

SECTION 3

DETENTION/ HYDROMODIFICATION/ WATER QUALITY VOLUME EXHIBIT





LEGEND

- Portola Hills Detention Chamber
- Hydromod/Water Quality Underground Chamber
- Hydromod/WQ/Detention Basin
- Portola Center Detention Chamber
- Existing Storm Drain
- Proposed Storm Drain (Pre-treated flows)
- Proposed Storm Drain (Post-treatment)
- Proposed Storm Drain (Post-treatment/offsite flows)
- Tributary Area Boundary
- Tract Boundary
- Node Number 204.2

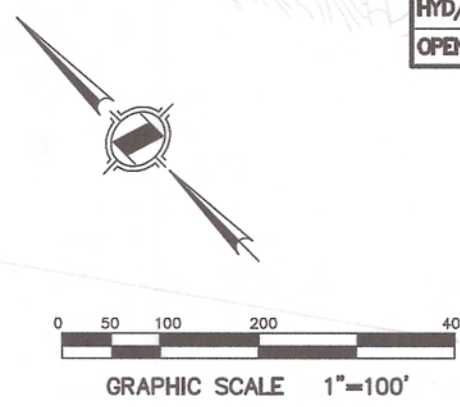
BASIN No.	TRIBUTARY AREA	% OF IMPERVIOUS	V-bmp	V-hydro	V-detention
HYD/WQ #1	5A, 1.1 AC	90%	0.10 AC-FT	0.14 AC-FT	
DET. BASIN #2	161.3 AC	50%	N/A	N/A	5.40 AC-FT
HYD/WQ #5	1A, 25.3 AC 3A, 11.4 AC	50%	2.14 AC-FT	2.38 AC-FT	
HYD/WQ #4	4A, 10.3 AC	80%	0.88 AC-FT	1.00 AC-FT	
HYD/WQ #5	1B, 58.0 AC 2B, 15.8 AC	45%	4.06 AC-FT	5.44 AC-FT	
HYD/WQ #7A & 7B	3B, 9.2 AC	56%	0.59 AC-FT	0.77 AC-FT	
DET. BASIN #8					0.04 AC-FT
HYD/WQ #8A	1C, 4.2 AC	48%	0.24 AC-FT	0.38 AC-FT	
HYD/WQ #8B	2C, 6.0 AC	50%	0.36 AC-FT	0.54 AC-FT	
OPEN BASIN #9	1D, 12.5 AC	53%	0.77 AC-FT	1.52 AC-FT	1.90 AC-FT

PREPARED BY: **H&A**
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PREPARED FOR:
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 NEWPORT BEACH, CA 92660

**PORTOLA CENTER
 TENTATIVE TRACTS
 15353 & 17300**

**PRELIMINARY DESIGN
 DETENTION - HYDROMODIFICATION
 & WATER QUALITY VOLUME EXHIBIT
 BIOCLEAN OPTION (WQ)**



Appendix C

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Soils Engineer's Supplemental Letter with Recommendations Against Infiltration and Geotechnical Investigation

Note: The text of the July 6, 2012 project Geotechnical Investigation by Geocon, Inc. is enclosed for reference. However, the Geologic Map, cross sections and boring data stress test data with cross sections are not included herein in order to reduce the size of this WQMP. For the most recent, complete project geotechnical report, please see this project's files at the City of Lake Forest.



Project No. G1218-52-01
October 18, 2011

Portola Center, LLC
610 West Ash Street, Suite 1500
San Diego, California 92101

Attention: Mr. Scott Molloy

Subject: STORM WATER MANAGEMENT CONSULTATION
PORTOLA CENTER
LAKE FOREST, CALIFORNIA

- References:
1. *Geotechnical Investigation, Portola Center North, Tentative Map 17300, Lake Forest, California*, prepared by Geocon Incorporated, dated May 10, 2011 (Project No. G1218-52-01).
 2. *Geotechnical Investigation, Portola Center South, Tentative Map 15353, Lake Forest, California*, prepared by Geocon Incorporated, dated May 5, 2011 (Project No. G1218-52-01A).

Dear Mr. Molloy:

In accordance with your request, we prepared this letter to discuss storm water management on the subject site from a geotechnical engineering standpoint. We understand the regulatory agency may request storm water management devices for the project. Based on review of the referenced reports, the subject development will be underlain by compacted fill over Terrace Deposits, Capistrano Formation, Puente Formation, and the Topanga Formation. The fill materials within the planned development possess a "very low" to "high" expansion potential (expansion index of 130 or less).

A review of the tentative maps and discussions with the design team indicate that storm water management systems may be requested by representatives of the City of Lake Forest. These systems usually include permeable pavement/pavers, grass-lined swales, infiltration basins, and retention areas.

Some storm water management devices are designed to promote water infiltration; however, the existing soil conditions are not conducive for water infiltration. We recommend against water infiltration adjacent to structures/improvements, compacted fill, and slopes. In this regard, distress and possible failure within the existing and planned improvements will likely occur if infiltration devices were allowed and installed. The distress could include settlement or expansion of soil below foundations, improvements, and pavements. Water infiltration would also likely negatively affect the stability of the planned slopes and walls within the development. Down-gradient properties may be subjected to seeps, springs, slope instability, movement of foundations and slabs, or other impacts as a result of water infiltration. Also, water may enter underground utility pipe zones and impact

improvements down gradient from the site. The potential for distress depends on the amount of water to be detained, its residence time, soil permeability, and other factors. We have not performed a hydrogeologic study at the site.

If you have any questions regarding this letter, or if we may be of further service, please contact the undersigned at your convenience.

Very truly yours,


GEOCON INCORPORATED



Shawn F. Weedon
GE 2714

SFW:JH:dmc

(2) Addressee
(e-mail) Hunsaker & Associates Irvine, Inc.
Attention: Mr. Joe Wightman



John Hoobs
CEG 1524

