Appendix C
Recommendations for
Structural Section and Paving

SIERRA GEOTECHNICAL SERVICES INC.

November 16, 2007 Project No. 3.30831

High Sierra Striders
PO Box 5068
Mammoth Lakes, CA 93546

Attention: Mr. Andrew Kastor

Subject: **RECOMMENDATIONS FOR STRUCTURAL SECTION AND PAVING**
Whitmore Running Track
Mono County, California

Dear Mr. Kastor:

Sierra Geotechnical Services Inc (SGSI) is pleased to herein submit foundation, paving, and earthwork and grading recommendations as well as site specific seismicity information for the proposed running track and associated appurtenances, to be located off of Benton Crossing Road in Mono County, California (Figures 1 and 2). It is our understanding that the proposed construction will include an outdoor polyurethane track, expansion of the existing bathroom, paved parking, and utilities. A synthetic turf football/soccer field will occupy the center of the track area.

In order to provide recommendations we performed: a subsurface field investigation that included the excavation of five exploratory test pits, laboratory testing of representative soil samples obtained during the field investigation, geotechnical evaluation and analysis of the collected field and laboratory data, and preparation of this report presenting the results of our findings, conclusions, and geotechnical recommendations for the proposed project.

The conclusions and recommendations presented herein are considered site specific and should not be extrapolated to other areas or used for other projects

We appreciate the opportunity to be of service to you. Should you have any questions regarding this letter, please do not hesitate to contact us.

Respectfully,

SIERRA GEOTECHNCIAL SERVICES, INC.

Thomas A. Platz
President
PE C41039

Joseph A. Adler
Principal Geologist
CEG 2198

Attachments: Appendix A Exploratory Test Pit Logs
Appendix B Laboratory Testing
Appendix C UBC Design Parameters

Based on the results of this investigation, it is our opinion that the construction of the proposed project **is** feasible from a geotechnical standpoint provided the following recommendations are incorporated into the design and construction. The following sections discuss the principal geologic and geotechnical concerns affecting site development and grading and provide preliminary grading and foundation design recommendations which should be implemented during site development to mitigate site geologic constraints. However, implementation of these recommendations and adherence to the 2001 CBC does not preclude property damage during or following a significant seismic event.

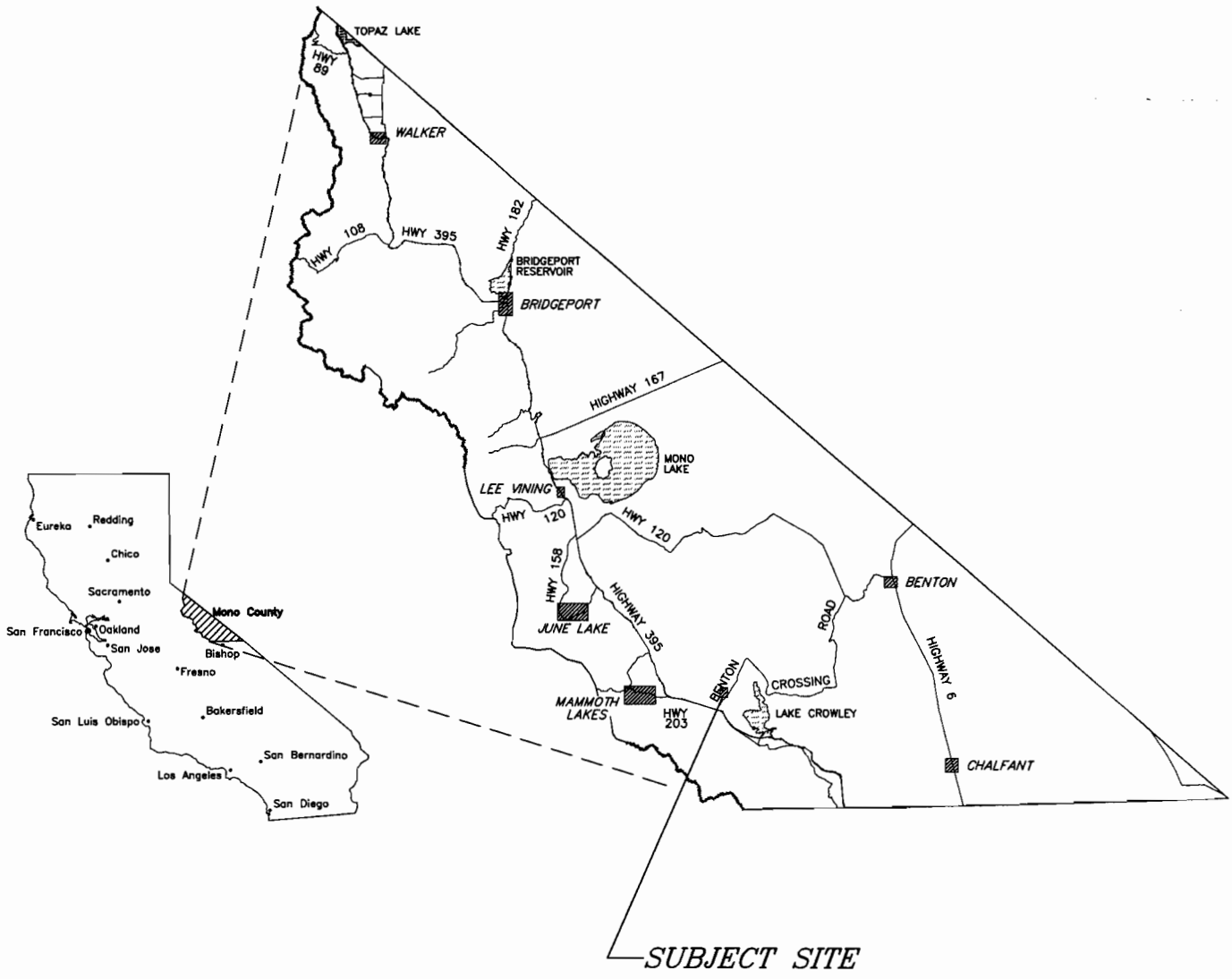
- Based on our review, the subject site **is** located within the Hilton Creek Fault Zone which is an Alquist-Priolo Hazard Zone as identified in detailed in the California Geological Survey Special Publication SP-42 (Hart and Bryant, 1999) (Figure 3). ***If any proposed structures are expected to have a human occupancy rate of 2,000 or more person-hours per year then an earthquake fault-rupture hazard investigation should be conducted for the site as soon as possible to establish whether an active fault or fault trace(s) exists through the site, and if found determine the activity of the faulting, and provide appropriate setback recommendations for structures if necessary.***

- Evidence of past soil failures, or landslides, the site was not encountered.

- Based upon our field investigation site soils within the proposed construction area consist of approximately 2-feet of loose fill and alluvial deposits considered unsuitable for the support of new fill or structural loads. Where these soils will be subjected to increased loads from new fills, remedial grading consisting of overexcavation and compaction is recommended to improve the bearing capacity of those materials. Remedial grading recommendations are provided herein.

- Neither a groundwater table nor groundwater seepage was encountered during our field investigation. Impermeable layers which would retard the flow of water downward or channel water laterally were not observed during the subsurface investigation. Minor amounts of seepage from shallow snow melt run-off may however be encountered if the site is graded between April and June.

- The depth of the unsuitable soils was based upon the areas observed during the field investigation. It should be anticipated that the overall depth of the unsuitable materials exposed during construction may vary from that encountered in the test pits. Reasonably continuous construction observation and review during site grading and foundation installation allows for evaluation of the actual soil conditions and the ability to provide appropriate revisions where required during construction.



