50-18 OVERLAY DISTRICTS.

50-18.1 Natural Resources Overlay (NR-O).

A. General.

1. Purpose statement.

The purpose of this overlay is to promote, preserve and enhance the water resources and environment within the city and protect them from adverse effects caused by poorly sited or incompatible development. It is intended to implement the Minnesota Wetland Conservation Act (WCA), federal emergency management agency (FEMA) rules, and the Minnesota department of natural resources (DNR) shoreland and flood plain regulations. In accordance with this regulatory framework, wetlands, flood plains and shorelands are protected by regulating developments that would have an adverse or potentially irreversible impact on unique and fragile land, by minimizing conflicts and encouraging compatibility between environmentally sensitive lands, and by requiring detailed review standards and procedures for developments proposed for such areas, thereby achieving a balance between urban growth and development and protection of natural areas;

2. NR-O map.

The NR-O map contains data from the following sources:

(a) For wetlands, there is no official wetlands map. All lands in the city that meet the definition of wetlands in Article VI are considered wetlands for the purposes of this Section;

(b) For flood plains:

(i) The following maps together with all attached material are a part of the NR-O map. The attached material includes the Flood Insurance Study for St. Louis County, Minnesota, and Incorporated Areas, dated March 25, 2025, and the Flood Insurance Rate Map panel numbers 27137C3525E, 27137C3545E, 27137C3550E, 27137C3754E, 27137C3755E, 27137C3756E, 27137C3757E, 27137C3758E, 27137C3759E, 27137C3764E, 27137C3766E, 27137C3767E, 27137C3768E, 27137C3769E, 27137C3776E, 27137C3777E, 27137C3778E,27137C3779E, 27137C3781E, 27137C3782E, 27137C3783E, 27137C3784E, 27137C3786E, 27137C3788E, 27137C3790E, 27137C3795E, 27137C3805E, 27137C3810E, 27137C3842E, 27137C3845E, 27137C3850E, 27137C3851E, 27137C3852E, 27137C3853E, 27137C3854E, 27137C3856E, 27137C3857E, 27137C3860E, 27137C3861E, 27137C3862E, 27137C3865E, 27137C3870E, 27137C3880E, 27137C3885E, all dated March 25, 2025, all prepared by the Federal Emergency Management Agency. These materials are on file in the Planning and Economic Development Department at City Hall.

(ii) Copies of the above-listed documents are hereby adopted by reference and declared to be a part of this section. All documents shall be kept on file in the land use supervisor's office;

(c) For shorelands, boundaries shall be based on (i) waters shown as protected on the map and inventory of protected waters in Duluth prepared by the DNR commissioner pursuant to Chapter 199, Laws of Minnesota, 1979, and (ii) selected waters that the city has added to the commissioner's survey as being worthy of shoreland protection. All of these waters are shown on the NR-O map as currently revised as of November 19, 2010;

(d) Where interpretation is needed as to the exact location of any boundary as shown on an official map, the city engineer shall make the necessary interpretation based on available technical data, and, in the case of flood plains, based particularly on elevations on the regional flood profile or hydraulic modeling data;

(e) The NR-O map may be amended in the future, and any revisions shall become effective upon adoption of the revised NR-O map as an amendment to this Chapter;

B. Wetlands.

This Section 50-18 shall apply to all wetlands within the city. All development in the city shall comply with state statutes and regulations. In addition, any development impacting wetlands requires formal approval by the designated city wetland representative.

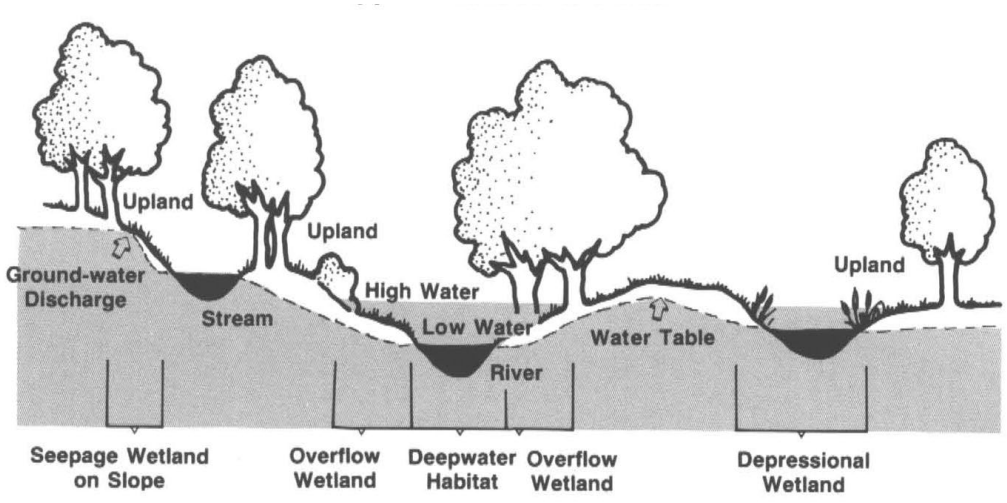

Figure 50-18.1-1: Typical Inland Wetland. Graphic taken from *Floodplain Management in the United States: An Assessment Report*, prepared for the Federal Interagncy Floodplain Management Task Force 1992.

1. The building official shall require each permit applicant to specify on the permit application whether or not the proposed site contains wetlands. Regardless of the answer given, if the building official has reasonable grounds to believe the site contains wetlands, the official shall make a determination as to the existence of wetlands. In making that determination, the building official may require any of the following:
   (a) Require the applicant to submit a complete wetland delineation as outlined in WCA and performed by a professional wetland delineator, including information such as soil analysis, surveys of vegetation and engineering or hydrological data, to aid in the determination;
   (b) Conduct a site inspection and evaluation;
   (c) Consult with the city engineer, St. Louis County Soil and Water Conservation District, Board of Water and Soil Resources, and other available wetland experts;
   (d) Use any other reasonable method to determine if the site contains wetlands;

C. Flood plains.

This Section regulates development in the flood hazard areas of the City of Duluth. These flood hazard areas are subject to periodic inundation, which may result in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base. It is the purpose of this Section to promote the public health, safety, and general welfare by minimizing these losses and disruptions.

This Section supports the public interest to promote sound land use practices, and floodplains are a land resource to be developed in a manner which will result in minimum loss of life and threat to health, and reduction of private and public economic loss caused by flooding.

This Section is a requirement to maintain eligibility in the National Flood Insurance Program.

This Section is also intended to preserve the natural characteristics and functions of watercourses and floodplains in order to moderate flood and stormwater impacts, improve water quality, reduce soil erosion,

protect aquatic and riparian habitat, provide recreational opportunities, provide aesthetic benefits and enhance community and economic development.

1. Applicability

(a) Applicability and Planning Commission Review

(i) This Section applies to all lands within the jurisdiction of the City of Duluth within the Special Flood Hazard Areas (SFHAs) identified on the Flood Insurance Rate maps identified in Section 50-18.1.A.2(b). Areas within the SFHA are within one of four districts: the Floodway, Flood Fringe, General Floodplain or Coastal Districts.

(ii) The Floodway, Flood Fringe, General Floodplain and Coastal Districts, are within the Natural Resource Overlay District. The standards imposed in the overlay districts are in addition to any other requirements. In case of a conflict, between this Section and any other requirements in Federal and State law or the Duluth City Charter and Code, the more restrictive standards apply.

(iii) These regulations apply to all areas within the SFHA. If areas below the Base Flood Elevation (BFE) extend beyond the mapped SFHA based on actual field conditions, the Base Flood Elevation (BFE) shall be the governing factor in locating the outer boundaries of the one-percent annual chance floodplain and these regulations apply to the outer boundary of the one-percent annual chance floodplain.

Figure 50-18.1.C-1: The mapped floodplain may not always align with on-the-ground contour elevations.

(iv) These regulations implement the National Flood Insurance Program (NFIP) rules in 44 CFR § 59 to 78, and the Minnesota Department of Natural Resources (DNR) shoreland regulations, and the DNR flood plain regulations contained in Minnesota Statutes, Chapter 103F and Minnesota Rules, parts 6120.5000 – 6120.6200. The planning and zoning enabling legislation for this overlay is in Minnesota Statutes, Chapter 462.

(v) Abrogation and Greater Restrictions

It is not intended by this section to repeal, abrogate, or impair any existing easements, covenants, or other private agreements. The standards in this section take precedence over any less restrictive, conflicting local laws, ordinances, or codes. All other sections inconsistent with this section are hereby repealed to the extent of the inconsistency only.

