



City of Milton

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678-242-2500 ~ 678-242-2550

Hydrology Checklist For Land Disturbance Permits

Project Name: _____

Project Number: _____ Date: _____

Reviewed By: Abbie Jones Telephone: 678.242.2559

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Address all items marked with an "X"

Minimum Submittal Requirements

1. Conceptual Review Approval
2. Engineer's Stormwater Management Report/Hydrologic Analysis (2 copies bound).
3. Construction Plans bearing details of all stormwater management facilities and plans and profiles of proposed storm sewer. (4 sets).

Stormwater Management Report Contents

1. Existing Conditions Analysis
 - A. Provide topographic map of existing conditions. Show the following on the map:
 - i. Delineate drainage boundaries (including offsite areas draining onto site) and label/name each drainage area the same as each basin is labeled/named in calculations and tabulations appearing elsewhere in the report.
 - ii. Indicate acreage of each delineated drainage area.
 - iii. Indicate CN for each delineated drainage area.
 - iv. Indicate tc for each delineated drainage area.
 - v. Indicate runoff travel path and correlate to calculations determining tc for each drainage area.
 - vi. Indicate land cover condition for each drainage area.
 - vii. Map shall have border, project name, north arrow, scale and title (minimum size 11 x 17).
 - B. Provide a summary table of peak rates of runoff from each delineated drainage area for 1, 2, 5, 10, 25, 50 and 100 year storm events. Include in summary table for each drainage area the following data: label/name of drainage area, acreage, CN, tc, gross rainfall amount for each storm event, and peak flow rate for each storm event (cfs).
 - C. Provide time of concentration determination calculations for each drainage area.
2. Post Development Conditions Analysis
 - A. Provide topographic map of developed conditions. Show the following on the map:

- i. Delineate drainage boundaries (including offsite areas draining onto site) and label/name each drainage area the same as each basin is labeled/named in calculations and tabulations appearing elsewhere in the report.
 - ii. Indicate acreage of each delineated drainage area.
 - iii. Indicate CN for each delineated drainage area.
 - iv. Indicate tc for each delineated drainage area.
 - v. Indicate runoff travel path and correlate to calculations determining tc for each drainage area.
 - vi. Indicate land cover condition for each drainage area.
 - vii. Delineate and label/name each stormwater management facility.
 - viii. Indicate all outflow locations for each stormwater management facility.
 - ix. Maps shall have border, project name, narrow, scale and title (minimum size 11 x 17).
- B. Provide a summary table of peak rates of runoff from each delineated drainage area for 1, 2, 5, 10, 25, 50 and 100 year storm events. Include in summary table for each drainage area the following data: label/name of drainage area, acreage, CN, tc, gross rainfall amount for each storm event, and peak flow rate for each storm event (cfs).
 - C. Provide a summary table of developed peak rates of runoff vs. existing peak rates of runoff for each drainage area. Demonstrate no increase in peak rates of runoff for 1, 2, 5, 10, or 25, 50 and 100 year events for each drainage area.
 - D. Provide tabular hydrograph output for drainage area(s) draining to each stormwater management facility for the 1, 2, 5, 10, 25, 50 and 100 year events.
 - E. Provide tabular hydrograph output for outflow (routing) of each stormwater management facility for the 1, 2, 5, 10, 25, and 100 year events.
 - F. For any bypass area hydrograph that is combined with a stormwater management facility outflow hydrograph, provide the tabular hydrograph output for the bypass area for the 1, 2, 5, 10, 25, and 100 year events. Provide the tabular hydrograph output for each combined hydrograph.
 - G. Provide time of concentration determination calculations for each drainage area.
 - H. For each stormwater management facility provide Stage/Storage/Outflow tabulation and outlet configuration data used for routing for each stormwater management facility.
 - I. Provide Water Quality Volume (WQV) calculations in accordance with the Georgia Stormwater Management Manual (GSMM). Orifice shall be to the nearest inch.
 - J. Provide Channel Protection Volume (CPV) calculations in accordance with the Georgia Stormwater Management Manual (GSMM). Orifice shall be to the nearest inch
 - K. Provide 48hr extended detention orifice sizing calculation.
 - L. Provide details for outlet control structures/devices for each stormwater management facility on plans and in stormwater management report. Ensure details on plans agree with details in report. Label structures so plans and details in report and on plan can be easily correlated.

