LANDSET ENGINEERS, INC.
ENGINEERING - LAND PLANNING
SURVEYING - ENVIRONMENTAL CONSULTING

May 22, 2008

File No.: LSW-0337-01

Mr. John M. Thompson
Thompson Holdings, L.L.C.
P.O. Box 2367
Horsham, PA 19044

Project: **Paraiso Hot Springs Spa Resort**
Paraiso Springs Road
Soledad/Greenfield Area of Monterey County, California

Subject: **Response to Geotechnical and Geologic Review Comments**

Reference:
1. Geologic and Soil Engineering Feasibility Report, Paraiso Hot Springs Spa Resort, Paraiso Springs Road, Soledad/Greenfield Area of Monterey County, California, Doc. No. 0412-120.RPT, prepared by Landset Engineers, Inc., dated December 31, 2004.
2. Preliminary Vesting Tentative Map, Paraiso Springs Resort, Soledad, California, Sheets T-1 through T-6 of 6 Sheets, Project No. 327806, prepared by CH2M Hill & Hill Glazier Architects, dated May 2, 2005.
3. Review of Geologic and Soil Engineering Feasibility Report, Paraiso Hot Springs Resort, Monterey County, California, Project No. 0784-M289A-A51, prepared by Pacific Crest Engineering, Inc., dated January 18, 2008.
4. Geology Report Deficiencies, Proposed Paraiso Hot Springs Resort, 34358 Paraiso Springs Road, Soledad, California, Job #2007023-G-MT, prepared by Zinn Geology, dated January 18, 2008

Dear Mr. Thompson:

In response to your request we have reviewed the above referenced documents and are providing our response to review comments (References 3 & 4) as related to our previously prepared geologic and geotechnical engineering feasibility report for the proposed Paraiso Hot Springs Spa Resort (Reference 1).

As part of this response we have reviewed the preliminary vesting tentative map (Reference 2) as it relates to previously identified geologic & geotechnical hazards evaluated in our geologic and geotechnical feasibility report. It should be noted that the preliminary vesting tentative map was

completed after our original feasibility report was prepared. We also performed additional geologic site review and reconnaissance in the field on April 15, 2008. Our response to the review comments is as follows:

Geotechnical Report Review Comments - Pacific Crest Engineering, Inc. (Reference 3)

1. *"We find the geotechnical portion of the report to be adequate for CEQA purposes, subject to the comments outlined below and within the attached letter by Zinn Geology."*

Response: **No response required.**

2. *"We are in general agreement with the zone of liquefaction (Zone 3L) identified by the Landset Report. However, as recommended in the report, design level reports will be required to supplement the preliminary borings and provide further definition of this zone.*

Response: **The review comment is in accord with the recommendations of our geologic and soil engineering feasibility report. No additional response required.**

3. *"Cut slopes up to 25 feet high are noted for the parking area south of the hamlet, with fill slopes up to 14 feet high for the main hotel complex and adjacent hamlet (refer to CH2M Hill memo dated July 15, 2005). The feasibility level report should include slope stability analysis of these areas to verify these cut and fill slopes are considered stable under both static and pseudo-static conditions."*

Response: **The project feasibility report was prepared to characterize and identify areas of potential geologic and geotechnical hazards for the site and was not intended to provide design level recommendations for proposed grading. As grading is part of the design level process, we recommend that additional design level geologic and geotechnical investigation(s) be prepared that address the specific proposed earthwork construction. It is our opinion that supplemental design level investigations are not required for CEQA compliance.**

4. *"Given the 2007 Building Code has now been adopted by the State of California, we would recommend the feasibility report be updated to address new seismic design requirements for structures. This includes updating Table 2 (page 23) of the report."*

Response: **For seismic design using the 2007 CBC, we recommend the following design values be used. The parameters were calculated using the U.S. Geological Survey Ground Motion Parameters computer program (Version 5.0.8) and were based on the approximate center of the site located at 36.331° N. latitude and –121.368° W. longitude.**