(vi) Warning and Disclaimer of Liability

This section does not imply that areas outside the floodplain districts or land uses permitted within such districts will be free from flooding or flood damages. Not all flood risk is mapped or predictable. Larger floods may and do occur, and the flood height may be increased by man-made or natural causes, such as ice jams or bridge openings restricted by debris. This section does not create liability on the part of the City of Duluth or its officers or employees for any flood damages that result from reliance on this section, or any administrative decision lawfully made hereunder.

(vii) Persons contesting the location of the district boundaries may exercise their rights to Planning Commission review and further appeal as outlined in Sec 50-37.1.O.

(b) Floodplain Districts

(i) Floodway District.

Those areas of Zone AE delineated within floodway areas as shown on the Flood Insurance Rate Maps referenced in Section 50-18.1.A.2(b) and those areas within Zone A determined to be located in the floodway based on the delineation methods in Section 50-18.1.C.5(d).

(ii) Flood Fringe District.

Those areas of Zone AE located outside of the delineated floodway as shown on the Flood Insurance Rate Maps referenced in Section 50-18.1.A.2(b), and those areas within Zone A determined to be located outside of the floodway based on the delineation methods in Section 50-18.1.C.5(d).

(iii) General Floodplain District

Those areas within Zone A or AE that do not have a floodway delineated as shown on the Flood Insurance Rate Maps referenced in Section 50-18.1.A.2(b).

(iv) Coastal District

Those areas within Zones VE, as shown on the Flood Insurance Rate Maps adopted in Section 50-18.1.A.2(b). This area also includes Coastal A and AE Zone Areas shown on the Flood Insurance Rate Maps adopted in Section 50-18.1.A.2(b).

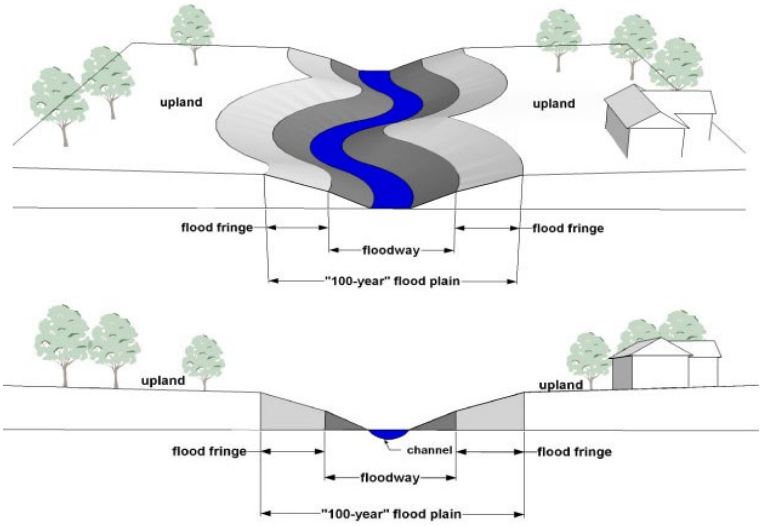

Figure 50-18.1.C-2: Flood plain, floodway, and flood fringe. Graphic taken from *Floodplain Management in the United States: An Assessment Report*, prepared for the Federal Interagency Floodplain Management Task Force 1992.

(c) Annexations

The Flood Insurance Rate Map panels referenced in Section 50-18.1.A.2(b) may include floodplain areas that lie outside of the corporate boundaries of the City of Duluth at the time of adoption of this Section. If any of these floodplain land areas are annexed into the City of Duluth after the date of adoption of this Section, the newly annexed floodplain lands will be subject to the provisions of this Section immediately upon the date of annexation. Annexations into panels not referenced in Section 50-18.1.A.2(b) require ordinance amendment in accordance with Section 50-18.1.C.10.

(d) Municipal Boundary Adjustments

The Flood Insurance Rate Map panels referenced in Section 50-18.1.A.2(b) apply countywide. If at any point any lands come under the jurisdiction of another local government, the following shall apply:

(i) City adjustments of corporate boundaries, including but not limited to annexations and detachments, shall shift floodplain administrative authority of all affected lands immediately upon the date of the boundary adjustment occurring. Cities retain jurisdictions for all incorporated lands, and the County retains jurisdiction under this Section on all unincorporated lands.

2. Requirements for all floodplain districts

(a) Permit Required.

A permit must be obtained from the City of Duluth to verify compliance with all applicable standards outlined in this Section prior to the following uses or activities:

(i) The erection, addition, modification, maintenance, rehabilitation, repair, or alteration of any building, structure, or portion thereof. Normal maintenance requires a permit to determine if such work, either separately or in conjunction with other planned work, constitutes a substantial improvement, as specified in Section 50-38.2.B.1(c).

(ii) The construction of a fence, pool, deck, or placement of anything that may cause a potential obstruction.

(iii) The change or expansion of a nonconforming use.

(iv) The repair of a structure that has been damaged by flood, fire, tornado, or any other source.

(v) The placement of fill, excavation, utilities, on-site sewage treatment systems, or other service facilities. Placement or excavation of less than 5 cubic yards of material for gardening or small landscaping projects is exempt from this requirement.

(vi) The storage of materials or equipment, in conformance with Section 50-18.1.C.2(b)(ii).

(vii) Relocation or alteration of a watercourse (including stabilization projects or the construction of new or replacement dams, culverts and bridges). A local permit is not required if a public waters work permit has been obtained from the Department of Natural Resources.

(viii) Any other type of “development,” as defined in Section 50-41.4.

(b) Minimum Development Standards

(i) All development must:

(1) Be designed (or modified) and adequately anchored to prevent flotation, collapse, or lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy;

(2) Be constructed with materials and equipment resistant to flood damage;

(3) Be constructed by methods and practices that minimize flood damage;

(4) Be constructed with heating, ventilation, duct work, and air conditioning equipment and other service facilities elevated at least up to the Regulatory Flood Protection Elevation (RFPE). Water, sewage, electrical, and other utility lines below the RFPE shall be constructed so as to prevent water from entering or accumulating within them during conditions of flooding;

(5) Be reasonably safe from flooding and consistent with the need to minimize flood damage;

(6) Be assured to provide adequate drainage to reduce exposure to flood hazards;

(7) Not be detrimental to uses in adjoining areas;

(8) Not adversely affect the efficiency or restrict the flood carrying capacity of the channel and adjoining floodplain of any tributary watercourse or drainage system.

(9) Ensure that any fill or other materials are protected from erosion, discharge, and sediment entering surface waters by the use of vegetative cover or other methods as soon as possible.

(ii) Materials that, in time of flooding, are buoyant, flammable, explosive, or could be injurious to human, animal, or plant life shall be stored at or above the Regulatory

Flood Protection Elevation (RFPE) or floodproofed. Storage of materials likely to cause pollution of the waters, such as sewage; sand; rock; wrecked and discarded equipment; dredged spoil; municipal, agricultural or industrial waste; and other wastes as further defined in Minnesota Statutes, Section 115.01, are prohibited unless adequate safeguards approved by the Minnesota Pollution Control Agency are provided.

(iii) Critical facilities shall be located so that the lowest floor is not less than two feet above the Base Flood Elevation (BFE), or the 0.2% annual chance flood elevation, whichever is higher.

3. Floodway District

(a) Permited Uses in Floodway.

Development allowed in the floodway district is limited to that which has low flood damage potential, is allowed in the underlying zone district, and will not obstruct flood flows, increase velocities, or increase the water surface elevations of the one-percent annual chance flood. The following uses and activities may be allowed with a permit, subject to the standards in Section 50-18.1.C.3(b):

(i) Agricultural uses, recreational uses, parking lots, loading areas, airport landing strips, water control structures, navigational facilities, as well as public open space uses.

(ii) Roads, driveways, railroads, trails, bridges, and culverts.

(ii) Public utility facilities and water-oriented industries which must be in or adjacent to watercourses.

(iii) Grading, filling, land alterations, ecological restoration projects, and shoreline stabilization projects.

(iv) No structures are allowed in the Floodway District, except structures accessory to the uses detailed in Section 50-18.1.C.3(a)(i) and Section 50-18.1.C.3(c)(i)**,** which require a special use permit.

(b) Standards for Permitted Uses in Floodway.

In addition to the applicable standards detailed in Section 50-18.1.C.2:

(i) The applicant must demonstrate that the development will not result in any of the following during the one-percent annual chance flood: cause a stage increase of 0.00 feet or greater, obstruct flood flows, or increase velocities. This shall be demonstrated through hydrologic and hydraulic analysis performed by a professional engineer, or using other standard engineering practices (e.g. projects that restore the site to the previous cross-sectional area). This is commonly documented through a “no-rise certification.”

(ii) Any development that would result in a stage increases greater than 0.00 feet may only be allowed with a permit if the applicant has applied for a Conditional Letter of Map Revision (CLOMR) in accordance with 44 CFR § 65.12, and FEMA has issued the CLOMR. Map revisions must follow the procedures in Section 50-18.1.C.8(d) and Section 50-18.1.C.9.

