



Site Plan Requirements

Commercial, Industrial, & Subdivisions

The information and references in this document are subject to change.

Last Revised: 10/10/2024

Plans shall be prepared in accordance with these standards, the approved Stormwater Management Plan for the applicable subdivision plat, the City's Overall SWMP. Plans are subject to City Stormwater Management Code 52.00 and all other City codes related to land development. All plans shall be prepared by a licensed professional, ultimate proposed surface drainage routes must be indicated on the site plan and may require additional modeling.

1. General

- 1.1 Owner, Engineer, Architect- names, phone and email listed.
- 1.2 Proposed drainage plan/report and hydraulic calculations are dated and signed by licensed professional.
- 1.3 Modeling file shall accompany the report (i.e. HyrdoCAD project file .HCP)
- 1.4 Final grading plan is signed by a licensed professional.
- 1.5 Plan is 1" = 50' or larger scale. North Arrow is shown.
- 1.6 Property limits are shown and streets are clearly labeled. Lot and Block information provided.
- 1.7 Existing and proposed public and private utilities within are labeled (dimensions and material) and legible.
- 1.8 Existing and proposed boulevard areas, sidewalks, driveways, access points, curb and gutter, parking areas.
- 1.9 Extent, Area tabulation, and Size of the project is shown.
 - 1.9.1 Existing impervious and pervious surface areas of the site.
 - 1.9.2 Proposed impervious and pervious surface areas of the site.
 - 1.9.3 Areas to be reconstructed.
 - 1.9.4 Areas not to be disturbed clearly defined.
 - 1.9.5 Ultimate (when site is fully developed) impervious and pervious surface of the site.
 - 1.9.6 Development schedule: show phasing and calendar year each phase is planned for construction.

2. Site Grading

- 2.1 Plan is drawn in minimum 2- foot contours.
 - 2.1.1 Existing contours are dashed and proposed contours are solid.
 - 2.1.2 Details of terrain and drainage are provided for areas adjacent to the proposed grading.
 - 2.1.3 Contour lines a minimum of 150- feet beyond the site boundary or greater, sufficient to accurately depict the drainage patterns.
- 2.2 Proposed grading and direction of slope of each lot shall be shown.
 - 2.2.1 The entire lot must be sloped to drain to an adjoining public street, wetland (subject to wetland regulations), water body, water course, drainage easement, or other public drainage way.
 - 2.2.2 Slope percent is shown for streets and drainage swales.
- 2.3 Proposed elevations of foundations, structure corners, and lowest openings.
- 2.4 Proposed elevations of ground at front and rear of building, along with structure type are shown.

- 2.5 Spot elevations and slope percents sufficient to verify construction of improvements including boulevard areas, sidewalks, driveways, access points, curb and gutter, parking areas, ADA compliance, etc.
- 2.6 Top of foundation is a minimum of 6" above the ground in residential development.
- 2.7 Grade is 1' below the top of foundation at a distance of 10ft in residential development.
- 2.8 All driveways shall not exceed 10% slope. Measured from top of curb to the garage floor at centerline of driveway for residential. All driveway approaches shall not exceed 10% slope elsewhere unless approved by City Engineer.

3. Drainage and Site Hydrology

- 3.1 Location and dimensions of existing stormwater drainage systems and natural patterns on and immediately adjacent to the site delineating in which direction and at what rate stormwater is conveyed from the site.
- 3.2 Existing drainage: Show pre-developed drainage areas
 - 3.2.1 Show land use and the direction of flow for each area and
 - 3.2.2 Travel path used to determine the Time of Concentration.
- 3.3 Final drainage: Show post-developed drainage areas
 - 3.3.1 Show land use and the direction of flow for each area and
 - 3.3.2 Travel path used to determine the Time of Concentration.
- 3.4 Identify any off-site catchment areas draining to the site.
 - 3.4.1 Provide 2-foot contours and/or 1-foot contours in critical areas.
 - 3.4.2 Show land use and the direction of flow for each area and travel path used to determine the Time of Concentration.
- 3.5 100-year floodplains, flood fringes, and floodways clearly labeled.
- 3.6 All receiving waters, including wetlands, show or identified, including impaired or special waters.
- 3.7 On-site soil characteristics including infiltration rates: boundaries of different soil types are described.
- 3.8 Groundwater elevations are shown.
- 3.9 Minimum slope for vegetation areas is 2%.
- 3.10 Wetland areas clearly defined: submit approval letter from the Steele County Soil and Water Conservation District Office.
- 3.11 All existing stormwater and drainage features shall be clearly identified.
- 3.12 All previous post construction stormwater management documentation shall accompany the plans.

