Advanced Design Workshops

GDOT MS4 Post-Construction Stormwater Report

Note: This course is available as online training on ELMS: https://learning.dot.ga.gov
Always check the current edition of the GDOT Drainage Design for Highways Manual for current policies.

This presentation shall not supersede any policies in the GDOT Drainage Design for Highways Manual (current edition) or any other GDOT policy publications.
Points of Discussion

• Why is the report required?

• What is the GDOT MS4 Post-Construction Stormwater Report?

• How is it different from standard stormwater reports?

• What elements are included in the report?

• What documentation is required in those elements?
GDOT’s MS4 Permit applies in municipalities and counties designated by EPD as MS4 (Phase I and Phase II)
Stormwater Planning

• Documentation of stormwater planning/management is required at each milestone review.

Concept → PFPR → FFPR

• For detailed information, see Chapter 3 and Chapter 10 of the GDOT Drainage Manual.
What is it?

• GDOT’s standardized MS4 design report template
• Organizes all post-construction BMP information
• Summarizes post-construction design for project

MS4 Post-Construction Stormwater Report

[Sample form content]

PI Number: ___________________________________________  Submit Date: __________
Project Name: _________________________________________  Let Date: __________
City County: ___________________________________________  Contact Phone: __________
District: ______________________________________________  

General Project Information:

If there is a Project Level Exclusion that applies to this project: [ ] Yes [ ] No
If yes, please indicate which of the following exclusions apply:

□ Roadway not owned or operated by GDOT
□ Maintenance or safety project (multiple unconnected sites disturbing < 1 acre)
□ Project with environmental documents approved or R&W plans submitted on or before June
          30, 2012
□ Road project disturbing < 1 acre or the development project adding < 5,000 ft² of impervious
          area

If there is an Outfall Level Exclusion that applies to this project: [ ] Yes [ ] No
If yes, please indicate in Attachments B and C

Disturbed Area of Site: [ ] acres  Existing Cross-Section: ____________________________
Impervious Area Added: [ ] acres  Proposed Cross-Section: ____________________________
Net Length of Project: [ ] miles  AADT (Design Year): __________________________________

Submital Requirements:

[ ] GDOT LID / GI Checklist (Attachment A)
[ ] GDOT Post-Construction BMP Summary (Attachment B)
[ ] Post-Construction Stormwater BMP Documentation (Attachment C)
[ ] Milestone Plan Submittal Checklist (Attachment D)

PE Seal, Signature, & Date
Note: Not required if report is prepared by GDOT
How is it different from other stormwater reports?

• Specific to GDOT’s MS4 permit requirements

• Includes exclusions/ infeasibility analysis

• Guides project planning process from beginning
MS4 Post-Construction Stormwater Report

Why do we need it?

• Allows for early identification of permit compliance issues
• Required for MS4 permit compliance for ALL projects in MS4 area
• Ensures all necessary documentation is provided
• Provides step-by-step process for H&H analysis
• Ensures sufficient right-of-way is acquired for BMPs
What is in it?

- Project information
- Planning-level LID/GI stormwater considerations
- Project basin/BMP design information
- Exclusions/Infeasibility justifications
- Downstream analysis
Where can I find it?


### Roadway

<table>
<thead>
<tr>
<th>Title</th>
<th>Revised</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category : Construction Stormwater (Erosion Control)</td>
<td></td>
<td></td>
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<tr>
<td>Category : Design Policy</td>
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<td>Category : Drainage</td>
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<tr>
<td>Category : Fish Passage</td>
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<tr>
<td>Category : Stormwater Permit (MS4)</td>
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<td></td>
</tr>
<tr>
<td>Chief Engineer - Letter 01-20-12</td>
<td>1/20/2012</td>
<td>Brad McManus</td>
</tr>
<tr>
<td>Georgia’s MS4 Areas Map</td>
<td></td>
<td></td>
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<tr>
<td>MS4 Concept Level Design Spreadsheet</td>
<td>3/9/2016</td>
<td>Brad McManus</td>
</tr>
<tr>
<td>MS4 Concept Report Summary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS4 Preconstruction PDP Process</td>
<td>3/8/2017</td>
<td>Brad McManus</td>
</tr>
<tr>
<td>Post-Construction Stormwater Report Attachment B</td>
<td>12/30/2016</td>
<td>Brad McManus</td>
</tr>
<tr>
<td>Post-Construction Stormwater Report Help File</td>
<td>12/30/2016</td>
<td>Brad McManus</td>
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<td>Post-Construction Stormwater Report Template</td>
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<td>Trail Stream Location and Drainage Structure Inventory Map Service</td>
<td>3/11/2016</td>
<td>Brad McManus</td>
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<tr>
<td>Worksheet J-1_Phase 1 Screening Assessment of Stormwater Infiltration</td>
<td>12/30/2016</td>
<td>Brad McManus</td>
</tr>
</tbody>
</table>
MS4 Post-Construction Stormwater Report

Guidance

All post-construction stormwater BMPs are considered LDGI with the exception of the stream stabilization practices. As part of GOOT’s policy on how to consider LDGI and GI practices, the designer must document LDGI practices when it is both feasible and within an MS4 area. During the planning phase, the designer is required to consider the site constraints and limitations for LDGI practices and GI practices as described in Attachment A for this checklist. For additional guidance, Chapter 10 of the GOOT Post-Construction Design for Stormwater Management Guide is referenced.

Feasibility & Exclusion of Post-Construction BMPs

BMPs are exclusions that occur when GOOT does not require post-construction stormwater BMPs. If a BMP is identified as an exclusion, the designer is required to document that the exclusion was reviewed and documented in the stormwater management plan. Exclusions are documented in Attachment B to the GOOT Post-Construction BMP Summary:

- Roadways that are not owned or operated by the Department of Transportation (DOT) or that are maintenance only (i.e., 5% of roadway area) are considered exclusions.
- Maintenance areas that are not accessible to the public are considered exclusions.
- Maintenance areas that are not accessible to the public and maintenance on airport facilities are considered exclusions.
- Maintenance areas that are not accessible to the public and maintenance on airport facilities are considered exclusions.
- Maintenance areas that are not accessible to the public and maintenance on airport facilities are considered exclusions.

Stream Stabilization Practices

Stream stabilization practices are considered LDGI practices when they are both feasible and within an MS4 area. During the planning phase, the designer is required to consider the site constraints and limitations for LDGI practices and GI practices as described in Attachment A for this checklist. For additional guidance, Chapter 10 of the GOOT Post-Construction Design for Stormwater Management Guide is referenced.