(iii) Any development resulting in decreases to the water surface elevation of the base flood identified in the Flood Insurance Study requires a Letter of Map Revision (LOMR) following the procedures in Section 50-18.1.C.8(d) and Section 50-18.1.C.10.

(iv) Any development in the beds of public waters that will change the course, current or cross section is required to obtain a public waters work permit in accordance with Minnesota Statutes, section 103G.245 or a utility crossing license in accordance with Minnesota Statutes, section 84.415, from the Department of Natural Resources, or demonstrate that no permit is required, before applying for a local permit.’

(v) Any facility used by employees or the general public must be designed with a flood warning system that provides adequate time for evacuation, or be designed to ensure that within the area inundated during the base flood event, the depth (in feet) multiplied by the velocity (in feet per second) is less than four.

(vi) Fill and other land alteration activities must offer minimal obstruction to the flow of flood waters, as certified by a professional engineer, and be protected from erosion and sediment entering surface waters using permanent vegetative ground cover, or other methods as soon as possible.

(c) Special Uses in Floodway.

The following uses and activities may be permitted as special uses, subject to the standards detailed in Section 50-18.1.C.3(d):

(i) Commercial extractive uses, and storage and stockpiling yards.

(ii) Structures accessory to uses detailed in Section 50-18.1.C.3(a)(i) and Section 50-18.1.C.3(c)(i).

(d) Standards for Special Uses in Floodway.

In addition to the applicable standards detailed in Section 50-18.1.C.2, Section 50-18.1.C.3(b) and Section 50-20.1.Q.:

(i) Extractive uses and storage of materials require the completion of a site development and restoration plan, to be approved by the Planning Commission.

(ii) Accessory Structures.

Structures accessory to the uses detailed in Section 50-18.1.C.3(a)(i) and Section 50-18.1.C.3(c)(i).must be constructed and placed so as to offer a minimal obstruction to the flow of flood waters and are subject to the standards in Section 50-18.1.C.4(b)(iii) of this Chapter.

(iii) The use or development conforms to the underlying zone district.

4. Flood Fringe District

(a) Permitted Uses in Flood Fringe.

Any uses or activities allowed in any applicable underlying zoning districts may be allowed with a permit, subject to the standards set forth in Section 50-18.1.C.4(b).

(b) Standards for Permitted Uses in Flood Fringe.

In addition to the applicable standards detailed in Section 50-18.1.C.2:

(i) Residential Structures.

1. Elevation on fill. Structures erected, constructed, reconstructed, altered, or moved on fill within the Flood Fringe District shall be placed so that the lowest floor is elevated at or above the Regulatory Flood Protection Elevation (RFPE). Construction of this type shall only be permitted in locations where the natural ground is no lower than three feet below the base flood elevation. The finished fill elevation shall be at or above the elevation associated with the base flood plus any stage increases that result from designation of a floodway. Fill must extend at the same elevation at least 15 feet beyond the outside limits of the structure. Elevations must be certified by a registered professional engineer, land surveyor or other qualified person designated by the Building Official. Elevation methods alternative to these fill standards are subject to a Special Use Permit, as provided in Section 50-18.1.C.4(c)(i) (Figure 50-18.1.C-3).

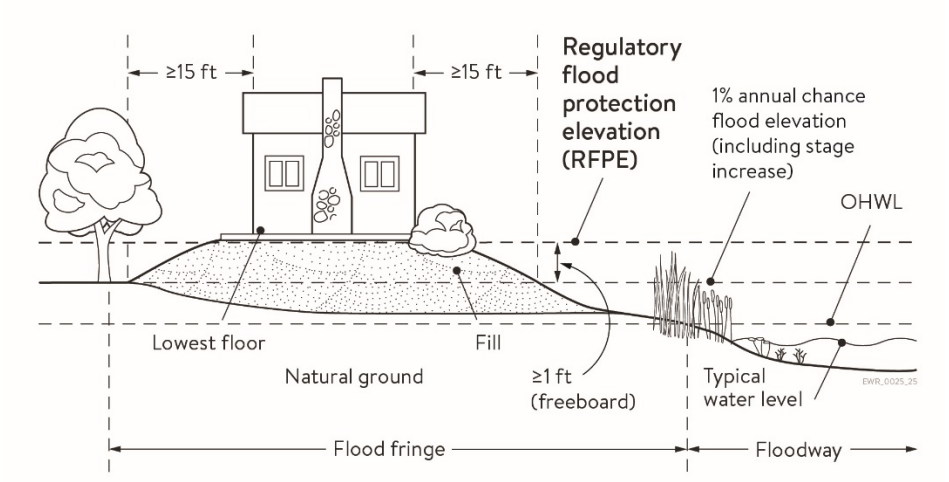

Figure 50-18.1.C-3: Overview of fill standards for residential structures.

(ii) Nonresidential Structures.

Nonresidential structures must meet one of the following construction methods:

(1) Elevation on Fill.

Structures may be elevated on fill, meeting the standards in Section 50-18.1.C.4(b)(i)(1). Fill for nonresidential structures is not required to be extended 15 feet beyond the outside limits of the structure.

(2) Alternative Elevation Methods.

Structures may be elevated using methods alternative to the fill standards in Section 50-18.1.C.4(b)(i)(1). Such methods include the use of blocks, pilings, filled stem walls, or internally-flooded enclosed areas such as crawl spaces, attached garages, or tuck under garages (Figure 50-18.1.C-4).

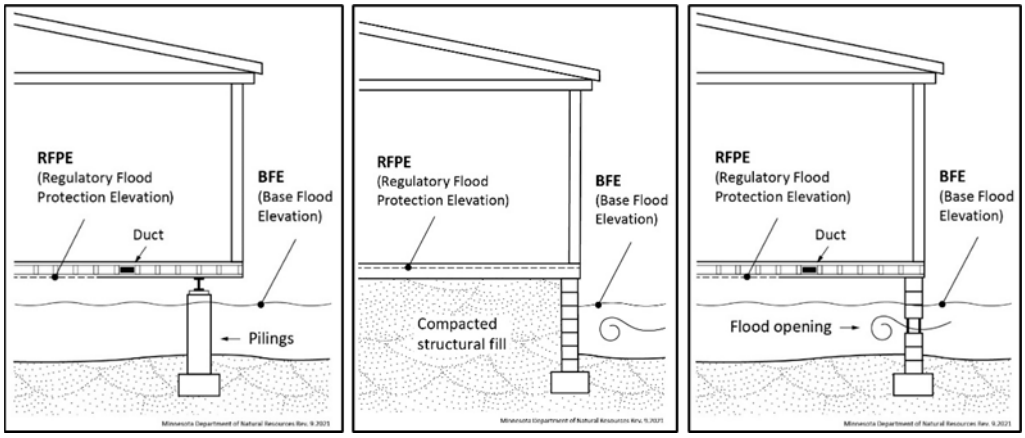

Figure 50-18.1.C-4

(3) Designs accommodating for internally-flooded enclosed areas must be certified by a registered professional engineer or architect, or meet or exceed the standards detailed in FEMA Technical Bulletin 1, as amended, as well as the following standards:

(a) The lowest floor shall be elevated at or above the Regulatory Flood Protection Elevation (RFPE).

(b) The floor of the enclosed area must be at or above the exterior grade on at least one side of the structure.

(c) To allow for the equalization of hydrostatic pressure, there shall be a minimum of two openings below the base flood elevation on at least two sides of the structure. The bottom of all openings shall be no higher than one-foot above grade. The openings shall have a minimum net area of not less than one square inch for every square foot of enclosed area subject to flooding, have a net area of not less than one square inch for every square foot of enclosed area subject to flooding, and shall allow automatic entry and exit of floodwaters without human intervention.

(d) Internally flooded enclosed areas shall only be used for the parking of vehicles, building access, or storage. Bathrooms and toilet rooms shall not be allowed. Such areas shall be subject to a deed-restricted non-conversion agreement as well as inspections as needed by determination of the Land Use Supervisor.

(4) Dry Floodproofing.

Structures having watertight enclosed basements or spaces below the Regulatory Flood Protection Elevation (RFPE) must meet the following standards:

(a) Walls must be substantially impermeable to the passage of water, with structural components having the capacity of resisting hydrostatic and hydrodynamic loads and effects of buoyancy, at least up to the Regulatory Flood Protection Elevation (RFPE);

(b) Must meet the standards of FEMA Technical Bulletin 3, as amended; and

(c) A registered professional engineer or architect shall be required to certify that the design and methods of construction meet the standards detailed in this Section.

(iii) Accessory Structures.

All accessory structures must meet the following standards:

(1) Structures shall not be designed or used for human habitation.