NOT TO SCALE

PROJECT: **REGIONAL MAP** WHITMORE RUNNING TRACK	
SCALE: NTS	DATE: 11/2007
DRAWING: FIG1.DWG	DRAWN BY: JAA
JOB NO.: 3.30831	FIGURE: FIGURE 1

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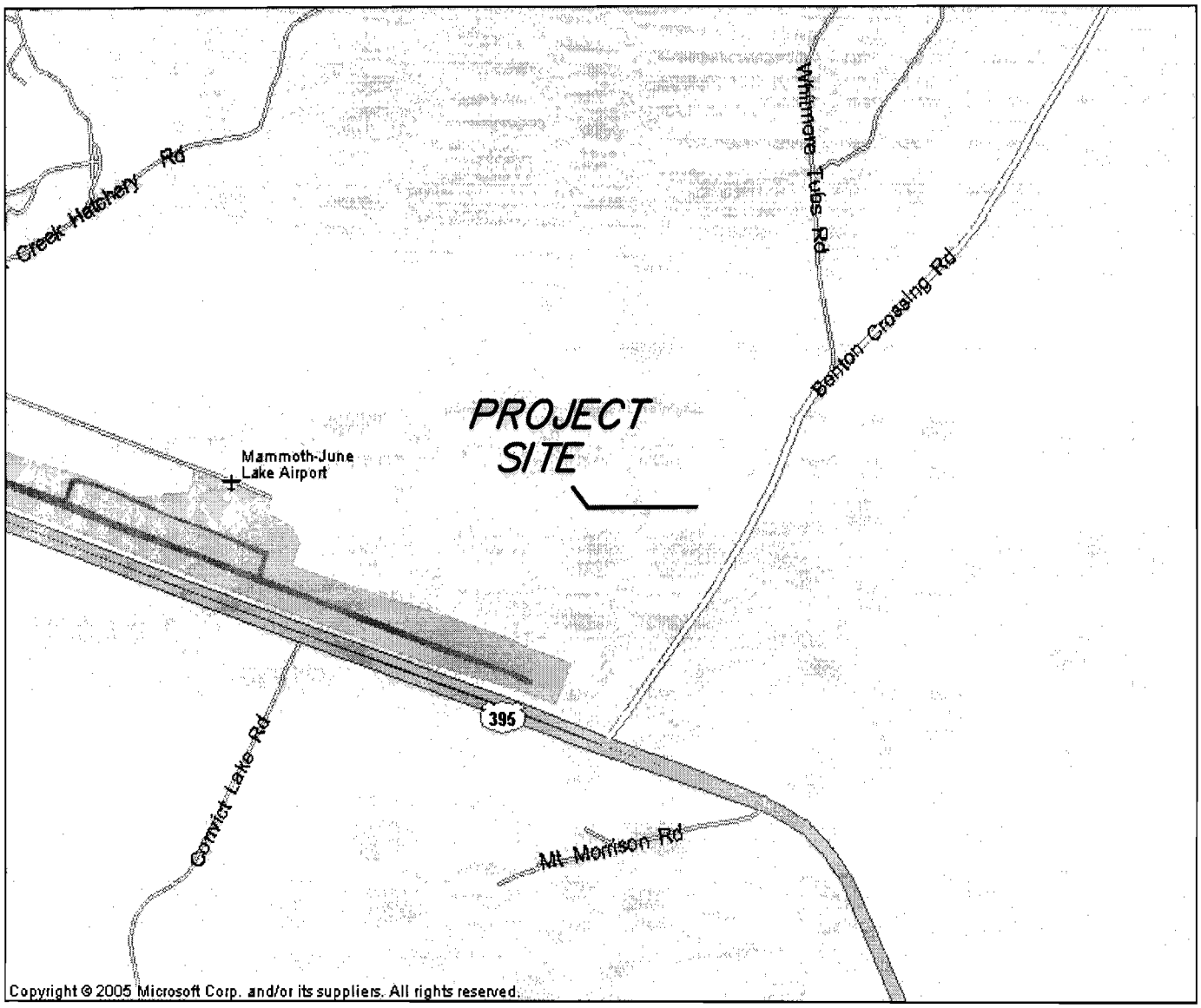

PROJECT: **VICINITY MAP** WHITMORE RUNNING TRACK	
SCALE: NTS	DATE: 11/2007
DRAWING: FIGURE2	DRAWN BY: JAA
JOB NO.: 3.30831	FIGURE: FIGURE 2

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- In general, excavations at the site should be achievable using standard earthmoving equipment.

AERIAL PHOTOGRAPHIC REVIEW AND FIELD RECONNAISSANCE

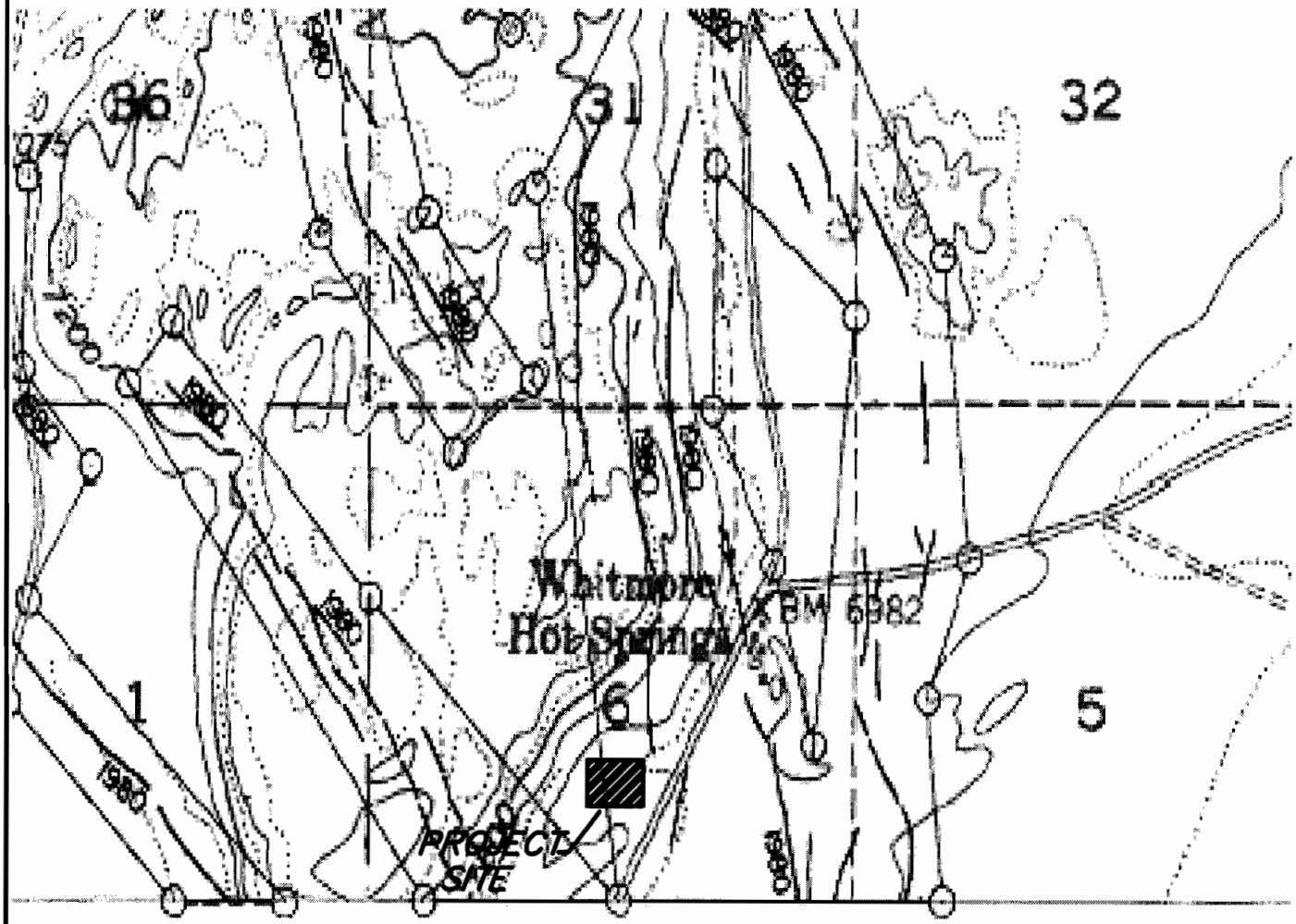
Prior to our field investigation, we acquired and reviewed aerial photographs to assist in our evaluation of geomorphic features that could be indicative of geologic hazards at the property. Details from the earliest available photographs (1944) showed evidence of at least one lineation trending roughly northwest to southeast through the site. Other lineations were observed to the north and south of the site (Figure 4).

The lineation observed passing through the site within the aerial photographs was not observed during the field reconnaissance. In addition, geomorphic features indicative of active faulting including: scarps, shutter-ridges, springs, or other ground-surface fault related features were not observed on-site.

GEOTECHNICAL AND GEOLOGIC SITE CONSTRAINTS

The subject site is located within the Hilton Creek Fault Zone which is a state-designated fault zone according to the Alquist-Priolo Earthquake Fault Zoning Act (Figure 4). (California Public Resources Code, Division 2, Chapter 7.5). As required by the Act, structures intended for human occupancy should be not located within 50-feet of a known or suspected active fault trace. An active fault is defined as one that has had surface displacement within Holocene time (within the last 11,000 years). Any buildings converted or used for human occupancy must comply with the Act.

If any proposed structures are expected to have a human occupancy rate of 2,000 or more person-hours per year then an earthquake fault-rupture hazard investigation should be conducted for the site as soon as possible to establish whether an active fault or fault trace(s) exists through the site, and if found determine the activity of the faulting, and provide appropriate setback recommendations for structures if necessary.