In-stream flow rate reduction BMPs are considered LDGI practices when they are both feasible and within an MS4 area. During the planning phase, the designer is required to consider the site constraints and limitations for LDGI practices and GI practices as described in Attachment A for this checklist. For additional guidance, Chapter 10 of the GOOT Post-Construction Design for Stormwater Management Guide is referenced.
MS4 Post-Construction Stormwater Report

Help File
Three tiered screening process:

- Project Level Exclusion
- Outfall Level Exclusion
- Infeasibility
Project-Level Exclusions (PLE) remove post-construction BMP requirements for entire project and include:

1. Facility not GDOT-owned
2. Project not within MS4 boundaries
3. Maintenance/safety project (disturbs less than 1 acre)
4. Environmental documents approved before 6/30/12
5. The project is a roadway project that disturbs < 1 acre or a site project that adds < 5,000 ft² of impervious area
What if...

the project is primarily on a local road, but it crosses a state route and work is being done on the state route?

The portion of the project on the state route would require a MS4 PCS report.
What if...
an outfall basin is on the state route but the outfall is located along the local road?

GDOT will follow its normal procedure for BMP design and, if determined feasible, will install the BMP on the GDOT right-of-way.
Project Level Exclusions

What if...

an entire outfall basin is on the local road and the outfall is located along the state route?

Further coordination with GDOT and the local government is required and will be determined on a case-by-case basis.
Project Level Exclusions

Is there a Project Level Exclusion that applies to this project? Yes
No

Is the project located in an MS4 area? Yes
No

Complete only the cover page of the MS4 Post-Construction Stormwater Report.

No MS4 Post-Construction Stormwater Report documentation is required.

Complete the cover page of the MS4 Post-Construction Stormwater Report & continue the evaluation.
If you have a **Project-Level Exclusion (PLE)**:

- **Complete Stormwater Report Cover Page ONLY**

- The PLE must be applicable for the entire project.

- Review and (if required) revise at project milestone submittals
Outfall Level Exclusions

Outfall-Level Exclusions (OLE) remove post-construction BMP requirements for a specific outfall’s drainage area and include:

* 1. Change in existing roadway alignment that creates safety concern
* 2. Installation of BMP causes realignment or piping of a stream
* 3. Installation of BMP impacts a stream buffer or wetland

4. Discharges exit R/W as sheet flow
5. Flows that originate offsite
6. Reduction (or negligible increase) in impervious area

* Note: OLE 1, 2 and 3 must be solely due to installation of the BMP
**Infeasibility Criteria**

**Infeasibility criteria** make compliance with post-construction requirements for a specific outfall’s drainage area infeasible and include:

1. Cost (BMP cost is greater than 10% project/roadway segment cost in BMP basin)
2. Schedule delay (> 90 days)
3. Impact to endangered/threatened species
4. Damage to cultural/community resource (historical/ archaeological sites, cemetery, park, wildlife refuge, nature trail, school)
5. Residence or business displacement
Infeasibility Criteria

**Infeasibility criteria** make compliance with post-construction requirements for a specific outfall’s drainage area infeasible and include:

6. Violation of a federal or state law or regulation
7. Shallow bedrock, contaminated soils, high groundwater, utilities/other underground facilities
8. Limited soil infiltration capacity
9. Site too small to infiltrate significant volume
10. Site does not allow for gravity flow to BMP
Remember, the MS4 Permit Requires

- Stormwater runoff treatment to the maximum extent practicable

- Infeasibility determined individually:
  - For each design requirement ($WQ_v$, $CP_v$, $Q_{p25}$, $Q_f$)
  - Per outfall basin within the project limits
- Does not remove the requirement for stormwater quantity assessment to check for adverse impacts downstream of the project.
OLEs and Infeasibilities

If you have an OLE or Infeasibility:

- **Complete Cover Page**

- **Complete Attachment A**

- **Complete for all basins:**
  - Attachment B
  - Attachment C

- **Complete Attachment D at milestone reviews**
OLEs and Infeasibilities

If you have an **OLE or Infeasibility:**

- Complete Cover Page
- **Complete Attachment A**
- Complete for all basins:
  - Attachment B
  - Attachment C
- Complete Attachment D at milestone reviews

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**Attachment A**

GDOT Low Impact Development (LID) / Green Infrastructure (GI) Checklist

**Design Considerations**

- The following site considerations were considered, where applicable, and incorporated into an LID/GI approach: safety, ease of maintenance, available right-of-way, soils, terrain slope, pollutants of concern, existing utilities and other infrastructure details.
- Where applicable, the following site-specific environmental components have been clearly identified on the project site: wetlands, impaired waters, environmentally sensitive areas, applicable buffers.

**Design Documentation**

List any site-specific limitations or constraints that will have an effect on the utilization of feasible post-construction stormwater LID and/or GI practices.

- The following LID/GI practices were used. For those that were not used, explain why it was infeasible for this project.
  - Yes
  - No
  - Avoidance [Planning around environmentally sensitive areas]:
  - Minimization:
  - Footprint reduction:
  - Incorporating WQ early in planning process by:
  - Rural road section in place of urban:
  - Landscaping areas outside of clear-zone w/ trees:
  - Adjusting the design to natural terrain:
  - Porous Pavements [OGFC]:
  - Post-construction BMPs that allow for infiltration, evapotranspiration, and stormwater reuse:
  - Using recycled materials such as asphalt and concrete:

- The LID/GI practices shown on the plans address all GDOT and MD permit requirements.
- A cost estimate has been provided to GDOT at the milestone review (preliminary estimate for PFPR and a detailed estimate for FFP).

**Inspection and Maintenance Responsibility** (select all that apply)

- Dedicated to City or County (indicate which) of:
- Private Entity Responsibility: name responsible entity here:
- GDOT Responsibility
OLEs and Infeasibilities

If you have an OLE or Infeasibility:

• Complete Cover Page
• Complete Attachment A
• Complete for all basins:
  ✓ Attachment B

Attachment B

<table>
<thead>
<tr>
<th>Drainage Area Characteristics</th>
<th>Applicable MS4 Requirements</th>
<th>Planning Considerations</th>
<th>Location and Identification</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outfall Area (Drainage Basin)</td>
<td>WQV (Yes/No)</td>
<td>BMP</td>
<td>Station (Begin - End)</td>
<td></td>
</tr>
<tr>
<td>Receiving Water</td>
<td>CPV (Yes/No)</td>
<td>Stormwater BMP Infiltration Report? (Yes/No) (See Note 3)</td>
<td>Offset (Left/Right)</td>
<td></td>
</tr>
<tr>
<td>Impaired (Yes/No)</td>
<td>Q_25 (Yes/No)</td>
<td>BMP Infeasible (Yes/No) (See Note 3)</td>
<td>Plan Sheet</td>
<td></td>
</tr>
<tr>
<td>Impairment</td>
<td>Q</td>
<td>Complete for all basins without OLE and/or with required detention</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is there a TMDL approved? (Yes/No)</td>
<td>Q_10 (Yes/No)</td>
<td>Complete for all basins with feasible BMP</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
OLEs and Infeasibilities

