**HAWTHORNS HISTORIC STRUCTURES ASSESSMENT**
Midpeninsula Regional Open Space District
Windy Hill Open Space Preserve
Portola Valley, California

**Deliverable 2: Structure Conditions Assessment**

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FINAL

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## I. PURPOSE / GOALS

This Structure Conditions Assessment is Deliverable 2 of the overall Hawthorns Historic Structures Assessment. The assessment has been prepared by the project team, in cooperation with and under the direction of the Midpeninsula Regional Open Space District. The project team includes:

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This structure conditions assessment focuses on the Hawthorns Historic Complex site at 800 Los Trancos Road and describes the condition and provides recommendations for the four primary structures: the Hawthorn House, Garage, Cottage and Lower Barn. An overview of outbuildings located in the general vicinity of the primary buildings is also provided. The house located on the property at 4411 Alpine Road is not part of the Historic Complex and is not part of this conditions assessment. Rehabilitation recommendations are based on the determination of the Hawthorns property as a potential historic district by the Historic Resource Study, Deliverable 1 of the overall study. Certain code alternatives may apply if the property is dually recognized as a potential historic resource by the Town of Portola Valley and permitting agencies. The Historic Structures Assessment, including site and building assessments, addresses the following (See Appendix A for Methodology of the Structure Conditions Assessment):

Site Assessment

- Overall site description including access and circulation
- Site geology and its influence on the structural stability of structures
- Summary level evaluation of utilities serving the primary structures including storm drainage, sanitary sewer, water, and electrical systems including materials, type and condition, adequacy, deficiencies, recommendations, and code-required upgrades

Structures

- Architectural description, conditions and recommendations for materials and hardware, recommendations including exterior envelope evaluation of roofs, walls, windows and doors and interior finishes
- Structural evaluation of foundations, framing, vertical load and lateral systems and recommendations based on geotechnical test pit investigation
- Mechanical, electrical, and plumbing systems evaluation of fixtures and equipment and recommendations and anticipated code-required upgrades
- Basic floor plans and elevations of the Hawthorn House, Garage, and Cottage.

## II. SUMMARY OF FINDINGS

### A. Site

The Hawthorns property, located in the Town of Portola Valley, California, is composed of two parcels bounded by Alpine Road, Los Trancos Road, a low density residential development, and another rural estate property. The property is situated on a rolling, oak-studded grassland terrain with remnants of old orchards, a house off of Alpine Road and a set of historic structures. The historic structures, located at the southeastern side of the property adjacent to Los Trancos Road include the Hawthorn House, the Garage, the Cottage, Lower Barn and a collection of related outbuildings (See Figure 1, Site Plan).

#### Site Access

The Hawthorns site is accessed by four entrance drives, two along Alpine Road to the house at the northwest side of the property and a historic drive at the northeast, and two along Los Trancos Road, to the historic structures at the southeast. The two gated entrance drives off Los Trancos Road connect to a looped road which circulates around the Hawthorn House. The northern driveway, which has good visibility in both north and south directions at Los Trancos Road, connects to a site access road that extends north through the property towards Alpine Road. The southern driveway, which has good visibility only in the southbound direction at Los Trancos Road, extends south to the Lower Barn. Future development of the historic quadrant should consider repaving of existing gravel-paved roads with compacted aggregate base rock, drainage improvements, and coordination with new utilities trenching.

#### Site Geology

A study of geological maps shows that the Hawthorn House and Garage are set on stable unconsolidated granular material and the Cottage is underlain by stable bedrock. Geologic hazard maps and site reconnaissance indicate that the primary geotechnical issue impacting the site is the potential for strong to very strong ground shaking due to a seismic event on one of the nearby faults, including the San Andreas, Hayward, and San Gregorio faults. Building foundation test pit investigation at the Hawthorn House, Garage and Cottage detected some distress as a result of undersized footings and settlement at the Hawthorn House, insufficient footing depth at the Garage, vertical cracks at stepped foundations, poor construction and lack of reinforcing steel at the Hawthorn House and Cottage. Geotechnical recommendations for the design of structural improvements include the use of specific soils and seismic values, concrete mixture proportions, setting new foundations on stable or engineered backfill and with adequate depth, new slabs-on-grade set on compacted base rock, and regulation of construction methods including excavation conditions, moisture levels, and adequate drainage for new foundations.

### B. Site Utilities

The Hawthorns property was originally developed in the 1880's and, over time, sanitary sewer, water, and electrical service were developed. As the site has been vacant for many years, the site utilities are outdated to current code standards, abandoned and in disrepair.

#### Sanitary Sewer

Existing sanitary waste plumbing connects the Hawthorn House, Garage and Cottage to a septic system. Although there are surface indications of this septic system such as

cleanouts, the size and exact location of existing cast iron pipes and septic tanks are yet to be determined. A reuse project will require that the existing septic system be abandoned and a new system developed with connection to the West Bay Sanitary District main along Los Trancos Road.

**Water Service**
Water was pumped from Los Trancos Creek and from a well or tank to the historic complex of buildings via galvanized steel pipes. A redevelopment project will require connection to the California Water Service Company main at Los Trancos Road and a new polyvinyl chloride (PVC) water distribution system.

**Storm Drainage**
Storm water from gutters and downspouts at the Hawthorn House, Garage and Cottage has no formal collection system and surface runoff flows downhill towards Los Trancos Creek. If future development of the site involves re-grading around structures, then related erosion control methods should be considered. Similarly, paving of primary access roads should consider related management of storm water runoff if repaving increases impervious surfaces.

**Electrical Service**
Electrical service was eventually extended to the site via overhead lines to the Hawthorn House and Garage. This service was disconnected when the site went into disuse. A temporary underground electrical feed was more recently installed to provide power for security lighting and receptacles although this system has not been activated. For a new use, a new permanent electrical service will replace the outdated overhead service and temporary electrical system, which is inadequate for reuse of the buildings. As Pacific Gas & Electric (PG&E) would provide the electrical service, they could also provide gas service, which does not currently exist on site.

**C. Structures**
The structures assessment documents the existing conditions of the Hawthorn House, Garage, Cottage, Lower Barn and Outbuildings and provides recommendations regarding their retention and rehabilitation. As the site has been vacant for many years, a more extensive level of deterioration exists and conditions due to neglect are not comparable to that of buildings in active use. Rehabilitation recommendations for reuse or stabilization (for exterior viewing) are based on the structure's condition and related adaptability. Although local permitting agencies must verify that the Hawthorns property is considered a historic resource, the conditions assessment assumes that the California Historical Building Code (CHBC) may be applied so that historic fabric can be maintained to the greatest extent possible whereas it might be jeopardized in some instances by application of the regular code, the California Building Code (CBC).

