

## ORDINANCE 1419

### AN ORDINANCE AMENDING CHAPTER 17.56 OF THE GLADSTONE MUNICIPAL CODE PERTAINING TO DRAINAGE AND REAFFIRMING ALL REMAINING PROVISIONS OF THE GLADSTONE MUNICIPAL CODE.

The City of Gladstone does ordain as follows:

**Section 1.** Chapter 17.56 of the Gladstone Municipal Code is amended in the following respects:

#### **17.56.010 Applicability**

#### **17.56.020 Standards**

#### **17.56.010 Applicability**

The development standards for surface water drainage shall apply to all new or redevelopment activities in the City of Gladstone that result in the creation or disturbance of 5,000 square feet or more impervious surface except for substantial improvement or lesser remodel or reconstruction of existing single-family or two-family dwellings.

#### **17.56.020 Standards**

Adequate provisions shall be made to ensure proper drainage of surface waters, to preserve natural flow of watercourses and springs and to prevent soil erosion and flooding of neighboring properties or streets. Such provisions shall include, but not be limited to the following:

- (1) Generally. All development shall be planned, designed, constructed and maintained to:
  - (a) Protect and preserve existing drainage channels to the maximum practicable extent;
  - (b) Protect development from flood hazards;
  - (c) Provide a system by which water within the development will be controlled and managed without causing damage or harm to the natural environment, or to property or persons within the drainage basin;
  - (d) Assure that waters drained from new or redevelopment sites are substantially free of pollutants, including sedimentary materials, through the use of stormwater treatment facilities as referenced herein and appropriate erosion and sediment control practices;
  - (e) Assure that runoff drained from new and redevelopment sites is managed in accordance with criteria outlined in the City of Gladstone Stormwater Treatment and Detention Standards as to not cause erosion to any greater extent than would occur in the absence of development;
  - (f) Avoid placement of surface detention or retention facilities in road rights-of-way.

- (2) Watercourses. Where culverts cannot provide sufficient capacity without significant environmental degradation, the city may require the watercourse to be bridged or spanned.
- (3) Easements. In the event that a development or any part thereof is traversed by any watercourse, channel, stream or creek, gulch or other natural drainage channel, adequate easements for storm drainage purposes shall be provided to the city. This does not imply maintenance by the city.
- (4) Obstructions. Channel obstructions are not allowed, except as approved for the creation of a detention or retention facility. Fences with swing gates may be utilized.
- (5) Surface Drainage and the Storm Sewer System. Stormwater treatment and detention facilities shall be designed and installed in accordance with criteria outlined in the City of Gladstone Stormwater Treatment and Detention Standards.

**Section 2. All remaining provisions of Chapter 17.56 of the Gladstone Municipal Code are reaffirmed in their entirety.**

THIS ORDINANCE ADOPTED BY THE COMMON COUNCIL AND APPROVED BY THE MAYOR THIS 13<sup>th</sup> DAY OF OCTOBER, 2009.

ATTEST:



\_\_\_\_\_  
Mayor

  
\_\_\_\_\_  
Assistant City Administrator

## Stormwater Treatment and Detention Standards for the City of Gladstone

### I. General Standards and Design Requirements

- a. Stormwater Treatment and Detention Threshold - Stormwater treatment and detention standards shall apply to all new or redevelopment activities in the City of Gladstone that result in the creation or disturbance of 5,000 square feet or more of impervious surface, except for substantial improvement or lesser remodel or reconstruction of existing single family or two-family dwellings.
- b. Drainage System Plan Review - All drainage plans and calculations, including those specific to the proposed stormwater treatment and detention system, must be stamped and signed by a civil engineer licensed by the State of Oregon. Unless otherwise specified in this document, the design and supporting plans and calculations shall meet the Standard Surface Water Specifications of Clackamas County Service District #1 (CCSD #1) and general surface water management standards outlined in Section 5.1 of the CCSD #1 Surface Water Management Rules and Regulations.
- c. Treatment and Detention Facilities Required - All applicable new and redevelopment activities shall provide for water quality, water quantity, and infiltration in accordance with provisions outlined in Sections 5.2 and 5.3 of the CCSD #1 Surface Water Management Rules and Regulations, unless otherwise specified in this document.
- d. Maintenance - All surface drainage facilities, specifically stormwater treatment and detention systems, shall be maintained regularly in accordance with a schedule acceptable to the city and owner to be defined during the project approval phase (see Section II.d of this document). Proof of maintenance shall be annually submitted to the City.