If you have an OLE or Infeasibility:

• Complete Cover Page
• Complete Attachment A
• Complete for all basins:
  ✓ Attachment B
  ✓ Attachment C
• Complete Attachment D at milestone reviews
OLEs and Infeasibilities

If you have an **OLE** or **Infeasibility**:

- Complete Cover Page
- Complete Attachment A
- Complete for all basins:
  - Attachment B
  - Attachment C
- Complete Attachment D at milestone reviews
MS4 Post-Construction Stormwater Report

Cover Sheet *(Required for ALL projects in a MS4 area)*

<table>
<thead>
<tr>
<th>PI Number:</th>
<th>00091900</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Name:</td>
<td>SR1 Widening</td>
</tr>
<tr>
<td>City/County:</td>
<td>Fayetteville/Fayette</td>
</tr>
<tr>
<td>District:</td>
<td>3</td>
</tr>
<tr>
<td>Submittal Date:</td>
<td>12/13/16</td>
</tr>
<tr>
<td>Consultant:</td>
<td>XYZ Engineering</td>
</tr>
<tr>
<td>Let Date:</td>
<td>5/1/18</td>
</tr>
<tr>
<td>Contact Phone:</td>
<td>555-555-5555</td>
</tr>
<tr>
<td>Milestone Submittal:</td>
<td>✓ PFPR □ FFPR □ Addendum</td>
</tr>
</tbody>
</table>

General Project Information:

Is there a Project Level Exclusion that applies to this project? | □ Yes | ✓ No |
---|---|---|
If yes, please indicate which of the following exclusions apply:
- □ Roadway not owned or operated by GDOT
- □ Maintenance or safety project (multiple unconnected sites disturbing < 1 acre)
- □ Project with environmental documents approved or R/W plans submitted on or before June 30th, 2012
- □ Road project disturbing < 1 acre or site development project adding < 5,000 ft² of impervious area
MS4 Post-Construction Stormwater Report

Cover Sheet (Required for ALL projects in a MS4 area)

<table>
<thead>
<tr>
<th>Disturbed Area of Site:</th>
<th>15.2 acres</th>
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</thead>
<tbody>
<tr>
<td>Impervious Area Added:</td>
<td>12.6 acres</td>
</tr>
<tr>
<td>Net Length of Project:</td>
<td>2.6 miles</td>
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</tbody>
</table>

Existing Cross-Section: Rural 2-lane
Proposed Cross-Section: Urban 4-lane
AADT (Design Year): 1500

Project Design Information

Reports not prepared by GDOT must be sealed by Professional Engineer

Submittal Requirements:
- [X] GDOT LID / GI Checklist (Attachment A)
- [X] GDOT Post-Construction BMP Summary (Attachment B)
- [X] Post-Construction Stormwater BMP Documentation (Attachment C)
- [X] Milestone Plan Submittal Checklist (Attachment D)

PE Seal, Signature, & Date
Note: Not required if report is prepared by GDOT

Required Attachments
Attachment A: Low Impact Development/Green Infrastructure Checklist (Required for ALL MS4 projects without PLE)

Document planning-level stormwater considerations

Identify soil issues, wetlands, high groundwater table, ESAs, etc.
## Attachment A: Low Impact Development/Green Infrastructure Checklist

*(Required for **ALL** MS4 projects without PLE)*

- The following LID/GI practices were used. For those that were not used, explain why it was infeasible for this project.
  - Yes
  - No
  - Avoidance (Planning around environmentally sensitive areas): **ESAs avoided**
  - Minimization:
  - Footprint reduction: **Project minimizes pavement**
  - Incorporating WQ early in planning process by: **Conceptual planning**
  - Rural road section in place of urban:
  - Landscaping areas outside of clear-zone w/ trees:
  - Adjusting the design to natural terrain:
  - Porous Pavements (OGFC): **Pavement design committee did not approve use**
  - Post-construction BMPs that allow for: infiltration, evapotranspiration, and stormwater reuse
  - Using recycled materials such as asphalt and concrete:

- If not used, concisely explain conditions & issues preventing each LID/GI practice

- If used, can explain how

- The LID/GI practices shown on the plans address all GDOT and MS4 permit requirements

- A cost estimate has been provided to GDOT at the milestone review (preliminary estimate for PFPR and a detailed estimate for FFPR)

### Inspection and Maintenance Responsibility (select all that apply)

- Dedicated to City or County (indicate which) of:
- Private Entity Responsibility: name responsible entity here:
- GDOT Responsibility

### Document cost/permit compliance needs for milestone review

### Identify maintenance responsibility
**Attachment B: GDOT Post-Construction BMP Summary**

(Required for **ALL** MS4 projects without PLE)

<table>
<thead>
<tr>
<th>Drainage Area Characteristics</th>
<th>Applicable MS4 Requirements</th>
<th>Planning Considerations</th>
<th>Location and Identification</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outfall Area (Drainage Basin)</td>
<td>WQV (✓ or X)</td>
<td>BMP</td>
<td>Station (Begin - End)</td>
<td>Maintenance Responsibility</td>
</tr>
<tr>
<td>Receiving Water</td>
<td>CP, (✓ or X)</td>
<td>Stormwater BMP Infiltration Report? (Yes/No) (See Note 1)</td>
<td>Offset (Left/Right)</td>
<td>Complete for all basins with feasible BMP</td>
</tr>
<tr>
<td>Impaired (Yes/No)</td>
<td>Q₂ (✓ or X)</td>
<td>Infeasible (Yes/No)</td>
<td>Plan Sheet</td>
<td>Complete for all basins without OLE and/or with required detention</td>
</tr>
<tr>
<td>Impairment</td>
<td>Q₃ (✓ or X)</td>
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<td></td>
<td>Complete for all basins</td>
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<tr>
<td>Is there a TMDL approved? (Yes/No)</td>
<td>Outfall Level Exclusion (Yes/No) (If Yes, see Note 2)</td>
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*Note 1: See additional details in the report.*

*Note 2: Consideration for specific conditions.*
GDOT has also developed a TMDL Tool which is a MicroStation file of the GA EPD shape file: http://www.dot.ga.gov/PS/Design Manuals/DesignGuides
GDOT has also developed a TMDL Tool which is a MicroStation file of the GA EPD shape file: http://www.dot.ga.gov/PS/Design Manuals/DesignGuides
**Water Quality Volume** should be applicable unless:

- An Outfall Level Exclusion is applicable for the basin

**Channel Protection Volume** should be applicable unless:

- An Outfall Level Exclusion is applicable for the basin
- The basin discharges to a waterbody that has a drainage area larger than 5 square miles
- The proposed 1-year discharge is less than 2 cfs
Overbank Flood Protection should be applicable unless:

- The basin discharges to a waterbody that has a drainage area larger than 5 square miles
- The analysis showed an insignificant flow increase for the basin

