



**AGENDA
CLEAN WATER SERVICES
BOARD OF DIRECTORS**

Agenda Category: Public Hearing All CPOs

Agenda Title: CONDUCT A PUBLIC HEARING AND ADOPT AMENDMENT TO DESIGN AND CONSTRUCTION STANDARDS

Presented by: Bill Gaffi, General Manager (nmc)

SUMMARY (Attach Supporting Documents if Necessary)

Clean Water Services' (District) Design and Construction Standards (Standards) set the minimum standards for construction of components of the sanitary sewer and storm and surface water management systems within the District boundary and are adopted pursuant to Ordinance 27. The District's last full update to the Standards occurred in April 2007. An amendment to portions of Chapter 3 of the Standards occurred in August 2008. The current Standards are contained in Resolution and Order No. 07-20 (R&O 07-20), adopted by the District Board of Directors (Board) on April 17, 2007 and amended by Resolution and Order No. 08-28 (R&O 08-28), adopted by the District Board of Directors (Board) on August 5, 2008.

The primary purpose of this Amendment is to update the Low Impact Development Approaches (LIDA) Section of the Standards to reflect the unique physical characteristics and development processes of urban Washington County. The current Standards for LIDA were based on standards outlined in the City of Portland Bureau of Environmental Services' "2004 Stormwater Management Manual." Over the last year, the District, in cooperation with the cities in the District's service area, have developed a LIDA Handbook which tailors the LIDA Standards to urban Washington County.

(CONTINUED)

FISCAL IMPACT: None

REQUESTED ACTION: Hold a public hearing on the proposed amendment to the Design and Construction Standards and, after receiving testimony, adopt the Amendment.

Agenda Item No.	_____
Date:	07/28/09

The Amendment updates LIDA facility sizing requirements, revises LIDA facility names and descriptions for consistency with the LIDA Handbook, and adds a requirement for a maintenance agreement for private LIDA facilities to ensure continued upkeep and protection after installation.

The Amendment also updates the treatment requirements for minor redevelopment projects on sites with greater than 5 acres of impervious area.

Revisions to the following sections/tables in the Standards are necessary:

1. Section 4.07.3 LIDA Approvable by the District
2. Table 4-2 Approvable Low Impact Development Approaches
3. Table 4-1 Impervious Area Requiring Treatment on Redevelopment Sites

1. Section 4.07.3 LIDA Approvable by the District

Changes to this section include:

- Updating the reference to the “LIDA Guidance Manual” to “LIDA Handbook” for consistency with the new publication’s name.
- Removal of an example in the text of 4.07.3.b that is inconsistent with the proposed sizing factors.
- Addition of language in subsection 4.07.3.d requiring a maintenance agreement for privately maintained LIDA facilities (those facilities not maintained by the District or designated City). The purpose of adding the requirement is to ensure that the property owner is aware of the facility, the need to maintain the facility, and the maintenance practices specific to the particular LIDA facility type.

2. Table 4-2 Approvable Low Impact Development Approaches

- Changes in Table 4-2 include updating of LIDA facility names and descriptions to be consistent with the District’s LIDA Handbook. Additionally, two facility types were combined with other facility types since the basic design and functionality were the same, and one facility type was eliminated due to potential difficulties with maintenance and unlikely demand for use. The following table outlines the name changes:

Current LIDA Name	Proposed LIDA Name or Change
“Pervious Paving”	“Porous Pavement”
“Eco Roofs and Roof Gardens”	“Green Roof”
“Infiltration Planters”	“Infiltration Planters/Rain Gardens”
“Street Swales”	“LIDA Swales”
“Sand Filters”	<i>Eliminated</i>
“Tree Box Filters”	<i>Combined with “Flow-through Planters”</i>
“Vegetated Infiltration Basin”	<i>Changed to Rain Garden & combined with Infiltration Planters</i>

- The “Infiltration Planters/Rain Garden” facility type and “Flow-through Planter” facility type are now proposed to be allowed as public systems.
- Sizing Factors have been updated based on specific engineering requirements for each facility type. In all cases the sizing factor has decreased or remained the same. Restrictions such as minimum width, maximum slope, and sizing ratio have been added to the table.