SCALE 1:24,000

1 1/2 0 1 MILE

PROJECT: *SITE RELATIVE TO ALQUIST-PRIOLO FAULT ZONE* *WHITMORE RUNNING TRACK*	
SCALE: *NTS*	DATE: *11/2007*
DRAWING: *FIGURE3*	DRAWN BY: *JAA*
JOB NO.: *3.30831*	FIGURE: *FIGURE 3*

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SITE SEISMICITY

Site coordinates of latitude 37.6278° north and longitude 118.8170° west were estimated using the computer program **Google Earth (2007)**. The nearest known active regional fault is the Hilton Creek fault. The Hilton Creek fault is classified as a Type "B" seismic source capable of producing a magnitude 6.7 (Mw) earthquake. The subject site is situated in Seismic Zone 4 (Z = 0.4) based on the 2001 CBC. A geologic subgrade type S_D, "Stiff Soil" was assumed for the site based upon observations recorded during the subsurface investigation.

Table 1 presents the seismic parameters for use in preparing a Design Response Spectra for the site. The seismic parameters are based upon the 2001 California Building Code (CBC).

TABLE 1

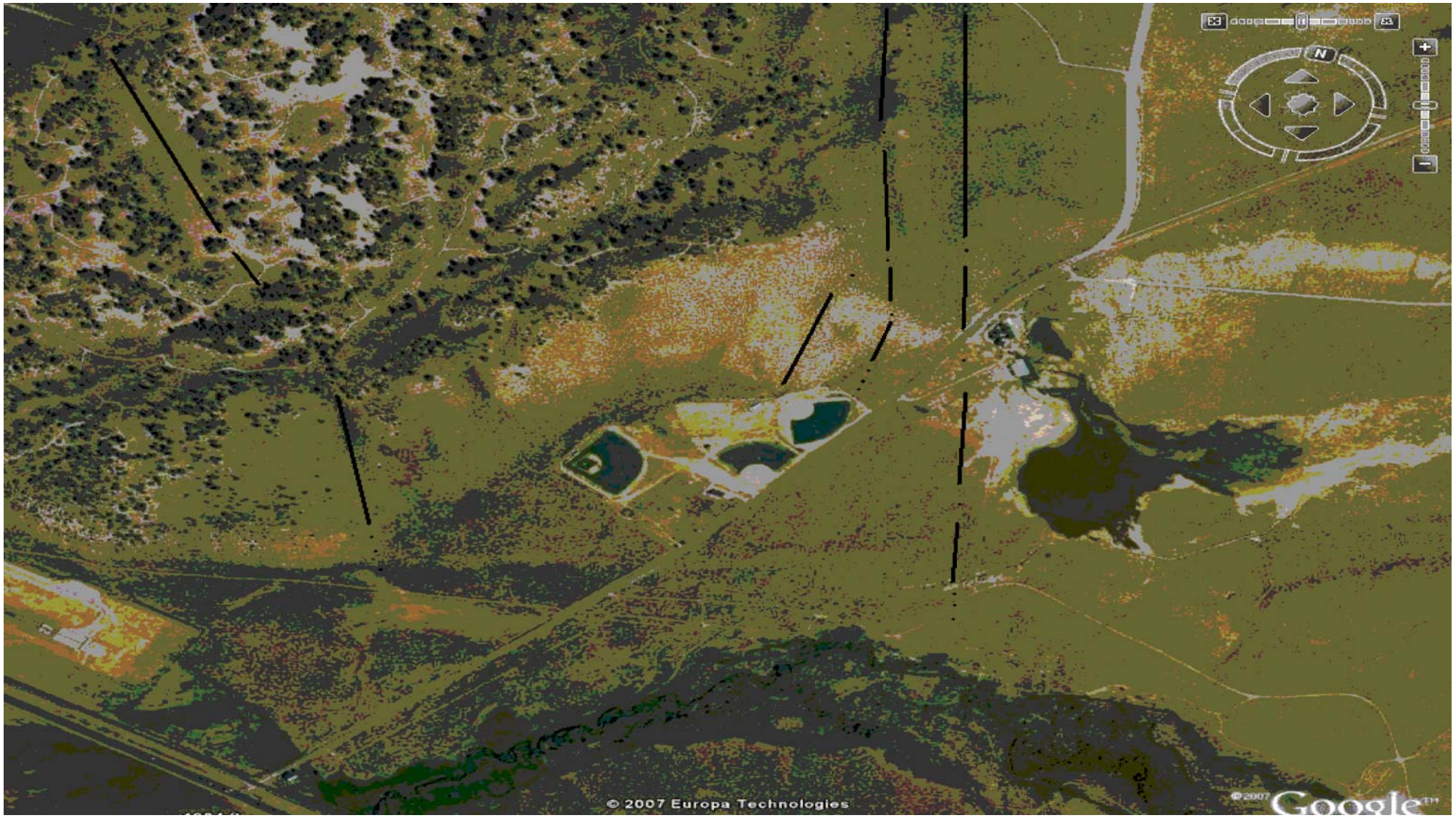
UBC-CHAPTER 16 TABLE NO.	SEISMIC PARAMETER	RECOMMENDED VALUE
16-I	Seismic Zone Factor Z	0.4
16-J	Soil Profile Type	S_D
16-Q	Seismic Coefficient C_a	0.57
16-R	Seismic Coefficient C_v	1.02
16-S	Near Source Factor N_a	1.3
16-T	Near Source Factor N_v	1.6
16-U	Seismic Source Type	B

SECONDARY EARTHQUAKE EFFECTS

Secondary effects that can be associated with severe ground shaking following a relatively large earthquake include shallow ground rupture, soil lurching, liquefaction, and seiches. These secondary effects of seismic shaking are discussed in the following sections.

Shallow Ground Rupture

Ground surface rupture results when the movement along a fault is sufficient to cause a gap or break along the upper edge of the fault zone on the surface. Our review of available geologic literature indicated that the subject site is located within the Hilton



LEGEND

. . . ——— *APPROXIMATE LOCATION OF FAULT LINEATIONS. DASHED WHERE APPROXIMATED. DOTTED WHERE UNCERTAIN.*

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PROJECT:	*FAULT LOCATION MAP WHITMORE RUNNING TRACK*
SCALE: *NTS*	DATE: *11/2007*
DRAWING: *FIG4DWG*	DRAWN BY: *JAA*
JOB NO.: *3.30831*	FIGURE: *FIGURE 4*

Creek fault zone. Although not observed during the field reconnaissance likely fault lineations were observed within the aerial photographs. Based upon the above information and because a subsurface fault investigation has not been conducted for the site, the potential for shallow ground rupture should be considered very high.

Soil Lurching

Soil lurching refers to the rolling motion on the ground surface by the passage of seismic surface waves. Effects of this nature are likely to be most severe where the thickness of soft sediments varies appreciably under structures. In its present condition, the potential for lurching below the proposed structures is considered moderate to high due to the existence of potentially compressible soils within the upper few feet of material below existing grades. The potential for lurching may be greatly reduced if the potentially compressible soils, present on site, are removed and properly compacted during grading, as per the earthwork recommendations provided herein.

Liquefaction

Liquefaction of cohesionless soils can be caused by strong vibratory motion due to earthquakes. Research and historical data indicate that loose granular soils below a near-surface groundwater table are most susceptible to liquefaction. Liquefaction is characterized by a loss of shear strength in the affected soil layers, thereby causing the soil to behave as a viscous liquid. This effect may be manifested at the ground surface by settlement and, possibly, sand boils where insufficient confining overburden is present over layers. In order for the potential effects of liquefaction to be manifested at the ground surface, the soils generally have to be granular, loose to medium-dense and saturated relatively near the ground surface, and must be subjected to ground shaking of a sufficient magnitude and duration. The potential for liquefaction to occur is considered low, given the very dense nature of bearing soils present on site.

Seiches

The potential for seiches as the result of the design level earthquake in a nearby fault are considered very low, due to the distance of large open bodies of water from the project site.

LEGEND

TP-5 APPROXIMATE LOCATION OF EXPLORATORY TEST PIT

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PROJECT:	SUBSURFACE GEOTECHNICAL MAP WHITMORE RUNNING TRACK
SCALE: NTS	DATE: 11/2007
DRAWING: FIG5DWG	DRAWN BY: JAA
JOB NO.: 3.30831	FIGURE: FIGURE 5

FOUNDATION PREPARATION AND DESIGN

SGSI performed in-place density and moisture testing, and fine aggregate sieve analysis on the native soils underlying the site. Based on the results of the sieve analysis the native soils can be classified as a "SM" soil type according to the Unified Soil Classification System. However, the soils also contain abundant gravels and cobbles which will provide additional support; thus the bearing value of 1,000 psf given for an "SM" soil type (CBC 2001) may be increased.