**Hawthorn House**
The Hawthorn House, approximately 9,000 square feet in area, is a wood-framed, shingle-style two-story residence with unfinished basement and finished attic constructed in 1887. Overall, the structure is in fair condition, despite years of abandonment, and is a good candidate for reuse.

The roof is a poor layering of non-historic asphaltic material over historic wood shingles. Second floor built-up roof decks have poor drainage. Gutters and downspouts are deteriorated and/or missing. Roof eaves and the soffit boards are deteriorated or missing, exposing rafter tails, which exhibit dry rot and biological growth. Shingles and siding at exterior walls are weathered with peeling paint and areas of deteriorated shingles especially at the bottom of walls. There is also wood sheathing to earth contact. Joints between the original structure and 1916-additions are open. Exterior porches have deteriorated boards and loose railings. Doors are in good condition. Windows are in fair condition with broken glazing, deteriorated glazing putty and finish coatings, and wood deterioration. Bee colonies were removed at several wall locations though residual material may remain.

The interior is remarkably intact with plaster ceilings and walls, wood trim, and wood stained floors. There are areas of water damaged plaster, peeling wallpaper, worn stain finish at floors, and deteriorated resilient flooring at toilet rooms.

Exterior recommendations include new asphaltic roofing to match the configuration of original shingles, roof membrane, flashing, gutters and downspouts. Rafter tails should be treated with biocide. If the rafter tail ends are no longer stable and crumbly because of decay, they should be consolidated, which is a process to waterproof, strengthen, and rebuild deteriorated wood profiles. Splicing the ends with new wood is recommended where the decay extends further up the member. The roofing and soffit boards should be built back to their original profile to protect the interior framing. Minimally, the recommendation is to replace exterior shingles and siding at specific areas including building corners and along the base. At the same time, this would allow the installation of building paper and modification of the base detailing to minimize deterioration at grade. The open joints at the 1916-additions should be closed so that the exterior envelope is continuous. The exterior should be repainted. Deteriorated decking at the north and south porches should be replaced and the railing stabilized. Collapsing and rotted south porch and basement steps should be rebuilt. To address moisture issues, likely due to previous flooding and ground moisture, the perimeter should be cleared of debris and the grade adjusted to drain water away from the building. The doors and windows should be repaired. Where bee colonies have been removed, the area should be treated and rebuilt to remove residual material that would attract bees back to that location.

Interior recommendations include repair of water damaged interior plaster walls and ceilings, removal of wallpaper, and refinishing of wood floors. New resilient flooring should be installed where originally intended. Wood wall finishes should be painted or stained. Structural recommendations include strengthening of roof framing, a new roof diaphragm, new wall-to-floor attachments, bolting of sill plates, new plywood shear walls, and reinforcing existing retaining walls and providing new foundations to replace existing wood framing at the basement and at the first floor 1916-addition and south porch, where no foundations exist.

New electrical and plumbing and heating and ventilations systems are recommended to replace deteriorated, inadequate, or dangerous system components. The historic Montague central heating furnace at the basement should remain for its interpretive value. Historic light and plumbing fixtures should be retained to the extent feasible. Where new lighting and plumbing fixtures are needed they should be compatible with the historic building.

**Garage**
The Garage, built in 1916 and approximately 2,200 square feet in area, is a wood-framed one-story structure with a first floor garage and small attic apartment, set on a relatively flat area of the site. The building is in fair condition and adaptable for reuse.

The roof is a poor layering of original wood shingles with asphaltic material laid over it. Wood gutters and metal downspouts are deteriorated and/or missing. Roof eaves and the soffit boards are deteriorated or missing exposing rafter tails, which exhibit dry rot and biological growth. The exterior shingles at the base, corners and south and west facades are in poor condition, rotted, dilapidated and missing. Exterior additions are in poor condition. The west second floor deck is severely deteriorated and is inadequately flashed adjacent to the roof and exterior wall. The east lean-to structure has no foundation and a collapsing roof. The doors have water damage and minor damage including warpage. Windows have broken glazing and wood deterioration. The interior of this building is substantially intact with bead board walls and ceilings, wood trim, and floors of stained wood at the attic and concrete at the first floor. A few doors are severely damaged.

Exterior recommendations include new asphaltic roofing to match the configuration of original shingles, roof membrane, flashing, gutters and downspouts. Rafter tails should be treated with biocide and consolidated or spliced if decay extends beyond the ends. The roofing and soffit boards should be built back to their original profile to protect the interior framing. Minimally, the recommendation is to replace exterior shingles and siding at specific areas of deterioration. At the same time, this would allow the installation of building paper and modification of the base detailing to minimize wood sheathing deterioration at grade. The exterior should be repainted. The perimeter should be cleared of debris and grade adjusted to drain water away from the building. The lean-to addition and west deck and stair should be removed. The west deck and stair should be rebuilt if necessary for a new use as a secondary access to the attic apartment.

At the first floor, repair of damaged sections of bead board ceilings and the cracked slab-on-grade are recommended. The attic level wood floors should be refinished and toilet room resilient flooring replaced. Doors and windows should be repaired. Structural recommendations include a new roof diaphragm, new wall-to-floor attachments, new steel shear wall panels, reinforcement of one concrete retaining wall/foundation and new foundations at the other three sides.

The Garage has no heating or air-conditioning and, depending on its reuse, a new heating and ventilation system could be installed. New electrical and plumbing systems are recommended to replace deteriorated, inadequate, or dangerous components. Historic light and plumbing fixtures should be retained to the extent feasible. Where new lighting and plumbing fixtures are needed they should be compatible with the historic building.

**Cottage**
The Cottage, built around 1885, is a wood-framed structure with a partially finished attic, approximately 1,300 square feet in area. The building is in fair to poor condition, is sited on a steeper part of the site, and has a split level interior. These conditions make it less adaptable for interior reuse and a more likely candidate for stabilization for exterior

viewing.

