

## **1. BACKGROUND**

The City of Brookhaven (the “City”) is required by their Phase II National Pollutant Discharge Elimination System (NPDES) Permit to update, inventory and inspect 100% of the public and private stormwater management facilities (SMF) and Green Infrastructure/Low Impact Development (GI/LID) within the 5-year reporting period (2019-2023). This request for proposal is for the services necessary to meet these requirements. This a multi-year contract with an annual renewable option for a term of up to five (5) years.

## **2. GENERAL SCOPE OF SERVICES**

Scope of Services involve assessing the City’s SMF and GI/LID. This complies with Section 4.2.5 (Post-Construction Stormwater *Management*) 4.2.6 (Pollution Prevention/ Good Housekeeping for Municipal Operations) of NPDES Stormwater Permit# GAG610000 (authorization to discharge stormwater runoff associated with small MS4s). These services also comply with Section 5.4 (Watershed Management Action Items) of The Metropolitan North Georgia Water Planning District (MNGWPD) Water Resource Management Plan; which the City has adopted.

The primary goal of this program is to eliminate pollutants from discharging to state waters & reduce flooding impacts to public & private property by visually inspecting the condition of all SMF and GI/LID located within the City’s boundaries. In addition, this will assist City officials with the decisions to provide proper funding for the stormwater program’s Operations & Maintenance budget, identify educational & outreach opportunities, and detect potential candidates for water quality & flood control improvement projects.

During the 2014-2018 reporting period, all public & privately-owned SMF were surveyed, inventoried and assessed for structural integrity and other issues with the stormwater infrastructure. For the 2019-2023 period, all SMF and GI/LID within the City will be re-assessed.

The table below is based on current GIS data and data obtained from Community Development.

<b>STORMWATER MANAGEMENT FACILITIES</b>					
<b>Type</b>	<b>Ownership</b>				
	<b>Public</b>	<b>Private</b>	<b>Dekalb County</b>	<b>Unknown</b>	<b>Total</b>
<b>Detention Ponds</b>	34	150	47	33	<b>264</b>
<b>Lakes</b>	1	2	4	1	<b>8</b>
<b>Retention Ponds</b>	4	12	5	2	<b>23</b>
<b>Underground</b>	10	51	7	13	<b>81</b>
<b>Water Quality Pond</b>	0	0	0	1	<b>1</b>
<b>GI/LID</b>	0	26	0	0	<b>26</b>
<b>Totals</b>	<b>49</b>	<b>215</b>	<b>63</b>	<b>50</b>	<b>403</b>

A detailed stormwater management facility inventory map is included in the Appendix.

### 3. SCOPE OF SERVICE TASKS

The following list of tasks is provided to express the intent of the Scope of Service and is not provided to be all inclusive.

### 4. DRAINAGE SYSTEM INVENTORY

1. Since the City has completed mapping of its inventory, the purpose of this assessment is to update and amend the database with information on the SMF's of GI/LID's current condition allowing the City to prioritize the capital improvement and maintenance program.
2. GPS updates will be required only on instances where data on the SMF and GI/LID was not successfully obtained in the original survey or if the drainage system was modified by a recent maintenance project. In these instances, SMF and GI/LID will be located including the structural data (ex. structure type, size, dimensions, invert, and crown), northing and easting based on NAD83, Georgia State Plane, West Zone, and any other information to sub 0.1-foot accuracy. Review, update, and correct the data to acceptable accuracy requirements.
3. Elevation data will be recorded at the top of each structure. Dropdown depths for each conveyance will be recorded from the top of each structure. The corrected elevation must be provided for the invert at the upstream and downstream of each conveyance.
4. Weekly reports shall be provided by the service contractor showing all progress and an updated schedule for completion. This report shall be submitted no later than Thursday for the previous weeks work.
5. For structural inspections, a visual assessment, along with photos, is required to determine if the system is in serviceable condition. At minimum, all SMF and GI/LID within assessment area must be inspected by the end of each year. A scoring matrix will be used to assess each SMF and GI/LID. It is based on criteria such as sediment/debris obstruction, stability (ex. erosion, sinkholes, undermining), vegetative growth, and/or structural integrity (ex. invert failure, cracks, and collapse).
6. Submit the data in electronic format compatible with the City of Brookhaven Geographic Information System

(GIS). The stormwater data is in an ArcGIS for Server enterprise geodatabase. Our preference is to provide tools and/or services (ESRI features services) to allow managed editing of our existing data vs a disconnected database delivery. Other comparable approaches may be considered subject to approval by City staff.

