

# GUIDANCE DOCUMENT

## GOOD HOUSEKEEPING PLAN - STORMWATER CONVEYANCE INSPECTIONS

### **INTRODUCTION**

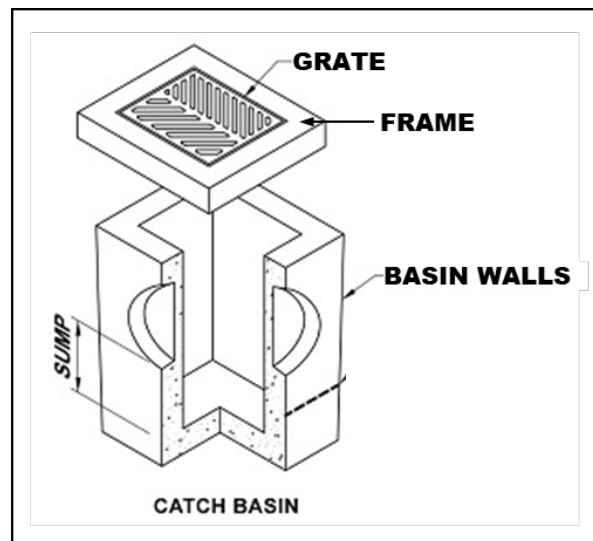
Maintaining catch basins, stormwater inlets, and other stormwater conveyance structures on a regular basis will remove pollutants, prevent backups, and ensure the system functions as intended to avoid flooding.

Each GHP-covered facility is required to conduct routine stormwater conveyance system inspections to ensure the free flow of stormwater within the conveyance system(s). The GHP includes a “*GHP Stormwater Conveyance System Inspection Checklist*”, to be used when completing the required inspections. This document provides additional background and guidance to aid facility personnel in completing the inspections.

### **CATCH BASINS / INLETS**

Catch basins and inlets are all points for stormwater to enter storm drain systems. These structures are typically part of a larger conveyance system with many interconnected components where the impairment of one component can compromise the functionality of the larger system. Inlets and catch basins are subject to functional impairment by a variety of conditions, including:

- Structural damage including from vehicles and plows
- Cracks/joint separation at piping (inlet and outlet) connections
- Leaking due to cracks and joint separation
- Missing or damaged grates and grate frames
- Corrosion
- Blockage caused by debris, sediment, vegetation, or other objects



**Figure 1 – Catch Basin Diagram**

The following photos provide additional information related to the various inspection items, including examples of typical issues that may be encountered. The photo numbers correspond to the inspection checklist item number.

**Inspection Item #1 <sup>1</sup>**



Debris and sediment blocking inlet/catch basin grate.

**Inspection Item #2 <sup>2</sup>**



Damaged Grate

**Inspection Item #2 <sup>3</sup>**



Damaged Frame

**Inspection Item #2 <sup>5</sup>**



Failing asphalt surrounding the inlet

**Inspection Item #2 <sup>4</sup>**



Failing brick walls with a stormwater inlet.

<sup>1</sup> Grand Valley State University - <https://www.gvsu.edu/groundswell/clogged-storm-drains-71.htm>

<sup>2</sup> Georgia Department of Transportation – Stormwater System Inspection and Maintenance Manual, March 2020

<sup>3</sup> <https://catchbasinauthority.ca/catch-basin-101/>

<sup>4</sup> <https://www.fixasphalt.com/catch-basin-repairs>

<sup>5</sup> <https://ccpia.org/catch-basin-and-manhole-inspections/>

**Inspection Item #3**<sup>6</sup>



Sediment and debris inside stormwater inlet

**Inspection Item #3**



Remove sediment from a catch basin if it fills 60% of the sump or comes within 6" of a pipe.

**Inspection Item #4**<sup>7</sup>



Example of inlet filter. Replace when filled or damaged.

**Inspection Item #4**<sup>8</sup>



Example of an inlet filter sock, replace if damaged.

**PIPES AND CULVERTS**

Pipe systems are designed to convey stormwater runoff safely and effectively from inlets to various discharge points and outfalls. A culvert is a structure that channels water under an obstacle such as a roadway or railroad. These structures are subject to functional impairment by a variety of conditions, including:

- Blockage or obstruction due to build up of vegetation, debris, sediment, or other objects
- Cracks and/or joint separation
- Collapsed pipe
- Corrosion
- Root intrusion
- Lack of stabilization

<sup>6</sup> <https://www.fixasphalt.com/catch-basin-repairs>

<sup>7</sup> <https://store.interstateproducts.com/products/Ultra-Drain-Guards/Ultra-Drain-Guard-Adjustable-Frame-Model>

<sup>8</sup> <https://www.newpig.com/pig-sediment-filter-sock/p/FLT787>

**Inspection Item #5<sup>9</sup>**



A pipe filled with sediment, inhibiting flow.

