Developer Technical Guidance for Projects within the City of Palos Verdes Estates

Prepared by:

Geosyntec consultants

2100 Main Street, Suite 150
Huntington Beach, CA 92648
Telephone: (714) 969-0800
Fax (714) 969-0820
www.geosyntec.com

Project Number: HSW1400B

June 2015
TABLE OF CONTENTS

INTRODUCTION ........................................................................................................... 1
SECTION 1. NEW DEVELOPMENT AND REDEVELOPMENT PROJECTS
   SUBJECT TO LID REQUIREMENTS ................................................................. 5
SECTION 2. SITE PLANNING AND SITE DESIGN BMPS ................................. 7
SECTION 3. SIZING CRITERIA ............................................................................... 8
SECTION 4. LID BEST MANAGEMENT PRACTICES ......................................... 9
SECTION 5. ALTERNATIVE COMPLIANCE ....................................................... 10
   5.1 Alternative Compliance Demonstration (Technical
       Infeasibility) .......................................................................................... 10
   5.2 Alternative Compliance Measures ....................................................... 11
   5.3 Water Quality Mitigation Criteria ......................................................... 13
SECTION 6. HYDROMODIFICATION CONTROL CRITERIA ......................... 14
SECTION 7. SUBMITTAL OF PROJECT PLANS .............................................. 15
SECTION 8. RESOURCES .................................................................................... 16

LIST OF ATTACHMENTS

Attachment A: City of Palos Verdes Estates Municipal Code, Chapter 13.08 – Storm
   Drains and Storm Water Management and Pollution Control
Attachment B: City of Palos Verdes Estates Green Street Policy
Attachment C: County of Los Angeles, Analysis of 85th Percentile 24-hour Rainfall
   Depth
Attachment D: Certification Statement
Attachment E: Planning Information to be Submitted for New Development/
   Redevelopment Projects
INTRODUCTION

This document contains technical information and guidelines intended to assist the development community working within the City of Palos Verdes Estates with proper implementation of the New Development and Redevelopment Standards of the Los Angeles County Municipal NPDES Permit (MS4 Permit). The New Development and Redevelopment Standards of the 2012 MS4 Permit have replaced the Standard Urban Stormwater Mitigation Plan (SUSMP), which had been in effect in the Los Angeles region for the past decade under the previous MS4 Permit. The New Development and Redevelopment design requirements specify the importance of effective site design as well as the selection, design, and implementation of appropriate best management practices (BMPs) to retain the MS4 Permit-specified stormwater quality design volume (SWQDv) to lessen the water quality impacts associated with development.

The City of Palos Verdes Estates has revised Chapter 13.08 of its Municipal Code to include development standards which apply to certain new development and redevelopment projects consistent with the 2012 MS4 Permit requirements. Chapter 13.08 as revised is provided as Attachment A.

This document has been created to help developers navigate the permitting process within the City of Palos Verdes Estates more efficiently. Though this document is not exhaustive and does not provide the complete details necessary to appropriately plan and implement low impact development (LID) design in conformance with the MS4 Permit, it does provide an overview to make the design process more efficient. To that end, each section in this document has been prepared to help developers answer the following questions for their project:

- Section 1: Does my project trigger the New Development or Redevelopment Standards set forth in the MS4 Permit?
- Section 2: Are there steps I can take when initially designing my project to reduce the environmental impact and the chances of triggering the MS4 Permit requirements?
- Section 3: If my project is subject to LID requirements, what amount of stormwater am I required to retain on-site?

---

1 Order No. R4-2012-0175 NPDES Permit No. CAS004001 Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except those Discharges Originating from the City of Long Beach.
Section 4: If my project is subject to LID requirements, what types of LID BMPs do I need to implement?

Section 5: If my project is subject to LID requirements but I can’t retain the required stormwater volume on-site, what am I required to do? How do I demonstrate that I can’t retain the required stormwater volume on-site?

Section 6: My project discharges to a natural drainage system. As a result, are there specific measures I need to implement to address my discharge?

Section 7: What information do I need to provide to the City as a result of these requirements?

Section 8: What additional information is available to assist me in the proper design, construction, and maintenance of LID BMPs?

The flow chart presented in Figure 1 contains the general steps for developers within the City of Palos Verdes Estates to walk through in order to comply with the MS4 Permit and the City’s Municipal Code. The flow chart should assist developers in determining which sections of this document are relevant to their specific project.

