



L.A. PRIVATE EYES ENGINEERS

Soil, Foundation, & Drainage Experts

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Mr. Tomo Igarashi
Via Email: tomonobu@aol.com

December 5, 2018
Job No. 12TI18

Subject: **Limited Geotechnical Inspection**
7080 Via Del Mar
Lot 19, Tract 37818
Los Angeles, California

Dear Mr. Igarashi:

In accordance with your request, on December 4, 2018, we performed a limited geotechnical inspection at the subject property. The purpose of the inspection was to visually evaluate the property for any geotechnical instabilities, to determine the probable causes of any observed distress, and to provide conceptual repair recommendations. Some of the information presented below is based on discussions with you and agents, Mr. Tony Self and Mr. Paul Bracewell, at the time of inspection.

The information presented in this report is also based on a review of the applicable geologic maps and our observations at the site during the inspection. A subsurface investigation was not performed as part of this inspection. Copies of some of the geologic maps reviewed, as well as selected photographs taken during the inspection are attached with this submittal.

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LIST OF REFERENCES

The following publications and references were reviewed as part of this inspection. Information obtained after reviewing these documents is summarized within the text of this report.

1. Technical Appendix to the Safety Element of the Los Angeles County General Plan, Volume 2, Department of Regional Planning, County of Los Angeles, January 1990.
2. Seismic Hazard Zones Maps, Palos Verdes Quadrangle, Department of Conservation, Division of Mines and Geology, Official Map released February 1, 1998.
3. Seismic Hazard Evaluation of the Palos Verdes 7.5-Minute Quadrangle, Los Angeles County, California, Department of Conservation, Division of Mines and Geology, Open-File Report 98-05-1998.
4. Dibblee Map Collection-Geologic Map of Palos Verdes Quadrangle-1999.
5. Excavation and Grading Code Administration, Inspection, and Enforcement, Michael Scullin-1983.
6. Evaluating Earthquake Hazards in the Los Angeles Region, U.S. Geological Survey Paper 1360, J. I. Ziony-1985.

As part of this inspection we researched the records on file at the City of Los Angeles-Department of Building & Safety (the City) for any prior geologic records on file for this address; the following documents were reviewed:

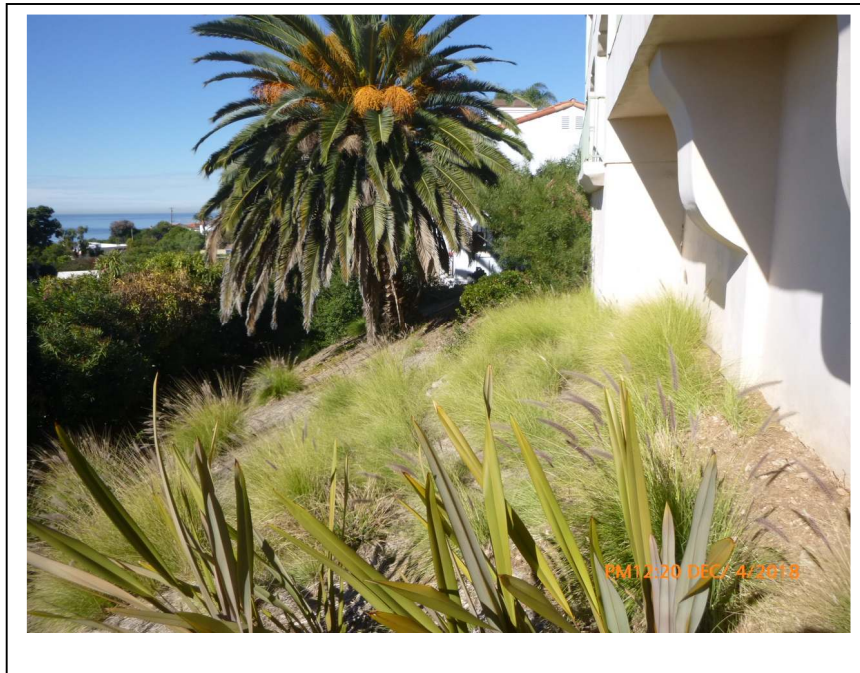
- A. Report of Geotechnical Services-Lots 17-23, Tract 37818, RPV, CA Prepared by Moore & Taber, Dated February 22, 1982.
- B. Geologic & Geotechnical Investigation-Distressed Residence-7060 Vista Del Mar, RPV, CA, prepared by Coast Geotechnical (Coast), Dated Sep 26, 2005.
- C. Geotechnical Investigation-Distressed Residence-7050 Via Del Mar, RPV, CA, Prepared by Moore & Taber, Dated February 5, 2002.

Copies of References A through C will be emailed to you under a separate cover. Please understand that records which may not have been available to us at the time of our search of the City records may become available later. We have no control over this matter and any data gathered by us should not be relied as a complete description or history of the site. Should additional information or records become available in the future, we would appreciate it greatly if you could forward them to us.

Permit verification is not within the scope of our inspection; as such, we did not search for any permits and/or certificates of occupancy that may be on file at the City for this property. To ensure that all improvements at the site are permitted, we recommend you obtain a copy of all such records from the City directly.

GENERAL

- The approximate location of the site relative to the nearby streets is shown in Fig 1-Site Vicinity Map. The entrance to the structure faces northeast; however; for discussion purposes, we have assumed that the entrance to the structure faces east. Slopes descend down from the west side of the structure. An Aerial View of the site is shown on Fig 2. The property is comprised of a level graded pad with descending slopes to the south of the structure.



