



STORM WATER MANAGEMENT PLAN

City of Brainerd
Engineering Department
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This sheet gives a summary of the requirements for the Storm Water Management Plan (SWMP) as outlined in City Code Section 725 – Storm Water Management. This is not a complete list of all requirements but is intended to be a guide for what is required. For more information on when a SWMP is required and the requirements call the Engineering Department at 828-2309 or see the complete Storm Water Management Ordinance which is available on the City Website www.ci.brainerd.mn.us.

Required Information

Two sets of clearly legible copies of drawings (min. 11"x17") and other required information (calculations, etc.) shall be submitted to the Engineering Department (may be submitted as part of the building permit submittal). Drawings shall be prepared to an appropriate scale (min. 1" = 100') with a north arrow shown. As part of the submittal, the projects address, owners name and address, plan preparers name and address, and contact person for the project shall be indicated. All storm water facilities must be designed by a Licensed Engineer in the State of Minnesota.

Existing Site Map

An existing site conditions plan showing the site and immediately adjacent areas, including:

- Property limits are shown and labeled on plan;
- Existing topography including vegetation, utilities and appropriate contour intervals (min. 2 ft.);
- A delineation of all streams, rivers and wetlands located on or adjacent to the site;
- Location of existing drainage systems and existing drainage area with patterns shown;
- Identify all receiving waters including wetlands within ½ mile;
- A description of the soils located on the site or a map showing the types and locations of these soils.

Erosion and Sediment Control Plan

An erosion and sediment control plan including:

- Location and dimensions of all proposed land disturbing activities and any phasing of those activities;
- Locations and dimensions of all soil and dirt stockpiles;
- Location and dimensions of all construction site erosion control measures and BMP's meeting MPCA and City requirements;
- Schedule of anticipated starting and completion date of each land disturbing activity;
- Provisions for maintenance of the construction site erosion control measures during construction.

Plan of Final Site Conditions

A final site conditions plan on the same scale as the existing site plan showing the changes including:

- Finished grading showing contours at the same interval as provided above;
- Landscape plan including dimensions and distances and the location, type, size and description of all proposed landscaped materials which will be added to the site as part of construction;
- A utility plan showing the location of all underground facilities and storm water systems;
- A drainage plan showing the proposed drainage areas and drainage patterns;
- Final cover showing impervious areas and vegetative areas.

Calculations (if required)

For all sites that have an increase in impervious area or which runoff will be increased, storm water calculations must be submitted. Storm water runoff must be controlled such that the release rate for the two (2), ten (10), and one-hundred (100) year 24 hour rain events do not increase over pre-developed conditions. For discharges to wetlands or basins with no outlets, volume discharged shall not be larger than pre-developed volume runoff. Storm water calculations shall at minimum include:

- Drainage areas size, location, runoff curve number, and time of time of concentration;
- Pre-developed flows;
- Post-developed flows;
- Routed pond flows (if applicable) showing maximum head water elevation;
- Completed by a Licensed Engineer in the State of Minnesota.

Minimum requirements for wet sedimentation basin (if required)

- Meets MPCA criteria for treatment (if required);
- Have a permanent pool length-to-width ratio of 3:1 or greater;
- Minimum of 4' pool depth;
- Inlets at or below normal water level;
- Energy dissipation devices on inlets and outlets;
- Side slopes not to exceed 3:1 (4:1 or flatter is preferred);
- A minimum 10:1 bench extending into the pond a minimum of 1 foot in depth below the normal water elevation;
- A minimum protective shelf extending ten feet into the permanent pool with a slope of 10:1;
- Emergency overflow provided;
- Accessible for pond maintenance. Permanent easement for pond maintenance.

Minimum requirements for an infiltration pond (if required)

- Meets MPCA criteria for treatment (if required);
- Not used near vehicle refilling or service locations;
- A pretreatment device such as a vegetated filter strip, sedimentation basin, or water quality inlet;
- Infiltrates all runoff in forty eight (48) hours or less. Additional flows routed to bypass the system;
- Energy dissipation devices on inlets and outlets;
- A minimum of 3 feet of separation from seasonally saturated soils (or bedrock) and the bottom of the infiltration system;
- Soil test results or soil infiltration capacity calculations;
- Accessible for pond maintenance. Permanent easement for pond maintenance.

Plan Approval

The City Engineer and staff will review the adequacy of the plan to ensure it meets all requirements. Only when the requirements are met will a permit be issued or a subdivision approved.