Extreme Flood Protection should be applicable unless:

- The basin discharges to a waterbody that has a drainage area larger than 5 square miles
- The analysis showed an insignificant flow increase for the basin.
MS4 Post-Construction Stormwater Report

- Specify the BMP(s) that was found to be appropriate for the drainage basin and was carried forward to the infeasibility assessment stage OR the BMP that was determined to be feasible
- Infiltration testing required only for infiltration BMPs
- Guidance on the Stormwater BMP Infiltration Report is in Appendix J of the GDOT Drainage Manual
**MS4 Post-Construction Stormwater Report**

**Infeasibility:**
- Each criteria ($WQ_v$, $CP_v$, $Q_{p25}$, $Q_f$) is evaluated individually.
- Meet as many of the criteria as feasible.
- A BMP is feasible only if you can meet all requirements of at least one criteria.
MS4 Post-Construction Stormwater Report

- Include a set of construction plan sheets in Attachment C as an appendix
- GDOT will usually have maintenance responsibility for BMPs within their right-of-way
- Maintenance responsibility can be shared among multiple entities
### MS4 Post-Construction Stormwater Report

**Attachment B: GDOT Post-Construction BMP Summary** (Required for ALL MS4 projects without PLE)

<table>
<thead>
<tr>
<th>Drainage Area Characteristics</th>
<th>Applicable MS4 Requirements</th>
<th>Planning Considerations</th>
<th>Location and Identification</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outfall Area (Drainage Basin)</td>
<td>WQo (Yes/No)</td>
<td>CP (Yes/No)</td>
<td>Qo (Yes/No)</td>
<td>Outfall Level Exclusion (Yes/No)</td>
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<tr>
<td>Basin 1</td>
<td>Lovely Creek</td>
<td>Yes</td>
<td>FC</td>
<td>No</td>
</tr>
<tr>
<td>Basin 2</td>
<td>Lovely Creek</td>
<td>Yes</td>
<td>FC</td>
<td>No</td>
</tr>
<tr>
<td>Basin 3</td>
<td>Right Creek</td>
<td>No</td>
<td>N/A</td>
<td>N/A</td>
</tr>
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<td>Basin 4</td>
<td>Right Creek</td>
<td>No</td>
<td>N/A</td>
<td>N/A</td>
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<td>Basin 5</td>
<td>Jones Creek</td>
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<td>TP</td>
<td>Yes</td>
</tr>
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<td>Basin 6</td>
<td>Curvy Creek</td>
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<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Basin 7</td>
<td>Curvy Creek</td>
<td>No</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Note 1:** If an Outfall Level Exclusion is claimed, include the exclusion number (as listed in the Post-Construction Stormwater Guidance) and provide supporting evidence in Attachment C.

**Note 2:** See Appendix J of the GDOT Drainage Design for Highways Manual for guidance on the Stormwater BMP Infiltration Report.

**Note 3:** If a BMP is identified as infeasible, include the infeasibility number (as listed in the Post-Construction Stormwater Guidance) and provide supporting evidence in Attachment C.
MS4 Post-Construction Stormwater Report

Attachment C: Post-Construction Stormwater BMP Documentation \( \text{(Required for All MS4 projects without a PLE)} \)

Contents:

1. Cover Sheet
2. Executive Summary
3. Project Description
4. Maintenance Discussion at PFPR
5. Basin Evaluations
   - Physical Parameters
   - Water Quality and Channel Protection
   - Downstream Analysis
   - BMP Selection
   - Feasibility

Appendices:

A. Site Location and Drainage Basin Maps
B. NOAA Precipitation Table
C. Soils Map
D. Environmental Resource Impact Table
E. Water Quality Calculations
F. Channel Protection Calculations
G. Hydrologic Model Output
H. Downstream Analysis Documentation
I. Outfall Level Exclusion Documentation
J. Infeasibility Documentation
K. Stormwater BMP Infiltration Report
L. BMP Design Calculations
M. Feasible BMP Cost Calculations
N. Construction Plan Sheets
Attachment C: Post-Construction Stormwater BMP Documentation

Contents:

1. Cover Sheet
2. Executive Summary
3. Project Description
4. Maintenance Discussion at PFPR
5. Basin Evaluations
   - Physical Parameters
   - Water Quality and Channel Protection
   - Downstream Analysis
   - BMP Selection
   - Feasibility

NOTE:
In general, GDOT is looking for concise summaries for each basin evaluation. Discussion of which basins have an OLE, which BMPs were feasible, which BMPs were infeasible, why the BMPs were selected, and documentation supporting the determination with calculations and/or drawings should be included in this attachment. Please refer to the remainder of this template and the MS4 PCS Report Help File for additional guidance.
MS4 Post-Construction Stormwater Report

Attachment C: Post-Construction Stormwater BMP Documentation

Contents:
1. Cover Sheet
2. Executive Summary
3. Project Description
4. Maintenance Discussion at PFPR
5. Basin Evaluations
   • Physical Parameters
   • Water Quality and Channel Protection
   • Downstream Analysis
   • BMP Selection
   • Feasibility

Executive Summary

In general, the Executive Summary should state background information. It should summarize the evaluation process and the results of the evaluation.

In January 2012, the Environmental Protection Division (EPD) of the Georgia Department of Natural Resources issued the Georgia Department of Transportation's (GDOT's) first Municipal Separate Storm Sewer System (MS4) Permit (General NPDES Permit No. GAR041000) (Permit) for discharges from its MS4 designated areas.

The Permit regulates new and existing point source discharges of stormwater from roadways owned and operated by GDOT to waters of the State of Georgia. The [Interstate 85 (I-85) North Managed Lanes Project] (Project) must meet the requirements of the Permit, which include incorporating permanent water quality control and detention measures (best management practices [BMPs]) into the design where appropriate, where those BMPs have not been determined to be infeasible based on the exclusion and infeasibility criteria identified in Chapter 10 of the GDOT Drainage Design for Highway Manual.

To assist with the development of final design for the project and meet Permit requirements, [firm name] performed an analysis of the project in accordance with the guidance and criteria discussed above and below to identify and size feasible post-construction stormwater BMPs that must be implemented and those that may be eliminated.

This report documents the applicable guidance and criteria, analysis performed, and results and conclusions. The analysis is based on current design and cost of the improvements. Feasibility of the post-construction BMPs will need to be revisited during the final design and revised based on the revised project design or refined cost estimates.
MS4 Post-Construction Stormwater Report

Attachment C: Post-Construction Stormwater BMP Documentation

Contents:

1. Cover Sheet
2. Executive Summary
3. Project Description
4. Maintenance Discussion at PFPR
5. Basin Evaluations
   - Physical Parameters
   - Water Quality and Channel Protection
   - Downstream Analysis
   - BMP Selection
   - Feasibility

Project Description

[Provide the project description from the Concept Report. It should include a general overview of the project and unique site conditions.]

