

TABLE 1 - STORMWATER MAINTENANCE SCHEDULE

TASK	STREETS	STORMWATER CONVEYANCE SYSTEM	STORMWATER DETENTION SYSTEM	CATCH BASIN INLET CASTINGS	CATCH BASIN INLETS	OUTLET STRUCTURE	WATER QUALITY UNIT	SCHEDULE
INSPECT FOR SEDIMENTATION ACCUMULATION		X	X		X	X	X	ANNUALLY
REMOVAL OF SEDIMENT ACCUMULATION		X	X		X	X	X	EVERY 2 YEARS
INSPECTION OF FLOATABLE & DEBRIS				X	X	X	X	ANNUALLY
CLEANING OF FLOATABLE & DEBRIS				X	X	X	X	ANNUALLY
INSPECTION FOR EROSION					X	X	X	ANNUALLY
REESTABLISH PERMANENT VEGETATION					X	X	X	AS NEEDED
INSPECTION OF STORMWATER SYSTEM COMPONENTS AFTER LARGE STORM EVENTS		X	X		X	X	X	ANNUALLY
MAKE ADJUSTMENTS OR REPLACE STORMWATER SYSTEM COMPONENTS		X	X		X	X	X	AS NEEDED

PROPERTY INFORMATION: 2603 SOUTH ADAMS ROAD
CITY OF ROCHESTER HILLS
OAKLAND COUNTY, MICHIGAN 48309

PROPERTY OWNER: JEFF JUSTICE, DEVELOPMENT TEAM
EROP, LLC
3130 N KANDY LANE SUITE A
DECATUR, IL 62526
217-972-4296

A. PHYSICAL LIMITS OF THE STORMWATER CONTROL SYSTEM

THE STORMWATER CONTROL SYSTEM (SWCS) SUBJECT TO THIS LONG-TERM MAINTENANCE PLAN (PLAN) IS DEPICTED ON EXHIBIT B AND INCLUDES WITHOUT LIMITATION THE STORM SEWERS, SWALES, MANHOLES, CATCH BASINS, STORMWATER INLETS, OUTLET STRUCTURE, AND WATER QUALITY UNIT.

FOR PURPOSES OF THIS PLAN, THIS STORMWATER CONTROL SYSTEM AND ALL OF ITS COMPONENTS AS SHOWN ON EXHIBIT B IS REFERRED TO AS 'WHITEWATER ROCHESTER HILLS STORMWATER SYSTEM'.

B. LONG-TERM MAINTENANCE PLAN AND SCHEDULE

TABLE 1 IDENTIFIES THE MAINTENANCE ACTIVITIES TO BE PERFORMED, ORGANIZED BY CATEGORY (MONITORING/INSPECTIONS, PREVENTATIVE MAINTENANCE, AND REMEDIAL ACTIONS). TABLE 1 ALSO IDENTIFIES SITE-SPECIFIC WORK NEEDED TO ENSURE THAT THE STORMWATER CONTROL SYSTEM FUNCTIONS PROPERLY AS DESIGNED.

OK - APS
4/11/24

J. REID COOKSEY, P.E.
MICHIGAN LICENSE No. 6201069428
LICENSED PROFESSIONAL ENGINEER

STONEFIELD
engineering & design
Detroit, MI · New York, NY · Boston, MA
Princeton, NJ · Tampa, FL · Rutherford, NJ
www.stonefieldeng.com
607 Shelby Suite 200, Detroit, MI 48226
Phone 248.247.1115

