



## Engineering

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## Homeowner Drainage Guidance

### Drainage Action Items for Property Owners

- **Gutters & Downspouts:** Verify they are installed properly, cleaned and connected to extensions (6 feet minimum) that direct roof runoff away from structure. Work with adjacent property owners to ensure downspouts discharge away from all buildings.
- **Footing Drains:** Verify they exist, are functioning, and are disconnected from the sanitary sewer to prevent potential backup.
- **Sump Pumps:** Ensure they are in working order. The homeowner should frequently inspect sump pumps to make sure they are functioning as designed. The discharge location of the sump pump must direct far enough away from the building to not flow back towards the building foundation and should not be directed towards other structures. The discharge location must not be directed to a sidewalk or street. Sump pump discharges may also be connected to the storm sewer system with proper design and approval.
- **Site Grading:** The area around the home must drain away from the foundation. The building code requires a minimum 6-inch drop in the first 10 feet away from the structure.
- **Yard Grading:** Property owner should be familiar with the way water enters and exits their property. Property owner may need to provide grading improvements to efficiently and effectively direct runoff away from buildings and through their property. Duluth's topography creates drainage challenges for property owners. Properties may be above or below adjacent streets, alleys and land, which results in a variety of drainage challenges.
- **Landscaping & Gardens Adjacent to Foundation:** Landscaping around a foundation must not provide an obstruction to runoff or be a source of water from irrigation to landscaping.
- **Sidewalks:** Walkways must drain away from structures and drain freely to avoid ponding of water. Sidewalks may settle or crack, which may create a drainage issue. If a sidewalk settles or tips towards a building foundation, it may need to be replaced.
- **Driveways:** Driveways are a source of stormwater runoff and need to be constructed in a manner that directs runoff away from structures. Property owners should have proper driveway aprons or connections to the street to prevent runoff from entering driveway. The driveway serves the property owner and is the responsibility of the property owner.
- **Neighbor Collaboration:** Property owners have potential to work together on drainage improvements and combine resources. Drainage improvements are often constructed along shared property lines, and can benefit both property owners. Shared property lines may serve as a common drainage path for adjacent roof, yard and sump pump discharges. Property owners will need to resolve drainage issues between themselves. The City does not get involved in private property drainage matters.

[www.duluthmn.gov](http://www.duluthmn.gov)

The City of Duluth is an Equal Opportunity Employer.

## General Drainage Information

- There is a seasonal variation in runoff and drainage characteristics that are due to types of precipitation events (rain, snow, freezing rain...) and soil conditions (frozen, not frozen or spring thaw). Spring conditions are transitional with snow melt and frost present in the ground, resulting in increased runoff and active groundwater flows and seeps, affecting overall drainage and often results in saturated yards and active footing drains and sump pump discharge. As the frost leaves the ground and the weather/temperatures warm, and vegetation begins to grow, runoff/groundwater reduces and yards begin to become less saturated.
- Duluth has complex soil and ground conditions that affect drainage characteristics. Duluth's topography is very steep along the hillside that dominates drainage direction towards Lake Superior or the St. Louis River. Over the hill there are areas of flat or low sloped that runoff does not drain as quickly and has created wetlands and has the potential for ponding water. Duluth has both shallow and exposed bedrock that impact infiltration of runoff, and creates complicated groundwater flow paths that result in seeps and potential for foot drain impacts. Duluth also has predominately clay soils that typically have minimal infiltration and tends to have higher runoff rates and a higher potential for ponding water. Each parcel or property has unique site characteristics that will impact each property differently.
- The street that provides access to the properties of the City, are also unique, as there is different type of street configurations. Street configurations or sections will include: urban, streets that are paved with curb and gutters that include catch basins and storm sewers; rural section, gravel or paved with ditches and culverts and at times may not have a ditch on the "lower" side of the road and runoff flows onto the adjacent land; rural/suburban section, paved with a mix of ditches and culverts or no ditch with a vegetated road edge that drains to a storm inlet. Again, these streets may be steep or flat or somewhere in between, resulting in different runoff characteristics.
- Community Drainage System – the drainage system of the City and surrounding area is complex. The drainage system includes natural creeks, rivers and drainage ways, constructed ditches and swales, culverts, storm sewer pipes with catch basins and manholes connections. The community drainage system is owned and operated both publicly and privately, including but not limited to the City, County, State, UMD/St. Scholastica, commercial/industrial, railroad, multi-family housing, and individual property owners. Drainage is controlled by gravity and the lay of the land. Every property creates runoff that flows down gradient to an adjacent property owner.