3. Table 4-2 Impervious Area Requiring Treatment on Redevelopment Sites

Changes to Table 4-1 include the addition of a category to address redevelopment of less than 1,000 square feet on sites with existing impervious area equal or greater than 5 acres. This new category is proposed to have “no new treatment required”. Currently sites with existing impervious area equal to or greater than 5 acres are required to treat 50% to 100% of the site if there is any disturbance to the existing impervious area by redevelopment.

1 **BEFORE THE BOARD OF DIRECTORS OF CLEAN WATER SERVICES**

2 In the Matter of Amending the Clean Water)
3 Services Resolution and Order No. 07-20, as)
4 amended by Clean Water Services Resolution)
5 and Order No. 08-28, updating requirements)
6 for Low Impact Development Approaches)
7 water quality facilities and clarify)
8 redevelopment treatment requirements)

RESOLUTION AND ORDER

NO. _____

7 The above-entitled matter came before the Board of Directors of Clean Water
8 Services (Board) at its regular meeting of July 28, 2009; and

9 It appearing to the Board that the Board, on April 17, 2007, adopted Clean Water Services
10 (District) Resolution and Order No. 07-20, which repealed Resolution and Order No. 04-9 and
11 adopted revisions to the Design and Construction Standards pertaining to the sanitary sewerage and
12 storm and surface water management systems, including regulations for erosion control and
13 protection of water quality sensitive areas, pursuant to Ordinance 27, and on August 5, 2008,
14 adopted District Resolution and Order No. 08-28, which amended portions of the Design and
15 Construction Standards to complement and remove conflicts with the regulations of the Oregon
16 Department of State Lands and United States Army Corps of Engineers; and

17 It appearing to the Board that provisions of R&O 07-20 are in need of amendment to update
18 requirements for Low Impact Development Approaches water quality facilities and provide
19 clarification on redevelopment treatment requirements; and

20 It appearing to the Board that the District conducted public outreach including meeting with
21 representatives of the cities within the District and the County, meeting with the Clean Water
22 Services Developer Liaison Committee, and providing information and copies of the proposed rules
23 to those entities and the public; and

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1 It appearing to the Board that it has conducted a public hearing on July 28, 2009 regarding
2 the adoption of this amendment and interested persons were given an opportunity to appear and be
3 heard, and that public notice of such hearing was given in accordance with Ordinance 27, Section
4 8.2 by publication in a newspaper of general circulation within the District's service boundary; and

5 It appearing to the Board that the amendments contained within Exhibit A are within the
6 scope of District Ordinance No. 27 and are necessary to further the objectives of District Ordinance
7 No. 27, which include: enhancement and maintenance of the water quality of the Tualatin River and
8 its tributaries; compliance with state and federal permit and regulatory requirements; promotion of
9 the health, safety, and welfare of the community; and furtherance of the objectives and purposes of
10 the Federal Water Pollution Control Act 33 USC §§1251-1387; and the Board being fully advised in
11 the premises; now, therefore it is

12 **RESOLVED AND ORDERED** that the Clean Water Services Board of Directors does
13 hereby amend R&O 07-20 as provided in Exhibit A attached hereto; and it is further

14 **RESOLVED AND ORDERED** that this amendment shall take effect for all development
15 and construction permit applications received on or after July 28, 2009, unless specifically
16 requested by applicants for development and construction permits with applications currently in
17 process.

18 **DATED** this 28th day of July, 2009.

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CLEAN WATER SERVICES
By its Board of Directors

Chairman

Recording Secretary

EXHIBIT A

AMENDMENT OF RESOLUTION AND ORDER 07-20

Sections of Resolution and Order No. 07-20, to be amended by this Resolution and Order are set forth below. Text to be deleted is shown in strikethrough; text to be added is underlined.