2007 CBC Seismic Design Parameters

Design Parameter	*Site Design Value*	Reference
Site Class	**E –Soft Soil**	Table 1613.5.2
Spectral Acceleration Short Period	**(S_s) = 1.216g**	Fig. 22-3, ASCE 7-05
Spectral Acceleration 1 Second Period	**(S_1) = 0.475g**	Fig. 22-4. ASCE 7-05
Short Period Site Coefficient	**(F_a) = 0.90**	Table 1613.5.3(1)
1 Second Period Site Coefficient	**(F_v) = 2.40**	Table 1613.5.3(2)
MCE Spectral Response Acceleration Short Period	**(S_{MS}) = 1.095g**	Section 1613.5.3
MCE Spectral Response Acceleration 1-Second Period	**(S_{M1}) = 1.141g**	Section 1613.5.3
5% Damped Spectral Response Acceleration Short Period	**(S_{DS}) = 0.730g**	Section 1613.5.4
5% Damped Spectral Response Acceleration 1-Second Period	**(S_{D1}) = 0.761g**	Section 1613.5.4

5. *"The designation of the site soil profile as S_E should be reviewed again to confirm this designation is still appropriate for the project site (based on the requirements of the new 2007 CBC."*

Response: **There are no changes in the parameters for shear wave velocity, SPT counts or undrained shear strength for Soil Profile Type S_E per Table 16-J of the 2001 CBC when compared to the parameters for Site Class E, per Table 1613.5.2 of the 2007 CBC.**

6. *"Design level geotechnical reports will need to consider foundation drain requirements, as outlined in Section 1807.4.2 and 1807.4.3 of the 2007 CBC. We believe the need for foundation drains should be addressed within the feasibility level report."*

Response: **We concur with the review comment that foundation drain requirements should be addressed by design level geotechnical reports. As foundation drainage requirements are part of the design level process for building permits, we recommend that additional design level geologic and geotechnical investigation(s) be prepared that address the specifics of proposed construction as originally recommended in our feasibility report. It is our opinion, that supplemental design level investigations are not required for CEQA compliance.**

7. *"Item 40 of the report (regarding sloping grade requirements adjacent to building foundation) will need to be updated to address the requirements of Section 1803.3 of the 2007 CBC."*

Response: **Surface drainage should provide for positive drainage so that runoff is not permitted to pond adjacent to foundations. Pervious ground surfaces should be finish graded to direct surface runoff away from site improvements at a minimum 5 percent grade for a minimum distance of 10-feet. Impervious ground surfaces should be finish graded to direct surface runoff away from site improvements at a minimum 2 percent grade for a minimum distance of 5-feet. Final drainage recommendations and requirements should be part of the design level process for building permits. We recommend that additional design level geologic and geotechnical investigation(s) be prepared that address the specifics of proposed construction as originally recommended in our feasibility report.**

Geologic Report Review Comments - Zinn Geology (Reference 4)

MAPPING DEFICIENCIES

"The "Site Geologic Map" (Sheet 1) and "Relative Geologic Hazards Map" (Sheet 3) accompanying the LEI geology report (2004) plot geological information and interpreted hazard potential upon base maps that do not reflect the proposed development. This makes it extremely difficult for the reviewer to assess whether the proposed development would expose people or structures to major geologic hazards. That is why CDMG Note Number 44 (1975) recommends in item number I.B. that for "sub-divisions, the base map should be the same as that to be used for the tentative map or grading plans."

"We recommend that LEI plot their geological and hazards information upon the most current sub-division and grading maps and analyze the potential impacts according to the criteria referenced above. Once this information and analysis is provided, we can then adequately review whether or not the geology and proposed sub-division fulfill the geological requirements dictated by CEQA."

Response: The Site Geologic Map (Sheet 1) and the Relative Geologic Hazards Map (Sheet 3) have been updated, revised and overlain on the preliminary vesting tentative map (Sheet T-1, Reference 2). The revised maps are included as attachments to this response letter.