- The property is occupied by a 2-story multi-level residential structure and an attached garage built in 1987. The house is of wood frame construction with stucco exterior walls. The structure is supported on shallow spread and continuous footings and has a slab-on-grade type of construction; crawl space areas are not present. Areas around the house are landscaped or are covered with concrete slabs and walkways.



SUBSURFACE CONDITIONS

- The property was originally underlain by terrace deposits and volcanic basalt; such rocks are generally very dense and strong. In addition to volcanic bedrock, the original hillside and its environs were underlain by sedimentary terrace deposits. As shown on Fig 3-Dibblee Geologic Map, the bedrock layers dip down to the east by as much as 15 degrees. From a slope stability viewpoint, this bedding attitude is considered to be favorable as it dips into the west-facing slope.
- No prior landslides have been mapped at this property. The property is not located in a seismically unstable slope area. The stability of the slopes at the site was evaluated by the geotechnical consultant of records from the tract who found the slopes to be stable. This conclusion was reviewed and concurred with by the City before a permit for development of the site was issued.
- To reduce the potential for erosion of the slopes, keep the slopes vegetated with deep rooting vegetation. Do not overwater the slopes; periodically inspect the sprinkler lines to make sure that they do not leak and discharge large amounts of water onto the slope. The subgrade soils are reported to be moist to wet. Seepage was noted at the contact between fill and the underlying bedrock.
- In order to develop a level building pad, the lot was graded by removing the loose topsoil overlying the underlying bedrock before placing fill soils on the underlying bedrock. The limits of the fill soils within the site area are depicted on Fig 4-Grading Plan. The fill soils

at the site range anywhere from about 23 to 30 feet deep. The thickness of the fill soils at the site are shown on Fig 5-Section.

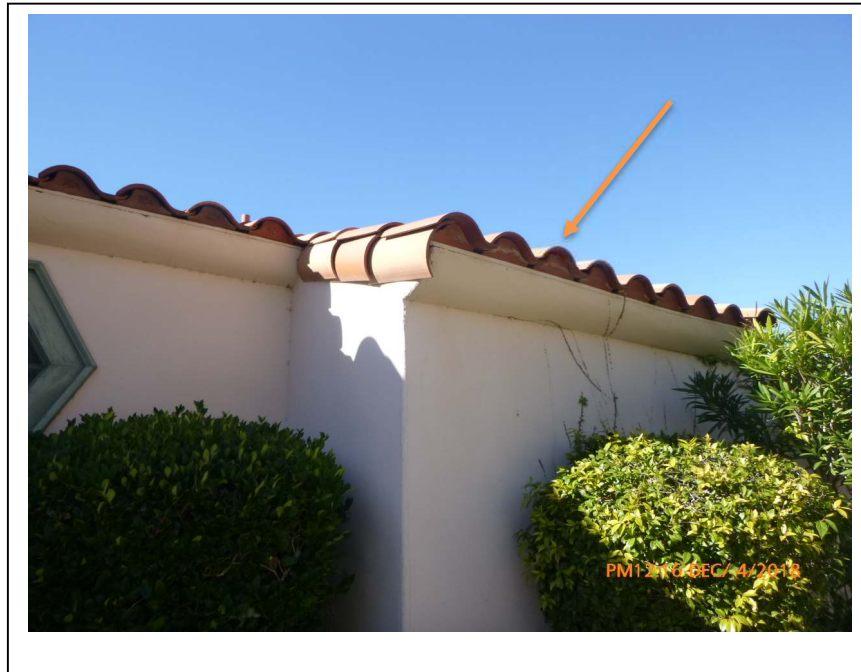
- The fill soils were placed under observation of Moore & Taber and are reported to have been compacted. The fill soils were placed at a time when strict grading ordinances were not in effect; as such they may not have been compacted to the current standards. As a result, they do not appear to have been properly compacted as they have settled causing settlement of portions of the structure as discussed in the following sections.
- The site materials appear to be somewhat expansive; expansive soils shrink and swell with changes in their moisture content. As such, it is imperative to make sure that sufficient drains are installed around the house so that water does not pond in the low lying areas. The site is not mapped as being in a potentially liquefiable area. Liquefaction may occur in an area underlain by loose sandy soils and shallow groundwater subjected to earthquake shaking.
- The site is not mapped as being across an Alquist-Priolo (AP) Zoned fault; such faults are reported to rupture the ground surface and severely damage structures. No active earthquake faults have been mapped to cross the site. However, as with any other property, the site and its improvements may be subjected to strong earthquake shaking in the future. To offset some of the costs due to future earthquakes, we recommend you obtain earthquake insurance.

OBSERVATIONS

- The driveway and garage slabs contain a few cracks.



- The structure is missing roof gutters and downspouts. This condition is not desirable as rain water can accumulate next to the building and cause settlement.



- In absence of drainage devices, rain and/or irrigation water can pond in the low lying areas around the building



- Some of the exterior walls of the building and retaining walls are covered with vegetation and could not be thoroughly inspected. Where visible, water damage was noted on the face of some of the walls. This may be due to lack of a waterproofing membrane behind the wall.