GDOT proposes to [widen I-85 to add one managed lane in each direction from just north of Old Peachtree Road to Hamilton Mill Road. To minimize impacts to traffic, two new auxiliary lanes will be constructed where required. The added managed lanes will be tolled to create reliable travel time savings through the use of variable priced tolling to manage lane volume while maintaining a minimum average speed.]

South of I-985, the project proposes to widen I-85 outside of the existing eight-lane mainline. North of I-985, widening will be on the inside median along the four-lane I-85 section. Both auxiliary lanes will be constructed with additional inside widening. The proposed design speeds for the project will match the current posted speed limits along the interstate mainlines. Refer to the location map in Appendix A which illustrates the approximate project limits.

This project is divided into [56] proposed drainage basins. Refer to Appendix A for drainage basin delineations.
Attachment C: Post-Construction Stormwater BMP Documentation

Contents:
1. Cover Sheet
2. Executive Summary
3. Project Description
4. Maintenance Discussion at PFPR
5. Basin Evaluations
   • Physical Parameters
   • Water Quality and Channel Protection
   • Downstream Analysis
   • BMP Selection
   • Feasibility

Maintenance Discussion at PFPR

Per Section 6.4.10 MS4 and Maintenance Office Coordination of GDOT’s Plan Development Process Manual, “The Design Phase Leader should discuss the maintenance plan, accessibility, and schedule with GDOT Maintenance/District Maintenance for a selected BMP. The consideration and use of local municipal maintenance forces and required agreements should also be discussed. Documentation of the results of this discussion should be included in the Post-Construction Stormwater Report.” This section is used to document this discussion. Ensure the Inspection and Maintenance Responsibility information in the LID/GI Checklist and Attachment B accurately represent the outcome of the discussion. Complete this section after PFPR but prior to submittal of the MS4 PCS Report to EPD for review.
Attachment C: Post-Construction Stormwater BMP Documentation

Contents:
1. Cover Sheet
2. Executive Summary
3. Project Description
4. Maintenance Discussion at PFPR
5. Basin Evaluations
   - Physical Parameters
   - Water Quality and Channel Protection
   - Downstream Analysis
   - BMP Selection
   - Feasibility

Basin Evaluations

This section is used to discuss the evaluation process and conclusions for each drainage basin. Two example basins are shown: Drainage Basin 1 requires an infeasibility assessment and Drainage Basin 2 has an outfall level exclusion.

Drainage Basin 1 (Note: change basin name/number to correspond with Attachment B)

Include a brief description of the drainage basin location and where it discharges.

Drainage Basin 1 is located along [road name] between station [0+00] and station [0+00]. This drainage basin discharges [directly into an existing drop inlet and 15-inch reinforced concrete pipe that discharges outside of the right-of-way].
Attachment C: Post-Construction Stormwater BMP Documentation

Contents:

1. Cover Sheet
2. Executive Summary
3. Project Description
4. Maintenance Discussion at PFPR
5. Basin Evaluations

- Physical Parameters
- Water Quality and Channel Protection
- Downstream Analysis
- BMP Selection
- Feasibility

<table>
<thead>
<tr>
<th>Drainage Basin 1 (Pre)</th>
<th>Area (ac)</th>
<th>CN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open space - Good condition (grass cover &gt; 75%) (Soil Group B)</td>
<td>0.25</td>
<td>81</td>
</tr>
<tr>
<td>Open space - Good condition (grass cover &gt; 75%) (Soil Group C)</td>
<td>0.13</td>
<td>74</td>
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<tr>
<td>Impervious</td>
<td>1.35</td>
<td>98</td>
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<td>Woods - Good condition (Soil Group B)</td>
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<td>55</td>
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<td>Total</td>
<td>2.15</td>
<td>84</td>
</tr>
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</table>

<table>
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<th>Area (ac)</th>
<th>CN</th>
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<td>Impervious</td>
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<td>Woods - Good condition (Soil Group B)</td>
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<td>55</td>
</tr>
<tr>
<td>Total</td>
<td>2.15</td>
<td>89</td>
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<table>
<thead>
<tr>
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<th>1-Year (cfs)</th>
<th>25-Year (cfs)</th>
<th>100-Year (cfs)</th>
</tr>
</thead>
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<tr>
<td>Pre-Development</td>
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<td>14.69</td>
<td>17.69</td>
</tr>
<tr>
<td>Post-Development</td>
<td>5.99</td>
<td>15.93</td>
<td>18.89</td>
</tr>
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<td>Change (Post - Pre)</td>
<td>1.15</td>
<td>1.24</td>
<td>1.20</td>
</tr>
<tr>
<td>Percent Change</td>
<td>23.76%</td>
<td>8.44%</td>
<td>6.78%</td>
</tr>
</tbody>
</table>
Attachment C: Post-Construction Stormwater BMP Documentation

Contents:
1. Cover Sheet
2. Executive Summary
3. Project Description
4. Maintenance Discussion at PFPR
5. Basin Evaluations
   - Physical Parameters
   - Water Quality and Channel Protection
   - Downstream Analysis
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If an outfall level exclusion does not apply, this section is used to discuss the feasibility of installing a BMP in the drainage basin. First, evaluate the unified sizing criteria volumes.

<table>
<thead>
<tr>
<th>Water Quality and Channel Protection</th>
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</thead>
<tbody>
<tr>
<td>Total Drainage Area (ac)</td>
</tr>
<tr>
<td>Pre-Developed Impervious Area (ac)</td>
</tr>
<tr>
<td>Post-Developed Impervious Area (ac)</td>
</tr>
<tr>
<td>Pre-Developed % Impervious</td>
</tr>
<tr>
<td>Post-Developed % Impervious</td>
</tr>
<tr>
<td>Runoff Coefficient (Rv)</td>
</tr>
<tr>
<td>Required WQV (ft$^3$)</td>
</tr>
<tr>
<td>Required CPv (ft$^3$)</td>
</tr>
</tbody>
</table>

Supporting water quality volume and channel protection volume calculations are included in Appendix D and Appendix E, respectively.
Attachment C: Post-Construction Stormwater BMP Documentation

Contents:

1. Cover Sheet
2. Executive Summary
3. Project Description
4. Maintenance Discussion at PFPR

5. Basin Evaluations
   - Physical Parameters
   - Water Quality and Channel Protection
   - Downstream Analysis
   - BMP Selection
   - Feasibility
Attachment C: Post-Construction Stormwater BMP Documentation

Contents:
1. Cover Sheet
2. Executive Summary
3. Project Description
4. Maintenance Discussion at PFPR
5. Basin Evaluations
   - Physical Parameters
   - Water Quality and Channel Protection
   - **Downstream Analysis**
   - BMP Selection
   - Feasibility

Downstream Analysis

GDOT requires that downstream properties and receiving waters be evaluated for damages from increased flows. The need for detention facilities should be determined on a case-by-case basis based on the downstream conveyance capacity, increased volume of runoff, and altered timing of discharge. If a downstream analysis indicates that detention is required to mitigate adverse downstream impacts, detention must be provided, regardless of MS4 exclusions or infeasibilities.