An allowable soil bearing pressure of 2,500 pounds per square-foot (psf) may be used for the design of footings bearing upon the native soil deposits. The bearing value is for the total of dead and frequently applied live loads, and may be increased by one-third for short duration loading which includes the effects of wind or seismic forces.

A friction coefficient for concrete of 0.35 and a lateral bearing value of 250 pounds per square foot may be employed to resist lateral loads. When combining passive pressure and frictional resistance, the passive pressure component should be reduced by one-third.

Continuous and isolated footings should be designed in accordance with the structural engineer requirements. Reinforcement of footings should be per the structural engineer's design. Upon the completion of structural plans, Sierra Geotechnical Services Inc. should review the foundation loads and embedment in order to confirm the implementation of the recommendations herein.

Preliminary Foundation Construction

Based upon our observations and past experience relative to the general site area, very low expansive soils exists onsite. The following preliminary recommendations assume low expansive soils near finish pad grade.

- Footings may be constructed according to Uniform Building Code requirements regarding width. Exterior and interior foundations shall be founded within compacted fill or competent native soils. Exterior foundations shall have a minimum embedment depth of 18-inches below outside adjacent grade. Interior foundation depths shall be a minimum of 12-inches below adjacent grade (see excavation and grading observation for removals below foundations and total embedment).

- All footings should be reinforced to at least the minimum reinforcement for temperature as required in Chapter 19 of the 1997 UBC.

- All footing excavations should be observed by a representative of SGSI in order to assure proper embedment into suitable soils.

- Footing trenches should not have any rocks or boulders protruding into the trench bottom. Soft soil pockets created by rock removal during foundation excavation shall be replaced with approved fill material, and compacted to 95-percent of the material's maximum dry density.

- Footing trench excavations should be moistened to near optimum moisture conditions prior to pouring concrete.

CONCRETE SLAB-ON-GRADE

Compacted fill materials will provide adequate support for concrete slabs provided the on-site materials are prepared per our grading recommendations prior to placement of the slab.

Structural fill and subgrade soils underlying concrete slabs shall be compacted to a minimum of 95-percent of the material's maximum dry density for the upper 12-inches. Concrete slabs should be underlain by a 1-inch layer of clean sand (SE greater than 30) to aid in concrete curing, which is underlain by a 10-mil (or heavier) moisture barrier, which is, in turn, underlain by a 1-inch layer of clean sand to act as a capillary break. All penetrations and laps in the moisture barrier should be appropriately sealed.

Minimum slab reinforcement shall consist of #3 rebar placed at 18-inches on center each way. The slab reinforcement shall be placed, vertically, in the middle of the slab. Slab thickness shall be a minimum of 4-inches. In areas where heavy equipment or loading will stress the slab, the thickness and reinforcement will meet the requirements of the Structural Engineer of record.

Our experience indicates that the use of reinforcement in slabs and foundations will generally reduce the potential for drying and shrinkage cracking. However, some cracking may be expected as the concrete cures. Concrete cracking and/or spalling is often aggravated by a high cement ratio, high or low concrete temperature at the time of placement, small nominal aggregate size, rapid moisture loss, or the addition of water during placement. The use of low slump concrete (not exceeding 4-inches at the time of placement) and proper curing methods can reduce the potential for shrinkage cracking.

PRELIMINARY PAVEMENT RECOMMENDATIONS

Pavement sections are provided based on the results of an R-value laboratory test performed on a selected subgrade soil sample collected from within the proposed track area. Based on an R-Value of 62, SGSI recommends the following pavement sections:

- Standard Duty (Traffic Index (TI = 5.0)
  3-inches Asphalt Concrete / 4-inches Class II Aggregate Base

- Heavy Duty (TI = 8.0)
  4-inches Asphalt Concrete / 6-inches Class II Aggregate Base

The upper 12-inches of subgrade material along with the Class II aggregate base and the Asphaltic concrete shall be compacted to a minimum of 95-percent of the material's maximum dry density as determined by ASTM D1557-2000. The subgrade and aggregate base shall be moisture-conditioned and compacted to 95-percent of the material's maximum dry density as determined by ASTM D-1557-2000 to a depth of 12-inches.

As an alternative, a minimum 5-inch paving section of reinforced concrete (minimum 4,000 psi) may be used. The concrete section should be underlain by a 2-inch layer of clean sand (SE greater than 30) to aid in concrete curing. Minimum reinforcement shall consist of #3 rebar placed at 24-inches on center each way. In addition full depth expansion joints should be placed every 10-feet on center.

If pavement areas are adjacent to heavily watered landscape areas, some deterioration of the subgrade load bearing capacity may result. We recommend some measures of moisture control (such as deepened curbs or other moisture barrier materials) be provided to prevent the subgrade soils from becoming saturated.

EARTHWORK AND GRADING SPECIFICATIONS

The following recommendations should be adhered to during site development. These recommendations are based on empirical and analytical methods typical of the standard of practice in California. If these recommendations appear not to cover any specific feature of the project, please contact our office for additions or revisions to the recommendations.

Earthwork should be conducted in accordance with applicable grading ordinances, the current California Building Code, and the recommendations of this letter. The following recommendations are provided regarding specific aspects of the proposed earthwork construction. These recommendations should be considered subject to revision based on field conditions observed by the geotechnical consultant during construction.

Site Preparation

Prior to grading, the proposed structural improvement areas (i.e. all structural fill, pavements areas and structural building, etc.) of the site should be cleared of surface and subsurface obstructions, including vegetation. Vegetation and debris should be disposed of off-site. Holes resulting from removal of buried obstructions, which extend below the recommended removal depths described herein or below finished site grades (whichever is lower) should be filled with properly compacted soil. Should existing underground utilities be encountered they should be completely removed and properly backfilled. Alternatively if the utility is not within the influence zone of the foundation it may be abandoned in place by fully grouting the pipe.

If potentially hazardous materials are encountered, the contractor shall stop work in the affected area, and a hazardous material specialist shall be informed immediately for proper evaluation and handling of these materials prior to continuing to work in that area.

As presently defined by the State of California, most refined petroleum products (gasoline, diesel fuel, motor oil, grease, coolant etc…) have chemical constituents that are considered to be hazardous waste. As such, the indiscriminate dumping or spillage of these fluids onto the ground may constitute a misdemeanor, punishable by fine and/or imprisonment and shall not be allowed.

Any existing subsurface utilities that are to be abandoned should be removed and the trenches backfilled and compacted. If necessary, abandoned pipelines may be filled with grout or slurry cement as recommended by, and under the observation of, the Geotechnical Consultant.

Excavation and Grading Observation

Site preparation, removal of unsuitable soils, approval of imported earth materials, fill placement, and other site geotechnically-related operations should be observed and tested by SGSI. Such observations are considered essential to identify field conditions that differ from those anticipated by the investigation, to adjust design to actual field conditions, and to determine that the grading is accomplished in general accordance with the recommendations included herein.

The subject property is underlain by up to approximately 2-feet of loose fill and alluvial deposits considered unsuitable for the support of new fill or structural loads. Where these soils will be subjected to increased loads from new fills, or where shallow foundations are anticipated, remedial grading consisting of overexcavation and compaction is recommended to improve the bearing capacity of those materials. The excavation should extend to a minimum horizontal distance of one-half the footing width or 5-feet (whichever is greater) horizontally outside the footing footprint. Remedial grading recommendations are provided in this report.

The depth of the unsuitable soils is based upon the areas observed. It should be anticipated that the overall depth of the unsuitable materials exposed during construction may vary from that encountered in the test pits. Reasonably continuous construction observation and review during site grading and foundation installation allows for evaluation of the actual soil conditions and the ability to provide appropriate revisions where required during construction.

For any paved roadways or parking areas a one to two-foot removal is recommended depending on site conditions (i.e. depth of root zone, and depth of disturbance which may have locally deeper removal depths). The removal should also extend a minimum horizontal distance of 2-feet beyond the back of curbs and pavement. In addition, the removal bottom should be observed (tested as needed) by the geotechnical consultant prior to placing fill soils. Removals and Compaction recommendations are provided in Appendix D.