(2) Structures will have a low flood damage potential as defined in FEMA Floodplain Management Bulletin P-2140, as amended.

(3) Structures shall constitute a minimal investment not to exceed 576 square feet in size, one-story in height, and shall only be used for parking and storage, except as provided under Section 50-18.1.C.4(b)(iii)(5).

(4) Structures with two or more rigid walls, must meet one of the following construction methods:

(a) Wet Floodproofing.

Structures may be floodproofed in a way to accommodate internal flooding. To allow for the equalization of hydrostatic pressure, there shall be a minimum of two openings on at least two sides of the structure and the bottom of all openings shall be no higher than one foot above grade. The openings shall have a minimum net area of not less than one square inch for every square foot of enclosed area subject to flooding, and shall allow automatic entry and exit of floodwaters without human intervention. Portions of structures below the RFPE must be constructed of flood damage-resistant materials. Utilities must be elevated above the RFPE and any utility lines below the RFPE shall be constructed so as to prevent floodwaters from entering or accumulating within them. Wet floodproofed structures must be anchored to resist flotation, collapse, and lateral movement.

(b) Elevation on Fill.

Structures may be elevated on fill, meeting the standards in Section 50-18.1.C.4(b)(i). Fill is not required to be extended 15 feet beyond the outside limits of the structure.

(c) Alternative Elevation Methods

Structures may have their lowest floor elevated above the Regulatory Flood Protection Elevation (RFPE) through methods alternative to the fill standards in Section 50-18.1.C.4(b)(iii)(4)(b), and must meet the standards in Section 50-18.1.C.4(b)(ii)(2).

(d) Dry Floodproofing

Structures may be dry-floodproofed, or watertight, meeting the standards in Section 50-18.1.C.4(b)(ii)(3).

(5) Structures with fewer than two rigid walls, such as carports, gazebos, and picnic pavilions, meeting the standards in Section 50-18.1.C.2(b)(i) may be located at an elevation below the Regulatory Flood Protection Elevation, exceed 576 square feet in size, and may include uses as provided under Section 50-18.1.C.4(a).

(iv) Any facilities where regular employment occurs or that are used by the general public must be designed with a flood warning system that provides adequate time for evacuation, or be designed to ensure that within the area inundated during the base flood event, the depth (in feet) multiplied by the velocity (in feet per second) is less than four.

(v) Manufactured homes and recreational vehicles must meet the standards of Section 50-20.1.F and Section 50-20.1.Q, respectively.

(c) Special Uses in Flood Fringe

The following uses and activities may be permitted as special uses, subject to the standards in Section 50-18.1.C.4(d):

(i) Alternative Elevation Methods – Residential Structures.

Residential structures with their lowest floor elevated above the Regulatory Flood Protection Elevation (RFPE) using methods alternative to the fill requirements in Section 50-18.1.C.4(b)(i).

(d) Standards for Special Uses in Flood Fringe.

In addition to the applicable standards detailed in Section 50-18.1.C.2:

(i) All residential structures with lowest floors elevated through alternative elevation methods must meet the standards in Section 50-18.1.C(b)(ii)(2).

(ii) The use or development must conform to the underlying zone district.

5. General Floodplain District

(a) Permitted Uses in General Floodplain District

(i) Until the floodway is delineated, allowable uses and applicable standards will follow those listed in the Floodway District, Section 50-18.1.C.3

(ii) All other uses are subject to a floodway/flood fringe determination as provided in Section 50-18.1.C.5(d), in addition to the standards provided in Section 50-18.1.C.5(b) and Section 50-18.1.C.5(c). Permitted uses shall be determined as follows:

(1) If the development is determined to be in the Floodway District, Section 50-18.1.C.3 applies.

(2) If the development is determined to be in the Flood Fringe District, Section 50-18.1.C.4 applies.

(b) Determining Flood Elevations

(i) All development requires a determination of the Base Flood Elevation (BFE).

(1) Proposed developments of more than 50 lots or 5 acres, whichever is lesser, must use detailed methods for determining the BFE. This may include use of supporting A Zone modeling and the “shoreland method”, when eligible, on lakes.

(2) Exceptions to this requirement include projects that restore the site to the previous cross-sectional area, such as shore stabilization or culvert replacement projects. Base Flood Elevations (BFE) may be found using best available data from any Federal or State sources (including MNDNR’s Lake & Flood Elevations Online (LFEO) Viewer).

(c) Encroachment Analysis

(i) Encroachments due to development may not allow stage increases more than one-half (0.5) foot at any point, unless through a map revision following the procedures in Section 50-18.1.C.8(d) and Section 50-18.1.C.10. This evaluation must include the cumulative effects of previous encroachment and must be documented with hydrologic and hydraulic analysis performed by a professional engineer, or using other standard engineering practices. If increased flood damages would occur, due to the water surface level increase, then a stage increase less than one-half (0.5) feet is required.

(ii) Alterations or changes that result in stage decreases are allowed and encouraged.

(d) Standards for the Analysis of Floodway Boundaries

(i) Requirements for Detailed Studies

Any development, as requested by the Land Use Supervisor, shall be subject to a detailed study to determine the limits of the Floodway District. This determination must be consistent with the minimum standards for hydrologic and hydraulic mapping standards and techniques, as detailed in Minnesota Rules, part 6120.5600, Subp. 4 and FEMA Guidelines and Standards for Flood Risk Analysis and Mapping, as revised. Additionally:

(1) A regulatory floodway necessary to carry the discharge of the one-percent annual chance flood must be selected without increasing the water

surface elevation more than one-half (0.5) foot at any point. This determination should include the cumulative effects of previous encroachments. A lesser water surface elevation increase than one-half (0.5) foot is required if, due to the water surface level increase, increased flood damages would potentially result; and

(2) An equal degree of encroachment on both sides of the stream within the reach must be assumed in computing floodway boundaries, unless topography, existing development patterns, and comprehensive land use plans justify a modified approach, as approved by the Department of Natural Resources.

(e) Other Acceptable Methods.

For areas where a detailed study is not available or not required:

(i) Development prohibited in floodways (e.g. most buildings) requires a floodway/flood fringe determination to verify the development is within the flood fringe. This determination must be done by a professional engineer or utilize other accepted engineering practices. The Department of Natural Resources may also provide technical assistance and must approve any determinations made via methods alternative to those described in Sec 50-18.1.C.5(d) to determine floodway boundaries.

(ii) For areas where the floodway has not been determined in and along lakes, wetlands, and other basins, the following methodology may be used as an alternative to Item A above, provided these areas are not affected by velocities and the lot is able to accommodate a building site above the Regulatory Flood Protection Elevation (RFPE):

(1) All areas that are at or below the ordinary high-water level, as defined in Minnesota Statutes, section 103G.005, Subd. 14, will be considered floodway, and all areas below the Base Flood Elevation (BFE) but above the ordinary high-water level will be considered flood fringe, provided that within 25 feet of the ordinary high water level, or within the Shore Impact Zone, whichever distance is greater, land alterations shall be restricted to:

(a) The minimum required to accommodate beach areas, access areas, and accessory structures as permitted, not to exceed a volume greater than 10 cubic yards; projects involving volumes exceeding 10 cubic yards require floodway/flood fringe determination in accordance with the procedures in Section 50-18.1.C.5(e)(i); and

(b) The minimum required to accommodate shoreline stabilization projects to correct an identified erosion problem as verified by a qualified resource agency or the Land Use Supervisor.

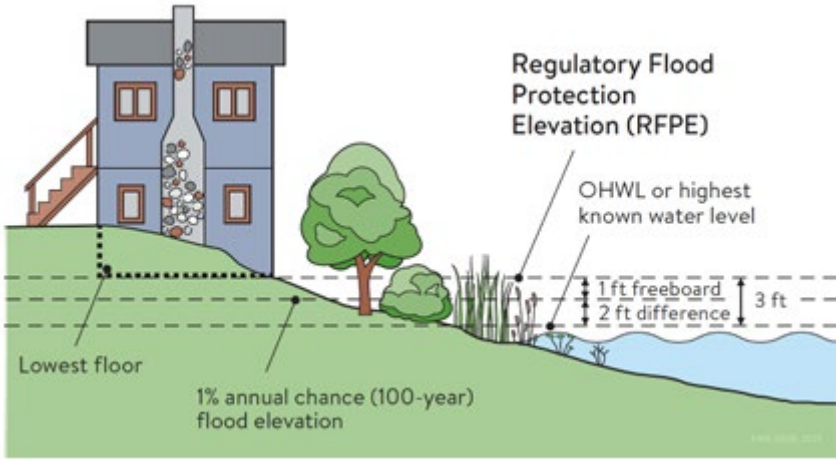

Figure 50-18.1.C-5

6. Coastal District

(a) Permitted Uses in the Coastal District.