The roof is a poor layering of original wood shingles with asphaltic material laid over it. Gutters and downspouts are deteriorated and/or missing. Roof eave fascia and soffit boards are deteriorated or missing, exposing rafter tails, which exhibit dry rot and biological growth. Shingles and siding at exterior walls are weathered with peeling paint and areas of deteriorated shingles especially at the bottom of walls. There is also wood finish to earth contact. The exterior stair is collapsing.

The interior is in fair condition with stained wood bead board wall and ceiling finishes, wood trim, and wood stained floors with some elements inconsistently painted. There are missing and damaged doors, broken glazing, and wood deterioration at windows. Rodents within the building have left the interior floors covered with droppings.

Recommendations include new asphaltic roofing to match the configuration of original shingles, roof membrane, flashing, gutters and downspouts. Exposed rafter tails should be treated with biocide and consolidated or spliced if decay extends beyond the ends. New roof eaves and soffit boards should be reinstated to protect roof framing. Minimally, the recommendation is to replace corner board and adjacent siding, which would allow the installation of building paper. At the base, modified detailing of the base of vertical siding should minimize deterioration at grade. The exterior stair should be rebuilt and exterior repainted.

The interior finishes should be cleaned and rodent eradication and prevention measures should be initiated. If reuse is possible, floors and painted walls should be re-stained and non-historic gypsum board and wall partitions at the attic removed. Doors and windows should be repaired. Modifications to the interior should be considered for a reuse to facilitate access and egress. Structural recommendations include strengthening of roof framing, a new roof diaphragm, new wall-to-floor attachments, new plywood sheathing, bolting of sill plates and new hold-down connections, and new foundations to replace existing rock and unreinforced concrete foundations.

Depending on its reuse, a new heating and ventilation system could be installed since none exist. New electrical and plumbing systems are recommended to replace deteriorated, inadequate, or dangerous components. Historic light fixtures should be retained. No historic plumbing fixtures remain. Where new lighting and plumbing fixtures are needed they should be compatible with the historic building.

**Lower Barn**

The Lower Barn, approximately 4,400 square feet in area, is a large wood-framed structure, built around 1887. Its poor condition and relative distance from the Hawthorn House, Garage, and Cottage cluster make it a less likely candidate for reuse but a possible exhibit for exterior viewing.

The barn is in disrepair with collapsed areas of roof with rusty corrugated metal roofing over sections of original shingles and dilapidated exterior board and batten siding, exposed with little finish coating remaining, exhibiting dry rot and warping. Door and window openings are wracked. The interior framing and concrete slab-on-grade are intact. Daylight is visible through the siding which presumably also allows water and pest intrusion. Feathers and droppings, presumably from barn owls, cover the interior.

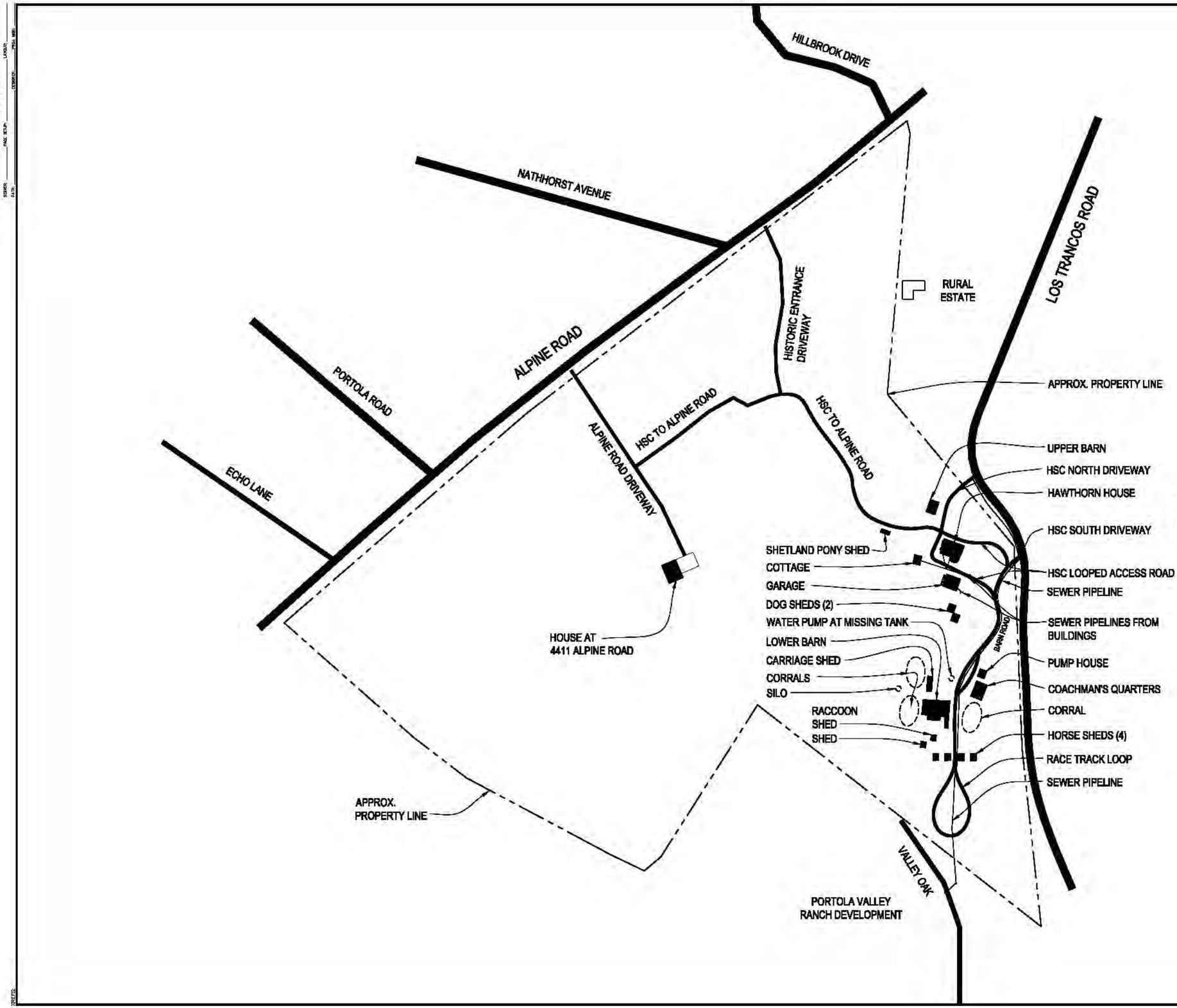
The roof should be replaced with new asphaltic shingles to match the configuration of original shingles. Siding should be reattached and refinished to match remaining whitewashed or painted surfaces to protect the remaining siding from further deterioration. The exterior and interior debris should be cleared and the perimeter grade adjusted to drain away from the structure. Structural recommendations include strengthening of roof framing, a new roof diaphragm, more secure attachment of new and existing sheathing, and new foundations at select areas. Doors and window should be repaired to the extent necessary for viewing and building closure. A wildlife consultant should provide recommendations on the relocation of barn owls and removal of other pests. The structure has no electrical, plumbing, or heating/air-conditioning/ventilations systems and none are recommended to be installed.