STORMWATER EXHIBIT

PROPOSED CAR WASH

PARCEL ID: 15-30-302-031
2603 SOUTH ADAMS ROAD
CITY OF ROCHESTER HILLS
OAKLAND COUNTY, MICHIGAN

DATE: 03/20/2024
SCALE: NOT TO SCALE
PROJECT ID: DET-220436

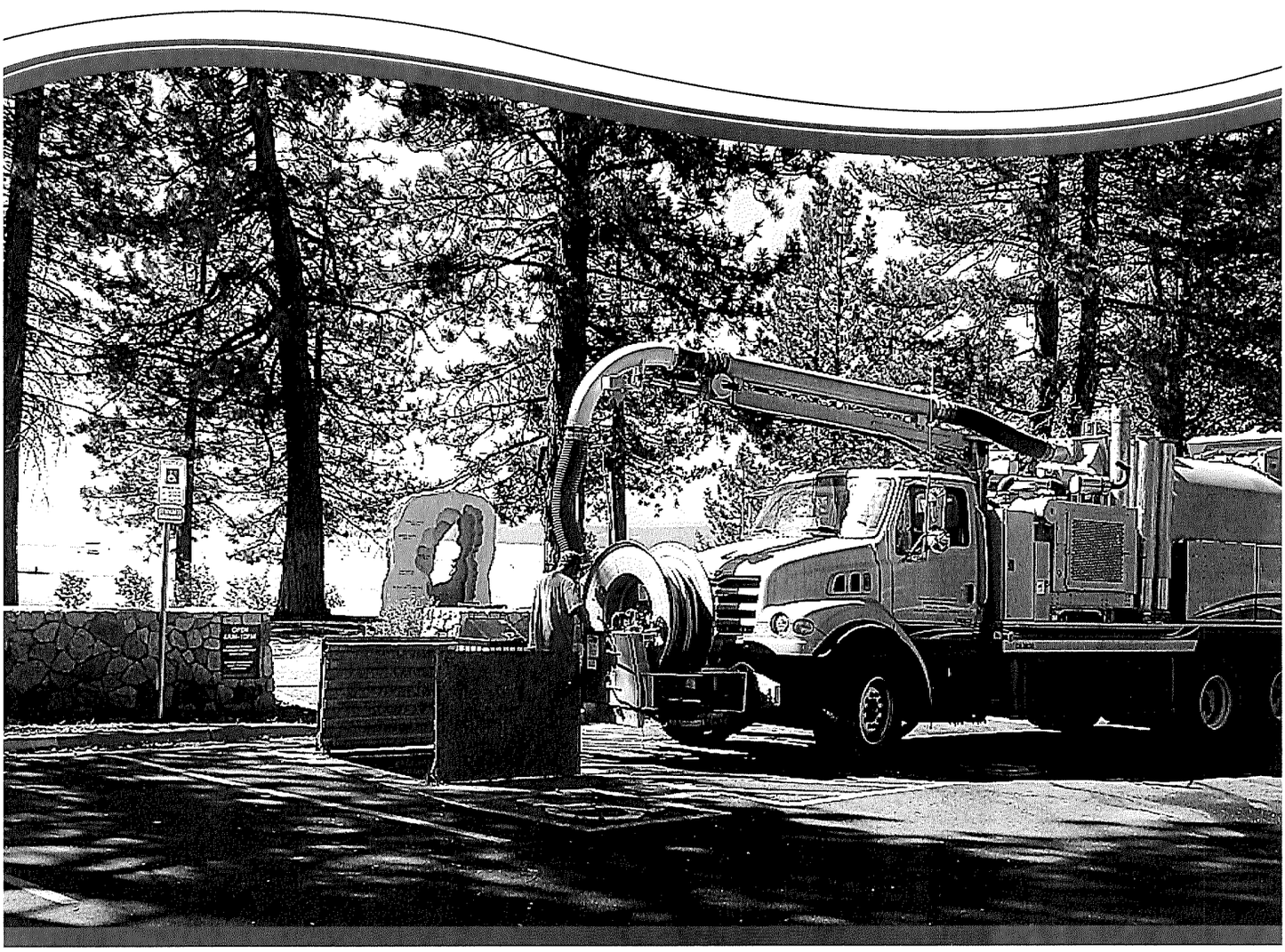
STONEFIELD
engineering & design, llc.

TITLE: **OPERATIONS & MAINTENANCE MANUAL**

SHEET: **EX-C**

CONTECH®
ENGINEERED SOLUTIONS

Cascade Separator® Inspection and Maintenance Guide



CASCADE
separator®

Maintenance

The Cascade Separator® system should be inspected at regular intervals and maintained when necessary to ensure optimum performance. The rate at which the system collects sediment and debris will depend upon on-site activities and site pollutant characteristics. For example, unstable soils or heavy winter sanding will cause the sediment storage sump to fill more quickly but regular sweeping of paved surfaces will slow accumulation.