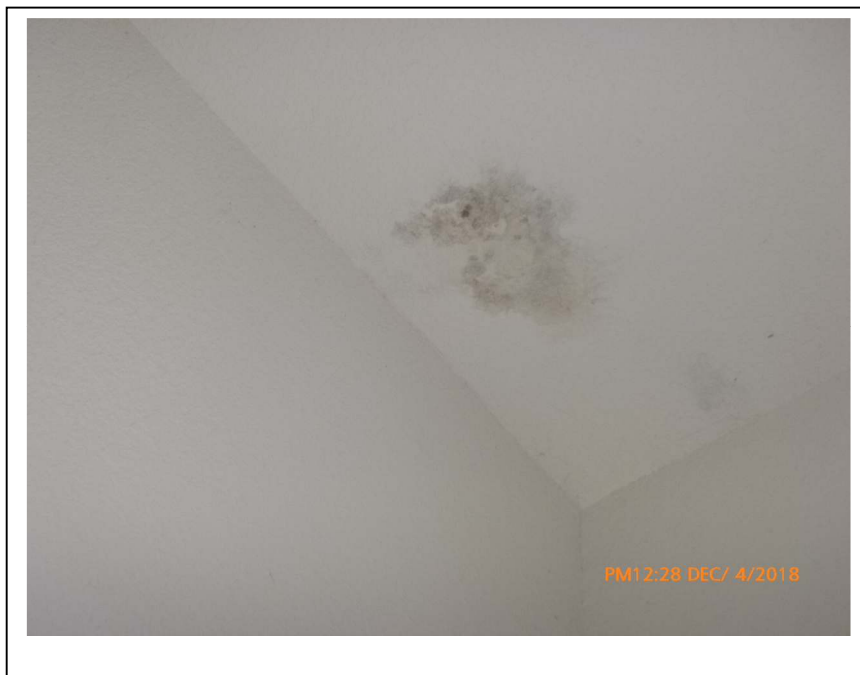
- Have a qualified contractor re-attach the rubber membrane over the deck.



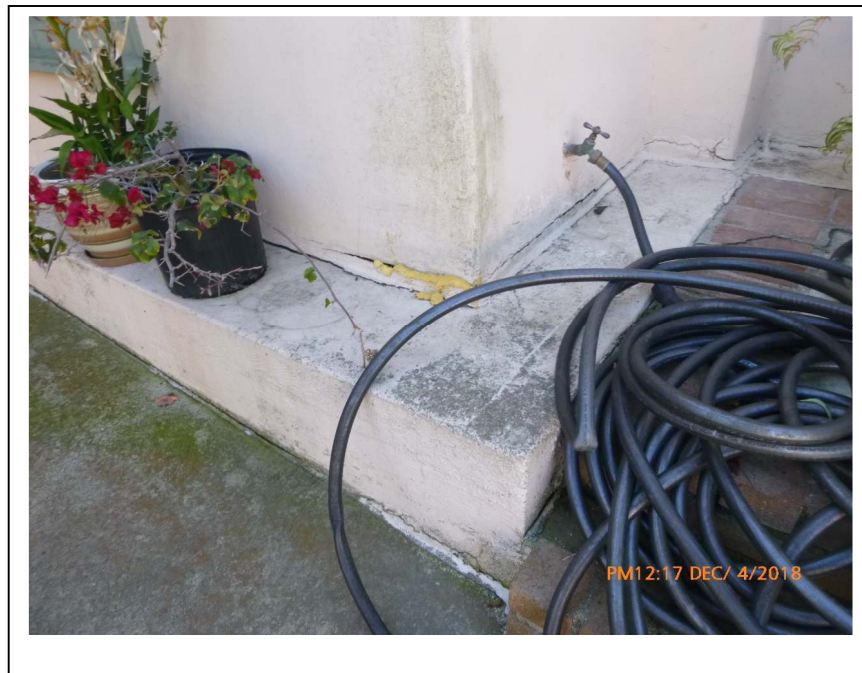
- Stains were noted on the ceiling in some areas. Water damage was noted to the ceiling of the lower level laundry room. The noted water damage may be due to a leak from a bathroom above this area. Make sure that there are no more leaks.