**Outbuildings**

The outbuildings include the Upper Barn, Coachman's Quarters, Pump House, Silo and a number of sheds. Although as a grouping with the primary structures the outbuildings contribute to the reading of the site's history and significance, their construction dates and specific histories are undocumented. The outbuildings are in poor condition and many are collapsed, which presents a long-term maintenance issue, as well as a fire and safety hazard. Therefore, documentation and demolition of most of the outbuildings is likely.

**Conclusion**

As a land management agency, the District requires an outside development partner to invest in the rehabilitation of the site structures. The scope of the rehabilitation should include the primary structures, namely the Hawthorn House and Garage, with the Cottage and Lower Barn stabilized for exterior viewing. As they are less adaptable and their condition poor to severe, the outbuildings are less likely candidates for rehabilitation and more for demolition. A reuse project should seek a balance so that investor funding can promote a viable reuse of the site, initiate prudent long-term maintenance and allow the retention of the Hawthorns property's historic character for both tenants and patrons.




# HAWTHORN HISTORIC STRUCTURES

PREPARED BY NV5 & REVISED BY KNAPP ARCHITECTS

DATE SUBMITTED: 10/31/2013

NO. | BY | DATE | DESCRIPTION

The engineer preparing these plans will not be responsible for any changes made to these plans by others without the knowledge and consent of the engineer. All changes to the plans must be in writing and must be approved by the preparer of these plans.

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Sacramento, CA 95833
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SHEET NUMBER