The following uses and activities may be allowed with a permit if they are allowed within the applicable underlying zoning districts, subject to the standards in Section 50-18.1.C.6(c):

(i) Within V Zones: Agricultural uses, recreational uses, parking lots, loading areas, airport landing strips, water control structures, navigational facilities, ecological restoration projects, as well as public open space uses.

(ii) Within coastal AE Zones: Any uses or activities allowed in any applicable underlying zoning districts may be allowed with a permit, subject to the standards set forth in Section 50-18.1.C.4(b) (Flood Fringe District).

(b) Special Uses in the Coastal District.

The following uses and activities may be permitted as special uses if they are allowed within the applicable underlying zoning districts, subject to the standards in Section 50-18.1.C.6(c).

(i) Within V Zones: Any new construction and substantial improvements of structures, including manufactured homes, permitted in any applicable underlying zoning districts are allowed provided they meet the provisions of Section 50-18.1.C.2 and Section 50-18.1.C.6(c).

(ii) Within coastal AE Zones: Special uses within the coastal AE zone are regulated pursuant to the provisions contained within Section 50-18.1.C.4(c) (Flood Fringe District – Special Uses).

(c) Standards for Permitted & Special Uses in the Coastal District

(i) Within coastal AE Zones: Standards in Section 50-18.1.C.4(b) Flood Fringe District apply

(ii) Within coastal V Zones:

(1) All new construction and substantial improvements of structure, shall be placed landward of the Ordinary High Water Line of Lake Superior, and be elevated on pilings or columns so that:

(a) The bottom of the lowest horizontal structural member supporting the lowest floor (excluding the pilings or columns) is elevated to or above the regulatory flood protection elevation, and

(b) The pile or column foundation and structure attached thereto is anchored to resist flotation, collapse and lateral movement due to the effects of wind and water loads acting simultaneously on all building components.

Water loading values used shall be those associated with the base flood.

Wind loading values shall be those defined according to American Society of Civil Engineers 7-13, as amended: minimum design loads and associated criteria for buildings and other structures or those established by the State Building Code in MN Rules 1303.2200 or current version adopted by the Minnesota Department of Labor and Industry.

A registered professional engineer or architect shall develop or review the structural design, specifications and plans for the construction, and shall certify that the design and methods of construction to be used are in accordance with accepted standards of practice meeting the provisions of this Sec 50-18.1.C.

(2) All new construction and substantial improvements shall have the space below the lowest floor either free of obstruction or constructed with non-supporting breakaway walls, open wood lattice-work, or insect screening intended to collapse under wind and water loads without causing collapse, displacement, or other structural damage to the elevated portion of the building or supporting foundation system.

(a) For the purpose of this section, a breakaway wall shall have a design safe loading resistance of not less than 10 and no more than 20 pounds per square foot.

(b) Use of breakaway walls which exceed a design safe loading resistance of 20 pounds per square foot (either by design or when so required by local or state codes) may be permitted only if a registered professional engineer or architect certifies that the designs proposed meet the following conditions:

Breakaway wall collapse shall result from a water load less than that which would occur during the base flood; and

The elevated portion of the building and supporting foundation system shall not be subject to collapse, displacement, or other structural damage due to the effects of wind and water loads acting simultaneously on all building components (structural and non-structural). Water loading values used shall be those associated with the base flood. Wind loading values shall be those established by the State Building Code. Such enclosed space shall be useable solely for parking of vehicles, building access, or storage.

(c) All space enclosed by breakaway walls, open wood lattice-work, or insect screening below the lowest floor shall be used solely for parking of vehicles, building access, or storage.

(3) The use of fill for structural support of buildings is prohibited.

(4) The man-made alteration of sand dunes, which would increase potential flood damage, is prohibited.

(5) In zones V or VE, new or substantially improved above ground gas or liquid storage tanks shall be elevated with the bottom of the lowest horizontal supporting member above RFPE on the landward side of buildings.

(6) In zones V or VE, new or substantially improved underground gas or liquid storage tanks must be installed below the lowest eroded ground elevation.

7. Public and private utilities, service facilities, roads, bridges, and railroads

(a) Public Transportation Facilities.

Railroad tracks, roads, and bridges must be elevated to the Regulatory Flood Protection Elevation (RFPE) where such facilities are essential to the orderly functioning of the area, or where failure or interruption would result in danger to public health or safety. Minor or auxiliary roads or railroads may be constructed at a lower elevation where failure or interruption of transportation services would not endanger the public health or safety. All public transportation facilities shall be designed to minimize increases in flood elevations.

(b) Public Utilities.

All utilities such as gas, electrical, sewer, and water supply systems to be located in the floodplain must be elevated and/or floodproofed to the Regulatory Flood Protection Elevation (RFPE), be located and constructed to minimize or eliminate flood damage, and be designed to eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters. All public utilities should be designed to minimize increases in flood elevations. New solid waste management facilities, as defined in Minnesota Rules, part 7035.0300, are prohibited in the one-percent annual chance floodplain. Water supply systems are subject to the provisions in Minnesota Rules, part 4725.4350.

(c) Private On-Site Water Supply, Individual Sewage Treatment Systems, and other Service Facilities.

Private facilities shall be subject to applicable provisions detailed in Section 50-18.1.C.7(b). In addition, new or replacement on-site sewage treatment systems are to be located to avoid impairment to them or contamination from them during times of flooding, shall not be located in a designated floodway, and are subject to the provisions in Minnesota Rules, parts 7080.2270.

8. Administration

(a) For duties that apply to floodplain administration, see Section 50-36.4.

(b) For permit application requirements that apply to floodplain administration, see Section 50-37.13.D.4.

(c) Recordkeeping.

The building official must maintain applicable records in perpetuity documenting:

(i) All certifications for dry floodproofing, alternative elevation methods, and construction in Coastal Districts, where applicable.

(ii) Analysis of no-rise in the Floodway District, as detailed in Section 50-18.1.C.3(b)(i), and encroachment analysis ensuring no more than one-half foot of rise in the General Floodplain District, as detailed in Section 50-18.1.C.5(b)(i)(2) and Section 50-18.1.C.5(c)(i).

(iii) Final elevations, as applicable, detailing the elevation to which structures and improvements to structures are constructed or floodproofed. Elevations shall be determined by an engineer, architect, surveyor or other qualified individual, as approved by the Building Official. In V Zones, the final elevations must be determined by a professional engineer or architect.

(iv) Substantial damage and substantial improvement determinations, as detailed in Section 50-38.2.B.1(c), including the cost of improvements, repairs, and market value.

(v) The Land Use Supervisor must maintain a record of all variance actions, including justification for their issuance, and must report such variances to the commissioner or the commissioner's designated representative and postmarked within ten days of final action or when requested by the Federal Emergency Management Agency.

(d) Certificate of Occupancy for a New, Altered, or Nonconforming Use.

No building or structure may be occupied or used in any manner until a certificate of occupancy has been issued by the Building Official stating that the finished fill and building floor elevations or other flood protection measures are in compliance with the requirements of this Section.

(e) Notifications for Watercourse Alterations.

Before authorizing any alteration or relocation of a river or stream, the Land Use Supervisor must notify adjacent communities. If the applicant has applied for a permit to work in public waters in accordance with Minnesota Statutes, Section 103G.245, this will suffice as adequate notice. A copy of the notification must also be submitted to FEMA.

(f) Notification to FEMA When Physical Changes Increase or Decrease Base Flood Elevations.

Where physical changes affecting flooding conditions may increase or decrease the water surface elevation of the base flood, the City must notify FEMA of the changes in order to obtain a Letter of Map Revision (LOMR), by submitting a copy of the relevant technical or scientific data as soon as practicable, but no later than six months after the date such supporting information becomes available. Within the General Floodplain District, a map revision is only required if physical changes result in stage increases greater than 0.5 feet.

9. Violations and Penalties

(a) Enforcement

Violations of the provisions of this Section constitutes a misdemeanor and is punishable as defined by law. The Land Use Supervisor may utilize the full array of enforcement actions available to them including, but not limited to, those outlined in Sec 50-39.2, or a request to the National Flood Insurance Program for denial of flood insurance. The City of Duluth must act in good faith to enforce these official controls and to correct ordinance violations to the extent possible so as not to jeopardize its eligibility in the National Flood Insurance Program.

10. Amendments

(a) Ordinance Amendments.

Any revisions to the floodplain maps by the Federal Emergency Management Agency or annexations of new map panels require an ordinance amendment to update the map references in Section 50-18.1.A.2(b).

(b) Required Approval.

All amendments to this section must be submitted to the Department of Natural Resources for review and approval prior to adoption, for compliance with state and federal rules and requirements.