### II. Drainage Submittal Requirements - Drainage submittal requirements for the City of Gladstone shall conform with Appendix A, Standard Surface Water Specifications of Clackamas County Service District #1 (CCSD #1).

- a. Title Sheet - Information to be included on the title sheet of the submittal shall meet requirements outlined in Appendix A, Section 2.0 of the Standard Surface Water Specifications of Clackamas County Service District #1 (CCSD #1).

Total square footage of impervious area for the project shall be documented on the title sheet for both new development (new impervious area) and/or redevelopment (redeveloped impervious area).

- b. Existing and Proposed Drainage Plan - Design sheets showing plan and profile configurations shall meet requirements outlined in Appendix A, Section 3.0 of the Standard Surface Water Specifications of Clackamas County Service District #1 (CCSD #1).

Information on the design sheets shall also include locations of existing and proposed stormwater treatment and detention facilities including system elevations and inlet and outlet piping configurations.

- c. Design Calculations - To justify the proposed design, supporting information including design calculations shall be provided, meeting requirements outlined in Appendix A, Section 3.0 of the Standard Surface Water Specifications of Clackamas County Service District #1 (CCSD #1).
- d. Maintenance Agreement - At the time of the drainage submittal, a maintenance agreement for any proposed private stormwater treatment and/or detention facility shall also be included that specifies proposed maintenance activities and responsible parties for such activities. See Attachment 1 for the Private Storm Drainage Facilities Maintenance Agreement.

### III. Minimum Design Criteria

- a. Stormwater Conveyance - Surface water collection standards for the City of Gladstone shall conform to guidelines established in Section 5.2.1 of the CCSD #1 Surface Water Management Rules and Regulations, unless otherwise specified in this document.

Surface water collection specifications shall conform to requirements outlined in Sections 3 and 4 of the Standard Surface Water Specifications of Clackamas County Service District #1 (CCSD#1). System details are provided in Appendix C of the Standard Surface Water Specifications of Clackamas County Service District #1 (CCSD #1).

All private storm drain systems shall meet requirements of the Uniform Plumbing Code. All public storm drain main lines shall be a minimum of twelve inches (12") in diameter. All lateral lines to catch basins and other inlet structures shall be a minimum of ten inches (10") in diameter. Storm drain lines, which convey water from building rain drains and/ or footing drains, may be a minimum of four inches (4") in diameter.

- b. Stormwater Treatment - Stormwater treatment standards for the City of Gladstone shall conform to guidelines established in Section 5.3 of the CCSD #1 Surface Water Management Rules and Regulations, unless otherwise specified in this document. Standard details for select treatment systems are provided in Appendix C of the Standard Surface Water Specifications of Clackamas County Service District #1 (CCSD#1).
- i. Threshold and Exemptions - For new or redevelopment activities that result in the creation or disturbance of 5,000 square feet or more impervious surface, including residential subdivisions and partition of parcels with the potential to create more

than two lots as currently zoned, stormwater treatment shall be provided. Stormwater treatment need not be required for substantial improvement or lesser remodel or reconstruction of existing single family or two-family dwellings.