OF SHEETS

SCALE
VERTICAL: 1"= N/A
HORIZONTAL: 1"= N/A

JOB NUMBER
SJ80373

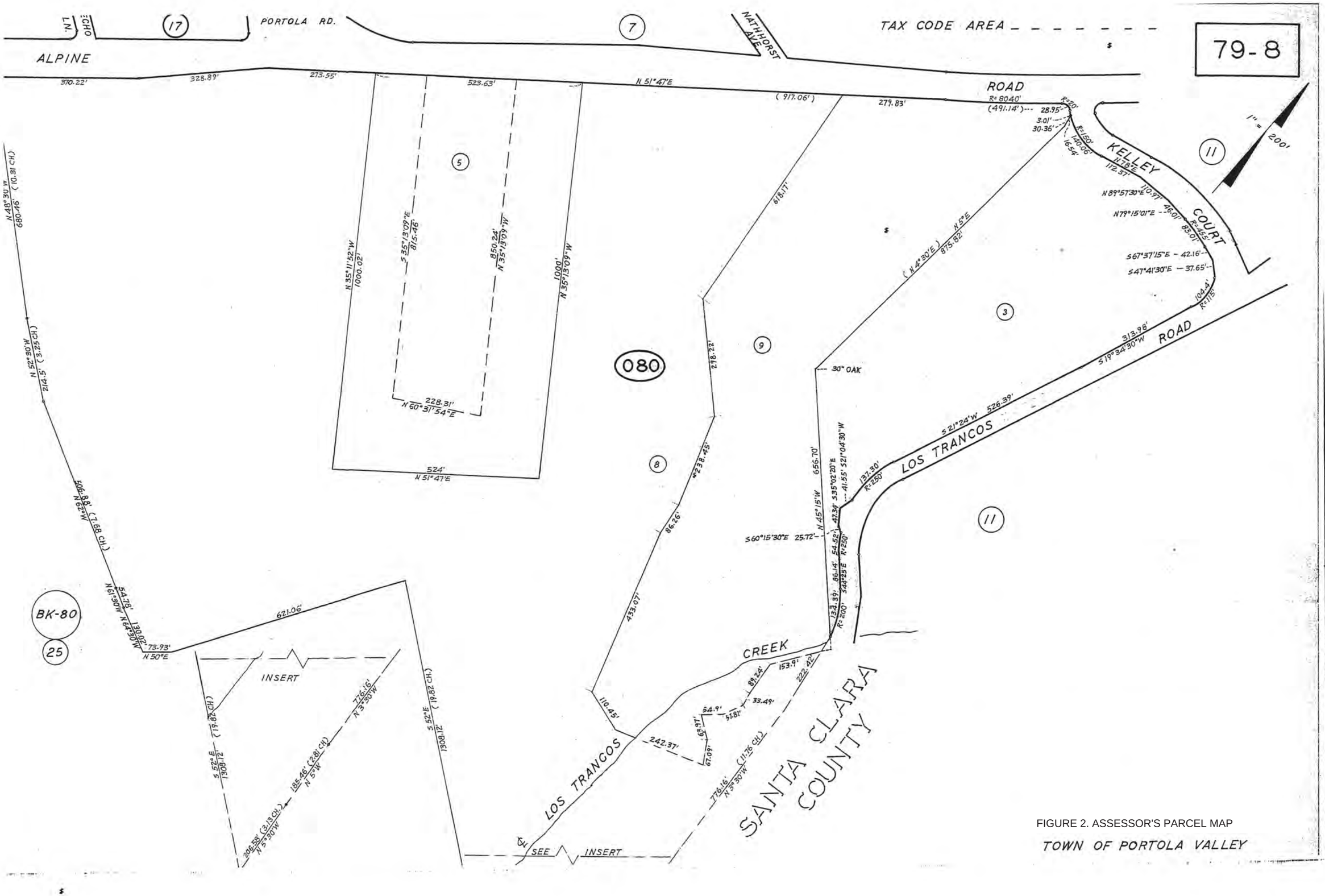


FIGURE 2. ASSESSOR'S PARCEL MAP

TOWN OF PORTOLA VALLEY

# III. SITE ASSESSMENT

## A. SITE DESCRIPTION

The Hawthorns property is located on a 77.9 acre site in the Town of Portola Valley, County of San Mateo, California. (See Figure 1, Site Plan, and Figure 2, Assessor's Parcel Map). The site contains three separate assessor's parcels (APNs 079-080-050, 079-080-080, & 079-080-090). The property is bounded by Alpine Road at the northwest, Los Trancos Road at the east, Portola Valley Ranch, a low density residential development at the south, and a rural estate property on the northeast. The property is situated on rolling oak-studded grassland terrain near the base of the Santa Cruz Mountains. Remnants of old orchards exist on the east side of the property. Los Trancos Creek crosses the property along the eastern boundary adjacent to Los Trancos Road. The property varies in elevation from 510 feet near the southeastern corner to over 745 feet along a ridgeline that bisects the property. The Historic Structures Complex (HSC) including the Hawthorn House, the Garage, and the Cottage is located just off Los Trancos Road at the southeast corner of the property. The site at the HSC slopes moderately toward the east to Los Trancos Creek and is relatively flat in comparison to the steeper terrain to the upper ridgeline west of the Complex.

## B. SITE ACCESS AND CIRCULATION

There are four access points to the property, two located on Alpine Road and two located on Los Trancos Road. All accesses are gated and padlocked for security. There does not appear to be a connection/access from the property to Portola Valley Ranch development at the south or the rural estate property to the northeast.

The original historic entrance to the property is located on Alpine Road 150 feet northeast from the intersection of Nathhorst Avenue and Alpine Road. This entrance is overgrown and appears to be seldom if ever used for current access to the property.

The second entrance on Alpine Road is the main access driveway for the 4411 Alpine Road residence. This 800 foot long steeply sloped driveway is asphalt paved and in good condition. Sight visibility at the driveway entrance to traffic on Alpine Road is good in both directions. Midway along this driveway there is an earthen road (HSC to Alpine Road) that connects to the historic entrance at the north over the ridgeline. This earthen road then continues southeast toward the Historic Structures Complex.

The primary access points to the Historic Structures Complex are the two entrances on Los Trancos Road. These two access drives (HSC North Driveway and HSC South Driveway) are 200 feet apart and head south, parallel to each other, towards the Historic Complex and auxiliary buildings surrounding the Lower Barn. The drives connect with internal roads that loop through the Historic Structures Complex, and also connect to the Alpine Road accesses previously described.

The HSC North Driveway is located at a curve in Los Trancos Road 0.35 miles south of the intersection with Alpine Road. Due to the fact that the north driveway has better sightlines, this gravel paved driveway entrance appears to be the main access to the Historic Structures Complex. Beyond the access gate the roadway is earthen and in fair condition.


*Image 1. Driveway to 4411 Alpine Road residence looking south from Alpine Road.*

The second entrance off LosTrancos Road, the HSC South Driveway, appears to be a secondary entrance for access to the Lower Barn structure/stable sheds located further south on the property. This gravel paved entrance is also located on a curve in Los Trancos Road. The sightlines to traffic on Los Trancos Road are good for southwest bound traffic, but only fair for northeast bound traffic due both to the curve, speed (30-35 miles per hour) and the dense vegetation blocking the sight lines. The HSC South Driveway, a gravel-paved entrance, leads to Lower Barn Road, which is flat and in fair condition.

All the existing roads on site, with the exception of the Alpine house paved driveway, are compacted dirt. These dirt roads appear to be in fair condition, with access in some locations restricted to high clearance vehicles. Should future development anticipate passenger vehicle access, consideration will have to be given to roadway engineering improvements for access and circulation around the Historic Structures Complex with an emphasis on improvements to address drainage and erosion control concerns. At a minimum, the existing driveway and access roads within the Historic Structures Complex should be re-graded and excavated 6 inches to install 6 inches of aggregate base rock compacted to 95 percent for emergency vehicle access per the Town of Portola Valley, Site Development Ordinance, Section 14.12.310.E. This work should be coordinated with the installation / undergrounding of site utilities.

*Image 2. View to HSC North Driveway entrance off Los Trancos looking west.*

*Image 3. View from HSC North Driveway entrance off Los Trancos looking northeast.*

*Image 4. View from HSC North Driveway entrance off Los Trancos looking southeast.*

*Image 5. View to HSC South Driveway entrance off Los Trancos looking south.*

## C. SITE GEOLOGY

The Geotechnical Assessment included a review of geology and geologic hazard maps of the area, a site geologic reconnaissance, and a study of building foundations and basement retaining walls through test pit excavation (See Appendix B, Geotechnical Assessment).

As shown on geological maps, the Hawthorn House and Garage are located in an area that is underlain by alluvium consisting of stable unconsolidated granular material; the Cottage is underlain by bedrock, a stable material. The maps also indicate that a small area of Whiskey Hill claystone and sandstone bedrock sits atop Franciscan Greenstone on an isolated ridge in the northeastern portion of the property, and thick sequences of slope wash (colluvial soil) mantle the greenstone bedrock in the southwestern portion of the property. Slope wash, which is commonly less than 10 feet thick, is considered unstable and unconsolidated material prone to shallow land sliding, soil creep, slumping, or settlement.

The primary geotechnical issue impacting the site is the potential of strong to very strong ground shaking due to a seismic event on one of the nearby faults, including the San Andreas, Hayward, and San Gregorio faults. Since the site is not within an earthquake fault zone, the risk of fault offset, surface faulting, and consequential secondary ground failure are very low. Although the area west of the Hawthorn House, Garage and Cottage has the potential for seismically induced land sliding, the potential for impact on the buildings is negligible due to the distance from these steeper sloped areas. The risk of seismically-induced deformations is very low for site liquefaction and lateral spreading and low for differential compaction. The risk of non-seismic ground failure issues including expansive and collapsible soils is also low based on test pit analysis. There is low risk of flooding, including earthquake-induced flooding, since the site is not within a 100-year or a 500-year flood hazard zone.