GEOLOGIC HAZARDS DEFICIENCIES

"The geology investigation and report by LEI does not appear to have adequately characterized the debris flow and debris torrent hazard and attendant risks to the proposed development. We noted the following discrepancies during our site reconnaissance and review of the LEI geology report:"

1. *"There appears to be internal descriptive inconsistencies on the boring logs accompanying the LEI report. The composition of gravels encountered while drilling was described on some logs and left out on others. The importance of this deficiency is discussed below."*

Response: **The earth materials encountered and identified in the exploratory borings at the time of drilling were based on visual observations performed by a Certified Engineering Geologist and/or staff geologist working under the supervision of a Certified Engineering Geologist. The presence of gravel materials were noted on the boring logs where encountered. Visual observations were made in accordance with ASTM D2488. Additional laboratory grain size analysis was performed on selected samples. Composition of the gravel materials encountered consisted of resistant granitic & schist clasts.**

2. *"There is no discussion of the hummocky appearance of the valley floor that we observed in the vicinity of the proposed development in the LEI report. It is important for the project geologist to perform a DETAILED geomorphic analysis of the valley flow as part of the debris flow hazard and risk assessment."*

Response: **Based on our original mapping performed in August 2004 (3 days of surface mapping and 4 days of subsurface investigation) and one additional day of site reconnaissance performed on April 15, 2008, no unusual geomorphic features were noted in the valley floor that are normally associated with alluvial deposits. Detailed geologic mapping is presented on the attached Revised Geologic Map, Sheet 1. Debris flow hazard and relative risk assessment is presented in our original report dated December 31, 2004 and the attached Revised Relative Geologic Hazard Map, Sheet 3.**

3. *"There is no discussion or mapping of the scattered angular cobbles and boulders of schist and granitic rock "floating" in sandy alluvial matrix that we observed in the vicinity of the proposed developments. As noted above, some on the boring logs also omitted clast composition. During our site reconnaissance we noted clusters of the schist and granitic boulders and cobbles too. The presence of the angular boulders and cobbles in the sandy matrix is indicative of a long transport distance*

from the bedrock outcrops upstream, as well as rapid deposition in a high velocity hydraulic environment (like debris flows or debris torrents)."

Response: **The presence of cobbles and boulders was discussed and mapped as Qal_1 in our original report. As previously noted, the larger gravel, cobble and boulder clasts were composed of schist and granitic rocks. In Indian Valley these coarse grained clastic sediments are predominantly confined to the center of the existing drainage, which would normally be associated with seasonal runoff. Our exploratory drilling program did not encounter any cobble or boulder sized clasts within the proposed development area in Indian Valley. It was observed during our site reconnaissance performed on April 15, 2008 that in addition to the aggregation of coarse sized clasts in the center of the valley, the clast size also increased in the upstream direction. Based on the heavy growth of trees and distribution of the cobbles and boulders it is our opinion that the general nature of alluvial deposition is by seasonal short distance transport. It is our opinion the attendant relative geologic hazards and risks for debris flow/debris torrent have been adequately characterized (Sheet 3, Revised Relative Geologic Hazards Map).**

4. *"The mapping of the landslide deposits and scars appears to be schematic. In particular, more detailed mapping of debris flow scars, as well as run out areas for the debris flow deposits, may lead to a better understanding the prospective hazards and risks posed to the proposed development with respect to landsliding."*

Response: **As previously stated, surface and subsurface geologic mapping was performed over a seven (7) day period in August of 2004. Surface field mapping of the site geology and geomorphology was performed by accepted professional standards by a combination of direct observation ("geology under foot"), indirect visual observations from afield or by review and examination of several sets of stereoscopic aerial photographs. The geologic units mapped were based on professional geologic interpretation by the above noted methodology. The units were mapped as accurately as possible with the scale of**

the base maps available (1"=200'). The prospective and relative geologic hazards and risks (Sheet 3, attached) were determined by evaluation of the interpreted site geology (Sheet 1, attached).