As stated previously, this Developer Technical Information document is neither exhaustive nor stand-alone, but directs the user to previously developed information and guidance where appropriate. In particular, this document relies on the LID Standards Manual developed by the County of Los Angeles (County of Los Angeles, 2014) to provide detailed design requirements for developers when implementing LID. Attachments have also been provided at the end of this document to provide supplemental information for LID implementation.

**County of Los Angeles Low Impact Development Standards Manual**

The County of Los Angeles LID Standards Manual (LA County LID Manual) along with the County’s Stormwater BMP Design and Maintenance Manual should serve as the primary design manuals for developers when designing, implementing, and maintaining LID BMPs on their projects.

An updated LA County LID Manual was released in February 2014 to conform to the requirements of the 2012 MS4 Permit in providing guidance to the development community regarding the implementation of LID techniques and BMPs. In addition to providing design standards for a variety of LID BMPs, the LA County LID Manual
provides detailed descriptions, examples, and fact sheets to illustrate how such BMPs function.²

Both County manuals are available for free and can be downloaded at the web addresses provided in Section 8 below.

² Section 1 (Introduction) and Section 3 (Non-Designated Project Requirements) of the LA County LID Manual are not directly applicable to projects within the City of Palos Verdes Estates.
Does the development or redevelopment project require LID implementation (Section 1)?

Yes

Can site planning or site design BMPs be used to reduce the impervious area of the project (Section 2)?*

Yes

Implement “Additional Project BMPs for Single Family Hillside Homes” per Section 4. Other BMPs are not required.

No

Is the project a new construction of a single family hillside home that adds less than 10,000 square feet of impervious area?

Yes

Implement hydromodification control measures per Section 6.

No

Is the project greater than 1 acre in total disturbed area and does it discharge to a natural drainage system? Is the project required to implement hydromodification control measures per Section 6?

Yes

Verify SWQDv requirements are met

No

Calculate the stormwater quality design volume (SWQDv) using the provided sizing criteria (Section 3).

Calculate what percentage of the SWQDv can reliably be retained on-site using a combination of LID BMPs, including:
- On-site infiltration
- On-site capture and use
- Bioretention

If <100% can be reliably retained on-site, technical infeasibility must be demonstrated per Section 5.1.

Submit plans and documentation to the City for project approval (Section 7).

<100%

Follow Alternative Compliance criteria for the percentage of SWQDv that is not retained on-site or that is treated using biofiltration BMPs (Section 5.2).

If off-site mitigation measures are used, follow the water quality mitigation criteria (Section 5.3)

100%

*If the final impervious area is near the qualifying threshold, consider site planning or site design BMPs (Section 2), e.g., porous pavement, to decrease the final impervious area and to exempt the project from the requirement to retain the SWQDv
SECTION 1. NEW DEVELOPMENT AND REDEVELOPMENT PROJECTS SUBJECT TO LID REQUIREMENTS

As set forth in Chapter 13.08 of the City’s Municipal Code, the following projects are required to comply with the New Development and Redevelopment Standards:

1. Development projects, including the construction of new single family residential homes, equal to one acre or greater of disturbed area and adding more than 10,000 square feet of impervious area; \(^3\)

2. Industrial parks with 10,000 square feet or more of surface area;

3. Commercial malls with 10,000 square feet or more of surface area;

4. Retail gasoline outlets with 5,000 square feet or more of surface area;

5. Restaurants (as defined in the Department of Labor’s Standard Industrial Classification (SIC) Code 5812) with 5,000 square feet or more of surface area;

6. Parking lots with 5,000 square feet or more of impervious area or with twenty-five or more parking spaces;

7. Single family hillside residential development or redevelopments, which are projects on properties located in an area with known erosive soil conditions, where the project contemplates grading on any natural slope that is 25% or greater and where grading contemplates cut or fill slopes. Single family hillside home projects are exempt from having to capture and treat the SWQDv (as defined in Section 3) unless they create, add, or replace 10,000 square feet or more of impervious surface area. However, the Additional Project BMPs for Single Family Hillside Homes described in Section 4 must still be implemented regardless of project size;