11. Severability.
    (a) See Section 50-12.

(Ord. No. 10723, 12-14-2020, § 4, Ord. No. 10929, 3-24-2025, § 2)

D. Shorelands.

In furtherance of the policies declared by the state legislature, waters in the city have been classified as general development waters (GD), natural environment waters (NE) or coldwater rivers (CW). The shoreland overlay applies to lands within 1,000 feet of Lake Superior or within 300 feet of rivers, creeks, streams and tributaries and floodplains, as designated on the NR-O map. If a parcel or development lies only partially within a shoreland area, only the portion of the property within the shoreland is subject to these provisions;

1. Shoreland permit required.

The following activities and structures require a shoreland permit if located within a shoreland:

   (a) All structures;
   (b) All grading, filling and excavating;
   (c) All construction of impervious surfaces, including roads, driveways, parking areas and trails;
   (d) All removal of natural vegetation;
   (e) Any construction activity that removes or disturbs natural beach grasses on Park Point;

2. Standards for shoreland permit.
   (a) Erosion and sediment control measures shall be required for any land disturbing activity;
   (b) Grading and filling of more than 250 square feet or placement of more than ten cubic yards of material within the shore impact zone shall only be permitted if a plan for erosion control, stormwater management and shoreline buffer restoration is approved by the city and effectively implemented;
   (c) Impervious surfaces shall be designed and constructed to minimize and control runoff and erosion into the regulated waters;
   (d) Any removal of natural vegetation shall be designed to prevent erosion into regulated waters and to preserve shoreland aesthetics;
   (e) Removal of trees or shrubs in a contiguous patch, strip, row or block is prohibited in shore impact zones;
   (f) The project does not result in the proposed building being located in a shore or bluff impact zone;
   (g) Natural vegetation buffers shall be restored to the extent feasible after any project is complete;

3. Dimensional standards.
   (a) No shoreland permit shall be approved unless the standards in Table 50-18.1.D-1 are met or a variance obtained pursuant to Article V;

Table 50-18.1.D-1: Minimum Shoreland Area Standards			
Standards	**General Development Waters [1]**	**Natural Environmental Waters**	**Coldwater River**
Minimum setbacks from Ordinary High Water Level or highest known water level, whichever is higher			
Structures	50 ft.	75 ft.	150 ft.
Commercial, mixed use, & industrial structures in the harbor, shown in Figure 50-18.1.- 3	25 ft.	N/A	N/A
Impervious surfaces in the Shore Impact Zone	50 ft.	50 ft.	75 ft.
Lowest floor elevation above Ordinary High Water Level or highest known water level, whichever is higher [2]	3 ft.		
Width of naturally vegetative buffer	50 ft.		

[1] All Lake Superior shoreland is classified as general development waters.
[2] For a structure located in an area where FEMA has established a base flood elevation, the structure is exempt from this shoreland elevation requirement, but must meet flood plain regulations.

(b) Exceptions to dimensional standards.

(i) Commercial, mixed use, & industrial structures in the harbor, shown in Figure 50-18.1-3: 0 feet setback for grain elevators, cranes, loading bins, and other equipment necessary for loading and unloading, including impervious surface necessary to support these activities;

(ii) Public trails with previous surfaces, or with impervious surfaces no more than ten feet wide, may be constructed within these setbacks, provided that a minimum amount of natural vegetation is removed and provided that permits are obtained from the DNR and MPCA, if required;

(iii) Properties in Stormwater Zone B, as defined in Section 50-18.1E.3(f), that have been previously developed with 75 percent or greater impervious surface may use one of the following methods to determine building setback:

- Use the impervious surface setback for the shoreland classification as the building setback;
- When principal structures exist on the adjoining lots on both sides of the proposed building site, the structure setbacks can be altered to conform to the adjoining setbacks, provided the proposed building site is not located within the setback required for the naturally vegetative buffer;

(iv) Park equipment such as playground structures and ball fields (but not including structures such as garages, storage buildings, toilets or warming houses) may be placed closer than the required structure setback provided they lie outside the area required for the native vegetative buffer;

(v) Ground or pole mounted solar or wind power collection systems shall not be placed within the impervious surfaces setback in the Shore Impact Zone;

(vi) Removal of invasive vegetative species is allowed within the naturally vegetative buffer area with an approved shoreland permit, provided there is replacement with non-invasive and non-harmful species;

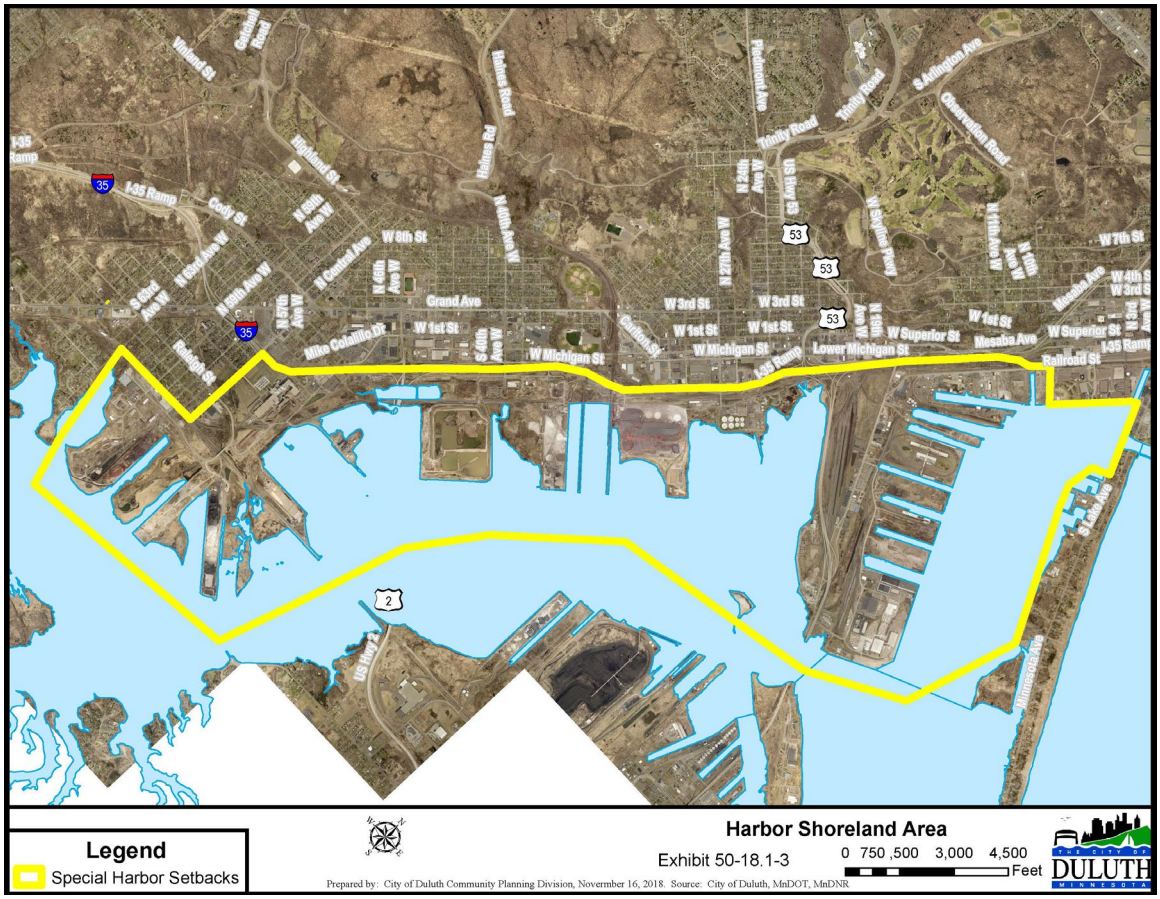

Figure 50-18.1-3

4. Uses and special use permits.
   (a) Those permitted and special uses shown in Table 50.19.8, subject to the issuance of any shoreland permit required by subsection D.1 and compliance with the standards of subsection D.2, except as listed below. Agricultural uses are not permitted in the shore impact zone. Within shoreland areas that are outside of the shore impact zone, agricultural uses are permitted if steep slopes are maintained in permanent vegetation or the land is operated under an approved conservation plan from the St. Louis County Soil and Water Conservation District;
   (b) All industrial uses, including mining, extraction and storage, on coldwater rivers or natural environmental waters require a special use permit pursuant to Article V. The application for a special use permit must include a thorough evaluation of the topographic, vegetation and soils conditions on the site;
   (c) Standards for special use permit:
      (i) Compliance with all development requirements for shorelands in this Section 50-18.1.D;
      (ii) Prevention of soil erosion, stormwater runoff or other possible pollution of public waters, both during and after construction or use;
      (iii) Restoration of the shoreline buffer to a natural state;
      (iv) Screening of structures and other facilities as viewed from regulated waters, as shown on the NR-O map;

5. Shoreland permit for water access via walkways, stairways,steps and landings.
   A Shoreland permit shall be required for walkways, stairways, steps and landings providing access to water. Shoreland permit applications must comply with Section 50-37.13 Zoning Permits of the UDC.

