



SUBDIVISION AND NON-RESIDENTIAL LOT GRADING PLAN CHECKLIST

KEY

= Yes

= No

Blank = Not Applicable

Site: _____

Prepared By: _____ Date: _____

Reviewed By: _____ Date: _____

GENERAL

- NPDES permit including SWPPP is referred to on plan
 - Completed grading permit application form.
 - Final grading plan is signed by a licensed professional, 2 copies.
 - Submitted Signed Drainage Report
 - Owner name(s) and address(es) listed on Grading Plan.
 - Plan is 1"=50' or larger scale. North arrow shown.
 - Plan is drawn in two-foot contours. All finished contours and adequate existing contours are labeled.
 - Existing contours are dashed and proposed are solid.
 - Directional arrows are shown for proposed drainage.
 - Details of terrain and drainage are provided for areas adjacent to the proposed grading.
 - Existing public and private utilities are shown.
 - Boundaries of drainage areas shown (in drainage report).
 - Soil types shown (in drainage report).
 - Areas not to be disturbed clearly defined.
 - ALL receiving waters, including wetlands, within 1 mile shown or identified, including impaired waters.
 - Property limits are shown. Streets are labeled. Lot & block information. Street address shown, if known.
 - Proposed sidewalk shown for commercial/industrial sites.
 - County/MNDOT permit obtained for work in their ROW.
 - All City Council approval conditions are met.
 - The following areas are tabulated for residential (acres):
 - Total platted area (site area)
 - Total area disturbed
 - Total developable area (excluding floodway, natural steep slopes, & wetlands).
 - The following areas are tabulated for non-residential (acres):
 - Total project area
 - Total impervious areas of project, existing & proposed.
 - Tabulation of total and impervious area by tax parcel.
 - Schedule of BMP installation shown.
 - BMP details included.
 - Concrete washout management BMP addressed on plan.
 - Dewatering activities discharge to treatment facility.
- ### SITE GRADING, SEDIMENT & EROSION CONTROL
- Down-slope sediment control scheduled before grading.
 - Adjacent property protected from drainage and sediment.
 - Stabilized vehicle exit(s) are provided, minimize number.
 - Perimeter control is appropriately sized and placed.

- All storm sewer inlets, existing and proposed have inlet protection/temporary sediment control that remains until up-slope areas are stabilized.
- Temporary stockpiles include additional sediment control and temporary cover after 14 days.
- Percent of slope is shown for streets and drainage swales.
- All proposed lot corner elevations are shown.
- Proposed elevations of garage and lowest floor, ground at front and rear of building, along with the structure type are indicated on the plan.
- Top of foundation is min. 6" above the ground.
- Grade 1' below top of foundation 10' from building.
- Freeboard to structures. Floor el. or the grade adjacent to the building is at least 1' above any overflow elevation, and at least 2' above any pond 100-year water level, whichever is greater and min. 1' above FEMA flood el.
- Drainage flows away from structures at min. 2%.
- Temporary or permanent diversion swales, stabilized with turf mat, pipe, riprap, are used at the top of slopes exceeding 4:1, when applicable.
- Minimum lot slopes for vegetated areas are 2% minimum.
- All exposed soil stabilized in accordance with NPDES Permit.
- Temporary or permanent cover is indicated for all disturbed areas. Permanent cover specifies 4" min. topsoil, seed mix and disk anchored mulch, or 4" min. topsoil and sod.
- Slopes steeper than 4:1 and 4:1 slopes longer than 30' are seeded and protected with erosion control blankets or sodded and staked. Blanket category specified per Mn/DOT 3885.1. Plan depicts required blanket locations.
- Statement that slopes steeper than 4:1 are stable from land-sliding and surface erosion. Geotechnical report for slopes >3:1.
- For sites where temporary or permanent cover will not be complete by November 15, plan indicates adequate measures to control spring erosion & sedimentation.