Two test pits each were excavated adjacent to the exterior of the Hawthorn House and Garage, and one was excavated adjacent to the Cottage. Although the dense silty sand and medium to stiff sandy silt and sandy clay colluvium should provide adequate support for the existing structures, some foundation distress was detected and appears to be the result of:

- Footings that were under-designed to resist loads, such as the apparent foundation settlement under the main stairway within the Hawthorn House
- Footings not extending deep enough into soils to resist lateral loads, such as the Garage southeast footing which has rotated, resulting in large cracks in the slab-on-grade floor inside this footing
- Vertical cracks at points of stress concentration where footings step down site grades
- Poor construction or materials resulting in concrete spalling and erosion
- Lack of reinforcing steel in footings or basement retaining walls for the Hawthorn House and Cottage

It is recommended that the geotechnical engineer review project plans for future structural improvements and observe field conditions during construction to compare actual conditions with those anticipated. See the Structures Assessment general

introduction and structural evaluation for each building for recommended improvements, which should be based on the following geotechnical recommendations:

Seismic Design Criteria

- The 2010 California Building Code seismic design criteria including recommended values for site class, maximum considered earthquake and response at short periods, site coefficients, and design earthquake response at short periods.

New Foundations

- Shallow foundation evaluation based on allowable bearing capacity of 2000 pounds per square foot (psf); passive resistance at a fluid pressure of 250 pounds per cubic foot (pcf); and base friction coefficient of 0.30. Passive and base friction values include a safety factor of 1.5 and may be used in combination without reduction.
- Shallow spread footings should bear on stiff/dense colluvium soil where the bottom of the footing is embedded at least 18 inches below the lowest adjacent soil sub-grade and be at least 18 inches wide for continuous footings and 24 inches for isolated spread footings. Adjacent to utility trenches or other footings, the footing should bear below an imaginary 1.5:1 horizontal to vertical plane projected upward form the bottom edge of the utility trench or adjacent footing.
- If the uplift loads are not adequately resisted by the weight of the footing, drilled piers or anchors may be used.
- Weak soil should be replaced with engineered fill or lean concrete.
- Footing excavations should be checked before placement of reinforcing steel; free of standing water, debris and disturbed materials; and maintained moist until concrete is poured.

Existing Basement and Site Retaining Walls

- Existing structures should be evaluated using lateral pressures imposed by soil, surcharge loads such as close proximity vehicular traffic, and seismic loading conditions for at-rest and active pressure plus a seismic increment.

New Basement and Site Retaining Walls

- Designed in accordance with recommendations for new foundations as noted above.
- Designed for lateral earth pressures, usually for flat backfill adjacent to the walls.
- Provided with drainage behind walls to prevent hydrostatic pressure. Annual inspection and maintenance of this system will be necessary.

Concrete Slabs-on-Grade

- Supported by 6 inches of base rock (4 inches for exterior slabs) compacted to 95 percent.
- Where entire slabs-on-grade are replaced, they should be underlain by a moisture barrier consisting of a capillary moisture break (4 inches of clean, free-draining, gravel or crushed rock) and a water vapor retarder covered with two inches of dry sand to protect the retarder and aid in curing the concrete slab-on-grade above.
- The concrete mixture water/cement ratio should be 0.50.
- Concrete surface moisture levels should be tested before installing any flooring over the slab-on-grade.

## IV. SITE UTILITIES

### A. SANITARY SEWER

The Historic Structures Complex is served by an existing network of private underground cast iron sewer pipelines. The pipelines are visible as they exit the Hawthorn House, Garage, and Cottage (See Figure 1, Site Plan). The exterior of these visible portions of pipes are in good condition with minor paint peeling and rust stains. The interior condition of these pipes is not known although it could be easily confirmed by a video pipe investigation to determine the level of sediment, corrosion, and scaling at the interior.

The sewer lines from the Hawthorn House and the Cottage appear to join together at a cast iron cleanout located in the central area between the three buildings, originally landscaped but now overgrown. The combined system pipeline continues downhill to the east. Although there is no visible evidence of a septic system, it is believed the sewer pipes are routed to one or two septic tanks/pits which lie somewhere between the Complex and Barn Road, as there is no evidence of alternate discharge into Los Trancos Creek. The Hawthorn Historic Structures Complex is located within the Town of Portola Valley which is served by the West Bay Sanitary District (WBSD); however, there is no record of public sewer service to the property.

*Image 6. Sewer service cleanout in center area between buildings.*

*Image 7. Sewer lateral from second floor on west side of Hawthorn House.*

Hawthorn House

There are four separate cast iron sewer pipeline connections to the Hawthorn House. The first is a 4 inch pipeline on the south side of the building coming from the upper level adjacent to the basement entrance. The second is a 2-½ inch pipe that comes from the basement area near the southwest corner of the building. The third is a 4 inch pipeline on the middle of the south side of the building originating at the upper level. The fourth is a 2 inch pipeline on the east side that appears to head in a northwest direction away from the building. The visible portions of these pipes appear in good condition.

Cottage

There are two cast iron sewer connections at the Cottage. The first is a 2 inch pipeline located on the east side of the building and the other is a 4 inch pipeline located on the north side of the building. The visible portions of these pipes appear in good condition.

*Image 8. Sewer lateral on east side of Cottage*

*Image 9. Sewer lateral on south side of Cottage*

Garage

The cast iron sewer connection to the Garage is located in the middle of the structure on the east side of the building at the lean-to structure. This 4 inch pipeline appears to angle away from the building toward the south towards the collapsed Dog Sheds and possibly another septic tank/pit. The visible portions of these pipes appear in good condition. It is not clear if this pipeline is connected to the Hawthorn House-Cottage pipelines.

*Image 10. Sewer Service at the east Garage façade under the east lean-to addition.*

*Image 11. West Bay Sanitation District sewer manhole at the pipeline, which serves the Portola Valley Ranch development south of the Hawthorns property.*

There is an existing gravity sewer main running through the property which serves the Portola Valley Ranch residential development located to the south. This 8 inch pipeline is located in Barn Road that leads from Los Trancos Road to the Lower Barn and then connects to sewer system at the end of Valley Oak Street within a permanent ten foot wide easement. There are three existing manhole covers visible along this WBSD pipeline, one at HSC South Driveway adjacent to the edge of Los Trancos Road, one at the intersection of the HSC South Driveway and the HSC Looped Access Road, and in the Barn Road, halfway between the Complex and the Lower Barn. This system is believed to have been constructed in the 1982/1983 time frame. WBSD did not have improvement plans/record drawings available for this segment of the pipeline. There is no record that the Historic Structures Complex sewer system has been connected to this WBSD pipeline.