\(^3\) For the purpose of calculating a project’s total impervious area, any disturbed area that is covered by impenetrable, artificial surfaces is considered impermeable. Such surfaces include, but are not limited to, concrete, brick, pavement, and rooftops. Additionally, if permeable pavement or a similar artificial surface is used to reduce the total impervious area of a project, such a surface must be shown to be self-retaining with respect to the applicable design storm. This means that the full SWQDv calculated for the surface in question must be fully retained by the surface and its underlying material. See Section 3 below for details on calculating the SWQDv.
8. Street and road construction of 10,000 square feet or more of impervious surface area shall consult the City of Palos Verdes Estates’s Green Street Policy (Attachment B), and shall follow USEPA guidance regarding Managing Wet Weather with Green Infrastructure: Green Streets (December 2008 EPA-833-F-08-009) to the maximum extent practicable. Street and road construction applies to standalone streets, roads, highways, and freeway projects, and also applies to streets within larger projects;

9. Automotive service facilities (SIC 5013, 5014, 5511, 5541, 7532-7534 and 7536-7539) with 5,000 square feet or more of surface area;

10. Projects located in or directly adjacent to, or discharging directly to a Significant Ecological Area (SEA), as defined by the City, where the development will:
   a. Discharge stormwater runoff that is likely to impact a sensitive biological species or habitat; and
   b. Create 2,500 square feet or more of impervious surface area.

11. Projects in subject categories above that meet redevelopment thresholds, which include:
   a. Land-disturbing activities which create, add, or replace 10,000 square feet or more of impervious surface area on existing single family dwellings and accessory structures; and
   b. Land-disturbing activities which create, add, or replace 5,000 square feet or more of impervious surface area on an already developed site excluding single family dwellings and accessory structures.

Where redevelopment results in an alteration to more than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-development stormwater quality control requirements (either under SUSMP or LID), the entire Project must be mitigated.

Where redevelopment results in an alteration to less than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-development stormwater quality control requirements (either under SUSMP or LID), only the alteration must be mitigated, and not the entire development.
Where redevelopment results in an alteration to a previously existing development that was subject to post-development stormwater quality control requirements (either under SUSMP or LID), the portion of the project being altered must be mitigated in accordance with the New Development and Redevelopment Standards herein.

The following activities or projects do not constitute new development or redevelopment, and are exempt from the New Development and Redevelopment Standards:

1. Routine maintenance activities conducted to maintain original line and grade, hydraulic capacity, or original purpose of facility; road shoulder work, regrading of dirt or gravel roadways and shoulders, and performing ditch cleanouts; update of existing lines and facilities to comply with applicable codes, standards, and regulations regardless if such projects result in increased capacity. This includes replacing existing lines with new materials or pipes; repairing leaks; disturbances to land surfaces solely related to agricultural operations such as disking, harrowing, and soil preparation; or emergency redevelopment activity required to protect public health and safety.

2. Discretionary permit projects or phased project applications which have been deemed complete by June 28, 2015.

3. Discretionary permit projects without a valid vesting tentative map but which have received an extension of previously granted approvals by June 28, 2015.

SECTION 2. SITE PLANNING AND SITE DESIGN BMPS

When initially planning a project, the developer should consider how various site planning and site design BMPs (Chapter 4 of the LA County LID Manual) can be implemented. These BMPs include:

1. Conserving natural areas, soils and vegetation;
2. Minimizing disturbances to natural drainage patterns;
3. Minimizing and disconnecting impervious surfaces;
4. Minimizing soil compaction; and
5. Directing runoff from impervious areas to pervious areas.

By minimizing the amount of impervious area on the project via site planning and site design BMPs, it may be possible to reduce a project’s impervious area below the applicable threshold trigger in Section 1 above.
SECTION 3. SIZING CRITERIA

For New Development and Redevelopment projects that are identified in Section 1 as being subject to LID requirements, BMPs must be implemented to retain on site the SWQDv, defined as runoff from the greater of:

- The 0.75-inch, 24-hour rain event; or
- The 85th percentile, 24-hour event, as determined from the Los Angeles County 85th percentile precipitation isohyetal report (see Attachment C).

Street and road construction projects of 10,000 square feet or more of impervious surface area are exempt from having to retain the SWQDv, but shall adhere to the City’s Green Street Policy.