1. Amend subsection 4.07.3 as follows:

4.07.3 LIDA Approvable by the District

- a. Table 4-2 shows the LIDA the District may approve to meet the requirements of this chapter. The table shows where LIDA can be used in a publicly maintained system and whether LIDA can be designed to meet the quality or quantity requirements of the Chapter. The descriptions provided are general and designers should consult the District's ~~LIDA Guidance Manual~~ Handbook for more specific design considerations.
- b. Where the impervious area to be treated by an LIDA is less than 15,000 square feet, the Sizing Factor shall be used to calculate the required surface area of the selected LIDA. ~~For example, a 1,000 square foot roof can be treated with 60 square feet of Infiltration Planters.~~ For impervious areas greater than 15,000 square feet, a specific design for the site shall be required. The Sizing Factor does not apply to quantity control. ~~Instead,~~ LIDA used for quantity control shall require a specific design for a site.
- c. LIDA not included in Table 4-2 may be approved by the District if the applicant can demonstrate that the LIDA can meet the requirements of this Chapter.
- d. LIDA require a long-term maintenance plan identifying maintenance techniques, schedule, and responsible parties. This requirement shall be noted in a maintenance plan and a maintenance agreement shall be submitted and approved with the drainage report for a project.

2. Amend Table 4-2 as follows:

TABLE 4-2
APPROVABLE LOW IMPACT DEVELOPMENT APPROACHES

LID	Description	Public Systems	Quantity Control	Quality Control	Sizing Factor
Pervious Paving	Pervious pavement and pavers are water permeable ground covers which infiltrate precipitation, reduce stormwater runoff flow rate, volume, and temperature, and filter some pollutants. Pervious pavement resembles its solid pavement counterpart, but has more void spaces that allow water to pass through the pavement into a reservoir base of crushed aggregate, then infiltrate into the ground. Pervious pavers are typically made of pre-cast concrete, brick, stone, or cobbles.	No	Yes	No	NA
Eco-roofs and Roof Gardens	Eco-roofs or roof gardens are vegetated rooftops that use the plant-soil complex to store, detain, and filter rainfall. They are used to reduce runoff volume and slow runoff rates. An eco-roof is a lightweight vegetated roof system made of a synthetic waterproof membrane, a drainage layer, a maximum 6-inch layer of soil, and a cover of plants. A roof garden is a heavyweight vegetated roof system consisting of a waterproof membrane, drainage layer, and a thick layer of soil (typically 12 inches or more), vegetation, and hardscaping to allow access to the garden (e.g., planters, stepping stones, benches). Building Official approval is required for installation of eco-roofs and roof gardens.	No	No	Yes	1.00
Infiltration Planters	Infiltration planters are structural landscaped reservoirs used to collect, filter, and infiltrate stormwater runoff, allowing pollutants to settle and filter out as the water percolates through the planter soil and infiltrates into the ground.	No	Yes	Yes	0.06
Flow-through Planters	Flow-through planters are structural landscaped reservoirs placed on impervious surfaces used to collect, filter, and temporarily store stormwater runoff, allowing pollutants to settle and filter out as the water percolates through the planter soil until flowing through to an approved conveyance.	No	No	Yes	0.06
Street Swales	Street swales are gently sloping depressions planted with dense vegetation or grasses designed to receive, filter, and infiltrate the runoff as it conveys the stormwater along its length. Water quality improvement is achieved by the settling out of particulates in the water column and by the biological and chemical action of the water. Swales can include check dams to help slow and detain the flow.	Yes	No	Yes	0.12
Vegetated Filter Strips	Vegetated filter strips, or vegetated filters, are gently sloping areas used to filter, slow, and provide pre-treatment to stormwater flows.	Yes	No	Yes	0.2
Sand Filters	Sand Filters are structural landscaped reservoirs used to collect and filter stormwater runoff allowing pollutants to settle and filter out as the water percolates through the sand bed. The treated filtrate can then be discharged through an underdrain system or infiltrated directly into native	No	No	Yes	0.06

LID	Description	Public Systems	Quantity Control	Quality Control	Sizing Factor
	soils, if appropriate.				
Tree Box Filters	Tree box filters are in-ground containers with high rate pollutant filtering and runoff storage used along curb and gutter systems to intercept, slow, and treat roadway runoff in urban areas.	No	No	Yes	0.02
Vegetated Infiltration Basins	Vegetated infiltration basins are shallow landscaped depressions used to collect and hold stormwater runoff, allowing pollutants to settle and filter out as the water infiltrates into the ground.	Yes	Yes	Yes	0.09

