JACKSON & SANDS ENGINEERING, Inc.

October 26, 2026

Riley Brown
Buyer
548 W. 4th Ave.
Chico, CA 95926

Job#: 26-231
Project Address: 548 W. 4th Ave., Chico, CA 95926

Dear Riley Brown,

Jackson & Sands Engineering, Inc. was contacted to provide an assessment of the condition of the foundation for the residence referenced above, which is currently for sale. The goal was to evaluate a foundation crack identified in the home inspection report, to determine whether it represents structural damage, and to determine whether remediation work is necessary. A site visit was conducted on the morning of October 22, 2026, and our findings are presented below.

Our assessment was limited to a visual review of areas accessible without removing wall, ceiling, or floor finishes, stored items, or other obstructions. The resident was home at the time of our visit and allowed access to the exterior of the home and the crawl space. No destructive testing, materials testing, soils testing, floor elevation survey, or structural calculations were performed. Our observations represent conditions at a single point in time; we cannot determine when past movement occurred or whether it will continue. Recommendations in this letter are not engineered repair plans. The opinions expressed are subject to revision should additional information become available. This letter was prepared for the buyer's use and records.

Background:

We understand that a home inspection completed by SDM Home Inspections on October 6, 2026, identified major cracking in the foundation on the right (southwest) side of the home and recommended that a structural engineer evaluate the condition and provide a course of action. The same report noted a large, slightly uneven crack in the front porch that the inspector was unable to classify as structural or cosmetic, moss on the roof coverings, missing and damaged downspouts, and a leaking drain line with high moisture levels in the crawl space under the bathroom.

We were asked to evaluate the following:

- The foundation crack identified in the home inspection report
- The crack in the front porch slab

Observations:

Front Porch:

The front entry has an elevated concrete porch slab with a covered roof. A large crack runs through the porch slab, with approximately 3/4 inch of vertical offset across the crack (Figures 1 and 2). The porch roof is supported by a 4x4 beam, which is in turn supported by a 4x4 post that bears directly on the corner of the concrete porch slab. A downspout discharges near this same corner. The rafter-to-beam and beam-to-post connections are beginning to show signs of strain (Figure 3). The porch slab does not appear to be structurally connected to the foundation of the residence.

Foundation at Addition:

The foundation crack noted in the home inspection report is located on the southwest side of the home, along Warner Street. The crack extends the full height of the foundation, from the top of the concrete stem wall to the bottom of the footing (Figures 4 and 5). The separation was measured at approximately 1 inch wide at the top of the stem wall. It is evident that the crack is located at the boundary between the original foundation and the foundation of a later addition.

The original foundation consists of a 6-inch-thick footing that extends approximately 2 inches beyond the face of the stem wall and bears only approximately 10 inches below the adjacent soil (Figure 7). The addition footing and stem wall were constructed to match the original footing depth and stem wall thickness. The crack follows the joint between the two pours, and there is no evidence that the addition foundation was tied to the original foundation with reinforcing dowels, as is typical in current construction. It could not be determined whether the addition was poured tightly against the existing concrete and has since separated, or whether a gap was present from the time of construction.

The crack has been repaired in the past. Sealant was observed within the crack, and remnants of mortar on the exterior face of the crack have deteriorated (Figure 6).

Crawl Space:

The crawl space under the addition was accessible only through a 12-inch by 12-inch opening in the stem wall, so it was viewed and photographed from the opening only. The floor framing in the addition appeared to match the framing of the original home (Figure 8). Underfloor insulation was observed in both the original crawl space and the addition. An insulation certificate in the original crawl space was dated 1980. Because the same insulation was observed in both crawl spaces, this suggests that the addition was likely constructed in or prior to 1980.

While in the crawl space, a bathroom drain line was observed to be disconnected, with water discharging directly onto the soil under the home (Figure 9). This is consistent with the leaking drain line and high moisture levels noted in the home inspection report.

Interior and Roof:

The resident reported that the floor is not level. No cracking of the interior finishes was observed along the line of the addition. The roof covering over the addition appears to be beyond its expected

service life, as indicated by its deterioration and the moss growing on it. This condition was also noted in the home inspection report.

Assessment

Front Porch. The settlement of the porch slab is most likely the result of the roof load delivered by the post onto the corner of the slab, which does not appear to have a footing sized for a concentrated load, combined with water from the adjacent downspout softening the soil below. Because the porch is not structurally connected to the residence, the settlement does not threaten the structural integrity of the main residence. However, the condition will likely continue to degrade if it is not addressed. Continued settlement of the post will place additional strain on the rafter-to-beam and beam-to-post connections, which are already showing distress. Because the porch roof is located over the front entry, continued movement could lead to separation of these connections and an overhead framing failure hazard at the entry if the condition is not repaired.

