



May 25, 2011

Mr. Steve Soboroff
c/o Goldman Firth Rossi Architects
24955 Pacific Coast Highway, Suite A202
Malibu, CA 90265

Subject: Addendum I Limited Geotechnical Response Report, Proposed Whole Foods in the Park Shopping Center, 23401 Civic Center Way, Malibu, California.

Mr. Soboroff,

In accordance with the plans and reports referenced in Section 2.0 regarding the proposed development at the subject property, this office has prepared this Addendum I Limited Geotechnical Response Report. The proposed development has been slightly modified, as reflected in the Revision 3 Architectural Plans (Reference 1(b)) and Revision 1 Landscape Plans and Water Budget Calculations (Reference 3(c)), both dated April 28, 2011. The following is our response to the referenced and attached City of Malibu Geotechnical Review Sheet, dated May 27, (Reference 8).

1.0 Plan Review Response

The following items detail our responses or direct you to others on the project teams who have provided their responses. Refer to the City of Malibu Geotechnical Review Sheet, dated May 27, 2010 (Reference 8, Attachment 1).

Review Comment 1

The Project Geotechnical Consultant provides an updated geologic map and cross-sections that depict the currently proposed grades and development. Please clearly depict the proposed removals under the site. Additional recommendations shall be provided, as necessary, regarding the revised development plans. The Project Geotechnical Consultant provides no discussions regarding the revisions to the development.

Response

Response to this is being provided by the Project Geotechnical Consultant under separate cover.

Review Comment 2

Please show the seismic trenches on the Geologic Map. Is there adequate coverage for the currently proposed development? Besides the findings in the seismic trenches, what additional evidence supports the Project Geotechnical Consultant's conclusion that "...no known active fault is anticipated to daylight beneath the limits of the proposed structure."?

Response

Response to this is being provided by the Project Geotechnical Consultant under separate cover.

Review Comment 3

The Project Geotechnical Consultant must demonstrate that daily irrigation of the proposed landscaping will not adversely affect the groundwater levels under the site or adjacent properties. If the groundwater level will be raised, the Project Geotechnical Consultant shall incorporate such rises in the evaluations of liquefaction potential, surface manifestations, lateral spreading, and seismically-induced settlement. Recommendations for mitigation measures shall be provided, as appropriate.

Response

As a result of the Water Balance Calculations presented in Attachment 2 of this Report, the currently proposed site and landscape plans with proposed irrigation (References 1(b) and 3(c)), will result in a 46-percent decrease of water infiltrating to groundwater as compared to the existing condition. Currently, the site is approximately 90-percent pervious whereas post-development it will be reduced to approximately 23-percent pervious. Included in the area calculations is 4,514-square feet (sf) of offsite pervious area that is to be landscaped as part of the proposed development and remain pervious. It is assumed that drainage from impervious areas does not recharge groundwater.

Drainage from pervious areas does recharge groundwater. Prediction of the rainfall-runoff relationship in relatively flat and pervious drainage areas at sites such as this typically over estimates runoff, thereby under estimating infiltration. Depending upon the source of rainfall data, average annual rainfall in the area may be estimated to be between 15 and 17.4 inches per year (in/y). Hydrologic theory and numerous studies suggest that for the relatively low intensity, low duration precipitation typical of an average rainfall event, as little as 35-percent of the rainfall results in runoff. At the adjacent and similar La Paz site, previous modeling studies by Fugro West (References 7(a) and 7(b)) and Lombardo Associates (Reference 10) utilized a conservative average rainfall recharge rate of two-inches of rainfall per year as being infiltrated to groundwater. For the purposes of this analysis, two-inches of rainfall recharge per year was used in calculating the volume of pre- and post-development annual infiltration volumes. As presented in the Water Balance Calculations presented in Attachment 2 of this Report, the reduction in pervious area as a result of the proposed development will reduce the annual estimated volume of storm water infiltration to groundwater from 294,000-gallons per year (gal/y) to approximately 74,000-gal/y.

