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September 5, 2018

[REDACTED]
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Subject: Limited Structural Site Inspection
1104 Palos Verdes Drive West
Palos Verdes Estates, CA 90274

PVEC #: 2-18-0421

Date of Inspection: September 5, 2018

Dear Robin:

ASSIGNMENT

At your request, we have personally inspected the single-family residence at 1104 Palos Verdes Drive West in Palos Verdes Estates, CA, for the purpose of determining the existing condition of structural integrity. We base our conclusions on visual observations of accessible interior and exterior areas. Our firm did no subsurface or destructive testing.

We did a limited manometer survey of the interior floor elevations to determine if any serious foundation stability issues were present. A copy of that survey is included with this report. A brief review of the construction drawings was made at the counter of the Palos Verdes Homes Association. Information learned from that review will be discussed below.

CONCLUSIONS

In our opinion, the overall foundation and framing elements of the house appear to be adequate. Several conditions will be



Smith/2-18-0421/1104 Palos Verdes Drive West, Palos Verdes Est.
September 5, 2018

Page 2

discussed in detail below, and recommendations will be made for repairing certain areas.

The maintenance of the surface and sub-surface drainage around the property is of primary importance. The size of the house alone provides numerous locations where moisture can enter the wood framed walls if the weather protection becomes compromised. In each case, the specific comments listed below are mainly focused on maintaining or improving the drainage and weatherproofing of the structure.

The surface runoff from the rear slope, around the house, and down to the street below will need to be monitored. A large amount of water could flow through the property during a heavy rain. The roof gutters and downspouts will require monitoring to ensure that all the roof water is directed safely downslope.

The various retaining walls around the property have typical flexure and shrinkage cracks. At the front porch and walkway, and along the front exterior wall of the house, evidence of long term settlement due to the underlying expansive soil is visible. However, the house floor is level to within 2.8 inches. This amount of slope is typical of houses of this age in this vicinity.

DISCUSSION AND RECOMMENDATIONS

At the time of our inspection on Wednesday, September 5, 2018, we were allowed full access to the property for the purpose of our inspection. The house was built around 1956 and appears to have been well constructed. It survived the 1964 Northridge earthquake and subsequent seismic and storm events. Although the original building plans show the concrete foundations being only eight inches deep, the house shows minimal settling for being sixty-two years old. Our manometer survey measured 2.8 inches of northerly tilt in the floor. The industry standard is



Smith/2-18-0421/1104 Palos Verdes Drive West, Palos Verdes Est.
September 5, 2018

Page 3

approximately one inch of slope in twenty feet of horizontal distance for new construction. This house exceeds this amount but is consistent with similar houses of this age in this vicinity.

Generally, the type of soil found in this area and which likely underlies the site, is expansive clay. In such soils, changes in soil moisture create volume changes in the soil structure. When the soil becomes wet due to rainfall or landscape irrigation, it tends to swell out from beneath the perimeter house foundations, or downhill on a slope. During the subsequent dry periods, it shrinks and causes settling of the foundations. This outward and downward movement, called creep, induces stresses in foundations and house framing members, allowing them to settle and flex. For this reason, maintenance of the drainage around the house is critical to the long-term performance of the structure.

Because of the underlying clay soil, any changes in soil moisture will encourage flexure in the foundation and framing, as well as contribute to the reinforcing steel corrosion. If additional information regarding the soils or geology of the property is desired, please retain a geotechnical engineer familiar with this area.

Our research at the Palos Verdes Homes Association (PVHA) noted that only one set of plans is currently on file. This would indicate that no significant modifications have been documented since original construction. The PVHA plan #2874 was dated December 1, 1955, which means that the construction likely occurred in 1956.

The difference in building codes between 1956 and today is certainly large. However, the quality of the wood and workmanship in 1956 was probably better than today. Any proposed modifications to the house will require a contractor with knowledge of old construction details and materials. Anchor bolts connecting the foundation to the framing should be



Smith/2-18-0421/1104 Palos Verdes Drive West, Palos Verdes Est.
September 5, 2018

Page 4

installed at four-foot intervals. Any concrete cracks should be pressure injected with epoxy gel to limit further movement. The exterior stucco cracks likewise should be repaired properly to limit water intrusion through the walls.

