Design & Construction Standards Update
Additional Staff-Recommended Language Changes
Proposed Draft Chapter 4 (Section 4.08.1 and 4.09.2), March 29, 2019

Based on feedback provided by the Clean Water Services Board (Board) at the Public Hearing for the Design and Construction Standards Update on March 26, 2019, staff have developed additional language changes for the Board’s consideration relating to the following two areas:

- Impervious Area Used in Design (Proposed Draft Section 4.08.1) - Impervious Surface Area to be used in calculating facility size serving developments with lots 3000 sf or smaller
- Detention Ponds (Proposed Draft Section 4.09.2) - Evaluation Criteria for requests to allow a pond depth greater than 5 feet

The language to be presented for the Board’s consideration related to these two areas is attached. This proposed language will be considered by the Board at the continued public hearing on April 2, 2019.
4.08 Stormwater Management Approach Sizing

4.08.51 Impervious Area Used In Design

The following apply for development which creates or modifies 1,000 square feet or greater of impervious surface. Development which results in both new and modified impervious surface will result in a combined treatment stormwater management requirement, as described below:

Section 4.08.1.a proposed change to address residential lots 3,000 square feet or greater

a. For new home construction on a single family or duplex lot of record, the water quality stormwater management approach shall be sized based on 2,640 square feet of impervious surface per dwelling unit. The actual new and modified impervious surface may be utilized when the lot size is less than 2,000 to 3,000 square feet, or the development creates or modifies impervious surface not associated with new home construction, up to a maximum of 2,640 square feet.

Section 4.08.1.b is the same as the March 26, 2019 Draft.

b. For residential additions, remodels, and other activities on a single family lot other than new home construction, the stormwater management approach shall be sized based on the actual new and modified impervious area, up to a maximum of 2,640 square feet.
c. For single family and duplex residential partitions and subdivisions, stormwater quality management approaches shall be sized using the following criteria:

1. Actual impervious surface area in all public and private rights-of-way and common space for all impervious area created by the development and for all existing impervious area proposed to remain on site.

2. An assumed All existing and proposed residences on individual lots shall be sized at the rate of 2,640 square feet of impervious surface area per dwelling unit lot for lots greater than 3,000 square feet.

3. For lots that are 3,000 square feet or smaller, impervious area may be based on either of the following: the purpose of design calculations, the actual impervious surface can be utilized as an alternative to 2,640 square feet per dwelling unit when the average lot size on a single-family residential project is less than 2,000 square feet.

A. The maximum allowed impervious area per lot, including driveways and buildings, as calculated using the local jurisdiction’s development code, or

B. An assumed rate of 2,640 square feet of impervious surface area per lot.

d. For all developments and re-development other than single family and duplex, including row houses and condominiums, the stormwater quality management approaches shall be sized based on the following:

1. Quality:

to treat all All new impervious surfaces and three times the modified impervious surface, up to the total existing impervious surface on the site. The area requiring treatment is shown in the formula below:
Treatment Area = New Impervious + 3(Modified Impervious)

When modification results in the permanent removal of 1,000 square feet or greater of impervious surface, the treatment approach shall be sized for three times the replaced impervious surface, in addition to the new impervious surface. In this case, the area requiring treatment is shown in the formula below:

Treatment Area = New Imp. + 3(Modified Imp. - Permanently Removed Imp.)

Impervious areas shall be determined based upon building permits, construction plans, or other appropriate methods of measurement deemed reliable by District and/or City.

2. Quantity required for conveyance capacity or hydromodification: All new and modified impervious area created by the development.

4.09.2 Detention Pond

a. Applications
   1. Quantity control for conveyance capacity
   2. Hydromodification
   3. LIDA

b. Sizing Criteria

1. Peak-Flow Matching, per Section 4.08.6, is applicable in the following scenarios:
   A. Detention is required as a result of conveyance capacity requirements outlined in Section 4.02
   B. Peak-Flow Matching Detention is required as a result of Hydromodification Requirements identified in Table 4-2.

2. Flow Duration Curve Matching, per Section 4.08.7, is required
when identified as the applicable Hydromodification Requirement in Table 4-2.

c. Design Criteria:

1. The facility can be a combined water quality and quantity facility provided it meets all relevant criteria.
2. Interior side slopes up to the Maximum Water Surface: 3H:1V or flatter.
3. If interior slopes need to be mowed side slope: 4H:1V or flatter.
4. Exterior Side Slopes: 2H:1V or flatter, unless analyzed for stability by a geotechnical engineer.
6. Provide an approved outlet structure for all flows.
7. Certain situations require use of multiple orifice plates to achieve desired outflow rates.
8. Minimum orifice size: ½ inch diameter, unless a local jurisdiction has an alternate, but the minimum may be no greater than 1-inch.
10. A pond overflow system shall provide for discharge of the design storm event without overtopping the pond embankment or exceeding the capacity of the emergency spillway.
11. Provide an emergency spillway sized to pass the 100-year storm event or an approved hydraulic equivalent. Emergency spillway shall be located in existing soils when feasible and armored with riprap or other approved erosion protection extending to the toe of the embankment.
12. Construction of on-site detention shall not be allowed as an option if such a detention facility would have an adverse effect upon receiving waters in the basin or subbasin in the event of flooding, or would increase the likelihood or severity of flooding problems downstream of the site.

Reader Notes - March 29, 2019 Draft
Section 4.09.2.d the entirety of this section is new to provide criteria for a Maximum Pond Depth Variance.

d. Maximum Pond Depth Variance

The City or District may approve a maximum pond depth greater than 5 feet, if the design complies with all other standards and design criteria and the following:

1. The ponding depth is not greater than 9 feet.
2. The design does not result in an embankment regulated under dam
safety rules. The City or District may require an inundation analysis pursuant to OAR 690-020.

3. The facility is accessible and maintainable with the standard equipment used by the jurisdiction responsible for maintenance.

4. If water quality treatment is co-located with the detention pond, all water quality design criteria must be met.

5. Perimeter walls that are higher than 30 inches (not including footings) shall not surround more than 50% of the facility.

6. The design complies with the local jurisdiction’s development codes and design standards.