Valley Crest Design-Build prepared modified Water Budget Calculations in their Revision 1 Plans (Reference 3(c)), which are summarized in the Water Balance Calculations presented in Attachment 2 of this Report. A range of irrigation systems are proposed, with irrigation efficiencies ranging from 65-percent to 85-percent efficient. It is generally agreed upon in the irrigation industry that of the portion of irrigation water that is not delivered to the landscape, the majority is lost to either evaporation during irrigation or is evaporated from the landscape canopy and does not reach the ground surface. For the purposes of this analysis, a conservative value of 5-percent of the total annual estimated applied water use was used to estimate the volume of irrigation water that may be expected to infiltrate and recharge groundwater. This results in an additional 86,000-gal/y that will be infiltrated, for a total of approximately 160,000-gal/y groundwater recharge in the post-development condition. This total is approximately 54-percent of the groundwater recharge taking place in the existing undeveloped condition.

2.0 References

- 1. Goldman Firth Rossi Architecture, Inc: (a) Architectural Plan, dated April 23, 2010; (b) Architectural Plan, Revision 3 dated April 28, 2011.**
- 2. PCCE, Inc: Grading Plans, dated April 23, 2010.**
- 3. Valley Crest Design-Build: (a) Landscape Plans, dated April 20, 2010; (b) Water Budget Calculations, dated June 9, 2010; (c) Landscape Plans and Water Budget Calculations, Revision 1 dated April 28, 2011.**
- 4. Van Beveren & Butelo, Inc: Report of Hydrogeologic Investigation, dated June 4, 2008.**
- 5. Geoconcepts, Inc: Supplemental Report No 1, dated April 22, 2010.**
- 6. EPD Consultants, Inc: (a) Limited Hydrologic Analysis, dated July 6, 2010; (b) Limited Geotechnical Response Report, date July 15, 2010.**
- 7. Fugro West, Inc.: (a) March 2005; (b) May 2005**
- 8. City of Malibu: Geotechnical Review Sheet, dated May 27, 2010**
- 9. California Irrigation Management Information System (CIMIS): Los Angeles Basin- Santa Monica 99, dated January 1993 to December 2007.**
- 10. Lombardo Associates, Inc: July 7, 2008**



2.0 Limitations

Consultant has performed these services within the limits described by Client. This report completes our scope of services in accordance with our agreement. This Report has been prepared in accordance with generally accepted practice. The conclusions and recommendations in this Report are based upon data obtained from the referenced sources. No warranties, either expressed or implied, are made as to the professional advice provided under the terms of the agreement and included in this report.

The data and conditions presented herein are generally considered valid for one year from the date of this Report. Reports and system designs older than one year can be updated to assure compliance with current regulations. Consultant will be available to make a final review of the project plan and specifications to assist in assuring correct interpretation of this Report's recommendations for use in applicable sections. It is the responsibility of Client and/or Clients' Contractor to ensure that all recommendations are carried out properly.

If this Report or portions here of are provided to contractors or included in specifications, it should be understood by all parties that they are provided for preliminary information only and should be used as such. Any variance from Consultants prescribed requirements and/or recommendations would nullify this Report and Client and/or Clients' Contractor would indemnify Consultant and its representatives from any and all liabilities and/or obligations.

This report has been prepared for the exclusive use of Mr. Steve Soboroff and his authorized agents and is not intended for transfer or use by other parties without written review by Consultant. Please contact the undersigned if there are any questions concerning this Report or the recommendations included herein.

Respectfully submitted,
EPD Consultants, Inc.

Kevin Poffenbarger, PE
RCE 69089, Exp 6/30/12
Senior Project Engineer

Attachments: 1. City of Malibu, Geotechnical Review Sheet, dated May 27, 2010
2. Water Balance Calculations, revised May 23, 2011

xc: 1. Addressee (1 copy).
2. Marny Randall (3 copies).
3. File



City of Malibu

23815 Stuart Ranch Road • Malibu, California 90265-4861
(310) 456-2489 • Fax (310) 456-7650 • www.ci.malibu.ca.us

PLANNING REVIEW

GEOTECHNICAL REVIEW SHEET

<u>Project Information</u>			
Date:	May 27, 2010	Review Log #:	3142
Site Address:	23401 Civic Center Way		
Lot/Tract/PM #:	n/a	Planning #:	CDP 10-022
Applicant/Contact:	Marny Randall, marnyrandall@verizon.net	BPC/GPC #:	
Contact Phone #:	310-395-2615	Fax #:	310-395-2368
Project Type:	Revised Project-Whole Foods Shopping Center		
Planner:	Bonnie Blue		