Inspection

Inspection is the key to effective maintenance and is easily performed. Pollutant transport and deposition may vary from year to year and regular inspections will help ensure that the system is cleaned out at the appropriate time. At a minimum, inspections should be performed twice per year (i.e. spring and fall). However, more frequent inspections may be necessary in climates where winter sanding operations may lead to rapid accumulations, or in equipment wash-down areas. Installations should also be inspected more frequently where excessive amounts of trash are expected.

A visual inspection should ascertain that the system components are in working order and that there are no blockages or obstructions in the inlet chamber, flumes or outlet channel. The inspection should also quantify the accumulation of hydrocarbons, trash and sediment in the system. Measuring pollutant accumulation can be done with a calibrated dipstick, tape measure or other measuring instrument. If absorbent material is used for enhanced removal of hydrocarbons, the level of discoloration of the sorbent material should also be identified during inspection. It is useful and often required as part of an operating permit to keep a record of each inspection. A simple form for doing so is provided in this Inspection and Maintenance Guide.

Access to the Cascade Separator unit is typically achieved through one manhole access cover. The opening allows for inspection and cleanout of the center chamber (cylinder) and sediment storage sump, as well as inspection of the inlet chamber and slanted skirt. For large units, multiple manhole covers allow access to the chambers and sump.

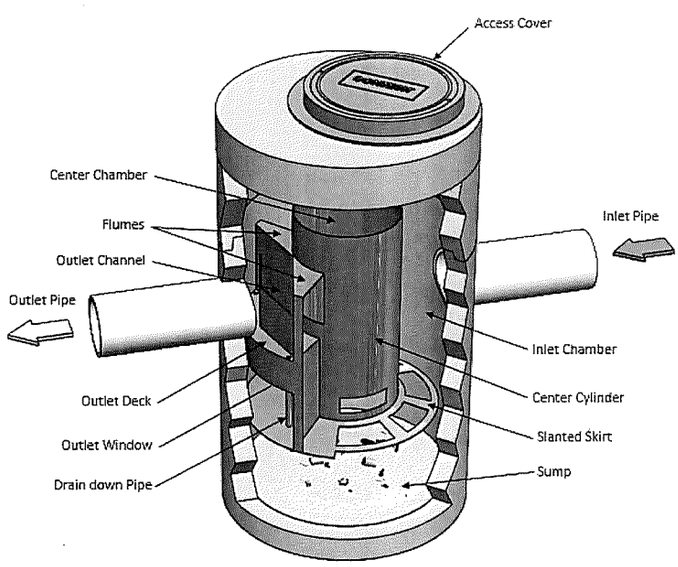
The Cascade Separator system should be cleaned before the level of sediment in the sump reaches the maximum sediment depth and/or when an appreciable level of hydrocarbons and trash has accumulated. If sorbent material is used, it must be replaced when significant discoloration has occurred. Performance may be impacted when maximum sediment storage capacity is exceeded. Contech recommends maintaining the system when sediment level reaches 50% of maximum storage volume. The level of sediment is easily determined by measuring the distance from the system outlet invert (standing water level) to the top of the sediment pile. To avoid underestimating the level of sediment in the chamber, the measuring device must be lowered to the top of the sediment pile carefully. Finer, silty particles at the top of the pile typically offer less resistance to the end of the rod than larger particles toward the bottom of the pile. Once this measurement is recorded, it should be compared to the chart in this document to determine if the height of the sediment pile off the bottom of the sump floor exceeds 50% of the maximum sediment storage.

Cleaning

Cleaning of a Cascade Separator system should be done during dry weather conditions when no flow is entering the system. The use of a vacuum truck is generally the most effective and convenient method of removing pollutants from the system. Simply remove the manhole cover and insert the vacuum tube down through the center chamber and into the sump. The system should be completely drained down and the sump fully evacuated of sediment. The areas outside the center chamber and the slanted skirt should also be washed off if pollutant build-up exists in these areas.