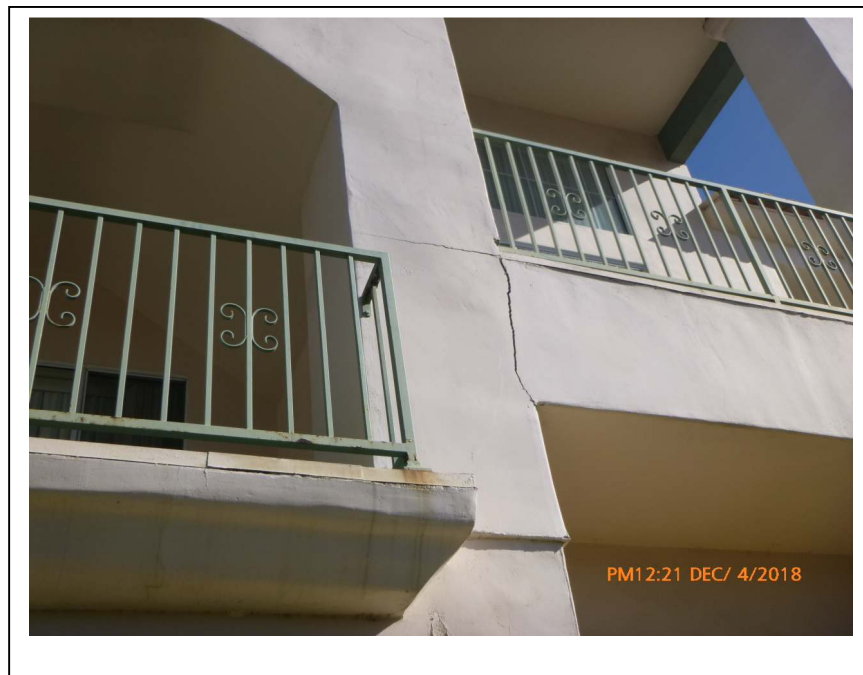
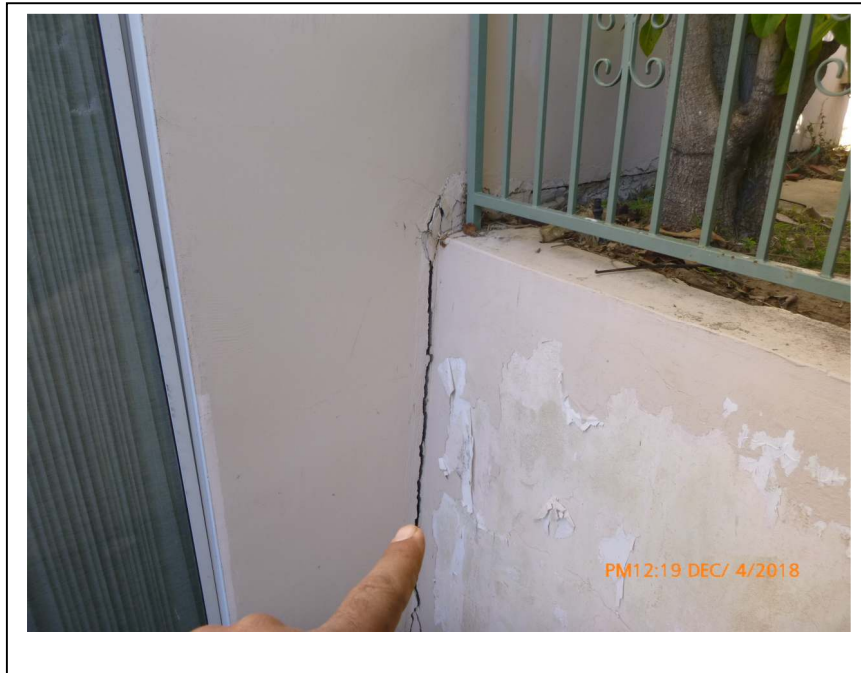


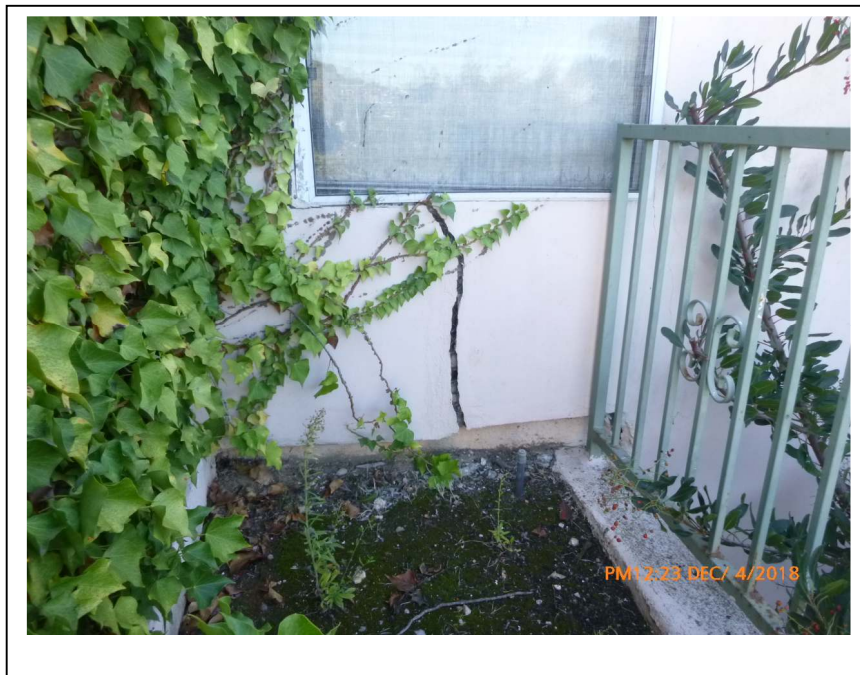
- Dark to black stains were noted on the ceiling to the southwest of the upper living room; this may be due to a roof leak. Have a qualified roofer check the roof to ensure that there is no potential for future leaks. In addition, due to water intrusion into the building envelop, we recommend you have a mold and termite inspection performed at this property as soon as possible.



- Cracks were noted on the exterior of the building.