To calculate the SWQDv, follow these steps:

1. Determine the 85th percentile, 24-hour storm depth for the project area using the report or website provided as Attachment C. This storm depth varies from approximately 0.7 – 1.1 inches within the City of Palos Verdes Estates.

2. Select the design storm, $P_{\text{design}} [\text{inch}]$, as the greater of either the 85th percentile storm depth or 0.75 inches.

3. Determine the effective catchment area required to be retained using the following equation:

$$\text{Catchment Area} [\text{ft}^2] = (\text{Impervious Area} [\text{ft}^2] \times 0.9) + (\text{Pervious Area} [\text{ft}^2] \times 0.1)$$

For redevelopment projects which alter less than fifty percent of impervious surfaces of a previously existing development, or where the previous development was subject to post-development stormwater quality control requirements, the catchment area should be calculated based on the alteration area only.

4. Calculate the SWQDv based on the following equation:

$$\text{SWQDv} [\text{ft}^3] = \text{Catchment Area} [\text{ft}^2] \times P_{\text{design}} [\text{inch}] \times 0.083 [\text{ft/\text{in}}]$$

Alternatively, one of the methods provided in Chapter 6 of the LA County LID Manual can be followed.

---

4 Alternatively, one of the methods provided in Chapter 6 of the LA County LID Manual can be followed.
This calculated volume of water must be retained on site using BMPs from Section 4 unless it is demonstrated that this is technically infeasible and/or alternative compliance options are more appropriate (see Section 5 below).

SECTION 4. LID BEST MANAGEMENT PRACTICES

In order to control pollutants and stormwater runoff from the project site, LID BMPs must be implemented to capture and retain on site the entire SWQDv (where technically feasible). To accomplish this, BMP types to be used shall include any combination of infiltration, rainfall harvest and use, and/or bioretention. Chapter 7 of the LA County LID Manual sets forth standards that should be followed when designing and implementing these BMPs.

**Infiltration** - Infiltration BMPs are constructed with a highly permeable base that is specifically designed to infiltrate runoff. Because it is not often feasible to infiltrate water at the same rate at which it is collected, a storage component is also a necessary part of these BMPs. Examples of infiltration BMPs include porous pavement, infiltration trenches and basins, and dry wells. In some development scenarios, such as sites with shallow groundwater, Brownfield development sites, sites susceptible to geotechnical hazards, or sites with poor infiltration rates (<0.3 in/hr), it may not be feasible to use infiltration BMPs.

**Rainfall Harvest and Use** - These BMPs capture stormwater that is generated from impervious surfaces such as rooftops and hold it for later use in lawn and garden watering. Rainwater can be collected for use in a variety of vessels from small, prefabricated barrels (rain barrels) to large, custom-built cisterns. These systems can be constructed above ground, where access is simple and pumping is not required, or below ground, where pumping is necessary but developable space is saved.

**Bioretention** - Bioretention BMPs are vegetated, shallow depressions that provide storage, infiltration, and evapotranspiration of stormwater. Pollutants are removed by filtering stormwater through plants and engineered soils. Bioretention BMPs designed to retain water on-site cannot contain an underdrain (BMPs with an underdrain are discussed in Section 5 below). Examples of bioretention BMPs include vegetated planter boxes and rain gardens.

If the entire SWQDv cannot be retained on site via one or a combination of the BMPs specified in this Section, alternative compliance options must be implemented (these BMPs are described in Section 5: Alternative Compliance). If only a fraction of the SWQDv can be retained on site, that fraction must be retained on site using the BMPs described above and the remaining fraction of the SWQDv must be treated using the alternative compliance measures described below.
Additional Project BMPs:

For **Industrial/Commercial Facilities**, developers must also refer to the California Stormwater Quality Association (CASQA) BMP Handbook for Industrial and Commercial Facility Control BMPs. This includes BMPs for restaurants, retail gasoline outlets, automotive repair shops, and parking lots.

For **Single Family Hillside Homes**, the following measures must be implemented during the construction of a single-family hillside home in addition to applicable BMPs above:

- a. Conserve natural areas;
- b. Protect slopes and channels;
- c. Provide storm drain system stenciling and signage;
- d. Divert roof runoff and surface flow to vegetated areas before discharge unless the diversion would result in slope instability; and
- e. Direct surface flow to vegetated areas before discharge unless the diversion would result in slope instability.