- ii. Design reference - Stormwater treatment facilities shall be designed in accordance with guidelines documented in Section 5.3 of the CCSD #1 Surface Water Management Rules and Regulations.
  - iii. Preferred treatment systems - The City of Gladstone promotes the use of vegetated stormwater treatment systems including vegetated swales, filter strips, constructed wetlands, wet ponds, and extended dry detention ponds. Alternative systems may be considered with approval by the City if the alternative system provides equivalent treatment to a vegetated system.
- c. Stormwater Detention - Stormwater detention standards for the City of Gladstone shall conform to guidelines established in Section 5.2.4 and Section 5.2.5 of the CCSD #1 Surface Water Management Rules and Regulations, unless otherwise specified in this document. Standard details for select detention system components are provided in Appendix C of the Standard Surface Water Specifications of Clackamas County Service District #1.
- i. Threshold and Exemptions - For new or redevelopment activities that result in the creation or disturbance of 5,000 square feet or more impervious surface, including residential subdivisions and partition of parcels with the potential to create more than two lots as currently zoned, stormwater detention shall be provided. Stormwater detention need not be required for substantial improvement or lesser remodel or reconstruction of existing single family or two-family dwellings.
  - ii. Design reference - Stormwater detention facilities shall be designed to capture and detain the 2-year, 24 hour post developed runoff rate to a rate equal to half of the 2-year, 24 hour pre-developed runoff rate, in accordance with guidelines documented in Section 5.2.4 of the CCSD #1 Surface Water Management Rules and Regulations. In addition, the allowable post-development discharge rate for the 10 and 25 year, 24 hour events shall be that of the pre-development discharge rate.

The definition of pre-developed conditions shall correlate with the timeframe used by CCSD #1.

Use of landscaping and low-impact development practices that utilize infiltration are required in accordance with Section 5.2.6 of the CCSD #1 Surface Water Management Rules and Regulations. Infiltration may be incorporated into the detention system design, in order to reduce the required detention volume.

The process for determining detention quantities shall coincide with Section 5.2.5 of the CCSD #1 Surface Water Management Rules and Regulations.

- d. In Lieu of Fees for Stormwater Treatment and Detention - In lieu of fees for stormwater treatment and detention may be applied under the following conditions:
  - i. Sub-regional or regional detention and treatment is available downstream and the project area has been accounted for in its sizing and design.
  - ii. Fees “in lieu of” detention and treatment would be applied as a percentage of the downstream facility costs including engineering and administration. Percentage of costs would be based on percentage use of facility.
  - iii. Maintenance costs of the downstream facility shall be determined and agreed upon in a maintenance agreement.
  - iv. An in lieu fee must be spent on projects or facilities within the same drainage basin as the project upon which the in lieu fee was proposed.

AFTER RECORDING RETURN TO:  
City of Gladstone  
525 Portland Avenue  
Gladstone, OR 97027

## PRIVATE STORM DRAINAGE FACILITIES MAINTENANCE AGREEMENT

\_\_\_\_\_  
Name of facility / facilities

### Owner:

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_, State \_\_\_\_\_ Zip \_\_\_\_\_

Contact person \_\_\_\_\_ Phone \_\_\_\_\_

### Location:

Legal Description \_\_\_\_\_

Street Address \_\_\_\_\_

### Facilities to be maintained:

#\_ Trapped Catch Basin(s)

#\_ Outlet / Flow control manhole(s)

#\_ Pollution Control / Water Quality manhole(s)

#\_ Infiltration / Detention pond

#\_ Treatment facilities (Specify type, size & lineal feet \_\_\_\_\_)

#\_ Structural Detention facilities (Specify type, size & lineal feet \_\_\_\_\_)