<u>Submittal Information</u>	
Consultant(s) / Report Date(s): <i>(Current submittal(s) in Bold.)</i>	GeoConcepts, Inc. (Walter, CEG ; Sousa, CEG) : 3-30-10 (revised 4-22-10) Precise Grading Plan prepared by P.C.C.E. Inc., dated May 5, 2010, three sheets. Whole Foods in the Park plans prepared by Goldman Firth Rossi Architects, dated May 5, 2010. Ref: Van Beveren & Butelo, Inc.: 1-13-09, 8-7-07 Ref: GeoConcepts, Inc. : 3-27-03, 8-5-99, 6-21-99 Ref: Petra: 9-7-05 (PPC 99-003)
Previous Reviews:	Geotechnical Review Referral Sheet dated 5-11-10; Ref: 5-19-09, 9-22-08, Geology Review Referral Sheet dated 10-11-07; Ref: Hydrogeologic Review Sheet dated 3-2-06 (PPC 99-003), 4-29-03, 9-2-99, 7-22-99 (PPC 99-004)

<u>Review Findings</u>	
<u>Coastal Development Permit Review</u>	
<input type="checkbox"/>	APPROVED from a geotechnical perspective.
<input checked="" type="checkbox"/>	NOT APPROVED from a geotechnical perspective. The listed 'Review Comments' shall be addressed prior to approval.
<u>Building Plan-Check Stage Review</u>	
<input checked="" type="checkbox"/>	Awaiting Building plan check submittal. Please respond to the listed 'Building Plan-Check Stage Review Comments' AND review and incorporate the attached 'Geotechnical Notes for Building Plan Check' into the plans.
<input type="checkbox"/>	APPROVED from a geotechnical perspective. Please review the attached 'Geotechnical Notes for Building Plan Check' and incorporate into Building Plan-Check submittals.
<input type="checkbox"/>	NOT APPROVED from a geotechnical perspective. The listed 'Building Plan-Check Stage Review Comments' shall be addressed prior to Building Plan-Check Stage approval.

Guidelines for geotechnical reports (dated February 2002) are available on the City of Malibu web site:
<http://www.ci.malibu.ca.us/index.cfm?fuseaction=nav&navid=30>.

Fugro Project #: 3399.001

Remarks

The geotechnical report and revised plans were reviewed by the City from a geotechnical perspective. Based upon the submitted information, the project comprises a new 38,425 square foot commercial development consisting of a 24,549 square foot Whole Foods Market building and four retail and food buildings totaling 13,876 square feet, parking lots, landscaping, decking, walls, and trellises.

Grading includes 7,612 yards of R & R; 4,429 yards of fill under structure (raising the elevations of the proposed development); 70 yards of cut and 5,321 yards of fill non-exempt; and 9,680 yards of import materials.

Based on a meeting with the applicant on February 8, 2010, the proposed development will be connected to the City's wastewater treatment plant. No onsite disposal of effluent is proposed with this development.

Review Comments:

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2. Please show the seismic trenches on the Geologic Map. Is there adequate coverage for the currently proposed development? Besides the findings in the seismic trenches, what additional evidence supports the Project Geotechnical Consultant's conclusion that, "...no known active fault is anticipated to daylight beneath the limits of the proposed structure."?
3. The Project Geotechnical Consultant must demonstrate that daily irrigation of the proposed landscaping will not adversely affect the groundwater levels under the site or adjacent properties. If the groundwater level will be raised, the Project Geotechnical Consultant shall incorporate such rises in the evaluations of liquefaction potential, surface manifestations, lateral spreading, and seismically- induced settlement. Recommendations for mitigation measures shall be provided, as appropriate.