**SECTION 5. ALTERNATIVE COMPLIANCE**

If technical infeasibility can be demonstrated such that the full SWQDv cannot reliably be retained on site, alternative compliance measures may be implemented to treat the portion of the SWQDv not retained on site.

5.1 **Alternative Compliance Demonstration (Technical Infeasibility)**

To demonstrate technical infeasibility, the project applicant must demonstrate that the project cannot reliably retain 100 percent of the SWQDv on site, even with the maximum application of rainfall harvest and use, and that compliance with the applicable BMP requirements would be technically infeasible. Technical infeasibility must be demonstrated by submitting a site-specific hydrologic and/or design analysis to the City. This analysis must be conducted and endorsed by a registered professional engineer, geologist, architect, and/or landscape architect. Technical infeasibility may result from conditions including the following:

---

5 CASQA’s California LID Portal: [https://www.casqa.org/resources/california-lid-portal](https://www.casqa.org/resources/california-lid-portal)
a. The infiltration rate of saturated in-situ soils is less than 0.3 in/hr and it is not technically feasible to amend the in-situ soils to attain an infiltration rate necessary to achieve reliable performance of infiltration or bioretention BMPs in retaining the SWQDv on site;

b. Project sites where seasonal high ground water is within 5 to 10 feet of the surface;

c. Sites within 100 feet of a ground water well used for drinking water;

d. Brownfield development sites where infiltration poses a risk of causing pollutant mobilization;

e. Other locations where pollutant mobilization is a documented concern. This includes projects that are located at or near properties that are contaminated or store hazardous substances underground (including onsite wastewater treatment systems);

f. Locations with potential geotechnical hazards; or

g. Smart growth and infill or redevelopment locations where the density and/or nature of the project would create significant difficulty for compliance with the onsite volume retention requirements.

If technical infeasibility is demonstrated for the entire project, alternative compliance measures as described below must be implemented. If technical infeasibility is demonstrated for part of the project, such that only a portion of the SWQDv can be retained on site, alternative compliance measures as described below must be implemented to address the remaining volume.

5.2 Alternative Compliance Measures

For projects which are allowed to use alternative compliance measures due to technical infeasibility, one of the following mitigation options must be implemented:

1. Onsite Biofiltration

Biofiltration BMPs may be used on a project that has demonstrated technical infeasibility; however, biofiltration BMPs must biofiltrate 1.5 times the portion of the SWQDv that is not reliably retained on-site. The biofiltration treatment volume must be calculated using Equation 1:

\[
Bv \ [ft^3] = 1.5 \times (SWQDv \ [ft^3] - Rv \ [ft^3])
\]
Where:

\[ B_v = \text{biofiltration volume required to be treated.} \]

\[ \text{SWQD}_v = \text{runoff from the 85}\text{th percentile, 24-hour storm or the 0.75-inch design storm, whichever is greater.} \]

\[ R_v = \text{the volume of runoff reliably retained on site.} \]

2. Off-site Infiltration

Infiltration or bioretention BMPs may be used at an approved off-site project to address the stormwater runoff discharged from a project site. The required off-site mitigation volume must be calculated using Equation 2:

\[ [\text{Equation 2}] \quad M_v [\text{ft}^3] = 1.0 \times (\text{SWQD}_v [\text{ft}^3] \text{ -- } R_v [\text{ft}^3]) \]

Where:

\[ \text{SWQD}_v = \text{runoff from the 85th percentile, 24-hour storm or the 0.75-inch design storm, whichever is greater.} \]

\[ R_v = \text{the volume of runoff reliably retained on site.} \]

\[ M_v = \text{mitigation volume.} \]

3. Regional Groundwater Replenishment

Regional groundwater replenishment projects must use infiltration, groundwater replenishment, or bioretention BMPs to intercept a volume of stormwater runoff equal to the SWQD\(_v\) for new development and redevelopment projects.

4. Retrofit of an Existing (Off-site) Development

A retrofit plan for an existing development that has similar land uses or comparable/higher runoff event mean concentrations (EMCs) should be designed and constructed to:

a. Intercept a volume of stormwater runoff as calculated in Equation 1 for biofiltration BMPs and as calculated in Equation 2 for infiltration, bioretention, or rainfall harvest BMPs.
b. Provide pollutant reduction (treatment) of the stormwater runoff from the project site.