DRAINAGE SWALES & EASEMENTS

- Drainage and Utility easements are shown and labeled on the plan.
- Drainage easements are 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. 100-year flow contained in easement.
- Minimum drainage easements for 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.

- Minimum drainage easements for flows from more than 1 acre or more than 4 lots are a minimum of 20' wide. Ditch is a minimum of 2' deep with a 4' bottom and 4:1 slopes up to the easement line. 100-year runoff contained in easement.
- Control elevations for drainage ways are provided.
- Minimum slope of small drainage swales is 2%.
- Drainage easements for flow from more than 1 acre or 4 lots are seeded and protected with erosion control blankets or sodded. Blanket category specified per Mn/DOT 3885.1. Plan depicts required blanket locations.
- 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 5 ft/sec, permanent turf reinforcement mats are installed per City std. plate 7-07. Mats per Mn/DOT 3888.1 or manufacturer and product is specified. Plan depicts blanket locations and cross sections.
- Easement documents are signed and submitted to Public Works with recording fee or included in plat.
- Ditches within 200' of surface water or Property line stabilized in 24 hrs after connection.

STORM DRAIN SYSTEM, INLETS, & OVERFLOWS

- All apron elevations (inlets and outlets) are labeled. Area inlet, CB, MH, elevations are labeled. Pipe sizes and types are labeled.
- 400' max. manhole spacing for lines 15" diameter or less.
- 500' max. manhole spacing for lines 18" to 30" diameter.
- Drainage from subdrains, sump pumps, and building storm drains does not flow through public CB's.
- Not more than 3 CB's in a series (at an intersection) before connecting to the storm sewer main.
- Storm sewer main generally does not flow through CB's.
- Flow direction change is $\leq 90^\circ$ at junctions.
- Drainage does not cross intersections (no valley gutters).
- CB 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.
- Apron inlets to the storm sewer include trash racks.
- Trash racks on inlet structures in wooded areas designed assuming a minimum of 50% plugging condition.
- For other than residential areas, drainage from impervious surfaces is collected on-site and not sheet drained onto sidewalks, rights of way or adjacent property.
- Concentrated drainage is collected in CB before crossing walk.
- Overflow swales are provided which limit the depth of ponding in the street to 2' or less.

- Emergency overflow with the high point elevation and direction of overflow are clearly marked on plans.
- Emergency overflow swale meets minimum drainage easement standards noted above.

OUTLETS & ENERGY DISSIPATION

- Discharge direction of flow generally 45 degrees or less to the flow direction of receiving ditch or stream.
- Discharges to rear property lines shall generally be piped to at least the rear property line.
- Where discharge pipe velocities are 10 fps or less, riprap and filter volumes are indicated in accordance with Mn/DOT Standard Plate.
- Where discharge pipe velocities are greater than 10 fps, energy dissipater is provided along with riprap and filter.
- 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.
- Pipe outlet energy dissipation complete within 24 hours of connection to surface water or outlet.
- Evaluation of downstream adequacy provided (capacity & stability).

TEMPORARY SEDIMENT BASINS

- Temporary sediment basin provided or provisions for the use of existing City facilities.
- Sized to store 2-year, 24-hr storm from the drainage area below the outlet pipe (no smaller than 1800 cf/acre of drainage area), or
- Sized at 3,600 cf/acre of drainage area.
- Designed to minimize short-circuiting.
- Floating debris discharge is prevented.
- Designed for full dewatering.
- Energy dissipation provided at outlet pipe.
- Principal and emergency spillway designed per BMP storm frequency standards.
- Maximum slopes of 4:1
- Plan requires any permanent or temporary sediment ponds to be constructed before other construction starts.
- For areas draining less than 10 areas alternative sediment control (5 acres within 1 mile of impaired waters).
 - Multiple lines of silt fence.
 - Small basins
 - Vegetative strips (full permanent vegetation before upslope excavation).

* As a reference document see
<http://www.pca.state.mn.us/water/stormwater/index.html>