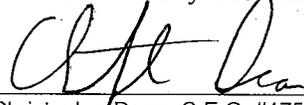
Building/Grading Plan-Check Stage Review Comments:

1. Please provide an electronic copy of the referenced report by Van Beveren & Butelo, Inc. dated 1-13-09 for the City's files.
2. A letter should be provided by the Project Structural Engineer indicating that: 1) they are aware of the anticipated displacements due to liquefaction related hazards, as determined by the Project Geotechnical Engineer; 2) that they acknowledge the geotechnical recommendations made by the Project Geotechnical Engineer for mitigation of potential seismic and liquefaction hazards; and 3) given the potential displacements, the proposed foundation design is adequate to provide support within the seismic tolerances required by the CBC (e.g., safeguard against major structural failures and loss of life).
3. The following note must appear on the grading and foundation plans: "*Shear testing shall be performed on the compacted fill materials to confirm the recommended bearing pressures and lateral resistances.*"
4. Please depict limits and depths of over-excavation and structural fill to be placed on the grading plan, and cross sectional view of the proposed building area. Cut and fill yardages are to be indicated on the cover sheet of the plans.
5. Two sets of grading, retaining wall, and commercial development plans (**APPROVED BY BUILDING AND SAFETY**) incorporating the Project Geotechnical Consultant's recommendations and items in this review sheet must be **reviewed and wet stamped and manually signed by the Project Engineering Geologist and Project Geotechnical Engineer**. City geotechnical staff will review the plans for

conformance with the Project Geotechnical Consultants' recommendations and items in this review sheet over the counter at City Hall on Mondays through Thursdays between 8 AM and 10 AM.

Please direct questions regarding this review sheet to City Geotechnical staff listed below.

Engineering Geology Review by:



Christopher Dean, C.E.G. #1751, Exp. 9-30-10
Engineering Geology Reviewer (x306)

5/27/10
Date

Geotechnical Engineering Review by:



Leland M. Kraft, Jr., G.E. # 484, Exp. 6-30-10
Geotechnical Engineering Reviewer (805-444-1943)

05-27-10
Date

This review sheet was prepared by City Geotechnical Staff contracted with Fugro as an agent of the City of Malibu.

FUGRO WEST, INC.
4820 McGrath Street, Suite 100
Ventura, California 93003-7778
(805) 650-7000 (Ventura office)
(310) 456-2489, x306 (City of Malibu)



WATER BALANCE CALCULATIONS:
Whole Foods in the Park
Civic Center Way & Cross Creek Road
Malibu, CA 90265

REVISED 5.23.11

Pre-Development Infiltration						Volume Infiltrated (gal/yr)	
Parcel 1 Area (in square feet)	101,478						
Parcel 2 Area (in square feet)	154,690						
Offsite Landscape (in square feet)	4,514						
Total Site Area (in square feet)	260,682						
Existing Impermeable Area (in square feet)	24,807				0	0	inches rainfall recharge
Existing Permeable Area (in square feet)	235,875				294,058	2	inches rainfall recharge
Native Compaction (85%)							
Total Volume Infiltrated, Pre-Development						294,058 gallons per year	
Post-Development Infiltration							
Notes							
1. Irrigation Efficiency ranges from 65- 90%. Majority of inefficiency lost to evaporation during application and in canopy. Assume: 5% of ETWU is infiltrated							
2. Tree zones not included in Proposed Permeable Landscape Area calculation. Included in Proposed Impermeable Area							
3. Proposed Permeable Non-landscape Area includes 438-sf Hitching Post Area							
Estimated Applied Water Use (ETWU) = (Eto)*(0.62)*(HA)*(PF)/(IE)							
Reference Evapotranspiration (Eto)	44.2	in/yr					
Per Landscape Architect	Area HA (sf)	Water Use	Plant Factor PF	Irrigation Efficiency IE	ETWU (gal/y)	Volume Infiltrated (gal/y) (see Note 1)	
Hydrozone 1 (see Note 2)	4,821	Low Trees	0.3	0.8	49,543	2,477	
Hydrozone 2 (see Note 2)	61,764	Med Trees	0.5	0.8	1,057,863	52,893	
Hydrozone 3	56,325	Ultra Low	0.3	0.9	514,510	25,726	
Hydrozone 4	2,796	High Turf	0.8	0.65	94,303	4,715	
Proposed Permeable Landscape Area (sf)	59,121					73,704	2 inches rainfall recharge
95% compacted subbase							
Proposed Permeable Non-landscape Area (sf)	438					546	2 inches rainfall recharge
95% compacted subbase (see Note 3)							
Proposed Impermeable Area in sf	201,123					0	0 inches rainfall recharge
Total Volume Infiltrated, Post-Development						160,061 gallons per year	
Post Development Percent Infiltration						54% of Pre-Development	