The bases of the exterior walls do not have weep screeds to vent any moisture trapped in the walls from rain. Since the exterior stucco plaster is porous, it will tend to absorb water during periods of prolonged rain. At the bottom of the walls, the water will collect inside the wall cavity if no outlet is available. Galvanized metal weep screeds provide that drain capability. Also, any water used to wash off the exterior patios or slabs could soak into the walls. We cannot know if any damage has occurred to the wood framing inside the walls from this condition, but recommend that you monitor the appearance of the plaster at the base of the walls for any signs of water damage.

The house is framed with wood, and this wood framing is more flexible than the brittle plaster walls, ceilings and tile floors. As the wood flexes with temperature and humidity changes, or vibrates during an earthquake, the structure will absorb and resist the forces. The brittle surfaces likely will crack. This does not indicate any structural weakness, only that the plaster is not as flexible as the wood. The smooth exterior plaster finish also is more likely to show cracks than would stucco with a heavier texture. These cracks should be monitored to ensure that they stay surficial and do not trap water inside the wall.

The slope terracing around the house contains a variety of retaining structures. It is important to control any surface runoff over this rear slope. The only water incident to this rear slope should be what rains onto it directly. It should not accept any runoff from uphill areas. Since changes in soil moisture create slope creep, it is imperative that the rear slope be kept just moist enough to sustain the plants, but no more. A concrete swale and cutoff wall was designed in August 1998 by our



Smith/2-18-0421/1104 Palos Verdes Drive West, Palos Verdes Est.
September 5, 2018

Page 5

firm to be constructed at the top of the rear slope to control the runoff from uphill areas.

Several shrinkage and flexure cracks are visible in the planter walls around the property. Such signs of movement are usually not serious, but should be watched for any changes. The expansive soil exerts more pressure on such walls than would a more granular soil. In particular, the front porch walkway shows evidence of slope creep, as does the slight outward rotation of the front exterior footing of the house. Because the interior floor slope is within an acceptable range, we do not recommend underpinning the foundation at this time. Cosmetic repairs of the exterior stucco and interior plaster cracks are suggested. Portions of the separated stone front walkway will need replacement.

The roof gutters and downspouts do not extend completely around the perimeter of the house, but the existing downspouts empty onto paved areas that carry the water to the street. Maintenance of this drainage system is important.

In summary, the overall foundation and framing elements of the house appear to be stable at this time. The surface drainage pattern around the property must be meticulously maintained to avoid damage to the house and the slope below.

This report is based solely on a visual inspection and is limited to the stated areas of concern. Other conditions affecting this or other properties that were not inspected, accessible or anticipated are beyond the scope of this report.

Palos Verdes Engineering Corporation does not inspect or test for mold or any other biologic or health hazards, which may be present at this site. Areas with limited ventilation, high humidity or evidence of moisture intrusion may contain such hazards. A professional inspection and test procedure can be



Smith/2-18-0421/1104 Palos Verdes Drive West, Palos Verdes Est.
September 5, 2018

Page 6

done to obtain specific information about such conditions at this property.

Services performed by this firm, at the subject site, were conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions. The contents of this report represent our professional opinions based on limited visual observation. This report has been prepared for the exclusive use of Robin Smith, Trustee, and should not be considered transferable or relied upon for any other purpose. This report may not be construed as a guarantee or warranty of the performance of the structure under future adverse circumstances.

Please do not hesitate to call if you have any questions or require further information.

Very truly yours,

PALOS VERDES ENGINEERING CORPORATION

A handwritten signature in blue ink, appearing to read 'John O. Schuricht', written over a horizontal line.