4. Drainage Swales, Easements, and Building Lots

- 4.1 Existing and proposed drainage and utility easements are shown and labeled on the plan.
- 4.2 Control and spot elevations for drainage ways, swales, and flow paths are shown.
- 4.3 Slope percents for all drainage ways, swales, and flow paths are shown.
- 4.4 Minimum slope of drainage swales is 2%.
- 4.5 Building pads are shown, type of structure to be built is shown
- 4.6 Structure corner elevations, lowest floor elevation, and lowest opening elevation are shown.
- 4.7 Floor elevation or grade adjacent to building must be minimum of 2' above 100-year HWL, minimum 1' above emergency overflow elevation and minimum 1' above FEMA
- 4.8 Easement documents signed and submitted to Engineering Department with recording fee.
 - 4.8.1 Minimum required drainage easements provided where:
 - 4.8.2 Flows from 1 acre or less, or 4 lots or less are a minimum of 15' wide. Ditch is 1.9' deep, V-shaped with 4:1 slopes.
 - 4.8.3 Flows from 1 acre or more, or 4 lots or more are minimum of 20' wide. Ditch is a minimum of 2' deep with a 4' bottom and 4:1 slopes up to the easement line.

- 4.8.4 Drainage easements provided where concentrated flow is received from more than 1 adjacent lot and also where concentrated flow is received from more than 1 acre of adjacent property.
- 4.8.5 100-year flow must be contained in the easements.
- 4.8.6 Drainage easement shall be provided
- 4.9 Velocity computations are provided for drainage easements where concentrated flow from more than 2 acres or 8 lots is directed. Where 10-year velocities exceed 5ft per second, permanent turf reinforcement mats depicted on plan.

5. Freeboard and Critical Elevations

- 5.1 Proposed critical elevations of finished floor, lowest openings, top of foundation, lot corners, spot elevations, 100-yr HWLs, and emergency overflows clearly indicated on plan.
 - 5.1.1 Lowest opening elevation as appropriate to proposed structure type (window well, sill height of window or walkout)
 - 5.1.2 Floor elevation, adjacent grade, and lowest opening to building must be minimum of 2' above 100-year HWL of all waterbodies, ponding, channels or low areas.
 - 5.1.3 Lowest opening to the structure must be a minimum 1' above emergency overflow elevations.
 - 5.1.4 Top of foundation must be a minimum of 6" above grade directly adjacent to foundation, and 1' above grade 10' from the foundation. (grade at 10 feet from building must be 1 foot below top of foundation)
- 5.2 Lots must conform to the lowest opening, lot corner elevations, and structure type as specified on subdivision grading/drainage plan and Stormwater Management Plan.
- 5.3 Certification of critical elevations by licensed land surveyor or engineer shall be submitted prior to permit termination.
 - 5.3.1 Certification of elevations is to be submitted as an updated site plan/ Record Drawing.