In installations where the risk of petroleum spills is small, liquid contaminants may not accumulate as quickly as sediment. However, the system should be cleaned out immediately in the event of an oil or gasoline spill. Motor oil and other hydrocarbons that accumulate on a more routine basis should be removed when an appreciable layer has been captured. To remove these pollutants, it may be preferable to use absorbent pads since they are usually less expensive to dispose than the oil/water emulsion that may be created by vacuuming the oily layer. Trash and debris can be netted out to separate it from the other pollutants. Then the system should be power washed to ensure it is free of trash and debris.

Manhole covers should be securely seated following cleaning activities to prevent leakage of runoff into the system from above and to ensure proper safety precautions. Confined space entry procedures need to be followed if physical access is required. Disposal of all material removed from the Cascade Separator system must be done in accordance with local regulations. In many locations, disposal of evacuated sediments may be handled in the same manner as disposal of sediments removed from catch basins or deep sump manholes. Check your local regulations for specific requirements on disposal. If any components are damaged, replacement parts can be ordered from the manufacturer.

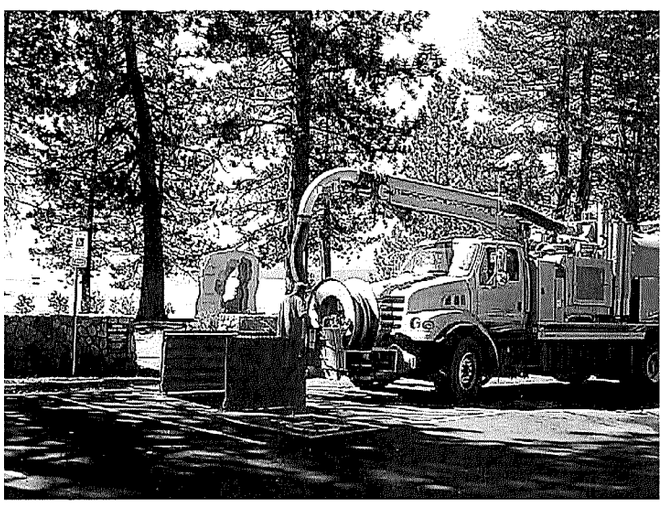


Cascade Separator® Maintenance Indicators and Sediment Storage Capacities

Model Number	Diameter		Distance from Water Surface to Top of Sediment Pile		Sediment Storage Capacity	
	ft	m	ft	m	y^3	m^3
CS-3	3	0.9	1.5	0.5	0.4	0.3
CS-4	4	1.2	2.5	0.8	0.7	0.5
CS-5	5	1.3	3	0.9	1.1	0.8
CS-6	6	1.8	3.5	1	1.6	1.2
CS-8	8	2.4	4.8	1.4	2.8	2.1
CS-10	10	3.0	6.2	1.9	4.4	3.3
CS-12	12	3.6	7.5	2.3	6.3	4.8

Note: The information in the chart is for standard units. Units may have been designed with non-standard sediment storage depth.

A Cascade Separator unit can be easily cleaned in less than 30 minutes.



A vacuum truck excavates pollutants from the systems.

Cascade Separator® Inspection & Maintenance Log

Cascade Model:			Location:		
Date	Depth Below Invert to Top of Sediment[1]	Floatable Layer Thickness[2]	Describe Maintenance Performed	Maintenance Personnel	Comments

1. The depth to sediment is determined by taking a measurement from the manhole outlet invert (standing water level) to the top of the sediment pile. Once this measurement is recorded, it should be compared to the chart in the maintenance guide to determine if the height of the sediment pile off the bottom of the sump floor exceeds 50% of the maximum sediment storage. Note: to avoid underestimating the volume of sediment in the chamber, the measuring device must be carefully lowered to the top of the sediment pile.
2. For optimum performance, the system should be cleaned out when the floating hydrocarbon layer accumulates to an appreciable thickness. In the event of an oil spill, the system should be cleaned immediately.

SUPPORT

- Drawings and specifications are available at www.ContechES.com.
- Site-specific design support is available from our engineers.

Contech Engineered Solutions LLC provides site solutions for the civil engineering industry. Contech's portfolio includes bridges, drainage, sanitary sewer, stormwater, and earth stabilization products. For information, visit www.ContechES.com or call 800.338.1122

CONTECH ENGINEERED SOLUTIONS
800-925-5240
www.ContechES.com