John O. Schuricht
Structural Engineer 2391

Manometer survey attached

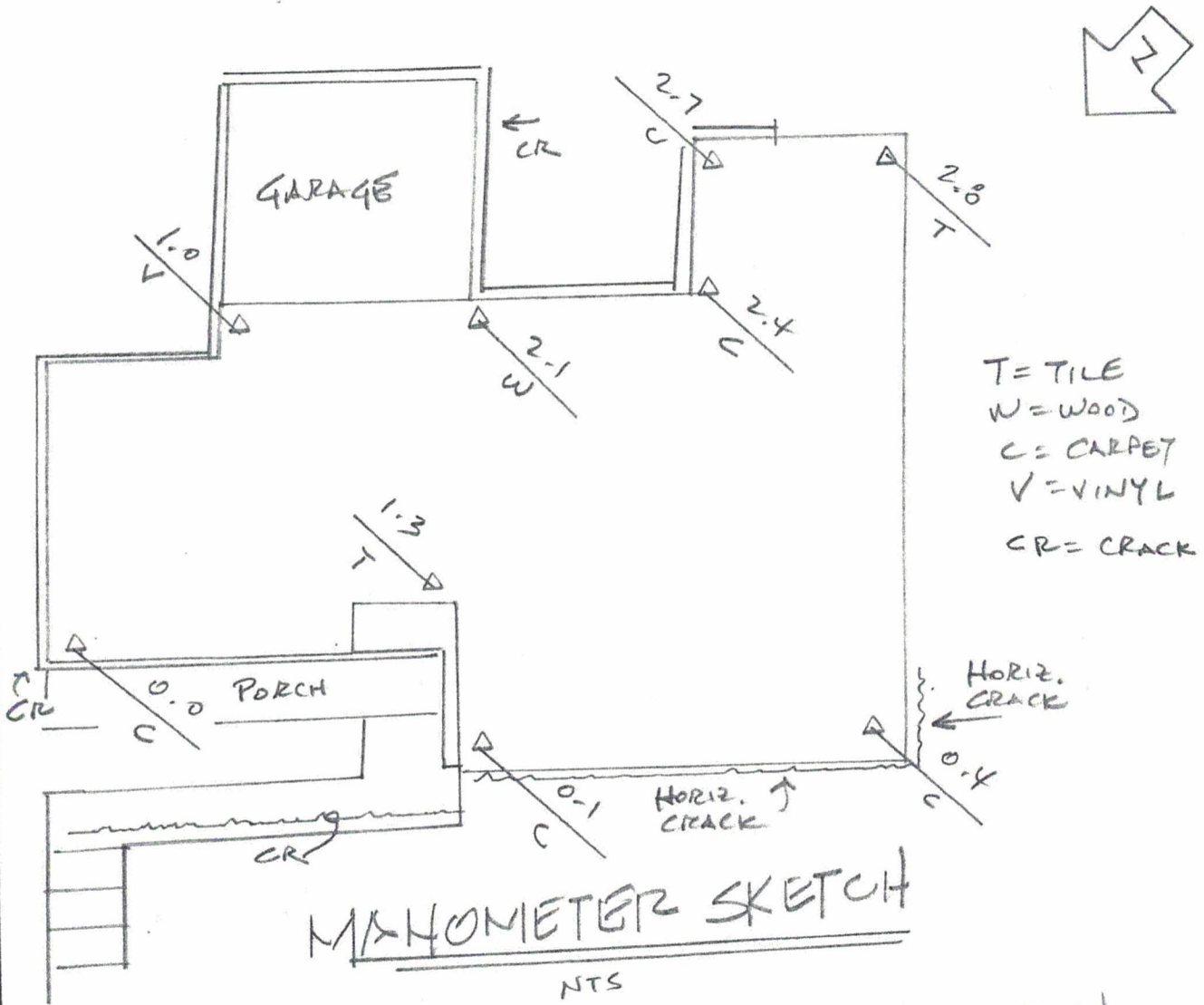




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JOB # 2-18-421
SHEET NO. 1 OF 1
ENGR. JS DATE 9-5-18
DRAWN BY JS
SCALE NTS



1104 P.V. DR. WEST
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ALL READINGS IN
INCHES + TENTHS