5. *"The only type of subsurface work performed by the project geologist of record was small diameter borings. This type of subsurface investigative method is typically inadequate for addressing the extent and depths of burial for past flooding and debris flow events. Careful logging of cleaned sidewalls of backhoe or excavator test pits and trenches is the investigative method that is typically pursued by geologists when assessing the debris flow deposit areas and debris torrent areas. It is difficult to near impossible to identify the complete geological record of the near surface deposits in a small-diameter boring, particularly in the absence of continuous sampling or coring."*

Response: Based on our surface mapping and subsurface exploration it is our opinion that site characterization and geology has been accurately mapped (see response to review comment no. 3). It is our opinion that additional subsurface field investigation is unnecessary.

6. *"The project geologist of record does cite a debris flow event in 1995 with a burial depth of 0.5 to 1.0 foot (page 13 of the LEI report), but did not map the extent of that specific event on the geological map, nor did they cite the evidence upon which that interpretation was made. Additionally, there is no mention in their report of reviews by their firm of the extensive historical records that exist for the property, which may mention other past flooding and debris flow events."*

Response: The locations of the 1995 debris flow events and extents were depicted on the geologic map (see keyed notes nos. 1 & 6). Evidence for interpretation and mapping was based on direct field evidence (nine years later) and by review of a private photographic record maintained by the site caretakers. We also did

research to find historical documentation of past flood/debris flow events for the site, but were unable to find any records of such events.

Conclusions

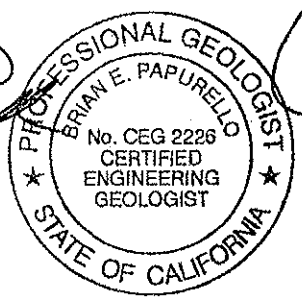
The conclusion and recommendations presented in referenced geologic and soil engineering feasibility report (Reference 1) along with our review comments in this letter presents a detailed and comprehensive description of the geologic and soil engineering conditions along with attendant relative hazards for the site. Based on the work performed to date, it is our opinion that geologic and geotechnical site conditions have been accurately characterized and are satisfactory for geologic and geotechnical requirements for CEQA compliance.

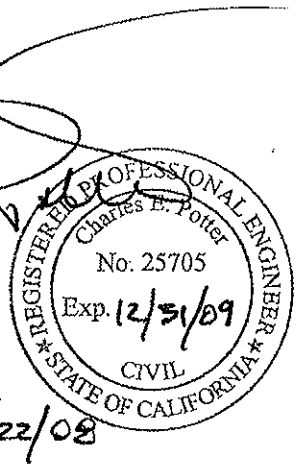
As stated in our December 2004 report, our conclusions and recommendations are preliminary, presented as guidelines to be used by project planners and designers for the geologic and soil engineering aspects of the project design and construction. Our conclusions recommended that additional design level geologic and soil engineering investigations were necessary for future proposed development. These additional design level investigations should address the site specific geologic and soils engineering conditions relative to the proposed site grading, building foundations, roadways, drainage, utilities, and other site improvements within the framework of the geologic and soil engineering hazards identified by this firm.

We appreciate the opportunity to have provided services for this project. If you have any questions concerning this letter, please do note hesitate to contact the undersigned.

Respectfully submitted,

Landset Engineers, Inc.





