Public Works Department News

"BE THE WATER"

Part II

(Editor's Note: This is Part II of a two-part series that looks at drainage issues.)

The flow of surface water and groundwater is closely connected in Rochester. All construction projects need to carefully consider existing and planned water conditions early in the design process. Once the design is complete and a grading plan is improved, modifications should not be made without further review and approval. In-field modifications to construction and grading plans can result in mild to severe future drainage problems for other property owners.

Engineers, mass grading contractors, architects, builders, fine grading contractors, landscapers, and homeowners have all been known to modify construction and grading plans, often without understanding the negative consequences of their decision. Here are the common culprits that cause drainage problems:

- Slope, size, and direction of drainage ways at the mass grading stage.
- Improper grading of roads and ditches at the mass grading stage and installation of culverts with inadequate capacity.
- Inappropriate wasting of excess sub-grade soils on the construction site.
- Changing the designated building style or location. Placing walk-out homes on inappropriate lots is especially problematic.
- Changing the location of the building or its driveway on a lot.
- Changing the elevation of the building's foundation.
- Improper grading away from the building and the drainage easements at the fine grading stage.
- Modification of the lot grades during landscaping.
- Installation of sprinkler systems on inappropriate soils and slopes.
- Placement of structures and plants within drainage easements and drainage ways.
- Directing foundation discharges (sumps) and roof drainage (gutters) toward locations that are not designed to accept them.

The severity of the impact from these types of modifications depends on how much the landscape is altered and how many modifications accumulate. These are good practices that will help prevent future drainage issues:

- Have a clear understanding of the hydrology (surface water flow) and hydrogeology (groundwater flow) of the construction site. Hire competent professionals experienced in soil and geologic analyses. Preserve natural features wherever possible.
- When engineering solutions are needed to address water issues, insure that they are the most appropriate choices for the condition and that they do not cause an unintended consequence for others.
- Make sure everyone who needs to know how to read a grading plan is trained to do so accurately.
- Follow the grading plan, as approved. If unanticipated conditions necessitate a change, the modifications must be approved by the Public Works Department. This includes sticking to the building style and location designated on the approved grading plan.
- Survey the foundation elevation to verify it meets the grading plan conditions.
- Provide proper slopes away from foundations.
- Inspect the site frequently and verify that as built conditions replicate planned conditions.
- Explain the drainage features to the landscapers and property owners and communicate the need to avoid alterations that will affect drainage.
- Keep all drainage ways clear. Revocable permits applications must be submitted to the Public Works Department anytime easements encroachments are anticipated.
- Direct sump pump discharges to approved sub-drain system or storm sewers; don't direct them to natural drainage ways without energy dissipation at the outlet. Direct gutters to vegetated areas that drain away from structures.

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