The preferred LID BMP includes green streets, parking lot retrofits, and rainfall harvest and use. Biofiltration BMPs may be considered when infiltration, bioretention, or rainfall harvest and use is technically infeasible.

All off-site projects must meet the following conditions:

a) All off-site projects outside of the City of Palos Verdes Estates must drain to the same HUC-12 hydrologic area as the new project, or must obtain approval by the Executive Officer of the Regional Water Quality Control Board (Regional Board).

b) Project applicant must demonstrate that equal benefits to groundwater recharge cannot be met on the project site.

c) Off-site projects must be approved by the City and are subject to approval by the Executive Officer of the Regional Board (Executive Officer). The project must be performed as approved by the City or Executive Officer or sufficient funding must be available for public or private off-site projects to achieve the equivalent mitigation stormwater volume.

5.3 Water Quality Mitigation Criteria

For projects using off-site mitigation measures, treatment of on-site project stormwater runoff must be provided. Treatment may be provided by implementing post-construction stormwater BMPs, including flow-through modular treatment systems such as sand filters or other proprietary BMP treatment systems. The following water quality mitigation criteria must be met by the project:

1. The pollutant-specific benchmarks provided in Table 1 must be met at the treatment system’s outlet. Benchmarks vary based on the watershed where the project is located. The discharge cannot cause or contribute to an exceedance of water quality standards at the downstream MS4 outfall.

<table>
<thead>
<tr>
<th>Watershed</th>
<th>Suspended Solids (mg/L)</th>
<th>Total P (mg/L)</th>
<th>Total N (mg/L)</th>
<th>TKN (mg/L)</th>
<th>Total Cd (µg/L)</th>
<th>Total Cu (µg/L)</th>
<th>Total Cr (µg/L)</th>
<th>Total Pb (µg/L)</th>
<th>Total Zn (µg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machado Lake</td>
<td>14</td>
<td>0.1</td>
<td>1.0</td>
<td>-</td>
<td>0.3</td>
<td>6</td>
<td>2.8</td>
<td>2.5</td>
<td>23</td>
</tr>
<tr>
<td>Santa Monica Bay</td>
<td>14</td>
<td>0.13</td>
<td>1.28</td>
<td>1.09</td>
<td>0.3</td>
<td>6</td>
<td>2.8</td>
<td>2.5</td>
<td>23</td>
</tr>
</tbody>
</table>
2. Flow-through modular treatment systems that are being used must be at least as efficient as a sand filter and able to pass the rainfall intensity from a one-year, one-hour storm (based on the Los Angeles County isohyetal map; see Attachment C).

3. The project cannot cause or contribute to an exceedance of applicable water quality-based effluent limitations or receiving water limitations in accordance with Total Maximum Daily Loads (TMDLs). For example, this includes single sample limits for total coliform (10,000 MPN/100 ml), fecal coliform (400 MPN/100 ml), and enterococcus (104 MPN/100 ml) in the Santa Monica Bay Watershed.

4. The project cannot cause or contribute to an exceedance of water quality standards at the downstream MS4 outfall. For example, this includes single sample limits for *E. coli* (235 MPN/100 ml) in the Dominguez Channel Watershed (including Machado Lake and Wilmington Drain).

5. For commercial, industrial, or multi-family residential projects, certified full capture systems for trash must be installed at all catch basins on the project site.

**SECTION 6. HYDROMODIFICATION CONTROL CRITERIA**

Hydromodification control measures are necessary for New Development and Redevelopment projects that are located within natural drainage systems. This does not include:

a. The clearing or dredging of a natural drainage system;

b. Replacement, maintenance or repair of an existing flood control facility, storm drain, or transportation network;

c. Redevelopment projects in the urban core that do not increase the effective impervious area or decrease the infiltration capacity of pervious areas;

d. Projects that have any increased discharge directly or via a storm drain to a sump, lake, area under tidal influence, into a waterway that has a 100-year peak

---

Commented [CW2]: City staff, please confirm your concurrence.