7. Contact the City with any structural issues requiring immediate maintenance (i.e. health or safety hazard). Provide a summary of these high-priority assets along with the weekly report.
8. The City will provide all existing databases, maps, or any other available information requested by the service contractor to utilize in updating the inventory data. All the information provided by the City is provided on an “as is” and “as available” basis and you agree that you use such information entirely at your own risk.
9. Images of SMF and GI/LID will be taken of both the inside and the outside of the infrastructure. Flash photography should be used to record images of the inside of the structures. The make and model of the proposed camera must be included in the contractor’s response. All images will be provided in JPEG format.
10. Videos with a HD pole camera will be required for all underground conveyances. These videos will be recorded from a stationary position within the adjoining stormwater structure. When access is not limited, videos must be obtained from both the upstream and downstream adjoining structure. The videos should be approximately 10 to 20 seconds of stabilized video that show the conveyance at multiple zooms. The pole camera must be equipped with lighting that will sufficiently illuminate culverts for a minimum of 200 feet. The make and model of the proposed pole camera equipment must be specified in the contractor’s response. Videos must be provided in an MP4 format.
11. Images of above SMF and GI/LID must be obtained. The make and model of the proposed camera must be included in the contractor’s response. All images will be provided in JPEG format.
12. The extent of SMF to be in the inventory is all private and public water quantity control structures such as detention ponds, retention ponds, underground facilities, lakes, and water quality ponds. The extent of GI/LID to be in the inventory is all private and public water quality control structures such as green roof, infiltration practices, pervious concrete. Refer to the Georgia Stormwater Management Manual for a or thorough list of GI/LID types.
13. Service contractor shall determine “Ownership” of all SMF and GI/LID by utilizing the existing database, recorded plats, and record drawings where available. Additional research at Dekalb County maybe required.
14. The City will provide a pdf or image file format of all recorded plats according to Land Lot and District.
15. An ESRI GIS geo-database, prepared by the City of Brookhaven has been developed to aid in the collection and storage of each feature. The service contractor and the City shall work together to refine and finalize the geo-database during the project requirements.
16. Virtual Structures: It is anticipated that some structures will be located but not be able to be accessed due to physical obstructions/limitations or may be buried or otherwise inaccessible for internal inspection. Structures meeting these requirements shall be classified as Virtual Structures. Virtual Structures shall be located with GPS coordinates, related to connecting features and attributed to the maximum extent possible.
17. The service contractor shall determine, when available, the date of installation/construction for SMF and GI/LID.
18. Contractor shall perform a visual assessment to determine if defects to the structure or conveyance are present.

Inspection forms provided in the Appendix will be completed for each conveyance and structure.

19. Uninhibited access to the structure and conveyances will be required for fieldwork. The Service Provider will be responsible for ensuring access to each SMF and GI/LID including all gate codes and/or lock combinations.

## **5. INFRASTRUCTURE INSPECTION AND MAINTENANCE SCHEDULE DEVELOPMENT**

- 1 Utilize the results from field investigations and spatial analyses conducted in section 2.3 to develop a general inspection and maintenance schedule for the various drainage components and appurtenances owned by the City.
- 2 Incorporate inspection and maintenance information into the spatial database produced in section 2.3.
- 3 Develop a prioritized list of maintenance and capital improvement projects needed to improve the function of the City's drainage network to improve both water quantity and quality protection. Work with the City to develop the preferred prioritization approach.