TABLE 4-2
APPROVABLE LOW IMPACT DEVELOPMENT APPROACHES

LID	Description	Public Systems	Quantity Control	Quality Control	Sizing Factor/ Restrictions
<u>Porous Pavement</u>	<u>Porous pavement is a water permeable structural ground cover which infiltrate precipitation, attenuates stormwater runoff flows and volumes, and reduces temperature. Pervious concrete and asphalt resemble their solid pavement counterparts, but have more void spaces that allow water to pass through. Pervious pavers are typically made of pre-cast concrete, brick, stone, or cobbles and set to allow water to flow between them.</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>1:1 impervious area deduction</u>
<u>Green Roof</u>	<u>A green roof (or ecoroof) is a vegetated roof system with waterproofing material, drainage, growing medium, and specially selected plants. A green roof can be used to reduce site impervious area and manage stormwater runoff. Green roofs also help mitigate runoff temperatures by keeping roofs cool and retaining most of the runoff in dry seasons. The design must be low maintenance and use irrigation only to sustain the health of vegetation. Building Official approval is required for installation of eco-roofs and roof gardens.</u>	<u>No</u>	<u>No</u>	<u>Yes</u>	<u>1:1 impervious area deduction</u>
<u>Infiltration Planters/Rain Gardens</u>	<u>Infiltration planters or rain gardens are landscaped reservoirs used to collect, filter, and infiltrate stormwater runoff, allowing pollutants to settle and filter out as the water percolates through the planter soil and infiltrates into the ground. Depending on the site, infiltration planters can be constructed with or without walls to contain the facility.</u>	<u>Yes</u>	<u>Yes</u>	<u>Yes</u>	<u>0.06 Min. Width: 30in Max. Slope 0.5%</u>
<u>Flow-through Planters</u>	<u>Flow-through planters are landscaped reservoirs that collect and filter stormwater runoff, allowing pollutants to settle and filter out as the water percolates through the planter soil until flowing through to an approved conveyance. These are appropriate where soils do not</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>0.06 Min. Width: 30in Max. Slope 0.5%</u>

LID	Description	Public Systems	Quantity Control	Quality Control	Sizing Factor/ Restrictions
	<u>drain well or there are site constraints. Depending on the site, flow-through planters can be constructed with or without walls to contain the facility.</u>				
<u>LIDA Swales</u>	<u>LIDA swales are narrow, gently sloping depressions planted with dense vegetation or grasses designed to receive, filter, and infiltrate the runoff, allowing pollutants to settle and filter out as the water percolates through the swale soil and infiltrate into the ground. Swales can include check dams to help slow and detain the flow.</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>0.06 Min. Bottom Width: 2ft Slope 0.5% to 6.0%</u>
<u>Vegetated Filter Strips</u>	<u>Vegetated filter strips, are gently sloping areas designed to receive sheet flow from adjacent impervious surfaces. Vegetated filter strips are vegetated with grasses and groundcovers that filter and reduce the velocity of stormwater.</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>0.06 Min. Width: 5ft Slope: 0.5% to 6.0%</u>

3. Amend Table 4-1 as follows:

TABLE 4-1
IMPERVIOUS AREA REQUIRING TREATMENT
ON REDEVELOPMENT SITES

Existing Impervious Area on Site	Existing Impervious Area Disturbed by Redevelopment	Impervious Area Required to Treat
< 5,280 sq.ft.	≤ 100%	No new treatment required
≥ 5,280 sq.ft. and < 0.5 acres	< 1,000 sq.ft.	No new treatment required
	≥ 1,000 sq.ft.	100% of impervious area
≥ 0.5 acres and < 5 acres	< 1,000 sq.ft.	No new treatment required
	≥ 1000 sq.ft. and < 25%	Disturbed impervious area + 25% of undisturbed impervious area
	≥ 25% and < 50%	Disturbed impervious area + 50% of undisturbed impervious area
	≥ 50%	100% of impervious area
≥ 5 acres	≤ 1,000 sq.ft.	<u>No new treatment required</u>
	≥ 1000 sq.ft. and < 50%	Disturbed impervious area + 50% of undisturbed impervious area
	≥ 50%	100% of impervious area