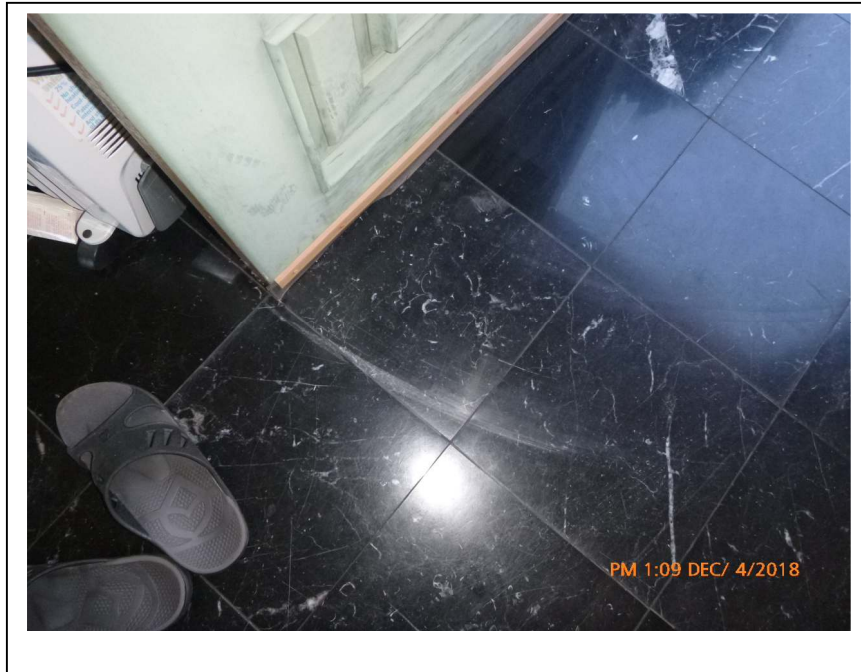




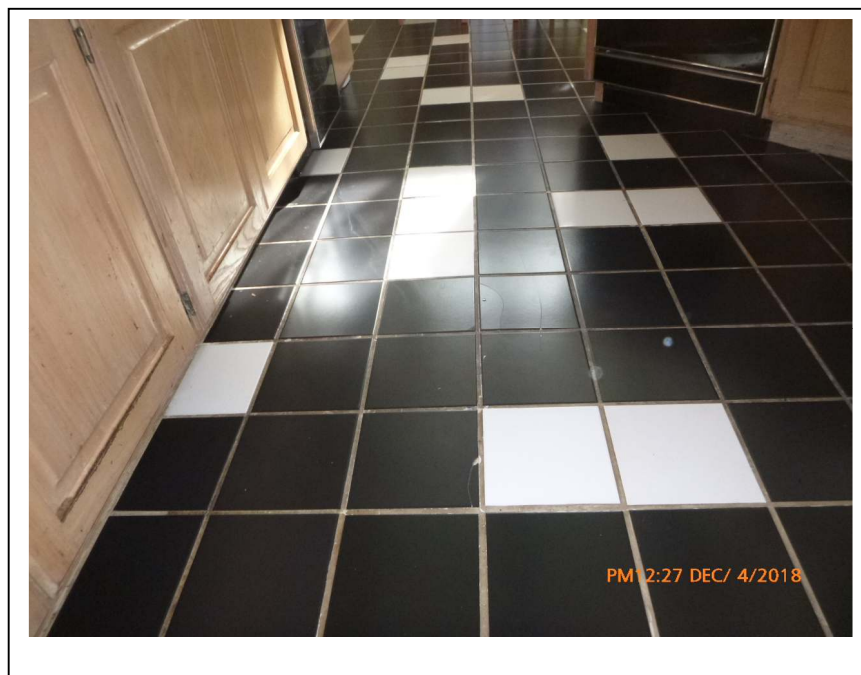
- View of a crack in the southerly slab to the south of the house.



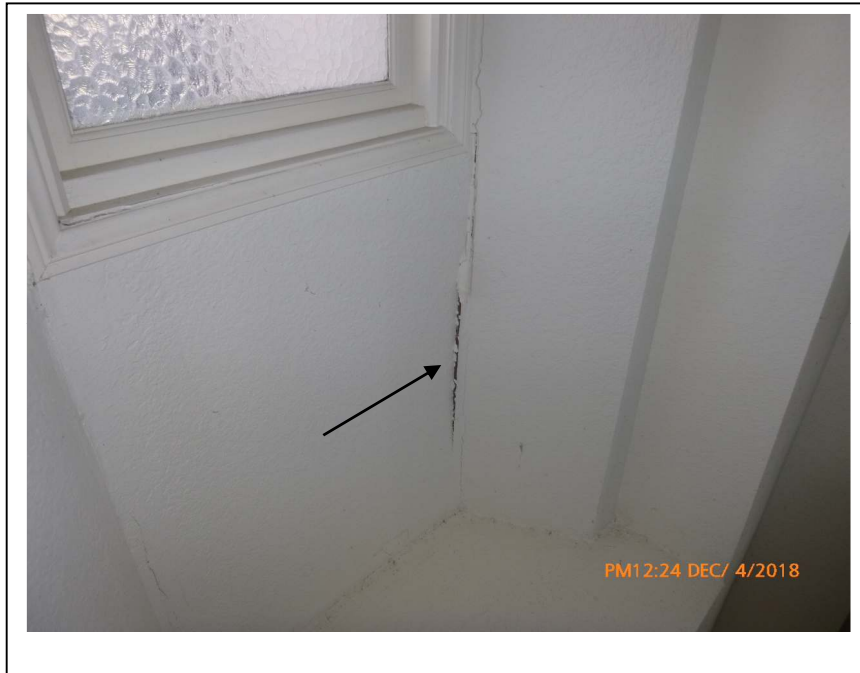
- The front door apparently rubs against the floor.



- Hairline cracks were noted in the lower level kitchen.



- Numerous cracks were noted within the interior of the structure.



- Some of the doors above-referenced either out of square or do not operate properly any longer.