**Acknowledgment:**

- The owner(s) will maintain the above private storm drainage facilities annually. All oils, sediment and debris will be removed and deposited in an approved dumpsite. Any damaged equipment will be repaired promptly.
- Particular attention will be given to sedimentation, pollution control or water quality manholes and detention outlet structures. All debris will be removed to assure proper function.
- The grates of all catch basins will be kept free of debris and leaves.
- The detention system's outlet or flow control structure will be checked to assure that sediment accumulation has not encroached on the required detention volume. Sediment will be removed as necessary to maintain that required volume.
- The outlet control manhole will be inspected to assure that all parts are intact and the orifice is free of any debris that could cause malfunction.
- The treatment system shall be maintained (excavated, revegetated, etc) to ensure proper functionality and performance.
- The above maintenance activities will be documented each year by sending records of what was completed to: City of Gladstone Public Works Director, 525 Portland Ave., Gladstone, OR 97027.
- Owner's obligations set forth in this agreement will run with the land and will be binding upon the Owner and its transferees, successors, heirs, representatives and assigns.

I hereby certify that the storm system described above will be maintained according to this schedule, that I have authority to make this agreement, and that I will disclose this perpetual maintenance obligation to all future prospective owners of said property.

\_\_\_\_\_  
Property Owner (print name)

\_\_\_\_\_  
On behalf of (Company)

\_\_\_\_\_  
Owner Signature

\_\_\_\_\_  
Date



(For an acknowledgement in an individual capacity)

STATE OF \_\_\_\_\_ )  
 )  
COUNTY OF \_\_\_\_\_ ) **ss:**

This instrument was acknowledged before me on \_\_\_\_\_(date) by \_\_\_\_\_

\_\_\_\_\_ (name(s) of person(s))

\_\_\_\_\_

Notary Public for \_\_\_\_\_

My Commission Expires \_\_\_\_\_

(For an acknowledgement in a representative capacity)

STATE OF \_\_\_\_\_ )  
 )  
COUNTY OF \_\_\_\_\_ ) **ss:**

This instrument was acknowledged before me on \_\_\_\_\_(date) by \_\_\_\_\_

\_\_\_\_\_ (name(s) of person(s)) as \_\_\_\_\_(type  
of authority, e.g. officer, trustee, member) of \_\_\_\_\_. (name of company or  
party of whom instrument is being executed)

\_\_\_\_\_

Notary Public for \_\_\_\_\_

My Commission Expires \_\_\_\_\_

5.1.13 All surface water facilities shall be maintained as needed and as approved by the District. Proof of maintenance shall be annually submitted in accordance with a schedule approved by the District. If the facility is not maintained, the District may perform the maintenance and charge the owner of the facility.

5.1.14 Plan Review.

All plans and calculations must be stamped and signed by a civil engineer licensed by the State of Oregon and meet the standards of the District.

5.1.15 Bonds.

Developers or owners shall provide a performance bond or other surety acceptable to the District prior to recording of the plat for residential developments or the issuance of building permits for commercial or industrial developments. The amount of the performance bond shall be in the amount of 125% of the engineer's cost estimate for all approved but uncompleted surface water and buffer improvements. A maintenance bond shall be provided to the District prior to release of the performance bond. The maintenance bond shall be in favor of the District, in the amount of 25% of the actual construction cost, for a period of one year from the date of final District inspection and acceptance of all completed buffer mitigation and public surface water facilities. During construction and the guarantee period, the District may perform work if the owner fails to do so, and charge the Bond. At the end of the one year guarantee period, the residual bond amount shall be released and remitted to the owner. Nothing herein shall limit the owner's responsibility for repair and maintenance to the amount of the bond.

5.1.16 All activities must meet State and Federal regulations.

5.1.17 All developments and redevelopments shall provide water quantity, water quality and infiltration systems to meet Sections 5.2 and 5.3.

5.1.18 Development projects shall not be phased or segmented in such a manner to avoid the requirement of these Rules and Regulations.