Compaction

SGSI should evaluate the onsite soils for their suitability for placement as compacted fill. All import fill or fill generated on-site should be relatively free of organics, any oversized rock (greater than 3-inches in diameter) and any deleterious materials. Rocks greater than 3-inches and less than 2-feet in diameter can be placed in the bottom of deeper fills or approved areas provided they are selectively placed in such a manner that no large voids are created. All rocks shall be placed a minimum of 4-feet below finish grade elevation unless used for landscaping purposes. Any import soils shall be tested for suitability in advance by the project Geotechnical Engineer. Earth fill material shall not contain more than 1-percent of organic materials (by volume). No fill lift shall contain more than 5-percent of organic matter. Nesting of the organic materials shall not be allowed.

Prior to fill placement, the exposed ground surface should be scarified to a depth of approximately 12-inches, moisture conditioned as necessary, and compacted to at least 95-percent of the maximum dry density obtained using ASTM D1557-2000 as a guideline.

All fill and backfill to be placed in association with the proposed construction should be accomplished slightly over optimum moisture content using equipment that is capable of producing a uniformly compacted product throughout the entire fill lift. Fill materials at less than optimum moisture should have water added and the fill mixed to result in material that is uniformly above optimum moisture content. Fill materials that are too wet can be aerated by blading or other satisfactory methods until the moisture content is as required. The wet soils may be mixed with drier materials in order to achieve an acceptable moisture content.

The fill and backfill should be placed in horizontal lifts at a thickness appropriate for equipment spreading, mixing, and compacting the material, but generally should not exceed eight inches in thickness. All fills should be compacted to at least 95-percent of the maximum dry density obtained using ASTM D1557-2000 as a guideline.

No fill soils shall be placed during unfavorable weather conditions. When work is interrupted by rains or snow, fill operations shall not be resumed until the field tests by

the geotechnical engineer indicate that the moisture content and density of the fill are as previously specified.

Utility Trench Backfill

All utility trenches in structural areas and under concrete flatwork shall be compacted to a minimum of 95-percent per ASTM D1557-2000. All trenches in non-structural areas shall be compacted to a minimum of 85-percent per ASTM D1557-2000.

All material used for utility trench backfill shall be approved by the Geotechnical Engineer prior to placement. All bedding and backfill of utility trenches shall be done in accordance with the applicable provisions of Standard Specifications of Public Works Construction. Bedding material shall have a Sand Equivalent greater than 30 (SE>30). The bedding shall be placed to 1-foot over the top of the conduit and densified by jetting. Backfill shall be placed and densified to a minimum of 95-percent of maximum from 1-foot above the top of the conduit to the surface.

Lift thickness of utility trench backfill shall not exceed those allowed in the Standard Specifications of Public Works Construction unless the Contractor can demonstrate to the Geotechnical Consultant that the fill lift can be compacted to the minimum relative compaction by his alternative equipment and method.

Regulations of the governing agency may supersede the above, and all trench excavations should conform to all applicable safety codes. The Contractor shall follow all OSHA and Cal/OSHA requirements for safety of trench excavations.

Temporary Excavations

All excavations should comply with the requirements of the California Construction and General Industry Safety Orders and the Occupational Safety and Health Act and other public agencies having jurisdiction.

Drainage

We recommend that measures be taken to properly finish grade the building area, such that drainage water from the building area is directed away from building foundations (2-percent minimum grade on soil or sod for a distance of 5-feet). Ponding of water should not be permitted. Erosion is possible on the pad and slopes if left unprotected during the snowmelt run-off season.

LIMITATIONS

This report has been prepared for the sole use and benefit of our client. The conclusions of this report pertain only to the site investigated. The intent of the report is to advise our client of the geologic and geotechnical recommendations relative to the future development of the proposed project. It should be understood that the consulting provided and the contents of this report are not perfect. Any errors or omissions noted by any party reviewing this report, and/or any other geotechnical aspects of the project, should be reported to this office in a timely fashion. The client is the only party intended by this office to directly receive this advice. Unauthorized use of or reliance on this report constitutes an agreement to defend and indemnify Sierra Geotechnical Services Incorporated from and against any liability, which may arise as a result of such use or reliance, regardless of any fault, negligence, or strict liability of Sierra Geotechnical Services Incorporated.

Conclusions and recommendations presented herein are based upon the evaluation of technical information gathered, experience, and professional judgment. Other consultants could arrive at different conclusions and recommendations. Final decisions on matters presented are the responsibility of the client and/or the governing agencies. No warranties in any respect are made as to the performance of the project.

The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings within this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.

REFERENCES

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California Building Code (2001). California Code of Regulations, Title 24, Part 2, Volume 2.

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Hart, Earl W., and Bryant, William A (1999). Fault-rupture Hazard Zones in California, California Geological Survey Special Publication 42, 38p.

Miller, C.D., 1985, Holocene eruptions at the Inyo volcanic chain, California: Implications for possible eruptions in Long Valley caldera: Geology, v. 13, pp. 14-17.

Miller, C.D., 1989, Potential hazards from future volcanic eruptions in California: U.S. Geological Survey Bulletin 1847, 17 p.

Jennings, C.W., 1994, Fault activity map of California and adjacent areas: California Division of Mines and Geology Geologic Data Map No. 6, 1:750,000 scale.

APPENDIX A

EXPLORATORY TEST PIT LOGS

A subsurface field investigation was performed on October 11th, 2007 that included the excavation of five exploratory test pits, with a Case Backhoe equipped with a 24-inch wide bucket, within the proposed construction areas. A geologist from our office logged the excavations as they were advanced. The logs of the exploratory test pits are presented herein. The approximate location of the test pits are shown on the Subsurface Geotechnical Map (Figure 3).

Bulk samples of the soils encountered were obtained during the field investigation for laboratory testing. Details of the laboratory testing are presented in Appendix B.

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MAMMOTH LAKES, CA 93546
(760) 934-3992

TEST PIT LOGS

JOB NO: 3.30831
DATE: 10/11/2007

PROJECT: Whitmore Running Track
LOGGED BY: PS

TEST PIT	DEPTH (FT)	U.S.C.S. GROUP SYMBOL	SAMPLE DEPTH	PERCENT MOISTURE	DRY DENSITY (pcf)	DESCRIPTION
						Alluvium
1	0 - 2	SM	1	3.7	107.1	Light grayish-brown, damp, loose to medium dense, silty, very fine to fine SAND, with abundant gravels and cobbles. Organics in upper 1-foot. Rock content 20-30%.
	2 - 3	SP				Brown to reddish-brown, moist, medium dense, fine to coarse SAND, with abundant gravels and cobbles. Rock content 50-60%.
						Total depth = 3-feet. No groundwater encountered. Slight to moderate caving below 2-feet. Backfilled 10/11/2007.
						Undocumented Fill
2	0 - 1	SP-SM				Mottled light brown, damp, loose, silty, fine to medium-grained SAND, with few gravels and cobbles. Minor debris.
						Alluvium
	1 - 3½	SM	1	4.0	112.3	Light to medium brown, damp to moist, medium dense, silty, very fine to fine SAND, with abundant gravels and cobbles. Rock content 10-20%.
			3	5.9	118.2	
	3½ - 4	SM				Light gray, moist, dense, silty, very fine to fine SAND, with few gravels composed of volcanic rock.
						Total depth = 4-feet. No groundwater encountered. Backfilled 10/11/2007.

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DATE: 10/11/2007

PROJECT: Whitmore Running Track
LOGGED BY: PS

TEST PIT	DEPTH (FT)	U.S.C.S. GROUP SYMBOL	SAMPLE DEPTH	PERCENT MOISTURE	DRY DENSITY (pcf)	DESCRIPTION
3	0 - 1½	SM				**Alluvium** Light to medium brown, damp to moist, loose to medium dense, silty, very fine to medium SAND, with abundant gravels and cobbles. Rock content 20-30%.
	1½ -3	SP	2	5.7	115.3	Brown to reddish-brown, moist, medium dense, fine to coarse SAND, with abundant gravels and cobbles. Rock content 50-60%.
						Total depth = 3-feet. No groundwater encountered. Backfilled 10/11/2007.
4	0 - 1	SP-SM				**Undocumented Fill** Mottled grayish-brown, damp, medium dense, silty, fine to medium-grained SAND, with gravels and cobbles. Minor debris.
	1 - 3	SM	2	7.0	113.5	**Alluvium** Brown, moist, medium dense to dense, silty, very fine to medium SAND, with abundant gravels and cobbles. Rock content 15-20%.
	3 - 3½					**Volcanic Rock** Brown to gray, highly weathered, highly fractured, VOLCANIC ROCK, with fine sandy clay matrix.
						Total depth = 3½-feet. No groundwater encountered. Backfilled 10/11/2007.