- We checked the levelness of the structure by performing a floor-level survey on its lower level interior floors using a water-level (manometer). The results of our measurements are presented in Figure 6-Floor Level Survey Results. The readings take into consideration the variation in the thickness of various floor coverings in the house.
- To keep cracking of the structures and their foundations to a minimum, the differential movement across a horizontal distance of 30 feet should usually not exceed about 1 inch. Based on our measurements, the structure has settled differentially by up to about 5 inches. This amount of movement is excessive and in opinion is the main cause of the noted distress cracking.
- A few cracks were noted in the floor tiles. The interior floor slabs are covered with hardwood, tile, and carpeting; as such, they could not be observed directly from a cracking view point. If the condition of the floor slabs is of concern to you, then the floor coverings should be removed in order to provide direct access to the slabs.
- All of the walls throughout the house and the garage are finished and we could not observe the contact between the walls and the foundations. We could not confirm that the house is bolted down to its foundation. Since the 1933 Long Beach earthquake, building codes require that all structures to be bolted down to their foundations so as not to slide off their footings in case of strong earthquakes.

CONCLUSIONS AND RECOMMENDATIONS

Based on our observations and measurements, it is our opinion that the subject building has settled. The noted settlement is due to lack of adequate compaction of the underlying fill soils and poor drainage causing the fill to get wet. On level ground, settlement of most soils is generally over after the first 10 to 15 years of construction; however; when next to a descending slope, there may be a potential for additional settlement. Due to the magnitude of the noted settlement and the extent of cracking, there may be a potential for additional settlement and cracking even after the existing cracks are patched and painted.

Similar distress and repairs have been reported to the City for the nearby properties located at 7050 and 7060 Via Del Mar. Presented below are our observations followed immediately with conceptual repair recommendations. Depending on your budget and future expected performance of the property, you may choose to implement one or a combination of all of the following measures. The recommendations discussed below are remedial in nature and are only intended to improve the existing conditions; they may not completely alleviate the noted problems as the site is already developed.

As recommended by other consultants for the adjoining properties, we also recommend the settled portions of the structure to be underpinned with drilled caissons that extend through unsuitable soils into the underlying firm soils. In order to determine the depth of the caissons, a subsurface investigation is needed. Such an investigation would be required by the City before issuing a permit for the installation of the caissons. This method of repair is code compliant but is expensive.

As an alternative, the settled portions of the structure can be underpinned by installing helical piers or vibratory push pipes; however; these methods of repair are not code compliant and are only intended to improve the existing adverse conditions. The later methods of repair are less expensive than installing drilled caissons. A subsurface investigation is also required for installation of the helical piers or push pipes. After installation of the recommended underpins, the settled portions of the structure should be jacked against the existing foundations so that shimming plates and or dry packing can be installed. Upon completion of the releveling process, the foundations should be retrofitted by a qualified seismic retrofit contractor.

The re-leveling process will cause additional cracking and may necessitate rehangng new doors and windows and even roof repairs. However; after the re-leveling process and replacing the cracked lath and plaster with new sheets of drywall, the potential for future cracking should be have been reduced. Regardless of which method of repair is selected, the drainage conditions at the site should be improved by installing several surface area drains around the building preferably in the low lying areas. The proposed drain lines should consist of solid pipes that slope by 2% to the street.

Foundation cracks narrower than ¼ inches should be repaired by epoxy injection operations. Cracks that are wider should also be fixed by epoxy injection operations but should also have steel plates bolted to the concrete on both sides of the cracks. We should be retained to provide inspections to the contractor, and to inspect the repair work during the installations to ensure

compliance with the recommendations presented herein. Conditions may arise during the repair work that are different from those presented here and supplemental recommendations may be required.

If the noted condition of the retaining walls from a waterproofing view point is not acceptable to you, for most effective results, we recommend the backfill behind walls to be excavated and a French-drain (Fig 8) to be installed. Should this method of repair not be economically feasible, waterproof the walls by first sand blasting their face and then apply couple of coats of a suitable concrete sealant over the wall. Again keep in mind that this method of repair is not as effective as waterproofing the walls from their backside.

LIMITATIONS

It is important to recognize that our inspection is not intended to identify every crack or problem at the site but to identify general trends to point at some of the more obvious conditions that influence the site. As such, defects may exist at the site that are not discussed in this report especially if they are hidden and are concealed by earth materials, vegetation, floor covering, or structures such as retaining walls. If such defects are present, they are beyond the scope of this inspection. To identify such defects, a detailed subsurface investigation consisting of drilling borings or test pits at the site may be required. A sub-surface investigation was not performed as part of this inspection. Subsurface investigation and geologic mapping may result in differing conclusions than those listed above.

This report does not have sufficient information for submittal to any governmental agencies for obtaining an application for a building permit. In addition, this report has been prepared keeping in mind the standard of care currently in effect. With time, additional findings or new technologies may alter the standard of care for which we cannot be held responsible. This report should not be confused with a subsurface investigation that is usually required by the governing agencies for construction of new improvements or repair of the existing ones at the site. Our report should not be confused with a property survey either as we do not establish lot lines or prepare topographic maps; for that purpose, you should contact a licensed land surveyor.

In addition, leaking sewer, water, or plumbing lines, which are not directly observable, may adversely affect the geologic conditions at the site. Man-made or natural alterations at the site or adjacent to it such as excavations, strong storms, excessive rains, changes in groundwater characteristics, may also affect the geologic stability of the property and its improvements. The findings presented in this report are only applicable at the time of the inspection. Future site conditions may vary from those observed at the time of our inspection. This report has been prepared in a manner consistent with the level of care and skill ordinarily exercised by other geotechnical engineers practicing in the same locality under similar conditions.

This report is for the sole and exclusive use for the client listed in accordance with our written agreement and is subject to the terms and conditions agreed upon, this report is a work product and is copyrighted by L.A. Private Eyes Geotechnical Engineers, as of the date of this report.