(a) Shoreland water access permit applications shall include submittal of the following:
(i) Property boundary survey prepared by a licensed Surveyor.
(ii) Site plan
(iii) Grading plan;
(iv) Landscape plan
(v) Erosion control permit application;
(vi) Proof of notification to adjacent property owners of an application for a zoning permit to construct stairways, steps and landings (not required for walkways);
(vii) Written statement accepting liability for repair of damage to the slope, i.e. erosion, loss of vegetation and/or sloughing caused by the walkway, stairway or stairway construction.

(b) Application review standards:
(i) All walkways, stairways, steps and landings must be constructed in a manner that requires the least amount of disturbance possible;
(ii) A walkway not involving construction of a stairway must be constructed in such a way as to prevent soil erosion, may be natural-surfaced or paved, must be limited to 4 feet in width, only one is allowed per lot. For new development on lots zoned as mixed use development or residential planned development access must be centralized in one location and located in areas suitable for the development;
(iii) Stairways, steps and landings shall comply with applicable building codes;
(iv) Stairways cannot exceed 100 feet in length and 4 feet in width;
(v) Stairways, steps and landings must be located at least 3 feet above the Ordinary high water mark or to the Ordinary high water mark if approved by the Land Use Supervisor provided that it is determined that the extension is necessary to preserve access to water,
(vi) A stairway providing access to Lake Superior will need to be above the regulatory flood protection elevation and be outside of the wave run up boundary as determined by the DNR. Activities below the Ordinary high water mark shall comply with DNR regulations;
(vii) A stairway providing access to Lake Superior shall be cabled off to ground anchor points to insure it is not dislodged and swept out into the adjacent waterbody;
(viii) If the stairway structure providing access to Lake Superior is dislodged and ends up in the Lake, the Permitee or his successor in interest to the property agrees to promptly remove completely the structure from the Lake and to restore the property upon which it had been located to substantially the condition it had been in prior to the original installation of the structure;
(ix) Landings for stairways must not exceed 32 square feet on residentially-zoned lots and 64 square feet on mixed use and industrially-zoned lots;
(x) Canopies or roofs shall not be allowed on stairways, steps or landings;
(xi) Stairways, steps and landings may be either constructed above the ground on posts, or placed on the ground, provided they are designed and built in a manner that ensures control of soil erosion;
(xii) The use of natural or earth-tone building materials shall be required for the construction of stairways, steps and landings so they are not visually intrusive.

6. Subdivisions.

New subdivisions in the shoreland area shall meet the following requirements:

(a) The land shall not be subdivided until the land has been rezoned into the R-P zone district, and the concept and detailed development plans required in the R-P districts shall be designed to comply with the provisions of this Section 50-18.1.D;
(b) A buffer at least 50 feet in width, consisting of trees, shrubs and ground cover of plants and understory in a natural state, is required within a line parallel to the ordinary high water level or highest known water level, whichever is higher, and as close to the ordinary high water level as topography and the health of the plants will permit;
(c) After construction is completed, the owner of the property shall be responsible for any continued need for erosion and sediment control and restoration on the property;

7. Nonconforming lots of record.

Lots of record in the office of the county recorder on November 19, 2010, may be allowed an exception from the structure setback requirement in subsection D.3. If the lot of record cannot be developed under the setback requirements of subsection D.3, then:

(a) The lot may be developed without a variance if (1) principal structures exist on the adjoining lots on both sides of a proposed building site, and (2) the proposed structure will be located no closer to the protected shore than the principal structure on either adjoining site, and (3) the resulting adjusted setback does not result in the proposed building being located in a shore impact zone; or

(b) The lot may be developed if a variance is obtained pursuant to Article V;

E. Stormwater management and erosion control.

1. Goals and purpose.

(a) The federal Clean Water Act (CWA) requires that municipal stormwater discharges be authorized under the national pollution discharge elimination system (NPDES). The city is allowed to discharge its stormwater under coverage provided by a CWA municipal separate storm sewer system general permit (MS4 permit). As part of the requirements of the permit, the city is required to develop a stormwater pollution prevention program (MS4 program) with specific goals requiring:

i. Non-degradation of all city waters;

ii. Restrictions to special designated waters in the city, including: (a) Lake Superior (which is an MPCA designated outstanding value resource water with both restricted discharge and impaired water designations); (b) St. Louis River (which is an MPCA designated impaired water and area of concern; and (c) 16 trout streams designated by the DNR;

(b) The goals described in the city's MS4 program pertaining to illicit discharge detection and elimination, construction-site runoff controls, and post-construction runoff treatment are incorporated into this Chapter by reference;

(c) The purpose of this Section 50-18.1.E is to establish regulations to comply with the federal CWA and the city's MS4 permit and to achieve the goals stated in the city's MS4 program;

(d) All proposed developments shall follow the requirements in the most recent version of the city of Duluth, engineering guidelines for professional engineering services and developments, and the city of Duluth construction standards were applicable;

(e) Refer to the Minnesota Stormwater Manual and other stormwater management publications for temporary and permanent low impact development design practices;

2. Temporary erosion and sediment controls.

(a) Applicability.

This Section 50-18.1.E.3 applies to all land disturbing activities within the city, except those specifically exempt in this Section and those subject to a superseding or preemptive state or federal law. This Section shall be deemed to supplement, but not to conflict with, the applicable provisions of the State Building Code;

(b) Requirements.

All proposed development and redevelopment and all subdivision plats and re-plats shall include drainage system and temporary erosion and sediment best management practices (BMPs) in compliance with the city's MS4 program and the requirements shown in Table 50-18.1.E-1 below. Plans, engineering analysis and calculations, diagrams, drainage reports and other data shall be submitted, as required by the city engineer or designee with each development proposal or application for permit;

Table 50-18.1.E-1: Temporary Erosion and Sediment Controls			
Land Area Disturbed ► / Development Plan Measures Required ▼	**≤ 3,000 sq. ft.** [1]	**> 3,000 sq, ft. and < 1 acre**[2]	**≥ 1 acre**
Temporary erosion and sediment controls to prevent any off-site migration of sediment	✓		
Site specific Erosion and Sediment Control Plan (ESCP) and ESCP Permit from city engineer		✓	✓
Site specific Stormwater Pollution Prevention Plan (SWPPP) meeting MPCA NPDES Permit requirements for Construction Activity		✓	✓
MPCA NPDES/State Disposal System Construction Stormwater Permit			✓
MS4 Statement of Compliance from city engineer		✓	✓

[1] If the city engineer determines that the proposed development is in a vulnerable area and may cause the degradation of the waters connected to the city's stormwater system, then the provisions applicable to land disturbance areas greater than 3,000 sq. ft. shall apply.

[2] If land disturbed is within a mapped shorelands zone, an MS4 Statement of Compliance from the city engineer is also required.

(c) Authority to waive.

The city engineer has authority to waive the requirements in Table 50-18.1.E.1 in accordance with the city's MS4 permit. If stormwater and erosion controls required by this subsection 2 are demonstrated to be technically feasible, provisions of subsection 2 must be met to the maximum extent practicable;

3. Permanent water quality and discharge rate, volume and temperature controls.

(a) Applicability.

(i) This Section 50-18.1.E.3 applies to all land disturbing activities within the city, except those specifically exempt in this Section and those subject to a superseding or preemptive state or federal law. This Section shall be deemed to supplement, but not to conflict with provisions of the State Building Code;

(ii) This Section does not apply to pavement resurfacing and pavement rehabilitation projects that meet all of the following conditions:

- No new impervious surface is created;
- There is no change to the configuration of the site;
- There is no change to the land use;

(b) General requirements.

All proposed development and redevelopment and all subdivision plats and re-plats shall include a drainage system with stormwater runoff site, volume and temperature controls and water quality treatment in compliance with the city's MS4 program and the requirements shown in Table 50-18.1.E-2 below. Plans, engineering analysis and calculations, diagrams, drainage reports and other data shall be submitted, as required by the city engineer with each project (referred to as the "development plan" below);

Table 50-18.1.E-2: Permanent Water Quality and Discharge Rate, Volume and Temperature Controls *[See additional requirements for land in shorelands below]*		
Development Plan Measures required ▼	**Total New Impervious Area Created or the Impervious Area Redeveloped[1][2]**	
	≤ 3,000 sq. ft.	**> 3,000 sq. ft.[3][4]**
Water quality treatment	NONE	✓
Runoff rate controls		✓
Volume Controls		✓
Temperature Controls[5]		✓
Drainage report		✓
Site specific SWPPP		✓
BMP Operation and Maintenance Manual		✓
MS4 Statement of Compliance from city engineer		✓

[1] The total area is the sum of both the new and redeveloped impervious areas that are part of the common plan of development or sale.