## **6. DELIVERABLES**

1. Spatial database to include all mapped SMF and GI/LID inventory. Database is to be formatted as an ArcGIS 10.x geodatabase. All data shall be projected in NAD83, Georgia State Plane, West Zone.
2. The resulting ArcGIS 10.x geodatabase is to include an inventory of locations of stormwater easements to better differentiate SMF and GI/LID ownership.
3. Digital photos of all SMF and GI/LID appurtenances. File names shall reflect the unique feature ID assigned to each component in the interim spatial database. SMF and GI/LID appurtenances previously not included in the database will be assigned unique feature IDs.
4. Prioritized list of maintenance and capital improvement projects for drainage components and appurtenances owned by the City. Updated spatial database to include recommended maintenance intervals for drainage components and appurtenances owned by the City.
5. Operational and maintenance inspection report data forms will be submitted on a weekly basis for the work completed during the previous week.

## **7. DATA AVAILABLE TO THE CONSULTANT**

1. GIS inventory of the City's SMF and GI/LID (available as ESRI .shp)
2. Color aerial photo tiles of all land areas within the City's boundaries, available as tiff or MrSid files.
3. Aerial topographic maps with contours (ESRI .shp or AutoCAD .dwg files) of all areas within the City's boundaries.
4. Plats and other planning and development documents available upon request on a case-by-case basis.

## **8. PROPOSAL FORMAT**

1. The Proposal shall follow the Scope of Service and exclusions.
2. All fees shall be **unit rates** and include all labor, material, equipment, and direct expenses. No allowances for reimbursable expenses such as mileage, printing, copying, deliveries etc. Unit rate shall include any cost for clearing of vegetation on City Right of Way or drainage easement to obtain access to SMFs and GI/LIDs, if needed.
3. Each proposal should include a cost estimate within a separate sealed package. Cost estimates should be provided on a unit basis for SMF and GI/LID.

4. Each proposer shall document its staff, experience, and qualifications by identifying the project manager and key technical team members and their roles on the project.
5. Each proposer may, but is not required to, include references, qualifications, resumes and any other materials deemed necessary but not provided otherwise (such as promotional literature, white papers, etc.)
6. Proposal should follow the following format:
  - a) List of stormwater inventory projects performed by the firm in the last five years.
  - b) Letter of interest and firm overview (one page maximum).
  - c) Key personal who will work on the project and team leader. Include an indication of the degree of availability anticipated in scheduling staff to meet project needs. (two pages maximum).
  - d) Resumes of the project team (seven pages maximum).
  - e) Organizational chart. (one page maximum).
  - f) The make and model of the contractor’s proposed equipment for all data collection must be included in responses. The following equipment must be specified:
    - HD Pole Camera
    - Camera for still images
    - Any proposed water quality analysis equipment
    - GPS Unit capable of sub 0.1 foot accuracy
    - Drop down measurement equipment
  - g) Each proposal should include a cost estimate within a separate sealed package (one page maximum). Cost estimates should be provided on a unit basis for the following:
    - SMF (located and assessed).
    - GI/LID (located and assessed).

<b>Contract Year</b>	<b>Fee (\$)</b>	<b>Cost per SMF (\$)</b>	<b>Cost per GI/LID (\$)</b>
<b>2019</b>			
<b>2020</b>			
<b>2021</b>			
<b>2022</b>			
<b>2023</b>			

Cost should be based on total SMF and GI/LID per study area. Proposed fee will include all costs associated with plat research, field work, capital program development, geodatabase development, travel, salaries, overhead, profit, and expenses.

## **9. PROPOSAL SELECTION**

The City’s staff will review all proposals submitted. After reviewing the proposals, staff may, at its discretion, invite to interview and demonstrate performance (at proposer’s expense at the City’s site) one or more of the proposers whose proposals appear to best meet the City’s requirements. The purpose of such an interview would be for all proposers to elaborate upon their proposal before a recommendation for ranking of the proposals is made. Interview responses, and performance, along with the written proposal and samples (if any), will become part of proposer’s submission to be evaluated pursuant to the evaluation criteria. The City reserves the right to short-list proposers for further consideration. Proposals will be graded based on 30% firm experience, 30% team members, team leader 10%, cost 20%, and equipment 10%.