5.2 WATER QUANTITY STANDARDS

5.2.1 Surface water collection systems with the potential to serve areas up to 10 acres of land must be sized for the post-developed 10-yr storm, using the Rational Method. All other surface water conveyance systems shall be sized for post-developed conditions in accordance with the following criteria:

5.2.1.1 Storm sewers and outfall pipes draining less than 640 acres: 25-yr, 24-hr design storm

5.2.1.2 Storm sewers and outfall pipes draining greater than 640 acres: 50-year, 24-hour design storm

5.2.1.3 Creek or stream channels draining less than 250 acres: 25-year, 24-hour design storm

5.2.1.4 Creek or stream channels draining greater than 250 acres: 50-year, 24-hour design storm

5.2.1.5 Creek or stream channels draining greater than 640 acres: 100-year, 24-hour design storm

Areas draining greater than 10 acres of land may use alternate methods such as SBUH, HEC 1, HSPF, or SWMM, or others as approved by the District.

Exceptions must be documented and approved by the District.

Instream or in-line detention can only be used in locations approved by the Oregon Division of State Lands and US Army Corps of Engineers, and any other authorized federal, state, or local agency.

5.2.2 It shall be the responsibility of the owner to provide a drainage system for all water on site and for water entering the property from off-site. Surface water, springs, and groundwater shall be incorporated into the drainage design. The owner is also responsible for springs and groundwater that surface during construction and within the warranty period of the drainage system.

5.2.3 Where a drainage system of catchbasins and pipes is available, all drains that extend to the curb must be directly connected to the storm system. No drainage will be allowed into the street or roadway where a drainage system is available.

5.2.4 Onsite Detention Design Criteria

Onsite storm quantity detention facilities shall be designed to capture and detain runoff as follows:

- 2-year, 24-hour post-developed runoff rate to a ½ of the 2 year, 24-hour pre-developed discharge rate;
- In areas with limited downstream capacity that cannot be upgraded, (see Standards for maps of specific areas), detention shall be designed to reduce the 25 year, 24-hour, post-developed runoff rate to a 2 year, 24-hour pre-developed discharge rate, and, from the 2 year, 24-hour, post developed rate, to ½ of the 2-year, 24-hour pre-developed discharge rate.

Downstream analysis shall demonstrate adequate conveyance capacity to the distance where the project site contributes less than 15% of the upstream drainage area OR 1500 feet downstream of the project, whichever is greater. If the downstream analysis crosses the jurisdictional boundary of another surface water management agency, that agency must be notified by the Developer or Owner and given the opportunity to review and comment on the analysis.

For residential subdivisions and partitions of parcels with the potential to create more than two additional lots as currently zoned, and for developments having more than 5,000 square feet of impervious surface, on-site stormwater detention, treatment, and infiltration facilities shall be required. For 2 and 3 lot partitions that cannot be further partitioned under current zoning, detention is not required if there are no downstream impacts. All subdivisions and partitions must include a drainage plan for each proposed lot. Infiltration facilities are required where soil conditions permit.

Open detention facilities shall be planted with vegetation as per the Metro Water Quality Treatment Facility Plant List (in the Metro Native Plant List, October 1998), available from the District. See Standards for details. Planting schedule and maintenance of vegetation shall be approved by the District

### 5.2.5 Onsite Detention Design Method

The procedure for determining the detention quantities is set forth in Chapter 4.4, Retention/Detention Facility Analysis and Design, King County, Washington, Surface Water Design Manual Version 4.21 (ibid), except subchapters 4.4.5 Tanks, 4.4.6 Vaults and Figure 4.4.4G Permanent Surface Water Control Pond Sign. This reference shall be used for procedure only. Local rainfall data and information shall apply. The design criteria shall be as noted herein. Engineers desiring to utilize a procedure other than that set forth herein shall obtain the approval of the District prior to submitting calculations utilizing the proposed procedure.

For all developments other than single family and duplex, the sizing of stormwater quantity detention facilities shall be based on the impervious area to be created by the development, including structures and all roads and impervious areas.