[2] A pavement resurfacing or pavement rehabilitation project is exempt where: (a) no new impervious surface is created; and (b) no change to configuration of the site occurs; and (c) no change to land-use occurs.

[3] An individual one-family or two-family residence (that is not part of a common plan of development) with less than 10,000 sq. ft. of disturbed area and less than 7,500 sq. ft. of new impervious area is exempt.

[4] If the site contains an existing impervious surface area greater than one acre, the drainage report must include a determination of the current total suspended solids removal across the entire site. If the current TSS removal is below 50 percent, the drainage report must include an evaluation of the feasibility of increasing the TSS removal to 50 percent on an annual basis across the entire site.

[5] Temperature controls are required for projects that discharge to, and are within one mile from, a trout/cold water stream.

(c) Authority to waive.

The city engineer has authority to waive the requirements in Table 50-18.1.E-2 in accordance with the city's MS4 permit, if the developer demonstrates it to be technically non-feasible AND then mitigates for the non-compliance by increasing the level treatment or control of one of the other requirements;

(d) Shoreland requirements.

(i) In addition to the requirements in subsection 50-18.1.E.3(b) above, no residential development or redevelopment within a shoreland shall result in impervious surface area exceeding 25 percent of the lot area unless the owner (a) submits a development plan including water quality treatment and (b) obtains an MS4 statement of compliance by the city engineer;

(ii) In addition to the requirements in subsection 50-18.1.E.3(b) above, no commercial, mixed use, institutional or industrial development or redevelopment within a shoreland shown on the NR-O map shall create new impervious surface area unless the owner (a) submits a development plan including water quality treatment and (b) obtains an MS4 statement of compliance issued by the city engineer;

(e) Water quality treatment requirements.

Where subsection 50-18.1.E.3(b) requires that a development plan include water quality treatment, the development or redevelopment must provide at least the minimum treatment shown in Table 50-18.1.E.3;

Table 50-18.1.E-3: Water QualityTreatment Requirements (Total Suspended Solids TSS, Total Phosphorus TP)		
Development Type	**New and Existing Impervious surface**	**Required Treatment**
New	> 3,000 S.F.	No net increase of TSS/TP from predevelopment conditions.
Redevelopment	> 3,000 S.F. and < 1 acre	10% reduction in impervious surface or 50% TSS removal (TP to be removed via TSS reduction).
Redevelopment	≥ 1 acre	50% TSS removal. No net increase in TP from pre-project condition.

(f) Runoff rate control.
Where subsection 5018.1.E.3(b) requires that a development plan include runoff rate control, the development or redevelopment must be designed to provide the controls as follows. Runoff rate control is beneficial in the upper, flatter part of the watershed above the bluff line. Below the bluff line, the topography is relatively steep and stormwater flows quickly to Lake Superior and the St. Louis River. This bluff line designation is show on the NR-O map. The stormwater rate control requirements for development and redevelopment are shown in Table 50-18.1.E-4;

Table 50.18.1.E-4: Discharge Rate Limits		
Location ►	**Post-Development Peak Flow Rates at Each Discharge Point Shall Not Exceed**	
Type of Activity ▼	**Zone A -- Above Bluff Line**	**Zone B -- Below Bluff Line**
New Development	75% of predevelopment peak flow rates for 10 and 100 year events; and 90% of predevelopment peak flow rate for 2 year event	Predevelopment peak flow rates for all storm events
Redevelopment	Predevelopment peak flow rates for all storm events	Predevelopment peak flow rates for all storm events

(g) Stormwater runoff volume control.
Where subsection 50-18.1.E.3(b) requires that a development plan include storm water runoff volume control, the development or redevelopment must be designed to provide the controls so that the volume of stormwater runoff discharged from a proposed project shall not exceed the pre-development site conditions;

(h) Storm water temperature control.
Temperature controls are required for development and redevelopment where subsection 50-18.1.E.3(b) specifies. Temperature controls are beneficial for trout/cold water streams, by minimizing the increase in stream temperatures from stormwater runoff from impervious surfaces that tend to be warmer than natural vegetated surfaces. The potential for the increase in temperature of stormwater runoff discharged from a proposed project shall be minimized through the use of certain BMPs and/or site design methods;

(i) General design criteria.
(i) New minor system drainage systems shall be designed to efficiently convey the peak discharge rates for a ten-year flow;
(ii) New major system drainage systems shall be designed to efficiently convey the peak discharge rates for a 100-year flow;
(iii) The 100-year rainfall event or 100-year peak flow shall be evaluated to ensure that no damage occurs to adjacent properties for all systems;

(iv) The stormwater management systems for any new or redevelopment project shall maintain at least two feet of freeboard between the anticipated 100-year high water elevation and the minimum building opening;
(v) Consideration may be given for treating existing untreated impervious areas diverted to the site and included in the control area for analysis if it is in the best interest of the city;
(vi) All impervious areas shall be considered connected and curve numbers shall not be weighted for impervious areas except under special circumstances;
(vii) Ninety-five percent of all newly added impervious surface shall have its runoff directed to the water quality treatment area. If it is impractical to direct 95 percent of the added impervious surface to water quality area, alternate methods may be used in combination so long as 95 percent is treated and all peak flow requirements are fulfilled;
(viii) Flow shall not be diverted from one major or minor system to another major or minor system;
(ix) When stormwater management plans involve directing runoff from a site, it shall be the responsibility of the applicant to obtain from adjacent property owners any necessary easements or other property interests concerning flowage of water to a point where the stormwater enters a major system;
(x) Adequate measures shall be taken to prevent uncontrolled drainage across lot lines;

4. General stormwater restrictions.

City of Duluth has numerous ordinances regarding stormwater runoff and the protection of the area's water resources. Refer to the Duluth, MN - Legislative Code, Chapter 43 Article XI Stormwater Utility System, Chapter 45 Division 2 – Improvements by Private Party and Article VIII – Obstructions to Watercourses, and Illicit Discharge;

5. Ownership and maintenance.

(a) Maintenance of temporary erosion and sediment control practices.

During the period of a land disturbing activity, the person engaging in the construction shall be responsible for installing and maintaining erosion and sediment control practices. After construction is completed, the owner of the property shall be responsible for installing and maintaining erosion and sediment control practices. For the purposes of inspection during construction monitoring, the permittee shall maintain inspection logs and will make them available to the city upon request. The permittee shall retain the inspection logs for three years after the project is complete;

(b) Ownership.

(i) All components of the stormwater management system shall be constructed, owned, operated and maintained by the developer or owner(s) to their confluence with the major system or city owned minor system;
(ii) In the case of developments in which right-of-way is transferred to public ownership, the storm drain system within the city right-of-way shall be owned and maintained by the city. Stormwater treatment facilities and ponds shall be in common space and shall be owned and maintained by the developer or the owners of the development. Stormwater treatment facilities shall not be located in the public right-of-way;

(c) Owner inspection, operation and maintenance.

(i) A stormwater management facilities operation and maintenance manual shall be prepared by an engineer for the development and approved by the city engineer;
(ii) Stormwater management facilities shall be designed to minimize maintenance and provide inspection and maintenance access;
(iii) All facilities shall have a plan of operation and maintenance that assures continued effective removal of runoff pollutants and accumulated sediment;
(iv) The developer or the owner(s) shall be responsible for inspection, maintenance and reporting for all non-publicly owned stormwater management facilities associated with the development. Facilities shall include structural components

and all non-structural components (buffer strips, swales and other stormwater management practices that were part of the approved development);

(v) An annual inspection and maintenance report shall be submitted to the city engineer. Inspection and maintenance shall be performed on a regular basis so the stormwater management facilities function as designed, but not less than annually. Maintenance work and repairs identified in the annual report shall be completed within three month of the annual inspection;

(vi) The inspection and maintenance of the stormwater facility shall be performed by a qualified professional and who will prepare and sign the annual inspection/maintenance report.

Copies of the inspection and maintenance records shall be maintained by the developer or owner for a period of six years. Copies of all inspection records shall be provided to the city upon request. (Ord. No. 10041, 8-16-2010, § 2; Ord. No. 10044, 8-16-2010, § 6; Ord. No. 10075; 1-24-2011, § 1; Ord. No. 10082, 4-11-2011, § 1 *[NR-O Map 6]*; Ord. No. 10096, 7-18-2011, § 13; Ord. No. 10285, 3-10-2014, § 1; Ord. No. 10341, 11-24-2014, § 1; Ord. No. 10456, 7-11-2016, § 1; Ord. No. 10570, 5-29-2018, § 1)