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This report is not intended to express or imply a home warranty or guarantee of any kind. We do not guarantee the work of the developer, contractors, or other consultants that may have performed work at the site. Therefore, no guarantee or warranty of any kind is expressed or implied pertaining to the future performance of the site or the structure thereon in any respect. This report is not a complete investigation for code compliance or public records that might affect this property. This inspection report should not be used as fulfillment of the disclosure requirements of California Civil Code Section 1102.6, nor is it to be used as a substitute disclosure as authorized by section 1102.4.

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This completes our inspection report of the subject property. We at L.A. Private Eyes Geotechnical Engineers appreciate the opportunity that was afforded us to provide our professional opinion. Should you have any questions regarding the contents of this report, please call us.

Respectfully Submitted,

L.A. PRIVATE EYES GEOTECHNICAL ENGINEERS,
A DIVISION OF PRESTIGE ENGINEERING, INC.

A handwritten signature in black ink, appearing to read 'E. Simantob', is written over a faint circular stamp or watermark.

Ebrahim Abe Simantob, P.E., G.E.
Civil & Geotechnical Engineer

Attachments: Fig 1-Site Vicinity Map
Fig 2-Aerial View of the Site
Fig 3-Geologic Map
Fig 4-Seismic Hazards Map
Fig 5-Grading Plan
Fig 6-Section
Fig 7-Floor Level Survey Results