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TEST PIT LOGS

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DATE: 10/11/2007

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LOGGED BY: PS

TEST PIT	DEPTH (FT)	U.S.C.S. GROUP SYMBOL	SAMPLE DEPTH	PERCENT MOISTURE	DRY DENSITY (pcf)	DESCRIPTION
5	0 - 3	SM	1	4.4	109.8	**Alluvium** Light to medium brown, damp to moist, loose to medium dense, silty, very fine to medium SAND, with abundant gravels and cobbles. Rock content 10-20%. --- *Total depth = 3-feet. No groundwater encountered. Backfilled 10/11/2007.*

APPENDIX B

LABORATORY TESTING

Laboratory tests were performed on representative test samples to provide a basis for development of design parameters. Soil materials were visually classified in the field according to the Unified Soil Classification System (USCS). Selected samples were tested for the following parameters: Classification and grain size determination (sieve), maximum dry density (Proctor), and R-Value. Laboratory tests were performed in general accordance with the American Society of Testing and Materials (ASTM) procedures. The results of our laboratory testing along with summaries of the testing procedures are presented here. The results of USCS classifications are presented on the test pit logs (Appendix A).

LABORATORY TESTING

Classification or Grain Size Tests: Typical materials were subjected to mechanical grain-size analysis by sieving from U.S. Standard brass screens (ASTM Test Method C136). The data was evaluated in determining the classification of the materials. The grain-size distribution tables are presented in the test data and the Unified Soil Classification (USCS) is presented in the trench logs.

Maximum Density Tests: The maximum dry density and optimum moisture content of typical materials were determined in accordance with ASTM Test Method D1557-2000. The results of these tests are presented in the table below:

Sample Location	Sample Description	Maximum Dry Density (pcf)	Optimum Moisture Content (%)
TP-1 @ 1-2'	Light grayish-brown, silty, very fine to fine SAND	122.0	8.0
TP-4 @ 2'	Brown, silty, very fine to medium SAND	128.5	8.5

"R"-Value: The resistance "R"-value was determined by the California Materials Method No. 301 for typical soils. One sample was prepared and exudation pressure and "R"-value determined on each one. The graphically determined "R"-value at exudation pressure of 300 psi is summarized in the table below:

Sample Location	Sample Description	R-Value
TP-3 @ 1-2'	Light to medium brown, silty, very fine to medium SAND	62

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SIEVE ANALYSIS OF FINE AND COARSE AGGREGATES

Per CTM 202 / ASTM C136 (underline one)

Project:	Whitmore Running Track	*Job No.:*	3.30831
Client:	MMSA	*Tested by:*	PS
Sampled by:	PS	*Delivered by:*	PS
Sample Date/time:	10/11/07	*Delivered Date/time:*	
Sample Location:	TP-1 @ 1-2'	*Test Date:*	11/8/07
Description:	Silty, very fine to fine SAND (SM)		

Dry Sample Total Weight (g):			*#4 Minus Dry Wt. (g):* 641.6						*% Passing by Dry Weight:*	
Sieve Size			**Wt. Ret.**	**% Ret.**	**% Pass.**	**Wt. Ret. (g)**	**% Ret.**	**% Pass.**	**Coarse + Fine**	**Specified**
Inches	**mm**	**Mesh**								
2.0	50.0	2"								
1.5	37.5	11/2"								
1.0	25.0	1"								
0.750	19.0	3/4"								
0.500	12.7	1/2"								
0.250	6.3	1/4"								
0.187	4.75	#4				71.9	11.2	88.8		
0.0937	2.36	#8				35.4	5.5	83.3		
0.0469	1.18	#16				36.2	5.6	77.7		
		#20								
0.0234	0.60	#30				41.1	6.4	71.3		
		#40								
0.0117	0.30	#50				75.5	11.8	59.5		
		#80								
0.0059	0.15	#100				105.9	16.5	43.0		
0.0029	0.075	#200				85.9	13.4	29.6		
PAN						189.7	29.6	0		
TOTAL						641.6	100			

Remarks: Wash

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SIEVE ANALYSIS OF FINE AND COARSE AGGREGATES

Per CTM 202 / ASTM C136 (underline one)

Project:	Whitmore Running Track	*Job No.:*	3.30831
Client:	MMSA	*Tested by:*	PS
Sampled by:	PS	*Delivered by:*	PS
Sample Date/time:	10/11/07	*Delivered Date/time:*	
Sample Location:	TP-3 @ 0-1'	*Test Date:*	11/8/07
Description:	Silty, very fine to medium SAND (SM)		

Dry Sample Total Weight (g):			*#4 Minus Dry Wt. (g):* 647.9						*% Passing by Dry Weight:*	
Sieve Size			**Wt. Ret.**	**% Ret.**	**% Pass.**	**Wt. Ret. (g)**	**% Ret.**	**% Pass.**	**Coarse + Fine**	**Specified**
Inches	**mm**	**Mesh**								
2.0	50.0	2"								
1.5	37.5	11/2"								
1.0	25.0	1"								
0.750	19.0	3/4"								
0.500	12.7	1/2"								
0.250	6.3	1/4"								
0.187	4.75	#4				95.0	14.7	85.3		
0.0937	2.36	#8				44.3	6.8	78.5		
0.0469	1.18	#16				38.1	5.9	72.6		
		#20								
0.0234	0.60	#30				39.0	6.1	66.5		
		#40								
0.0117	0.30	#50				73.7	11.4	55.1		
		#80								
0.0059	0.15	#100				99.4	15.3	39.8		
0.0029	0.075	#200				76.1	11.7	28.1		
PAN						182.3	28.1	0		
TOTAL						647.9	100			

Remarks: Wash

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SIEVE ANALYSIS OF FINE AND COARSE AGGREGATES

Per CTM 202 / ASTM C136 (underline one)

Project:	Whitmore Running Track	*Job No.:*	3.30831
Client:	MMSA	*Tested by:*	PS
Sampled by:	PS	*Delivered by:*	PS
Sample Date/time:	10/11/07	*Delivered Date/time:*	
Sample Location:	TP-4 @ 2-3'	*Test Date:*	11/8/07
Description:	Silty, very fine to medium SAND (SM)		

Dry Sample Total Weight (g):			*#4 Minus Dry Wt. (g):* 686.0						*% Passing by Dry Weight:*	
Sieve Size			**Wt. Ret.**	**% Ret.**	**% Pass.**	**Wt. Ret. (g)**	**% Ret.**	**% Pass.**	**Coarse + Fine**	**Specified**
Inches	**mm**	**Mesh**								
2.0	50.0	2"								
1.5	37.5	11/2"								
1.0	25.0	1"								
0.750	19.0	3/4"								
0.500	12.7	1/2"								
0.250	6.3	1/4"								
0.187	4.75	#4				136.4	19.9	80.1		
0.0937	2.36	#8				50.7	7.4	72.7		
0.0469	1.18	#16				48.9	7.1	65.6		
		#20								
0.0234	0.60	#30				55.6	8.1	57.5		
		#40								
0.0117	0.30	#50				81.5	11.9	45.6		
		#80								
0.0059	0.15	#100				76.3	11.1	34.5		
0.0029	0.075	#200				62.4	9.1	25.4		
PAN						174.2	25.4	0		
TOTAL						686.0	100			

Remarks: Wash

Sierra Geotechnical Services

MAXIMUM DENSITY CURVE

PER ASTM TEST METHOD 1557-00 AND CTM 231-01

JOB NUMBER: 3.30831 DATE: 10/31/2007

PROJECT: WHITMORE RUNNING TRACK

SAMPLED BY: PS TESTED BY: PS

EXCAVATION: TP-1 DEPTH (FT.): 1-2'

SOIL CLASSIFICATION: SM

DESIGNATION: ALLUVIUM

TEST #	1	2	3	4	5
WEIGHT OF SOIL AND MOLD	6260	6356	6365		
WEIGHT OF MOLD	4381	4381	4381		
NET WET WEIGHT OF SOIL	1879	1975	1984		
WET DENSITY LBS./CU.FT.	124.3	130.6	131.2		
DRY DENSITY LBS./CU.FT.	118.9	121.6	119.4		
MOISTURE DETERMINATION					
WET WEIGHT SOIL	488	479	487		
TARE (WT. OF PAN)					
DRY WEIGHT SOIL	467	446	443		
WEIGHT OF MOISTURE	21	33	44		
PERCENT MOISTURE	4.5	7.4	9.9		