# APPENDIX





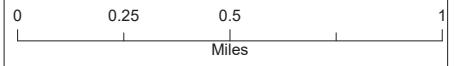
Incorporated 17 December 2012

# DETENTION POND INSPECTION AREAS



### Legend

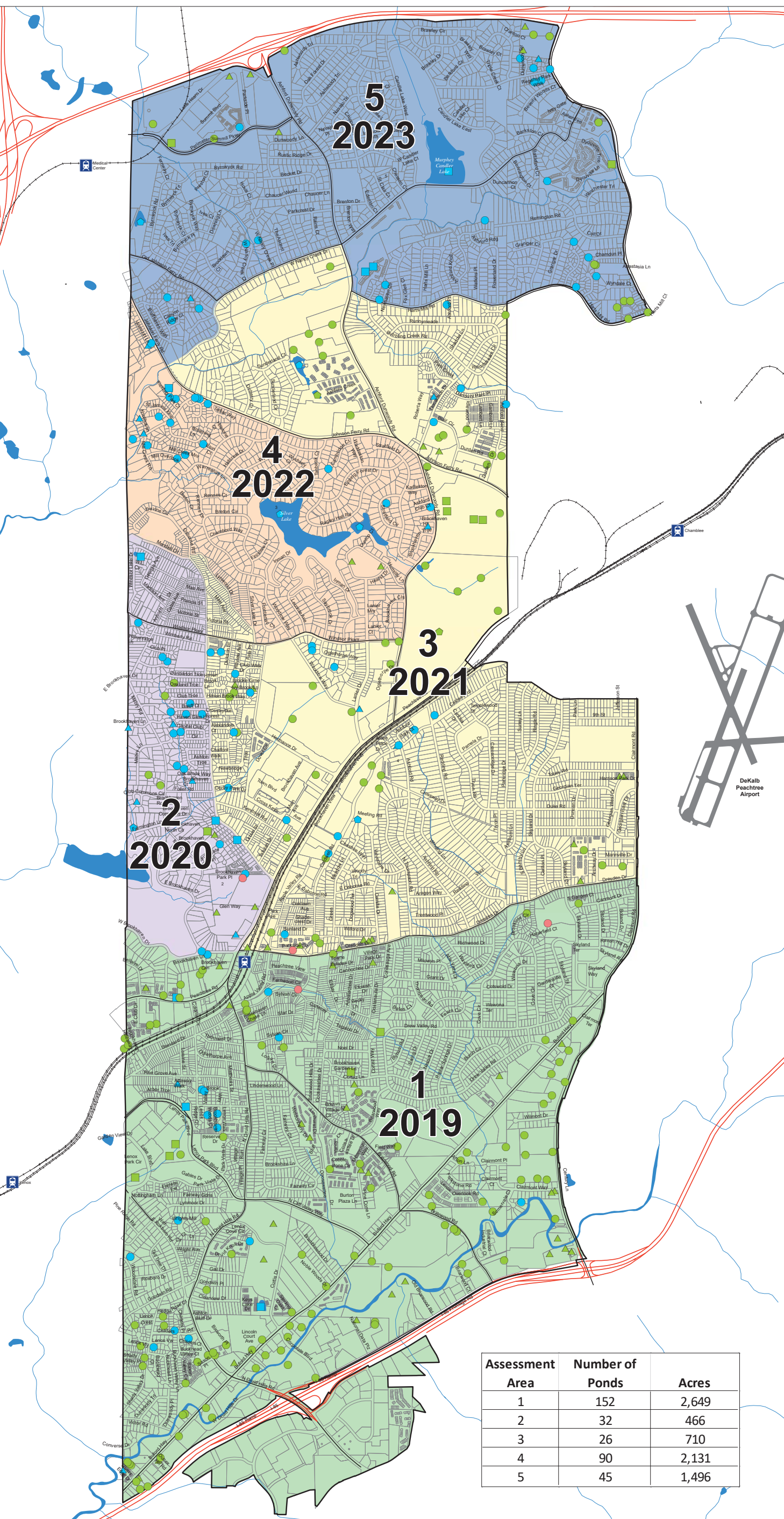
- MARTA Station
  - Expressway
  - Major Road
  - Rail
  - PDK Airport
  - Creek or Stream
  - Lake or Pond
  - Tax Parcel
  - City Limits
- Detention Pond (Number of Ponds)**
- Public (85)
  - Park (4)
  - Private (159)
- Retention Pond**
- Public (10)
  - Private (12)
- Underground Pond**
- Public (16)
  - Private (54)
- Lake**
- Public (6)
  - Private (2)
- Detention Pond Assessment**
- Area 1 - 152 Ponds - 2,649ac
  - Area 2 - 32 Ponds - 466ac
  - Area 3 - 26 Ponds - 710ac
  - Area 4 - 90 Ponds - 2,131ac
  - Area 5 - 45 Ponds - 1,496ac