Discuss the downstream analysis of the applicable basin.

A downstream analysis was performed for Drainage Basin 1. The downstream study point establishes a basin that is approximately 10 times as large as the on-site basin. See Appendix G for a map showing the drainage basins and downstream study point.
Discuss methodology for completing the downstream analysis. Provide basin characteristics used to perform the analysis.

The USGS StreamStats website was used to determine the downstream analysis drainage basin along with the land use present in the basin. The following table shows the physical parameters of the downstream analysis basin, not including the on-site basin. As the on-site basin is not included, the physical parameters will be the same for pre- and post-developed conditions.

<table>
<thead>
<tr>
<th>Drainage Basin 1 Downstream Analysis (Minus On-site)</th>
<th>Area (ac)</th>
<th>CN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial and business (Soil Group B)</td>
<td>17.22</td>
<td>92</td>
</tr>
<tr>
<td>Woods - grass combination - Good condition (Soil Group B)</td>
<td>3.96</td>
<td>58</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>21.18</strong></td>
<td><strong>86</strong></td>
</tr>
</tbody>
</table>

The longest flow path and the average basin slope were obtained from the USGS topographic map and used to determine the time of concentration using the lag method.

<table>
<thead>
<tr>
<th>Drainage Basin 1 Downstream Analysis</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>1486.3</td>
</tr>
<tr>
<td>CN</td>
<td>86</td>
</tr>
<tr>
<td>Y</td>
<td>9.8</td>
</tr>
<tr>
<td>S</td>
<td>1.63</td>
</tr>
<tr>
<td>Tc</td>
<td>0.19</td>
</tr>
<tr>
<td>Tc</td>
<td>11.4</td>
</tr>
</tbody>
</table>
If there is an increase in flows from the 25-year, 24-hour and 100-year, 24-hour storms, either detention is required or the engineer of record needs to state that the receiving system has sufficient capacity to handle the increased flows without causing adverse impacts. If detention is required, model the timing of the hydrographs with and without the detention BMP. Due to peak flow timing and runoff volume effects, some structural practices fail to reduce discharge peaks to pre-development levels downstream from the development site, and in certain cases may exacerbate flooding problems. A downstream peak flow analysis shall be provided to the point in the watershed downstream of the site or the stormwater management system where the area of the site comprises approximately 10% of the total drainage area. This is to help ensure that there are minimal downstream impacts from the developed site. The downstream analysis may result in the need to resize BMPs or allow the waiving of some peak flow controls altogether.

The channel routing function in Hydraflood Hydrographs was then used to model the timing of the hydrographs. See Appendix G for copies of the hydrographs.

<table>
<thead>
<tr>
<th></th>
<th>25-Year (cfs) with BMP</th>
<th>25-Year (cfs) without BMP</th>
<th>100-Year (cfs) with BMP</th>
<th>100-Year (cfs) without BMP</th>
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<tbody>
<tr>
<td>Pre-Development</td>
<td>118.78</td>
<td>N/A</td>
<td>154.58</td>
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<tr>
<td>Post-Development</td>
<td>121.56</td>
<td>N/A</td>
<td>157.70</td>
<td>N/A</td>
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<tr>
<td>Change (Post - Pre)</td>
<td>2.78</td>
<td>N/A</td>
<td>3.12</td>
<td>N/A</td>
</tr>
<tr>
<td>Percent Change</td>
<td>2.34%</td>
<td>N/A</td>
<td>2.02%</td>
<td>N/A</td>
</tr>
</tbody>
</table>

There is not a significant increase in flow rates at the downstream analysis study point between pre- and post-development conditions. The existing drainage system has enough capacity to handle the small increase in flow rates. Therefore, no detention is required for overbank or extreme flood protection for Drainage Basin 1.
Attachment C: Post-Construction Stormwater BMP Documentation – Downstream Analysis

Downstream Analysis

GDOT requires that downstream properties and receiving waters be evaluated for damages from increased flows. The need for detention facilities should be determined on a case-by-case basis based on the downstream conveyance capacity, increased volume of runoff, and altered timing of discharge. If a downstream analysis indicates that detention is required to mitigate adverse downstream impacts, detention must be provided, regardless of MS4 exclusions or infeasibilities.

Discuss the downstream analysis of the applicable basin.

Because the post-developed flows were not increased, a downstream analysis was not performed for Drainage Basin 2. Flows, however, are included in the downstream analysis for Drainage Basin 4. The downstream study point establishes a basin that is approximately 10 times as large as the on-site basin and includes the outfall from Drainage Basins 2, 3 and 4.
Attachment C: Post-Construction Stormwater BMP Documentation

Contents:

1. Cover Sheet
2. Executive Summary
3. Project Description
4. Maintenance Discussion at PFPR
5. Basin Evaluations

- Physical Parameters
- Water Quality and Channel Protection
- Downstream Analysis
- BMP Selection
- Feasibility

Filter Strip – The typical section for this section of the project is an interstate section with guardrail or side barriers. No sheet flow from impervious areas is present within the drainage limits. Therefore, the filter strip is not an appropriate BMP for this basin.

Grass Channel – The grass channel in combination with open graded friction course (OGFC) will provide only 75% total suspended solids removal. A third BMP will be necessary to meet the required 80% total suspended solids (TSS) removal. Therefore, the grass channel will not be considered for this basin.

Infiltration Trench – The infiltration trench is an appropriate BMP for this basin. However, due to the fact that the enhanced swale and OGFC will provide the required TSS removal at a lower cost, the infiltration trench will not be considered for this basin.

Sand Filter – The sand filter is an appropriate BMP for this basin.

Bioretention Area – The bioretention area is an appropriate BMP for this basin. However, due to the fact that the dry detention basin and OGFC will provide the required TSS removal at a lower cost, the bioretention area will not be considered for this basin.

Dry Detention Basin – The dry detention basin is an appropriate BMP for this basin.

Wet Detention Pond – The drainage area is less than 10 acres. Therefore, the wet detention pond is not an appropriate BMP for this basin.

Stormwater Wetland – The drainage basin is less than 5 acres. Therefore, the stormwater wetland is not an appropriate BMP for this basin.

Bioslope – The typical section for this section of the project is an interstate section with guardrail or side barriers. No sheet flow from impervious areas is present within the drainage limits. Therefore, the bioslope is not an appropriate BMP for this basin.

Enhanced Swale – The dry enhanced swale is an appropriate BMP for this basin.