**B. WATER SERVICE**

The Hawthorn Historic Structures Complex is located within the Town of Portola Valley area served by the California Water Service Company (Cal Water). There is an 8 inch asbestos cement (AC) Cal Water public water main located in Alpine Road and two Cal Water public water mains located in Los Trancos Road in the vicinity of the property, an 8 inch ductile iron (DI) line and a 6 inch polyvinyl chloride (PVC) line. The property has a 1 inch public water service with the meter located at the driveway entrance to the 4411 Alpine Road residence. This water service appears to be connected to the Alpine Road residence with a PVC line with galvanized pipe for hose bibs, and does not appear to connect over the ridge to the Historic Structures Complex.

The Historic Structures Complex has a water system run through galvanized steel that appears to have been fed by water pumped from Los Trancos Creek and from a well or tank located south of the Complex across from the Pump House, an outbuilding adjacent to the creek. An existing well head is sticking out of the ground with a main galvanized steel water pipeline. However, the pipeline is not connected to the well head. Each of the existing Complex buildings has several water service lines located on the exterior of the buildings. There are also numerous hose bibs, watering basins or troughs, and irrigation stubs located throughout the area of the Complex, along the secondary access roadway, and at the Lower Barn Structure. There is no record of a separate public water service connection to the Cal Water system for the Historic Structures Complex.

No pressure test of the existing system was performed to assess if the system is intact but the existing piping is old and likely in fair to poor condition in comparison to current standards.

*Image 12. Pump well head in wash area just north of the Lower Barn.*

*Image 13. Water basin and hose bib southwest of Historic Structures Complex.*

## C. STORM DRAINAGE

The Hawthorns Historic Structure Complex is located within the Los Trancos Creek watershed which is a tributary to the larger San Francisquito Creek. The creek forms the boundary between northwestern Santa Clara County and southeastern San Mateo County. The creek flows through the property along the eastern property boundary adjacent to Los Trancos Road.

The storm drainage from the Historic Structures Complex buildings comes from the rooftop gutters and downspouts to surface drainage away from the structures. The storm drainage flows downhill to Los Trancos Creek. There does not appear to be an underground collection system of pipelines for storm drainage, nor is there a need for one. The buildings are located at an elevation significantly above the elevation of Los Trancos Creek that they are not perceived to be at risk for flooding during large storm events.

## D. ELECTRICAL SERVICE

Electric power and service is provided to the site by PG&E at a pole located adjacent to Los Trancos Road. The overhead lines from this pole run to a intermediate pole further into the site. A temporary service panel board and temporary transformer installed at the intermediate pole routes power via underground lines, through a single meter, to two separate load centers, one each at the Hawthorn House and Garage for security lighting and power receptacles. Power to the overhead lines from the intermediate pole to the related panel boards at the Hawthorn House, Cottage, and Garage were disconnected due to their dilapidated and antiquated condition, which posed a potential fire hazard. There is no electrical power currently available at the Cottage or Barn. The current temporary power service is only a 100 amps issued under a temporary permit. Since PG&E requires a $5,000 connection charge, the District has postponed energizing the temporary power system until it becomes necessary (See Figure 3, Site Power Distribution Schematic, and Figure 4, Site Power Components).

The Site Power Distribution Schematic, Figure 3, diagrams the existing power distribution system and Figure 4, Site Power Components, includes images of the existing power overhead lines at the Hawthorn House, two PG&E poles, and abandoned distribution panels.

## E. GAS SERVICE

There is currently no natural gas utility on site for heating, cooking or hot water or evidence of propane use. Future rehabilitation would likely employ natural gas for domestic hot water and for heating and PG&E confirmed that there is a gas line running through Los Trancos Road with ample capacity to support any and all planned site improvements.