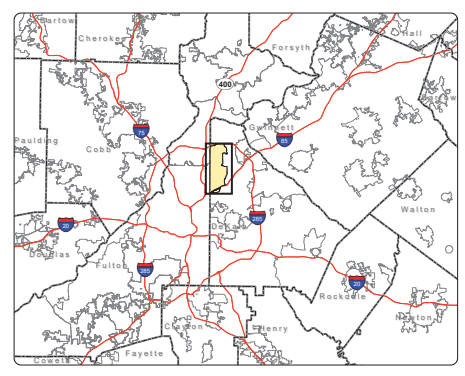
1 inch = 875 feet  
Map Sheet size 30" x 42"

Prepared by the  
City of Brookhaven IT/GIS Department  
May 30, 2018

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Assessment Area	Number of Ponds	Acres
1	152	2,649
2	32	466
3	26	710
4	90	2,131
5	45	1,496





# City of Brookhaven, Georgia

## Post-Construction Storm Water Management in New Development and Redevelopment

### BMP E-3

### Inspection Program

(Applies to all Publicly-Owned and Privately-Owned Facilities)

## 1.0 Introduction

The control of stormwater runoff from publicly-owned and privately-owned property has been a requirement in DeKalb County and the City of Brookhaven for over 25 years. With the adoption of the *Georgia Stormwater Management Manual (GSMM)* by DeKalb County and later by Brookhaven (2009) stormwater management has placed a greater emphasis on the control of both the quality, as well as the quantity, of storm runoff.

The *Georgia Stormwater Management Manual (GSMM)* is an engineering design manual which advocates hydrologic procedures and methodology for the control of storm runoff quality and quantity. The manual offers design criteria for stormwater management that protects and preserves our natural water resources. Policy guidelines dictate that communities develop a program for better site development to include design and installation of water quality protection measures or Best Management Practices (BMPs) to protect Georgia's limited and valuable water supplies.

The City wants a program to provide regular inspections of publicly-owned and privately-owned facilities to assure that all stormwater systems receive periodic routine inspection and maintenance. This program will insure that these systems function as they were designed, to prevent flooding, erosion, and degradation of existing water resources. This procedure outlines the inspection process and organizes the administrative workload.

## 2.0 Program Description

The City currently owns and operates two stormwater management BMPs/detention facilities. All other City-owned property was permitted at a time when no such requirements were in place.

An inventory of public and private ponds to be inspected has been developed within the City's GIS database inventory. The City of Brookhaven will inspect a minimum of 20% of the inventoried stormwater management facilities every year so that all inventoried ponds will be inspected during a five-year permit term.





### 3.0 Procedure

The inventory of ponds to be inspected each year will be developed based on the City's GIS database inventory. The database will be updated each year as new ponds are added to the system.

An inspection checklist will be used and kept on file along with **any photographs made of the structure or downstream channel** and any documentation of corrective action for any problems noted during the inspection. After inspection, each job is placed into a project folder. The folder contains a copy of the final plat showing easements and boundaries and a written inspection report. A computer maintenance management system is planned to replace the paper files.

All inventoried stormwater management facilities will be inspected once every five years by the City of Brookhaven.