Open Graded Friction Course – OGFC is present throughout the project.
Attachment C: Post-Construction Stormwater BMP Documentation

Contents:

1. Cover Sheet
2. Executive Summary
3. Project Description
4. Maintenance Discussion at PFPR
5. Basin Evaluations
   - Physical Parameters
   - Water Quality and Channel Protection
   - Downstream Analysis
   - BMP Selection
   - Feasibility

Feasibility

For each BMP that was deemed appropriate for the drainage basin based on meeting design constraints and requirements, assess the infeasibility per GDOT's ten Infeasibility Criteria. Provide BMP sizing calculations, Infeasibility Criterion #1 cost breakdowns, infeasibility displays, etc. in the appendices of the report to justify the infeasibility claim(s).

Sand Filter – The sand filter and sedimentation basin will be constructed using cast in place walls. The cost of the sand filter and minor earthwork required for construction was found to be 16.1% the cost of the roadway construction in this drainage basin. This BMP is infeasible under Infeasibility Criteria #1. The cost of the BMP will exceed 10% of the roadway construction cost in the drainage basin, the threshold established in the permit. See Appendix I for cost calculations.

Dry Detention Basin – The dry detention basin will be constructed using cast in place walls and would require a basin 39 feet by 20 feet by 5 feet in order to provide adequate channel protection and water quality volume. The cost to construct the dry detention basin was found to be 18.6% the cost of roadway construction in the drainage basin. This BMP is infeasible under Infeasibility Criteria #1. The cost of the BMP will exceed 10% of the roadway construction cost in the drainage basin, the threshold established in the permit. See Appendix I for cost calculations.

Enhanced Swale – 2:1 slopes begin at the shoulder breakpoint and continue to the right-of-way. Any attempt to construct the dry enhanced swale over the required 295-foot length will result in construction outside of the right-of-way. This BMP is infeasible under Infeasibility Criteria #2. Construction of the BMP would result in a delay to the project schedule greater than 90 days since no other right-of-way will be acquired for the project. See Appendix I for backup documentation.

Drainage Basin 1 was found to be infeasible for all BMPs to be used in combination with OGFC. No additional BMP will be constructed.

For a BMP that was deemed feasible, provide BMP sizing calculations, cost breakdown, and construction plan sheets in the appendices of the report.
MS4 Post-Construction Stormwater Report

Attachment C: Post-Construction Stormwater BMP Documentation

Appendices:

A. Site Location and Drainage Basin Maps
B. NOAA Precipitation Table
C. Soils Map
D. Environmental Resource Impact Table
E. Water Quality Calculations
F. Channel Protection Calculations
G. Hydrologic Model Output
H. Downstream Analysis Documentation
I. Outfall Level Exclusion Documentation
J. Infeasibility Documentation
K. Stormwater BMP Infiltration Report
L. BMP Design Calculations
M. Feasible BMP Cost Calculations
N. Construction Plan Sheets
Attachment C: Post-Construction Stormwater BMP Documentation

<table>
<thead>
<tr>
<th>Duration</th>
<th>1</th>
<th>2</th>
<th>5</th>
<th>10</th>
<th>25</th>
<th>50</th>
<th>100</th>
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<td>0.468</td>
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<td>0.860</td>
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<td>60-min</td>
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<td>12-hr</td>
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<td>(3.09-4.43)</td>
<td>(3.53-5.08)</td>
<td>(4.13-6.18)</td>
<td>(4.58-7.01)</td>
<td>(5.00-7.96)</td>
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<td>3.71</td>
<td>4.47</td>
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<td>6.05</td>
<td>6.79</td>
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<td>(5.53-8.26)</td>
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B. NOAA Precipitation Table
C. Soils Map
D. Environmental Resource Impact Table
E. Water Quality Calculations
F. Channel Protection Calculations
G. Hydrologic Model Output
H. Downstream Analysis Documentation
I. Outfall Level Exclusion Documentation
J. Infeasibility Documentation
K. Stormwater BMP Infiltration Report
L. BMP Design Calculations
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Attachment C: Post-Construction Stormwater BMP Documentation

Appendices:

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MS4 Post-Construction Stormwater Report

Attachment C: Post-Construction Stormwater BMP

Hydrograph Summary Report

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Attachment C: Post-Construction Stormwater BMP Documentation

Refer to Help Files & ADW #3 Post-Construction BMP Exclusions and Infeasibilities.

Example documentation includes:

- Roadway exhibits showing BMP causing OLE/infeasibility
- Applicable sections of Ecology Resources Survey Report, Protected Species Survey Report, Historical and Archeological Resources Survey Report, Environmental Site Assessment Report, etc.

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- In-situ testing to verify feasibility of infiltration
  - Double-Ring Infiltrometer Test
  - Single-Ring Infiltrometer Test
  - Borehole Infiltration Test
  - Percolation Test
- See Appendix J of the Drainage Manual

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Template Guidance for Phase 2/Phase 3 Stormwater BMP Infiltration Report

Worksheet J-2

<table>
<thead>
<tr>
<th>Section</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Introduction</td>
</tr>
</tbody>
</table>

Worksheet J-2 Page 2 of 3

<table>
<thead>
<tr>
<th>Section</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Subsurface Exploration And Laboratory Testing</td>
</tr>
<tr>
<td>A</td>
<td>Subsurface Exploration: Provide a description of the scope of the field subsurface exploration. Summarize the types of testing conducted, with reference to appendices that provide details (boring log, logs of test pits, records of infiltration testing, etc.). This discussion must be supported by at least one figure that shows the location of all field exploration points. Field exploration points must be described in terms of GPS locations and elevation.</td>
</tr>
<tr>
<td>B</td>
<td>Laboratory Testing: Provide a description of the scope of laboratory testing. Summarize the types of testing conducted, including ASTM references. Tabulate the findings of laboratory testing in summary form in the body of the report. Details regarding laboratory testing should be appended.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Infiltration / Percolation Testing</td>
</tr>
<tr>
<td>A</td>
<td>Summary of Testing: Provide a description of the scope of infiltration and/or percolation testing undertaken for this study. Utilize tables and graphics to depict the locations of the various types of testing conducted. Discussion should also be provided regarding the reasons for selection of particular testing methodologies. Discussion regarding the testing should reference appendices that provide details of all work, including test methodologies, etc. This discussion must be supported by at least one figure that shows the location of all field exploration points. Field exploration points must be described in terms of GPS locations and elevation.</td>
</tr>
<tr>
<td>B</td>
<td>Discussion of Results: Provide discussion regarding the indications of the testing. Utilize tables for presentation of specific recommended design parameters for specific stormwater infiltration BMPs. As appropriate, distinguish recommended design values for different subsurface soil units.</td>
</tr>
</tbody>
</table>

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### Attachment C: Post-Construction Stormwater BMP Documentation