DRY WEIGHT - POUNDS PER CUBIC FOOT

145 140 135 130 125 120 115 110 105 100 95 90 85 80

0 5 10 15 20 25 30 35 40 45

2.20 2.30 2.40 2.50 2.60 2.70 2.80

MOISTURE - % OF DRY WEIGHT

ROCK CORRECTION

A	TOTAL SAMPLE WEIGHT	
B	+ 3/4" WT. IN AIR (gm)	
C	+ 3/4" WT. IN WATER (gm)	
D	+ 3/4" VOLUME (cc) (B-C)	
E	% + 3/4" 100(B/A)	
F	% - 3/4" (100-E)	
G	DENSITY OF + 3/4" (B/D)	
H	% + 3/4" / DENSITY OF + 3/4"	
I	% - 3/4" / DENSITY OF - 3/4"	
J	SUM OF H AND I	
K	ADJUSTED DENSITY gm/cc (100/J)	

RESULTS

MOLD VOLUME: _____

SIEVE USED: _____

MAX. DENSITY (LBS./FT³): 122.0

OPT. MOISTURE (% DRY WT.): 8.0

CALCULATIONS

1: _____

2: _____

3: _____

4: _____

5: _____

Maxdense.dwg - 7/2003

Sierra Geotechnical Services

MAXIMUM DENSITY CURVE

PER ASTM TEST METHOD 1557-00 AND CTM 231-01

JOB NUMBER: 3.30831 DATE: 10/31/2007

PROJECT: WHITMORE RUNNING TRACK

SAMPLED BY: PS TESTED BY: PS

EXCAVATION: TP-4 DEPTH (FT.): 2-3'

SOIL CLASSIFICATION: SM

DESIGNATION: ALLUVIUM

TEST #	1	2	3	4	5
WEIGHT OF SOIL AND MOLD	6410	6474	6433		
WEIGHT OF MOLD	4381	4381	4381		
NET WET WEIGHT OF SOIL	2029	2093	2052		
WET DENSITY LBS./CU.FT.	134.2	138.4	135.7		
DRY DENSITY LBS./CU.FT.	126.6	127.0	121.2		
MOISTURE DETERMINATION					
WET WEIGHT SOIL	493	485	481		
TARE (WT. OF PAN)					
DRY WEIGHT SOIL	465	445	430		
WEIGHT OF MOISTURE	28	40	51		
PERCENT MOISTURE	6.0	9.0	11.9		

ROCK CORRECTION		
A	TOTAL SAMPLE WEIGHT	
B	+ 3/4" WT. IN AIR (gm)	
C	+ 3/4" WT. IN WATER (gm)	
D	+ 3/4" VOLUME (cc) (B-C)	
E	% + 3/4" 100(B/A)	
F	% - 3/4" (100-E)	
G	DENSITY OF + 3/4" (B/D)	
H	% + 3/4" / DENSITY OF + 3/4"	
I	% - 3/4" / DENSITY OF - 3/4"	
J	SUM OF H AND I	
K	ADJUSTED DENSITY gm/cc (100/J)	

DRY WEIGHT - POUNDS PER CUBIC FOOT

145 140 135 130 125 120 115 110 105 100 95 90 85 80

0 5 10 15 20 25 30 35 40 45

2.20 2.30 2.40 2.50 2.60 2.70 2.80

MOISTURE - % OF DRY WEIGHT

RESULTS

MOLD VOLUME: _____

SIEVE USED: _____

MAX. DENSITY (LBS./FT³): 128.5

OPT. MOISTURE (% DRY WT.): 8.5

CALCULATIONS

1: _____

2: _____

3: _____

4: _____

5: _____

Maxdense.dwg - 7/2003

APPENDIX C

SEISMIC ANALYSIS

Seismic analysis was conducted for the subject site in order to develop parameters for structural design. This appendix presents the raw data from our analysis from the computer program, **UBCSEIS** (Blake, 2000). The analysis used the published attenuation relationship for "Stiff Soil" sites (Boore et. al., 1997).

UBCSEIS: The program **UBCSEIS** was used to compute the distances between the site and faults in a data file to select corresponding Uniform Building Code seismic coefficients, and aide in the construction of a site specific design response spectrum. The results of the analysis are presented herein.

```
**********************
*                    *
*    U B C S E I S   *
*                    *
*    Version 1.03    *
*                    *
**********************
```

COMPUTATION OF 1997
UNIFORM BUILDING CODE
SEISMIC DESIGN PARAMETERS

JOB NUMBER: 3.30831 DATE: 10-29-2007

JOB NAME: WHITMORE TRACK

FAULT-DATA-FILE NAME: CDMGUBCR.DAT

SITE COORDINATES:
SITE LATITUDE: 37.6278
SITE LONGITUDE: 118.8170

UBC SEISMIC ZONE: 0.4

UBC SOIL PROFILE TYPE: SD

NEAREST TYPE A FAULT:
NAME: DEATH VALLEY (N. of Cucamongo)
DISTANCE: 59.5 km

NEAREST TYPE B FAULT:
NAME: HILTON CREEK
DISTANCE: 0.2 km

NEAREST TYPE C FAULT:
NAME:
DISTANCE: 99999.0 km

SELECTED UBC SEISMIC COEFFICIENTS:
Na: 1.3
Nv: 1.6
Ca: 0.57
Cv: 1.02
Ts: 0.716
To: 0.143

```
**********************************************************************
* CAUTION:  The digitized data points used to model faults are       *
*           limited in number and have been digitized from small-    *
*           scale maps (e.g., 1:750,000 scale).  Consequently,       *
*           the estimated fault-site-distances may be in error by    *
*           several kilometers.  Therefore, it is important that     *
*           the distances be carefully checked for accuracy and      *
*           adjusted as needed, before they are used in design.      *
**********************************************************************
```

SUMMARY OF FAULT PARAMETERS

ABBREVIATED FAULT NAME	APPROX. DISTANCE (km)	SOURCE TYPE (A,B,C)	MAX. MAG. (Mw)	SLIP RATE (mm/yr)	FAULT TYPE (SS,DS,BT)
HILTON CREEK	0.2	B	6.7	2.50	DS
ROUND VALLEY (E. of S.N.Mtns.)	9.6	B	6.8	1.00	DS
HARTLEY SPRINGS	10.2	B	6.6	0.50	DS
FISH SLOUGH	29.7	B	6.6	0.20	DS
WHITE MOUNTAINS	39.0	B	7.1	1.00	SS
MONO LAKE	42.2	B	6.6	2.50	DS
DEATH VALLEY (N. of Cucamongo)	59.5	A	7.0	5.00	SS
OWENS VALLEY	61.2	B	7.6	1.50	SS
BIRCH CREEK	69.2	B	6.5	0.70	DS
ROBINSON CREEK	73.4	B	6.5	0.50	DS
DEEP SPRINGS	73.8	B	6.6	0.80	DS
INDEPENDENCE	94.4	B	6.9	0.20	DS
DEATH VALLEY (Northern)	109.0	A	7.2	5.00	SS
HUNTER MTN. - SALINE VALLEY	109.2	B	7.0	2.50	SS
ANTELOPE VALLEY	113.3	B	6.7	0.80	DS
GENOA	141.9	B	6.9	1.00	DS
So. SIERRA NEVADA	175.9	B	7.1	0.10	DS
PANAMINT VALLEY	181.6	B	7.2	2.50	SS
DEATH VALLEY (Graben)	206.6	B	6.9	4.00	DS
ORTIGALITA	208.0	B	6.9	1.00	SS
LITTLE LAKE	208.0	B	6.7	0.70	SS
QUIEN SABE	232.1	B	6.5	1.00	SS
SAN ANDREAS (Creeping)	234.0	B	5.0	34.00	SS
CALAVERAS (So.of Calaveras Res)	236.1	B	6.2	15.00	SS
SAN ANDREAS - 1857 Rupture	237.2	A	7.8	34.00	SS
GREENVILLE	237.8	B	6.9	2.00	SS
SARGENT	246.6	B	6.8	3.00	SS
TANK CANYON	248.5	B	6.5	1.00	DS
WHITE WOLF	250.4	B	7.2	2.00	DS
ZAYANTE-VERGELES	250.9	B	6.8	0.10	SS
SAN JUAN	252.7	B	7.0	1.00	SS
DEATH VALLEY (South)	253.1	B	6.9	4.00	SS
SAN ANDREAS (1906)	253.1	A	7.9	24.00	SS
HAYWARD (SE Extension)	258.4	B	6.5	3.00	SS
GARLOCK (East)	262.6	A	7.3	7.00	SS
CALAVERAS (No.of Calaveras Res)	264.1	B	6.8	6.00	SS
HAYWARD (Total Length)	264.1	A	7.1	9.00	SS
RINCONADA	265.6	B	7.3	1.00	SS
MONTE VISTA - SHANNON	270.0	B	6.5	0.40	DS
GARLOCK (West)	271.5	A	7.1	6.00	SS
BLACKWATER	272.0	B	6.9	0.60	SS
MONTEREY BAY - TULARCITOS	276.6	B	7.1	0.50	DS
CONCORD - GREEN VALLEY	279.6	B	6.9	6.00	SS
OWL LAKE	282.3	B	6.5	2.00	SS
LENWOOD-LOCKHART-OLD WOMAN SPRGS	283.4	B	7.3	0.60	SS
GRAVEL HILLS - HARPER LAKE	289.7	B	6.9	0.60	SS