The inspection will include a thorough evaluation of the primary features of the BMPs. These inspections will focus on the condition of these features to insure proper operation. An operation and maintenance inspection report will be filled out to include all field notes. For inspections and maintenance, particular attention is given to the following areas:

#### A. Wet Detention Ponds

- Dam and Emergency Spillway
- Pond Inlet and Outlet
- Trash Racks
- Erosion
- Sediment Storage Capacity
- Water Quality
- Fences, Gates and Signs

#### B. Water Quality BMPs

- Riparian Buffers
- Vegetated Filter Strips and Level Spreaders
- Open Channel Practices
- Bio-retention Cells
- Constructed Wetlands
- Sand Filters
- Retention Ponds



The Format for the inspection report used by City is attached below.

## Operational and Maintenance Inspection Report for Stormwater Management Ponds

(Adapted from Watershed Management Institute, Inc.)

Inspector Name: _____	Project Location: _____
Inspection Date: _____	_____
Stormwater Pond _____	_____
Normal Pool _____	_____
Normally _____	_____
Dry _____	Watershed: _____

Inspection Items	Checked Yes / No	Maintenance Needed? Yes / No	Inspection Frequency	Comments
<b>Pond Components</b>				
1. Embankment & Emergency Spillway				
a. Adequate vegetation & ground cover			A	
b. Embankment erosion			A	
c. Animal burrows			A	
d. Unauthorized plantings			A	
e. Cracking, bulging, or sliding of dam			A	
i. Upstream Face			A	
ii. Downstream Face			A	
iii. At or beyond toe upstream			A	
iv. At or beyond toe downstream			A	
iv. Emergency Spillway			A	
f. Pond, Toe, & Chimney drains clear & functioning			A	
g. Leaks on downstream face			A	
h. Abutment protection or rip-rap failures			A	
i. Visual settlement or horizontal misalignment of top of dam			A	
j. Emergency spillway clear of debris			A	
k. Other (Specify)			A	
Riser and principal spillway				
Type: Reinforced Concrete _____			A	

	Corrugated pipe			A
	Masonry			A
a.	Low flow orifice obstructed			A
b.	Low flow trash rack			A
	i. Debris removal necessary			A
	ii. Corrosion control			A
c.	Weir trash rack			A
	i. Debris removal necessary			A
	ii. Corrosion control			A
d.				A
	Excessive sediment accumulation inside riser			
e.				A
	Concrete/masonry condition Riser & Barrels			
	i. Cracks or displacement			A
	ii. Minor spalling (<1")			A
	iii			A
	Major spalling (rebars exposed)			
	iv. Joint failures			A
	v. Water tightness			A
f.	Metal pipe condition			A
g.	Control valve			A
	i. Operational/exercised			A
	ii. Chained & locked			A
h.	Pond drain valve			A
	i. Operational/exercised			A
	ii. Chained & locked			A
i.	Outfall channels flowing			A
j.	Other (Specify)			A
<hr/>				
	Permanent pool (wet pond)			
a.	Undesirable vegetation growth			M
b.				M
	Floating or floatable debris removal required			
c.	Visible pollution			M
d.	High water marks			M
e.	Shoreline problems			M
f.	Other (Specify)			M
<hr/>				
	Sediment forebays			
a.	Sedimentation noted			M
b.				M
	Sediment removal when depth < 50% design depth			

Dry Pond areas				
a.	Vegetation adequate			M
b.	Undesirable vegetative growth			M
c.	Undesirable woody vegetation			M
d.	Low flow channels clear of obstructions			M
e.	Standing water or wet spots			M
f.	Sediment and/or trash accumulation			M
g.	Other (Specify)			M
Condition of outfalls into pond				
a.	Rip-rap failures			A,S
b.	Slope erosion			A,S
c.	Storm drain pipes			A,S
d.	Endwalls/headwalls			A,S
e.	Other (Specify)			A,S
Other				
a.	Enhancement on ponds or easement area			M
b.	Complaints from residents (describe on back)			M
c.	Aesthetics			M
	i. Grass height			M
	ii. Graffiti removal necessary			M
	iii. Other (Specify)			M
d.	Any public hazards (specify)			M
e.	Maintenance access			M
Constructed wetland areas				
a.	Vegetation healthy and growing			A
b.	Evidence of invasive species			A
c.	Excessive sedimentation in wetland area			A