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05/22/08

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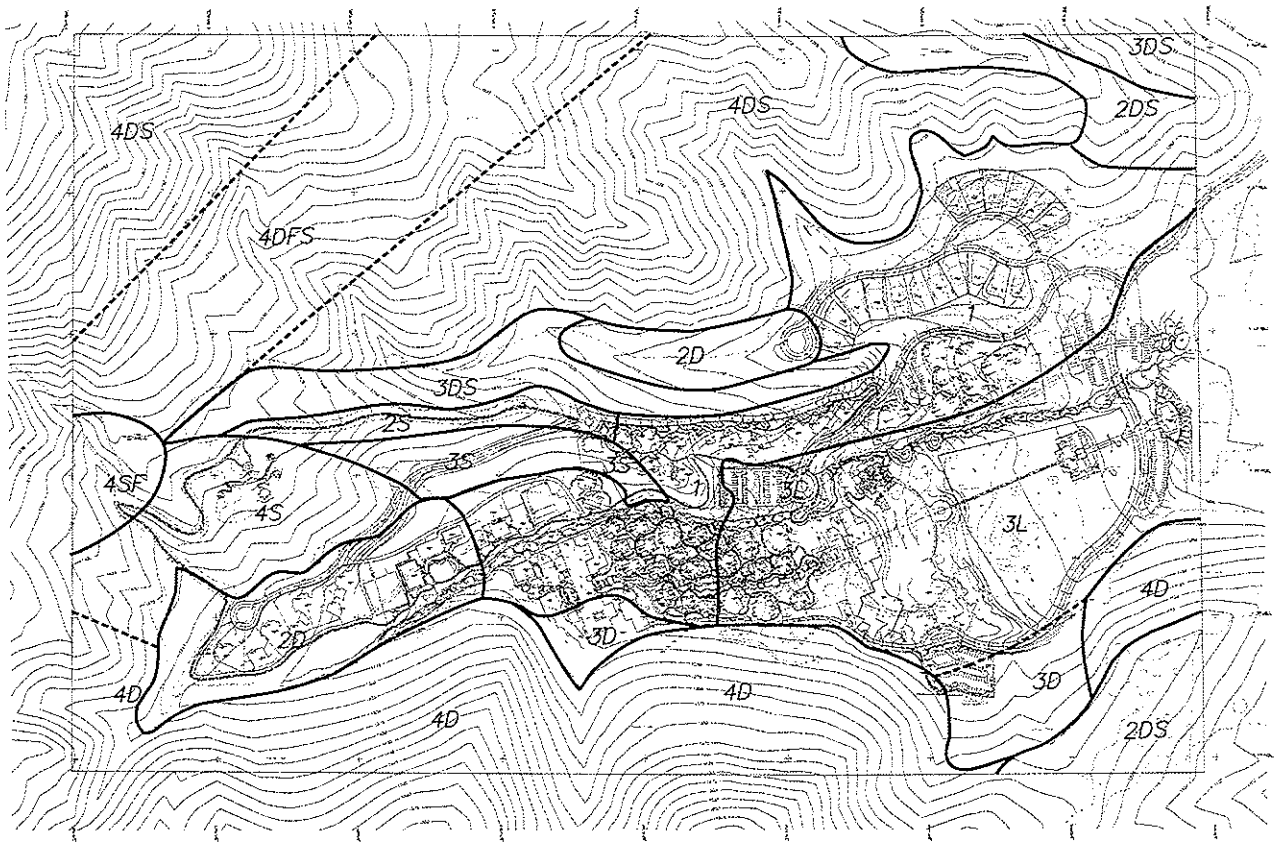

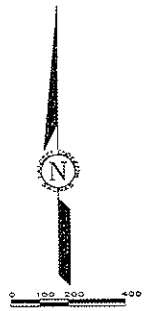

HAZARD AREAS:

AREA 1: LOW GEOLOGIC HAZARD POTENTIAL

AREA 2: MINOR GEOLOGIC HAZARD POTENTIAL

AREA 3: MODERATE GEOLOGIC HAZARD POTENTIAL

AREA 4: HIGH GEOLOGIC HAZARD POTENTIAL

HAZARD DESCRIPTORS:

F: FAULTING

L: LIQUIFACTION

D: DEBRIS FLOW

S: LANDSLIDE

REVISED RELATIVE GEOLOGIC HAZARDS MAP OF PARAISO HOT SPRINGS RESORT

PARAISO SPRINGS ROAD

SOLEDAD/GREENFIELD AREA MONTEREY COUNTY, CALIFORNIA

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APPROVED BY:

BRIAN M. FAIRWELL No. C.E.G. 2226

SCALE: 1"=200'

DATE: DEC 2004

JOB# LSW-0357-01

SHEET 3 OF 3 SHEETS

NO.	DATE	BY	REVISION
1	5/22/06	JLM	RELEASED TO CLIENT

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