Foundation at Addition. The crack is a separation at the joint between two independent foundations rather than a crack through a continuous foundation. Without reinforcing across the joint, the original home and the addition are free to move independently, and some differential movement at this location is common. In addition, the footings bear only approximately 10 inches below the adjacent soil, which is shallower than the 12-inch minimum required for new construction under the current California Residential Code (CRC R403.1.4). Shallow footings are more affected by seasonal wetting and drying of the soil, which increases the potential for movement, particularly where water is allowed to collect near the foundation. It cannot be determined from a single site visit whether the addition foundation is still moving. The deteriorated condition of the previous repair may indicate movement since the repair was made, although weathering of mortar in an exterior joint can also occur without movement. The reported unlevel floor could be related to differential settlement of the addition; however, no floor elevation survey was performed. The absence of interior finish cracking along the line of the addition suggests that any recent movement has been minor.

Plumbing. Although it is not a structural item, the disconnected drain line is saturating the soil in the crawl space. Prolonged wetting of foundation soils can soften the soil and contribute to settlement, and elevated moisture in the crawl space promotes decay of wood framing. This condition should be corrected immediately.

Recommendations:

Front Porch:

- Temporarily support the porch roof, re-level the beam and rafters, and reinforce or replace the rafter-to-beam and beam-to-post connections with appropriate framing hardware.
- Saw-cut and remove the corner of the concrete porch slab where the post currently bears, and install a new concrete footing and post base sized for the post load and independent of the porch slab.

- Extend the downspout discharge away from the porch and the foundation. A minimum distance of 5 feet from the foundation is recommended.
- Rout or chase the crack edges to create a uniform sealant reservoir, then seal the crack with a flexible exterior-grade sealant to limit water and debris intrusion.

Foundation at Addition:

- Remove the deteriorated mortar and loose sealant from the crack, then seal and patch the crack with a flexible exterior-grade sealant or patching material.
- Because the separation extends the full height of the foundation, monitor it for changes in width and vertical offset rather than length. Install an acrylic calibrated crack monitor (tell-tale gauge) across the joint, or set two fixed reference points or pins on either side of the joint and record the distance and vertical offset between them. Record the initial readings with the date and photograph them to establish a baseline.
- Re-check the crack at the end of the wet season and again at the end of the dry season for at least one year. If the separation widens, develops additional vertical offset, or the patch fails again, further investigation should be completed before a repair is designed. This could include a floor elevation survey to determine which areas of the foundation are settling and where foundation repair is needed. Depending on the findings, repairs could include routing out the concrete on both sides of the joint at the stem wall and footing and installing epoxy-doweled reinforcing bars across the joint to tie the addition to the original foundation, per an engineered detail.
- If the floor levelness is determined by the owner to be functionally or aesthetically unsatisfactory, a floor elevation survey should be performed to determine the extent and cause of the unlevel floor before any leveling work is undertaken.

Other Items:

- Have a licensed plumber reconnect the bathroom drain line immediately. Once repaired, allow the crawl space soil to dry, and check the framing in the area for decay.
- Structural repairs should be completed under a building permit if required.

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Conclusion:

The crack in the foundation is located at the unreinforced joint between the original foundation and a later addition. We did not observe evidence that it is currently causing structural distress to the home; however, because the prior repair has deteriorated, it cannot be ruled out that movement is ongoing. We recommend that the crack be sealed and monitored, with further investigation and repair if additional movement is observed. The front porch settlement does not threaten the structural integrity of the main residence, but it should be repaired as described above to prevent further deterioration of the porch roof framing over the entry. The disconnected drain line under the bathroom should be repaired immediately.

If there are any questions please feel free to contact me at the number below.

Thank You,

Frank Sands, P.E.
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10/26/2026



Figure 1- Front porch overview



Figure 2- Front porch slab crack with vertical offset

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Figure 3- Porch roof beam and post at corner of slab



Figure 4- Foundation crack location, Warner St. side



Figure 5- Crack extending full height of stem wall and footing



Figure 6- Previous repair - sealant and deteriorated mortar at crack

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Figure 7- Footing depth at joint between original and addition



Figure 8- Addition crawl space viewed through 12"x12" stem wall opening

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Figure 9- Disconnected bathroom drain line in crawl space

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