Fig 1-Site Vicinity Map



Fig 2-Aerial View of the Site



Fig 3-Dibblee Geologic Map

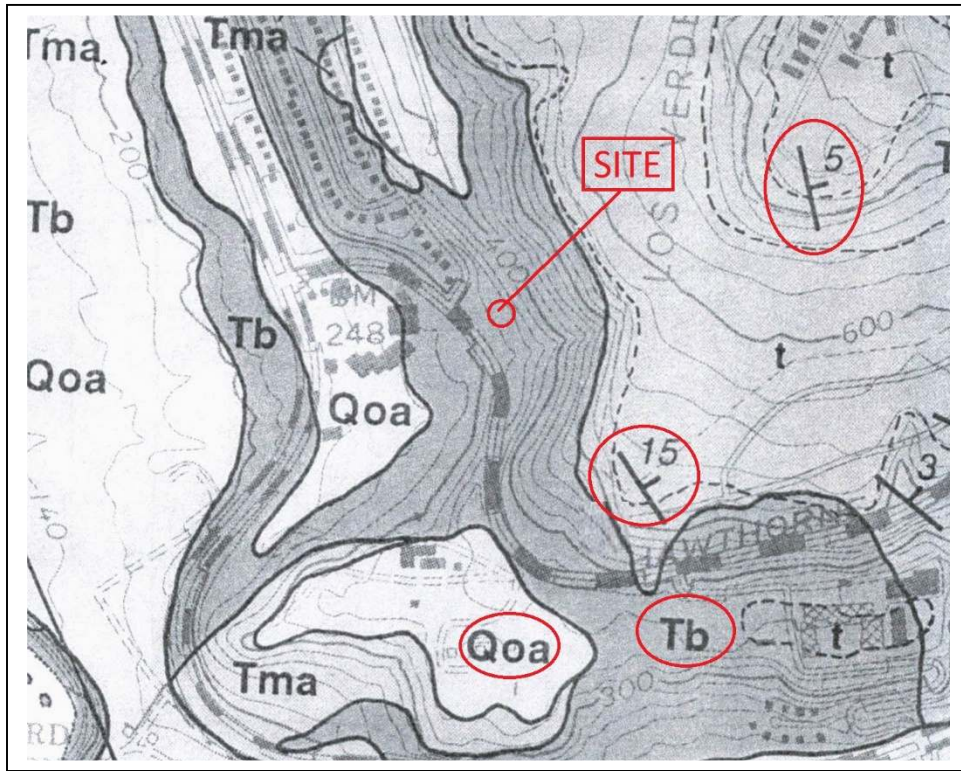


Fig 4-Seismic Hazards Map

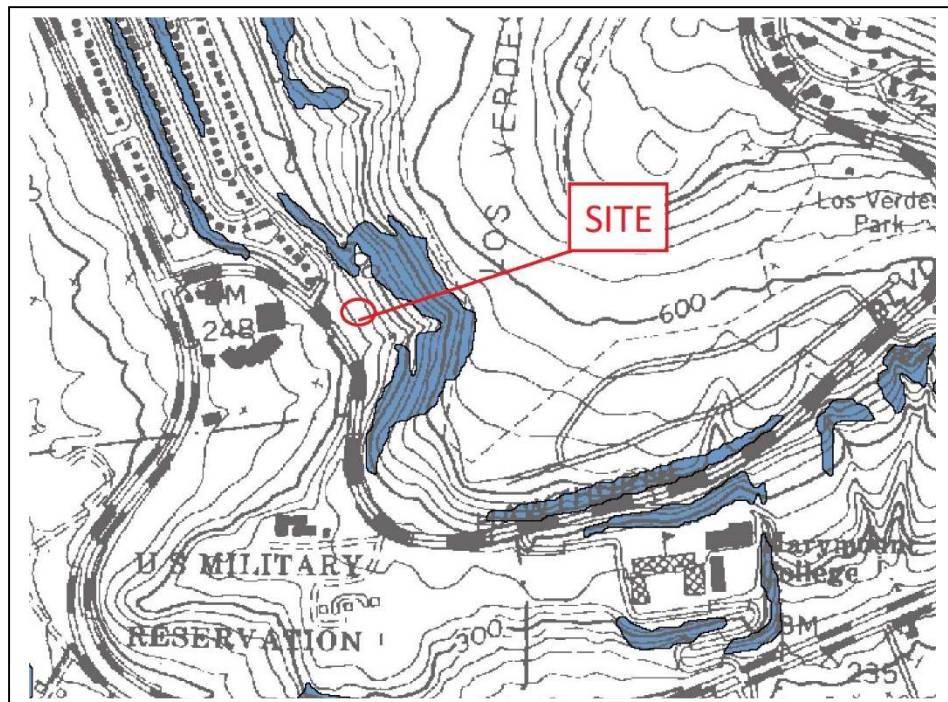


Fig 5-Grading Plan

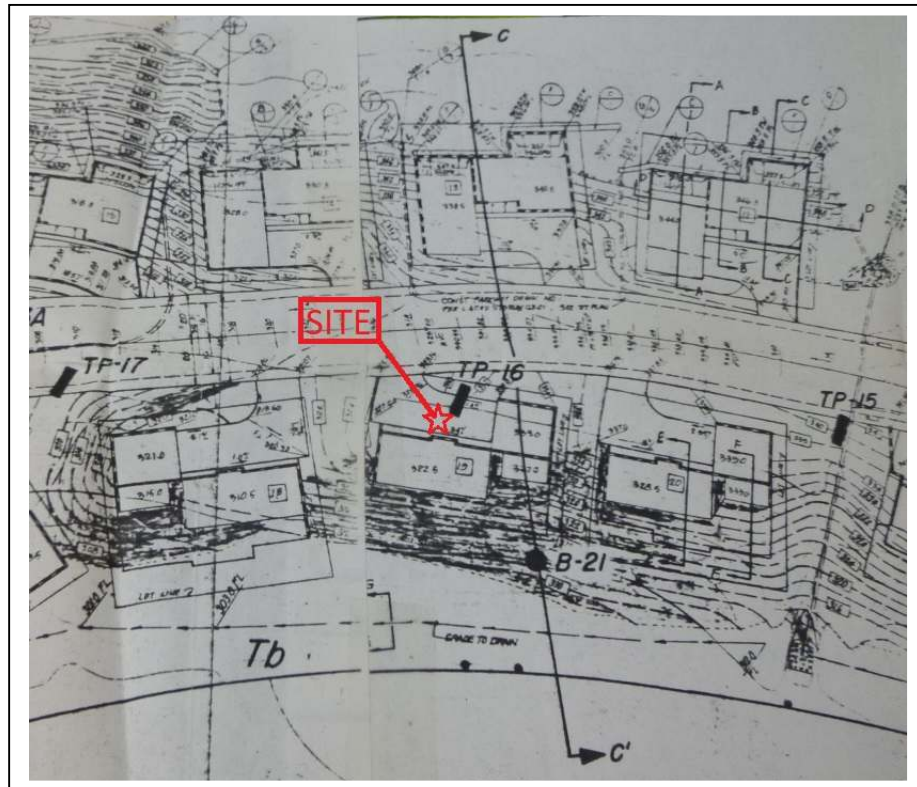


Fig 6-Section

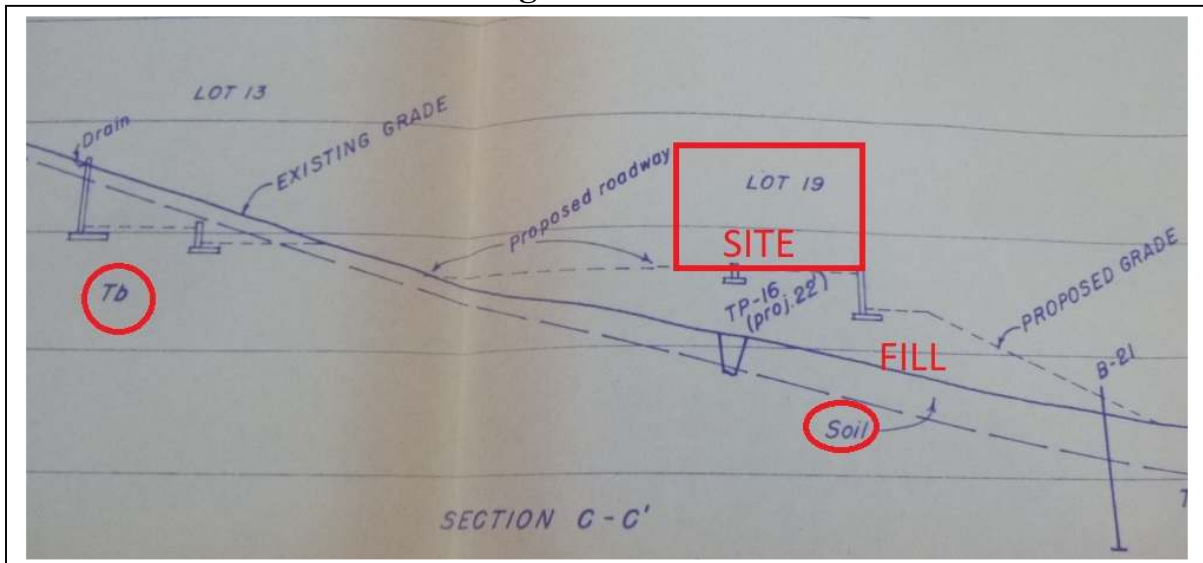


Fig 7-Floor Level Survey Results