<table>
<thead>
<tr>
<th>Item</th>
<th>Proposed Roadway Cost</th>
<th>Additional BMP Cost</th>
<th>Subtotal</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right-of-way</td>
<td>$5,000</td>
<td></td>
<td>$5,000</td>
<td>0</td>
</tr>
<tr>
<td>Utilities</td>
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<td></td>
<td>$5,000</td>
<td>0</td>
</tr>
<tr>
<td>Grading/Misc.</td>
<td>$13,500</td>
<td>$4,500</td>
<td>$18,000</td>
<td>$4,500</td>
</tr>
<tr>
<td>Paving &amp; Roadwork</td>
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<td></td>
<td>$155,000</td>
<td>0</td>
</tr>
<tr>
<td>Concrete/Walls/etc.</td>
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<td></td>
<td>$10,000</td>
<td>0</td>
</tr>
<tr>
<td>Erosion Control</td>
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<td>$1,000</td>
<td>$6,000</td>
<td>$1,000</td>
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<td>BMP components</td>
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<td></td>
<td>$0</td>
<td>$6,250</td>
</tr>
<tr>
<td>Signage/ Marking</td>
<td>$3,500</td>
<td></td>
<td>$3,500</td>
<td>0</td>
</tr>
<tr>
<td>Guardrail</td>
<td>$0</td>
<td></td>
<td>$0</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$197,000</strong></td>
<td><strong>$11,750</strong></td>
<td><strong>$208,750</strong></td>
<td><strong>$11,750</strong></td>
</tr>
</tbody>
</table>

**As a percentage of the Total Roadway Cost**: 6%
Attachment C: Post-Construction Stormwater BMP Documentation

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MS4 Post-Construction Stormwater Report

Attachment D: Milestone Plan Submittal Checklist

Verify all necessary information is included in the Report

---

**Preliminary Field Plan Review (PFPR) Milestone**

Yes / No

- □ □ Has the preliminary hydrology study (submitted in concept) been altered?

- □ A detailed study has been provided including the design of detention and water quality structures

- □ The detail design includes all of the following:

  - □ Percent impervious
  - □ Drainage area
  - □ Runoff (C) or (CN) values
  - □ Average slope of site
  - □ Soil conditions
  - □ Stage/Storage/Discharge Table
  - □ (For infiltration) Hydraulic Conductivity “K”
  - □ Grading necessary for any BMPs
  - □ Time of concentration

---

**Yes / No**

- □ □ The Post-Construction BMP Summary Tables have been completed.

- □ □ The Low Impact Development (LID) / Green Infrastructure (GI) Checklist been completed.

- □ □ The Post-Construction Stormwater BMP Documentation has been completed.

- □ □ (For infiltration BMPs) A Stormwater BMP Infiltration Report has been completed and approved by GDOT.
How do I submit the PCSR?

1. Initial submittal for ODPS review should be in PDF format
2. GDOT PM needs to upload to Email to ProjectWise at least 8 weeks prior to PFPR Request
3. Notification of the upload should be emailed to stormreports@dot.ga.gov
4. Once accepted by GDOT, submit one hard copy of the report to ODPS as well as a CD containing a PDF version and supporting documentation
5. PE certification on cover is only necessary for consultant reports after the report has been accepted by GDOT
EPD has 60 days to comment on the MS4 PCSR.
An addendum may be required if there are project changes after the MS4 PCS Report has been submitted to EPD and considered final:

- An outfall not previously considered has been identified
- An outfall previously considered infeasible becomes feasible, and/or
- An outfall previously considered feasible is now infeasible
MS4 Post-Construction Stormwater Report
Addendum Process

PCSR Addendum process (see Note 1 below)

The addendum only needs to address the drainage basins that have changed along with Attachment B of the PCSR.

This submittal should include current construction plans, Stormwater BMP Infiltration Report (if applicable), and the draft addendum (all in PDF format).

The addendum only needs to address the drainage basins that have changed along with Attachment B of the PCSR.

This submittal should include current construction plans, Stormwater BMP Infiltration Report (if applicable), and the draft addendum (all in PDF format).

If project changes affect PLE, OLEs or infeasibility determination

Prepare draft addendum

Submit draft addendum to ODPS for review

Address ODPS comments

Do ODPS accept addendum?

Yes

Submit addendum to EPD for review

Address EPD comments

Do EPD accept addendum?

Yes

Do disapproval of PCSR received from EPD within 60 days?

No

Addendum can be considered final

Notes:

1. An addendum to a final PCSR may be required where, either: 1) an outfall not previously considered has been identified, 2) an outfall previously considered infeasible becomes feasible, or 3) an outfall previously considered feasible is now infeasible. This may occur any time after the original PCSR has been submitted to EPD and considered to be final.
If required, the addendum only needs to address the drainage basins that have changed.

GDOT PM should upload the following for review to ProjectWise in PDF format and notify ODPS of the upload by email to stormreports@dot.ga.gov:

- Cover letter outlining the changes
- Revised PCSR cover
- Revised Attachment B
- Revised sections and associated documentation in Attachment C
- Current construction plans
- Stormwater BMP Infiltration Report (if applicable)
When ODPS accepts the addendum, submit one hard copy of the addendum including a new PE certification (PE certification not required if prepared by GDOT designers) on the MS4 PCS Report cover to ODPS. Backup documentation can be placed on a CD.
This submittal should be made as part of the FFPR request. Include FFPR plans, Stormwater BMP Infiltration Report and any PCSR Addendums (if applicable), and the accepted PCSR - all in PDF format. Submit via email to: stormreports@dot.ga.gov

**MS4 Post-Construction Stormwater Report**

**MS4 Plan Development Process – FFPR**

**Final Field Plan Review (FFPR), Final Plans, and Use-on-Construction Milestone**

- [ ] Has the detailed hydrology study (submitted in PFPR) been altered?
- [ ] There have been changes that warrant a revision to the previous study.
- [ ] Have the BMP outlet control structures been designed?
- [ ] Have the BMP details and specifications been submitted?

**Flowchart:**

1. Complete Post-Construction Stormwater BMP design
2. Submit Post-construction Stormwater BMP Details for review
3. ODPS provides comments for inclusion in FFPR report
4. Address comments and resubmit Details to ODPS
5. ODPS accepts Details?
   - Yes
     - Include accepted MS4 BMP design in the final plans
     - Project Letting
   - No
     - ODPS accepts Details?
Important things to remember when preparing your MS4 PCS Report:

- This is a stand-alone document – ensure plans, documentation, etc. are included in submittal to facilitate GDOT review.
- Include discussion of stormwater design process for all basins in Attachment C, not just those deemed infeasible.
- A complete submittal with thorough backup data and clear explanation will streamline the MS4 PCS Report approval process.
Questions

Brad McManus, PE
MS4 Program Manager
Office of Design Policy and Support
bmcmanus@dot.ga.gov