SUMMARY OF FAULT PARAMETERS

ABBREVIATED FAULT NAME	APPROX. DISTANCE (km)	SOURCE TYPE (A,B,C)	MAX. MAG. (Mw)	SLIP RATE (mm/yr)	FAULT TYPE (SS,DS,BT)
PLEITO THRUST	292.0	B	6.8	2.00	DS
HOSGRI	302.8	B	7.3	2.50	SS
PALO COLORADO - SUR	303.7	B	7.0	3.00	SS
SAN GREGORIO	305.9	A	7.3	5.00	SS
WEST NAPA	307.7	B	6.5	1.00	SS
HELENDALE - S. LOCKHARDT	308.0	B	7.1	0.60	SS
SAN LUIS RANGE (S. Margin)	309.7	B	7.0	0.20	DS
LOS OSOS	310.5	B	6.8	0.50	DS
HUNTING CREEK - BERRYESSA	311.5	B	6.9	6.00	SS
BIG PINE	312.5	B	6.7	0.80	SS
RODGERS CREEK	314.4	A	7.0	9.00	SS
SAN GABRIEL	324.1	B	7.0	1.00	SS
CALICO - HIDALGO	337.1	B	7.1	0.60	SS
SANTA YNEZ (East)	338.2	B	7.0	2.00	SS
CASMALIA (Orcutt Frontal Fault)	339.1	B	6.5	0.25	DS
LIONS HEAD	342.5	B	6.6	0.02	DS
LOS ALAMOS-W. BASELINE	344.8	B	6.8	0.70	DS
SAN CAYETANO	345.9	B	6.8	6.00	DS
M.RIDGE-ARROYO PARIDA-SANTA ANA	347.4	B	6.7	0.40	DS
SANTA YNEZ (West)	352.8	B	6.9	2.00	SS
HOLSER	353.6	B	6.5	0.40	DS
POINT REYES	354.4	B	6.8	0.30	DS
BARTLETT SPRINGS	355.7	A	7.1	6.00	SS
SANTA SUSANA	356.6	B	6.6	5.00	DS
MAACAMA (South)	357.3	B	6.9	9.00	SS
RED MOUNTAIN	358.3	B	6.8	2.00	DS
OAK RIDGE (Onshore)	358.8	B	6.9	4.00	DS
SIERRA MADRE (San Fernando)	360.2	B	6.7	2.00	DS
LANDERS	360.7	B	7.3	0.60	SS
COLLAYOMI	363.6	B	6.5	0.60	SS
VENTURA - PITAS POINT	364.4	B	6.8	1.00	DS
SIERRA MADRE (Central)	365.7	B	7.0	3.00	DS
SIMI-SANTA ROSA	366.3	B	6.7	1.00	DS
VERDUGO	368.5	B	6.7	0.50	DS
PISGAH-BULLION MTN.-MESQUITE LK	373.9	B	7.1	0.60	SS
CLAMSHELL-SAWPIT	376.8	B	6.5	0.50	DS
NORTH FRONTAL FAULT ZONE (West)	383.9	B	7.0	1.00	DS
SAN ANDREAS - Southern	386.5	A	7.4	24.00	SS
CLEGHORN	387.5	B	6.5	3.00	SS
JOHNSON VALLEY (Northern)	388.5	B	6.7	0.60	SS
RAYMOND	388.8	B	6.5	0.50	DS
CUCAMONGA	388.9	A	7.0	5.00	DS
HOLLYWOOD	389.9	B	6.5	1.00	DS
MAACAMA (Central)	392.5	A	7.1	9.00	SS
SAN JACINTO-SAN BERNARDINO	393.4	B	6.7	12.00	SS
SANTA MONICA	393.5	B	6.6	1.00	DS

SUMMARY OF FAULT PARAMETERS

ABBREVIATED FAULT NAME	APPROX. DISTANCE (km)	SOURCE TYPE (A,B,C)	MAX. MAG. (Mw)	SLIP RATE (mm/yr)	FAULT TYPE (SS,DS,BT)
MALIBU COAST	395.1	B	6.7	0.30	DS
ANACAPA-DUME	395.9	B	7.3	3.00	DS
EMERSON So. - COPPER MTN.	398.4	B	6.9	0.60	SS
SAN JOSE	400.7	B	6.5	0.50	DS
NEWPORT-INGLEWOOD (L.A.Basin)	402.3	B	6.9	1.00	SS
NORTH FRONTAL FAULT ZONE (East)	406.8	B	6.7	0.50	DS
SANTA CRUZ ISLAND	407.1	B	6.8	1.00	DS
PALOS VERDES	407.2	B	7.1	3.00	SS
CHINO-CENTRAL AVE. (Elsinore)	410.7	B	6.7	1.00	DS
ELSINORE-WHITTIER	411.0	B	6.8	2.50	SS
BATTLE CREEK	411.5	B	6.5	0.50	DS
SANTA ROSA ISLAND	412.1	B	6.9	1.00	DS
SAN JACINTO-SAN JACINTO VALLEY	424.9	B	6.9	12.00	SS
ROUND VALLEY (N. S.F.Bay)	430.8	B	6.8	6.00	SS
ELSINORE-GLEN IVY	432.3	B	6.8	5.00	SS
PINTO MOUNTAIN	437.6	B	7.0	2.50	SS
MAACAMA (North)	437.8	A	7.1	9.00	SS
BURNT MTN.	444.0	B	6.5	0.60	SS
EUREKA PEAK	444.2	B	6.5	0.60	SS
NEWPORT-INGLEWOOD (Offshore)	455.8	B	6.9	1.50	SS
ELSINORE-TEMECULA	461.6	B	6.8	5.00	SS
SAN JACINTO-ANZA	463.6	A	7.2	12.00	SS
LAKE MOUNTAIN	483.9	B	6.7	6.00	SS
CORONADO BANK	491.0	B	7.4	3.00	SS
ELSINORE-JULIAN	498.7	A	7.1	5.00	SS
GARBERVILLE-BRICELAND	505.6	B	6.9	9.00	SS
SAN JACINTO-COYOTE CREEK	506.4	B	6.8	4.00	SS
ROSE CANYON	515.0	B	6.9	1.50	SS
EARTHQUAKE VALLEY	532.1	B	6.5	2.00	SS
SAN JACINTO - BORREGO	543.8	B	6.6	4.00	SS
BRAWLEY SEISMIC ZONE	549.2	B	6.5	25.00	SS
MAD RIVER	553.2	B	7.1	0.70	DS
LITTLE SALMON (Onshore)	558.5	A	7.0	5.00	DS
ELSINORE-COYOTE MOUNTAIN	561.8	B	6.8	4.00	SS
ELMORE RANCH	562.6	B	6.6	1.00	SS
TRINIDAD	562.7	B	7.3	2.50	DS
McKINLEYVILLE	562.8	B	7.0	0.60	DS
FICKLE HILL	564.8	B	6.9	0.60	DS
MENDOCINO FAULT ZONE	565.5	A	7.4	35.00	DS
SUPERSTITION MTN. (San Jacinto)	575.0	B	6.6	5.00	SS
SUPERSTITION HILLS (San Jacinto)	576.3	B	6.6	4.00	SS
TABLE BLUFF	579.3	B	7.0	0.60	DS
CASCADIA SUBDUCTION ZONE	583.6	A	8.3	35.00	DS
LITTLE SALMON (Offshore)	590.7	B	7.1	1.00	DS
IMPERIAL	596.7	A	7.0	20.00	SS
BIG LAGOON - BALD MTN.FLT.ZONE	597.8	B	7.3	0.50	DS

SUMMARY OF FAULT PARAMETERS

ABBREVIATED FAULT NAME	APPROX. DISTANCE (km)	SOURCE TYPE (A,B,C)	MAX. MAG. (Mw)	SLIP RATE (mm/yr)	FAULT TYPE (SS,DS,BT)
ELSINORE-LAGUNA SALADA	603.3	B	7.0	3.50	SS

DESIGN RESPONSE SPECTRUM

Seismic Zone: 0.4 Soil Profile: SD