**Inspection Item #5<sup>10</sup>**



Standing water around an inlet may indicate a blockage.

**Inspection Item #6<sup>11</sup>**



Pipe conveyance filled with vegetation.

**Inspection Item #7<sup>12</sup>**

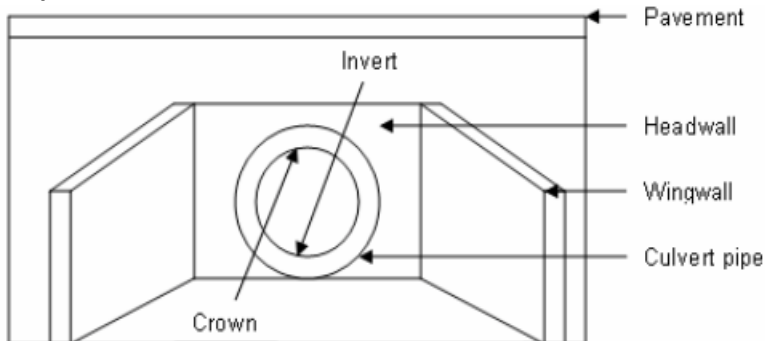


Diagram depicting various components of a culvert.

<sup>9</sup> Georgia Department of Transportation – Stormwater System Inspection and Maintenance Manual, March 2020

<sup>10</sup> <https://www3.epa.gov/region9/water/npdes/stormwater-feature.html>

<sup>11</sup> Georgia Department of Transportation – Stormwater System Inspection and Maintenance Manual, March 2020

<sup>12</sup> [https://www.researchgate.net/figure/Components-of-a-Culvert\\_fig34\\_228685906](https://www.researchgate.net/figure/Components-of-a-Culvert_fig34_228685906)

Inspection Item #7<sup>13</sup>



A crack in the culvert headwall.

Inspection Item #7<sup>14</sup>



Evidence of erosion around a culvert.

### DITCHES AND SWALES

Ditches and swales serve similar functions. Both are used to convey stormwater. However, there are slight differences. A ditch is a narrow channel typically found along roads and at the edges of parking lots/driveways. A swale is like a ditch, but it is broad and shallow, and usually covered or lined with turfgrass or stone. Issues associated with these structures, which could impede their function include:

- Blockage or obstruction due to vegetation, debris, sediment, or other objects
- Erosion
- Rapidly moving water
- Lack of adequate vegetative cover for grass-lined channels

Inspection Item #8<sup>15</sup>



Erosion and slumping within a drainage ditch.

Inspection Item #8<sup>16</sup>



Slumping within a drainage swale.

<sup>13</sup> <https://www.sbt-durabi.org/articles/xml/ARN0/>

<sup>14</sup> [https://lufkindailynews.com/news/local/culverts-crumbling-in-precinct-1/article\\_a9fed902-4379-5248-ab11-7471e2974298.html](https://lufkindailynews.com/news/local/culverts-crumbling-in-precinct-1/article_a9fed902-4379-5248-ab11-7471e2974298.html)

<sup>15</sup> <https://graniteseed.com/blog/how-to-stop-a-ditch-from-eroding/>

<sup>16</sup> <https://www.mnwcd.org/erosion-control>

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**Inspection Item #9** <sup>17</sup>



Litter and debris within a ditch.

**Inspection Item #9** <sup>18</sup>



Litter and debris within a swale.

**Inspection Item #10** <sup>19</sup>



Cracks and joint separation in concrete channels, removal of vegetation may prevent future damage.

**Inspection Item #11** <sup>20</sup>



Rock check dam across a channel.

**Inspection Item #11** <sup>21</sup>



Filter sock check dams across a grass swale.

<sup>17</sup> <https://craven.ces.ncsu.edu/2023/02/for-those-who-love-to-litter/>

<sup>18</sup> <https://www.cityoftulsa.org/government/departments/public-works/stormwater-quality/adopt-a-stream/>

<sup>19</sup> Georgia Department of Transportation – Stormwater System Inspection and Maintenance Manual, March 2020

<sup>20</sup> EPA Stormwater Best Management Practice, Check Dams, December 2021

<sup>21</sup> EPA Stormwater Best Management Practice, Check Dams, December 2021

**Inspection Item #12 <sup>22</sup>**



Inlet to a rock-lined swale.

**Inspection Item #12 <sup>23</sup>**



Sediment accumulation at swale inlet.

\*\*\*END OF DOCUMENT\*\*\*

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<sup>22</sup> <https://www.stormwater.com/erosion-control/vegetation-management/article/13016118/inlet-protection-during-constructionand-after>

<sup>23</sup> <https://www.stormwater.com/erosion-control/vegetation-management/article/13016118/inlet-protection-during-constructionand-after>