For single family and duplex residential subdivisions or partitions, stormwater quantity detention facilities shall be sized for the impervious areas to be created by the subdivision or partitions, including all residences on individual lots at a rate of one ESU of impervious surface area per dwelling unit, plus all roads. If actual impervious area is to be greater than one ESU per dwelling unit, then the actual impervious numbers shall be used. Such facilities shall be constructed as a part of the subdivision or partition.

Redevelopment of sites shall require detention for the areas impacted by construction.

Subregional detention and water quality facilities are encouraged. Where topographically feasible, detention and water quality facilities may be sized and constructed to provide detention and treatment for more than one development. Maintenance must be provided for the facility. Easements and access must also be provided.

Each development shall address drainage for groundwater and springs. Existing problems shall be addressed in plans submitted for review and approval. Groundwater and springs that are encountered during development shall be the responsibility of the developer to address. Plans for drainage of these waters shall be submitted to the District for review and approval prior to construction.

In lieu of fees for detention and water quality may be applied in under the following conditions:

- Subregional or regional detention and treatment downstream is available and has been identified.
- Downstream detention and treatment is constructed or an agreement has been approved by the District on implementation of downstream detention and treatment.
- Fees for "in lieu of" detention and treatment would be applied as a percentage of facility costs, including engineering and administration. Percentage of costs would be based on percentage of use of facility.
- Maintenance of facility is provided.

5.2.6 Infiltration systems are required for all new developments and redevelopments to infiltrate all runoff from storm events up to one-half inch of rainfall in 24 hours. Treatment shall occur prior to or concurrent with infiltration systems in accordance with section 5.3. Infiltration

system capacity may be incorporated into the detention system design, in order to reduce the required detention volume. Infiltration facilities shall be sized to infiltrate the design runoff volume within a maximum of 96 hours. Infiltration requirements may be waived, or reduced, if it can be demonstrated by a registered professional engineer that infiltration will destabilize the soil, cause adverse structural or environmental impacts, or due to site constraints such as high groundwater, springs, or impermeable soils.

### 5.3 WATER QUALITY STANDARDS

All new developments and re-developments shall provide on-site water quality facilities, as required by the District. Water quality facilities shall be designed to capture and treat runoff for all events up to 2/3 of a 2-year, 24-hour post-developed storm. The water quality system shall use vegetation for treatment. Accepted types of vegetated treatment facilities include vegetated swales, filter strips, constructed wetlands, wet ponds and extended dry detention ponds. Alternative systems may be used with approval by the District and shall be designed to provide equivalent treatment as is provided with a vegetated system, as described in the Standards and the "Surface Water Quality Facilities Technical Guidance Handbook", developed by Portland and Lake Oswego, Clackamas County, and the Unified Sewerage Agency, now known as Clean Water Services.

### 5.4 NATURAL RESOURCE PROTECTION

#### 5.4.1 Study

The District shall require the applicant to provide a study identifying areas on the parcel which are or may be sensitive areas when, in the opinion of the District:

5.4.1.1 An area or areas on a parcel may be classified as a sensitive area;

5.4.1.2 The parcel has been included in an inventory of sensitive areas adopted by the District and more site specific identification of the boundaries are needed.

#### 5.4.2 Undisturbed Buffer Required

New development or a division of land adjacent to sensitive areas shall preserve and maintain an undisturbed buffer wide enough to protect the water quality functioning of the sensitive area. The undisturbed buffer is a facility required to prevent damage to the sensitive area caused by the development. The width of the undisturbed buffer shall be as specified in Table 5.1.

Undisturbed buffers shall be protected, maintained, enhanced or restored as follows: Vegetative cover native to the region shall be maintained or enhanced, or restored, if disturbed in the buffer. Invasive non-native vegetation may be removed from the buffer and replaced with native vegetation. Only native vegetation shall be used to enhance or restore the buffer. This shall not preclude construction of energy dissipaters at outfalls consistent with watershed enhancement, and as approved by the District. Any disturbance of the buffer requires prior District approval.

Uncontained areas of hazardous materials as defined by DEQ are prohibited in the buffer.