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[\*Inspection Frequency Key A=Annual, M=Monthly, S=After major storm

Summary

1. Inspectors Remarks

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2. Overall Condition of Facility (Check one)

Acceptable  
 Unacceptable

3. Dates any maintenance must be completed by:

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Inspectors  
Signature



# City of Brookhaven, Georgia

## Post-Construction Storm Water Management in New Development and Redevelopment

### BMP E-4

### Maintenance Program

(Applies to all Publicly-Owned and Privately-Owned Facilities)

## 1.0 Introduction

The control of stormwater runoff from publicly-owned and privately-owned property has been a requirement in DeKalb County and the City of Brookhaven for over 25 years.

The *Georgia Stormwater Management Manual (GSMM)* is an engineering design manual which advocates hydrologic procedures and methodology for the control of storm runoff quality and quantity. The manual offers design criteria for stormwater management that protects and preserves our natural water resources. Policy guidelines dictate that communities develop a program for better site development to include design and installation of water quality protection measures or Best Management Practices (BMPs) to protect Georgia's limited and valuable water supplies.

The City has a program to provide regular inspections of publicly-owned and privately-owned facilities to assure that all stormwater systems receive periodic routine inspection and maintenance. These programs will insure that the systems function as they were designed, to prevent flooding, erosion, and degradation of existing water resources. This procedure outlines the maintenance process.

## 2.0 Program Description

An inventory of public and private ponds has been developed based on the City's GIS database inventory. The database will be used to schedule inspections of a minimum of 20% of the inventoried existing stormwater management facilities every year. The inventory process will identify special maintenance needs in addition to **routine** maintenance required of the structures.

## 3.0 Procedure

The City currently owns and operates two stormwater management BMP/detention facility. This facility will be maintained by City staff. The City is also responsible for the maintenance of inventoried privately-owned facilities as accepted through plat or other legal means. These structures will also be maintained by City Staff.





Privately owned and maintained structures designed and built after December 9, 2008 will have a maintenance agreement kept on file with the City. After an inspection, a letter will be sent to the affected property owners notifying them of our findings with a time frame for completion of any noted repairs or maintenance deficiencies. If repairs are not properly completed within the specified time frame, the City may make the necessary repairs at the owner's expense.

Example letter to notify homeowners of maintenance required on their Property:

*Date*

*Name*

*Address of owner*

*RE: Inspection of Detention Facility*

*Dear Name:*

*This letter is to notify you of an inspection on DATE of the detention pond located at:*

*Address of property with detention pond*

*On that date the deficiencies identified on the following page were found. In accordance with the City of Brookhaven Regulations, it is your responsibility to repair these items and notify us when they are corrected.*

*It is the city's desire to work with you to resolve this matter. Should you have any questions regarding this letter, or should you require any further information or*

*advice regarding compliance with the directions contained within this letter, please contact me at 404-637-0524.*

*Respectfully,*

*Name*

*Title*



# **City of Brookhaven, Georgia**

## **Post-Construction Storm Water Management in New Development and Redevelopment**

### **BMP E-5**

#### **GI/LID Structures Inventory**

**(Applies to all Publicly-Owned and Privately-Owned Structures)**

## **1.0 Introduction**

Green Infrastructure (GI) and Low Impact Development (LID) can assist communities in lowering the amount and rate of runoff and pollutants from development sites through infiltration, reuse and evapotranspiration. To maintain a record of these devices within the community, the City will develop a process to inventory GI and LID structures.

## **2.0 Program Description**

GI and LID structures installed after December 6, 2012 will be inventoried and added to the City's GIS database. Devices permitted on site plans in the future will be added to the inventory annually as they are constructed.

## **3.0 Procedure**

GI and LID structures installed in the City since December 6, 2012 will be identified from construction permits and located in the GIS data base from as-built information or from field surveys. GI or LID structures will be noted during plan review on new plan submittals and will be added to the inventory when installation is verified through the inspection process.