6. Storm Drain System, Inlets, Outlets and Overflows

- 6.1 All storm sewers at a minimum, shall be designed for the 10-year 24-hour storm event. Surcharging or ponding shall be safely conveyed and maintain above freeboard. Additional hydraulic calculations may be necessary.
- 6.2 Proposed and existing structure details, size, length, grade, and material are shown.
 - 6.2.1 Top of castings and all inverts of catch basins and manholes are shown. Label all storm drain structures.
 - 6.2.2 All apron elevations (inlets and outlets) are shown.
 - 6.2.3 Where more than 1 pipe enters a structure, catch basin or manhole shall be used.
 - 6.2.4 400' maximum manhole spacing.
 - 6.2.5 Catch basin spacing as necessary for inlet capacity, curb spread, and not exceeding 1000' on residential streets or 600' on collector and arterial streets. Maintain 11' driving lane.
 - 6.2.6 Not more than 3 catch basins in a series (at an intersection) before connecting to the storm sewer main.
- 6.3 All structures located in the street are to be minimum of 4' deep and 3' minimum elsewhere. All two-by-three catch basins shall be a minimum of 4' deep.
- 6.4 Flow direction change is not more than 90 degrees at junctions.
- 6.5 Apron inlets to the storm system include trash racks.
 - 6.5.1 Trash racks in inlet structures in wooded areas designed assuming 50% plugging condition.
- 6.6 Overflow swales are provided which limit the depth of ponding in the streets to 1.5' or less.
 - 6.6.1 Must meet minimum drainage easement standard.

6.6.2 Emergency overflow with the high point elevation and direction of overflow are clearly marked on the plans.

6.7 For other than residential areas, drainage from impervious surfaces is collected on site and not sheet drained onto sidewalks, right of ways, or adjacent property.

6.7.1 Concentrated drainage is collected in catch basin before crossing walks.

6.7.2 Drainage does not cross intersections. (no valley gutters)

7. Outlets and Energy Dissipation

7.1 Discharge direction of flow generally 45 degrees or less to the flow direction of the receiving ditch or stream.

7.2 Where discharge pipe velocities are 10 fps or less, rip rap and filter fabric quantities are indicated in accordance with Mn/DOT.

7.3 Where discharge pipe velocities are greater than 10 fps, energy dissipation is provided in addition to riprap and filter fabric.

7.4 Discharges on slopes steeper than 10% shall not be allowed unless discharge is into existing drainage ditch and volume of water in ditch is not greater than 110% of the pre-developed condition.

7.5 Pipe outlet energy dissipation complete within 24 hours of connection to surface water indicated.

8. Stormwater Pollution Prevention Plan

8.1 Schedule of anticipated start date and installation of erosion and sediment control best management practices.

8.2 Provisions for maintenance and inspection of erosion and sediment control BMPs clearly indicated on plan.

8.3 Maintenance and inspections conducted in compliance with most recent MPCA Construction Activity Permit timeline requirements.

8.4 Plan for temporary stabilization methods clearly indicated.

8.5 A description of proposed permanent stabilization measures to be taken, including specifications, times frames/scheduling, and responsible party.

8.5.1 Plan for temporary and permanent winter erosion and sediment control for projects that extend or start after November 15th.

8.6 Locations of all proposed land disturbances and any phasing of the activities.

8.7 Locations and specification of perimeter control method shown on plan. Slash mulch is not permitted.

8.8 Locations and protection of all temporary stockpiles.

8.9 Location and dimension of temporary construction entrance(s). Use of slash mulch/rock requires geotextile fabric.

8.10 Location and specification of inlet protection in downstream catch basin(s).

8.11 Plan for all dewatering activities.

8.12 Plan for all concrete washout containment, no concrete waste shall contact ground.

8.13 Measures to manage all solid and liquid wastes from construction and building activity clearly indicated.

8.13.1 In compliance with most recent MPCA Construction Activity Permit (Part IV. F. Pollution Prevention Management Measures.)

8.14 Plan for keeping street clear of tracking clearly indicated on plan, including timeframe.

8.15 All other requirements outlined in most recent MPCA Construction Activity Permit where applicable (plan will be reviewed against permit criteria)

Please contact us at stormwater@owatonna.gov or 507-774-7300 for further assistance.