---

6 “Natural drainage systems” means all drainages that have not been improved (e.g., channelized or armored with concrete, shotcrete, or rip-rap), or drainage systems that are tributary to a natural drainage system.
flow (Q100) of 25,000 cfs or more, or other receiving water that is not susceptible to hydromodification impacts;

e. Projects that discharge directly or via a storm drain into concrete or otherwise engineered (not natural) channels, which, in turn, discharge into receiving water that is not susceptible to hydromodification impacts; or

f. LID BMPs implemented on single family homes are sufficient to comply with hydromodification criteria

Hydromodification control measures are used to minimize changes in post-development storm water runoff discharge rates, velocity, and duration in order to protect natural drainage systems downstream. Projects greater than one acre in total disturbed area which are not exempt per the list above must implement hydromodification control measures per the requirements in Chapter 13.08 of the City’s Municipal Code. Alternatively, hydromodification requirements set forth in the LA County LID Manual may be adhered to (Chapter 8 of the LA County LID Manual).

SECTION 7. SUBMITTAL OF PROJECT PLANS

Upon completion of initial project plans, developers must submit their design plans to the City for approval. These plans must include all BMP sizing calculations and details, as well as expected BMP pollutant removal efficiency. In addition, if alternative compliance measures are used due to technical infeasibility, a qualifying report demonstrating technical infeasibility must be submitted to the City.

Along with project plans and BMP details, the Owner Certification Form (Attachment D) and Planning Information to be Submitted for New Development/Redevelopment Projects (Attachment E) must be completed and submitted to the City.

Commented [CW3]: Note to City, we’ve taken a stab at some generic language here, but feel free to modify or provide us a version the City prefers.

7 For BMPs detailed in the LA County LID Manual, the pollutant removal summaries provided in the manual are sufficient to meet this requirement. Other BMPs must be accompanied by similar BMP performance summaries.
SECTION 8. RESOURCES

CASQA’s California LID Portal:
https://www.casqa.org/resources/california-lid-portal

The County of Los Angeles Low Impact Development Standards Manual (2014) is available for download here:

The County of Los Angeles Stormwater Best Management Practice Design and Maintenance Manual is available for download here:

The County of Los Angeles Hydrology Map, which contains the 85th percentile, 24-hour storm depths throughout the County as well as the 1-year, 1-hour rainfall intensity, can be found here:
http://www.ladpw.org/wrd/hydrologygis/

The 2012 MS4 Permit is available for download in its entirety here:
http://www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/

USEPA’s guidance regarding Managing Wet Weather with Green Infrastructure: Green Streets (December 2008 EPA-833-F-08-009) is available for download here:
http://water.epa.gov/infrastructure/greeninfrastructure/upload/gi_munichandbook_green_streets.pdf
Attachments
Attachment A:
City of Palos Verdes Estates
Municipal Code Chapter 13.08
Stormwater and Urban Runoff Pollution Control
Attachment B:
City of Palos Verdes Estates
Green Street Policy
Attachment C:
County of Los Angeles
Analysis of 85th Percentile 24-hour Rainfall Depth
The County of Los Angeles Hydrology Map, which contains the 85th percentile, 24-hour storm depth throughout the County as well as the 1-year, 1-hour rainfall intensity, can be found here: [http://www.ladpw.org/wrd/hydrologygis/](http://www.ladpw.org/wrd/hydrologygis/)

The map can be used to obtain the design storm for projects within the City of Palos Verdes Estates. Simply check the box for the desired “Layer” in the top left corner of the map, and then zoom into the project location. For projects lying between two isohyet lines, linear interpolation should be used to estimate the appropriate design storm.

Alternatively, the following report by the County of Los Angeles Department of Public Works may be used.
Attachment D:

LID Project Certification Statement
New Development and Redevelopment Program
Owner’s Certification Statement for LID BMPs

This form must be signed by the project owner as a certification of project responsibility. The signed form must be submitted to the City along with final project plans.

“Should the project plans and specifications provided to the City as part of the New Development/Redevelopment planning process be incorrect, we understand and acknowledge that we are responsible for the cost of correcting any deficiency in the performance of the project condition as well as payment of applicable administrative and/or civil remedies. We understand that the City will rely on the representations contained in this statement as having achieved our obligation for compliance with stormwater requirements and sign this certification voluntarily, without purpose of evasion and of our own free will and with full knowledge of its significance.”

____________________________________
Owner’s Name – Print

____________________________________
Owner’s Name – Signature

____________________________________
Date
Attachment E:
Planning Information to be Submitted for New Development/Redevelopment Projects