3. Post Development Downstream Analysis

- A. Provide analysis of downstream conditions at each point or area along project boundary at which runoff will exit the property.
 - B. Extend analysis of downstream conditions to include all portions of the downstream conveyances between the site and the point where the site area is 10 percent of the total basin area.
 - C. Compare capacity vs. designed flows for each downstream conveyance between site and 10% point.
4. Minimum Hydrology Design Parameters
- A. Existing condition, previous vegetated areas minimum • CN = 55 (for > 5ac use SCS Method or • C = 0.3 if < 5ac). Use rational Method.
 - B. Existing condition time of concentration determination shall be in accordance with Section 2.1.5.6 in the Georgia Stormwater Management Manual (GSMM). Sheet/Overland flow lengths less than 100 feet used in GSMM equation 2.1.9 shall be justified in stormwater management report. Use of existing time of concentrations greater than calculated in accordance with GSMM 2.1.5.6 is acceptable.
 - C. Minimum freeboard for above ground earthen stormwater management facility dams is 2 feet.
 - D. Minimum freeboard for concrete stormwater management containment facility is 1 foot.
5. Hydrology and Drainage Items
- A. Show a 20ft, graded (max 16% slope) and stabilized access easement to all stormwater management facilities from a location of public vehicle access.
 - B. Provide a 20ft landscape strip as required by the City Arborist around the exterior of all detention areas adjacent to and outside the required 10 ft access easement.
 - C. Show a six foot high security fence with a 10 ft access gate outside of the ten foot access easement around each detention pond. Show the location of the access gate.
 - D. Provide Standard 908 Detail for Earth Fill for Detention Ponds or other detail that meets the minimum standards inherent in standard 908.
 - E. State the Water Quality Volume, the Channel Protection Volume, the 25-year Volume, and the 100-year volume on the plans. State the Water Quality elevation, the Channel Protection elevation, the 25-year Elevation and the 100 year elevation on the plans.
 - F. Eliminate proposed concentrated discharge from site where existing condition is sheet flow.
 - G. When serving more than three lots, detention ponds shall be located on a separate parcel where no home can be constructed.
 - H. Provide design engineer's professional seal and signature on plans and report.
6. Inspection and Maintenance Agreement (Milton Zoning Ordinance Chpt 14)
- A. An Inspection and Maintenance Agreement for all stormwater management facilities must be approved by the Community Development Department before permitting.
 - B. State name or official title of person(s) responsible for carrying out inspection and maintenance.

- C. Responsibility shall remain with property owner and shall pass to any successor owner.
- D. Include schedule for when and how often routine inspection and maintenance will occur.
- E. Include plans for annual inspections and include remedies for default.
- F. Agreement shall be recorded before final plat approval for residential developments, and before certificate of occupancy for other developments.

4E. Proprietary Water Quality Devices

- Require third party data backup and proof submitted to City. This must meet 3.3.10.2 of the Blue Book
- Require LDP engineer sizing calculation according to Blue Book Chapter 3.
- Commercial use only at this point in time. Proof of maintenance contract provider required to be kept current with City.
- All approvals in 2007 are subject to additional inspections and reporting as our policy is enhanced during the year.
- Approved devices in 2007 may be deemed inadmissible for new applications in the future. Thus, all of these items are required for each Proprietary Device for each LDP submittal.

5I. TSS Excel Chart

- The Use of the TSS Chart is required to be submitted at this point in time. Staff understands that certain Milton specific locations may be difficult or impossible to get 80% using this urban-situation developed chart. Staff will make interpretive decisions based upon the intent of the Blue Book stormwater practices. As projects are submitted during January-March 2007, Staff will look to gather research from real world examples to further define this policy.

4G. Bypass

- Bypass must be detained if it leaves the site.
- Location within the drainage basin will be considered on a site by site analysis. It is understood by Staff that Milton has some unique topography limitations not completely covered by the Blue Book. Staff looks to document specific examples of this and to include that research in an updated policy soon.

4F. Individual Lots

- For new subdivisions greater than 3 lots, detention is required on a separate lot (AG zoning)
- For smaller "minor" subdivisions, onsite BMP's are acceptable.
- BMP's which require maintenance (other than mowing) and are located on an individual lot are required to have a maintenance program included on the deed of the lot. Proof of deed encumbrance is required. Otherwise BMP's are not acceptable on individual lots.

4D. Detention Ponds

- Residential Detention Ponds may not have (precast) walls without special application. A more natural look is desired for these settings.
- Commercial Detention Ponds with greater than 50% perimeter precast concrete wall ponds are unacceptable. For this level of urban look, underground detention is required

6G. O&M Manual is required to be recorded with the HOA agreement.

The City of Milton reserves the right to change this checklist and/or
Any review any criteria deemed necessary at any time. Checklist updated 4/1/2007