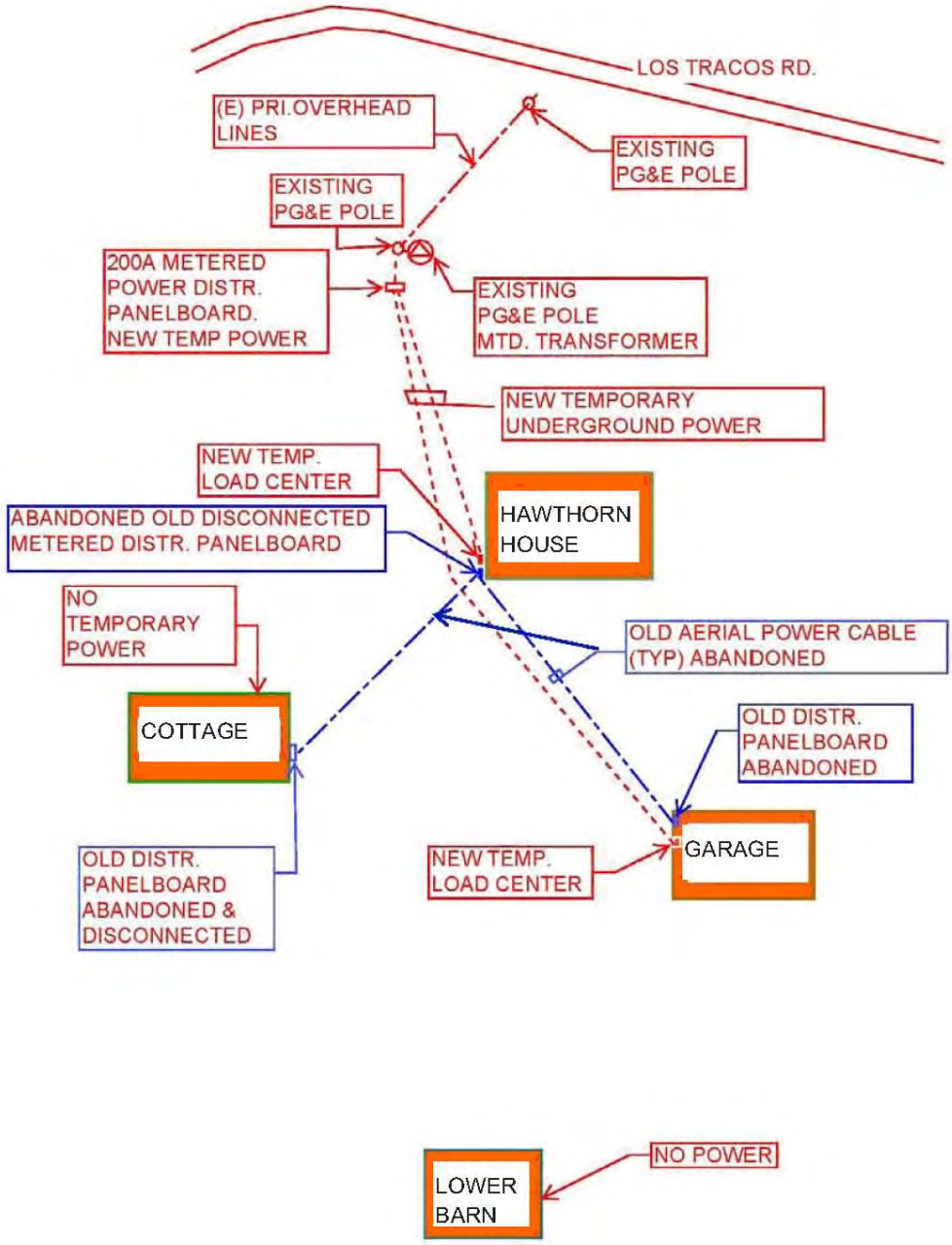


***Figure 3. Site Power Distribution Schematic***

***Figure 4. Site Power Components.*** *Images of the existing power overhead lines at the Hawthorn House (top), PG&E pole at Los Trancos Road (middle left) and intermediate pole within site (middle center and right), and abandoned distribution panels at the intermediate pole (bottom left) and at the Hawthorn House (bottom right).*

## F. SITE UTILITIES RECOMMENDATIONS

### Sanitary Sewer Recommendations

The 2010 California Plumbing Code, Section 713.4 states that unless a public sewer is more than 200 feet from buildings or connected exterior drainage facility, it must be used. Since the Hawthorn House and Garage are well within 200 feet of the existing West Bay Sanitary District (WBSD) sewer main, the buildings will be required to be connected to the public sewer under a reuse project. A private septic system will not be allowed.

Cast iron pipes routed to the buildings can remain in good condition for reuse with a new sewer system despite their age. Reuse may reduce the cost of trenching for new pipelines and associated removal of the existing system. A video camera investigation of the pipelines is fairly inexpensive and can easily assess the condition of the pipelines for possible reuse. Septic tanks(s)/leach pits, which should be abandoned, should be located and, depending on their size and condition and the work of a reuse project, could either be filled and abandoned in place or removed and backfilled. An electrical tracer can determine the exact location of sewer collection pipelines and septic tank(s)/leach pit(s). If the condition is poor, the existing cast iron sewer pipelines should be located, cut, capped and abandoned and a new collection system installed. The new system could be trenched parallel to the existing system to avoid conflict with and extensive removal of the existing system.

### Water Service Recommendations

It is anticipated that the existing water system composed of galvanized steel pipes will be abandoned and replaced with a new PVC water distribution system. An electrical tracer can be used to determine the exact location of pipelines in order to cut and cap them for a site rehabilitation project.

Reuse of the Historic Structures Complex as a public use facility or as a private residence will require a new metered water service connected to the Cal Water public main at Los Trancos Road near one of the driveway entrances. The new running water system will require a new pipe distribution system to service each of the buildings. The existing well could be reconditioned for private residential purposes or used for irrigation for a public use facility but otherwise be abandoned per the County of San Mateo Health Department Standards.

### Storm Drainage Recommendations

Reuse of the Historic Structure Complex is not anticipated to require any additional storm drainage system improvements other than repairing and replacing the existing gutter & downspout systems. If the reuse of the facility increases the impervious surface areas (i.e. paved roadways, concrete patios & sidewalks, etc.) the impacts to storm drainage/storm water quality will need to be addressed. Any grading of the site for improvements will need to implement erosion control measures.

### Electrical Service Recommendations

Although the existing temporary service provides minimum power for exterior lighting, security and maintenance, it is concluded that this would be inadequate for a rehabilitation project of the site and buildings. Rehabilitation of the site would require that the overhead lines be abandoned and temporary power be replaced with a permanent electrical distribution system as a long term system developed on the basis of higher

standards than those for temporary systems. PG&E would determine whether or not to reuse the primary power line itself at Los Trancos Road. The new permanent electrical service should be planned and provided as follows:

- Electrical power is available from the existing pole near Los Trancos Road. Primary service is 12kv/1-phase. PG&E would provide an updated transformer to provide appropriately sized electric capacity and terminate at a meter. A single meter is the simplest. Separate meters may only be necessary if there are multiple tenants. If PG&E will not provide individual metering at the buildings, the Owner can always provide sub-meters to allocate cost on a by building basis.
- A commercial or residential reuse will require that a new electrical service be dispatched from the utility meter through an underground conduit infrastructure to the Hawthorn House and Garage. Power to the Cottage and the Lower Barn are not anticipated as these are less likely to be rehabilitated for reuse and may only require site lighting.
- A separate underground power infrastructure is recommended to provide exterior site lighting (i.e. for safety, security and way finding), compatible with the historic Hawthorns property. This should be connected to the main electric meter and distribution system, but should be on separate breakers in order to control this specialized lighting and provide for flexibility and efficiency in the overall site power scheme.
- In the event that renewable energy is employed (solar photovoltaic), it should be connected to the infrastructure previously described.

**Gas Service Recommendations**
It is concluded that there is no usable natural gas. New natural gas services will be required as follows:

- It is possible to provide hot water for cooking using electricity or even solar thermal energy. However, depending on the type of rehabilitation, natural gas infrastructure will be deployed to the Hawthorn House and Garage. Unless multiple tenants are involved, natural gas should be dispatched through a single PG&E meter employing an underground infrastructure.
- Propane service could be employed (i.e. in place of natural gas). However, PG&E is the main service provider and there is no apparent cost or maintenance benefit associated with employing propane in place of natural gas.
- When and if a new natural gas line is brought on to the site, the work should be coordinated with trenching for a new water line, undergrounding electrical and re-grading and improvements to the entrance drives.

**Renewable Energy (Clean Energy) Recommendations**
Since new utilities are required, there may be a tenant who desires solar electric power and/or solar thermal energy (for heating and hot water). If sufficient capital is available, renewable solar energy on a building or site basis should be considered.

## V. STRUCTURES ASSESSMENT

### Description

The Structures Assessment describes of architectural, structural, electrical, mechanical and plumbing systems as they exist at the Hawthorn House, Garage, Cottage, Lower Barn and Outbuildings. The descriptions include exterior roof, walls, porches, additions, interior spaces, finishes, features, and fixtures. See Appendix C, Architectural Drawings, which document the plans and elevations of the Hawthorn House, Garage and Cottage.

### Conditions

As the site has been vacant for many years, conditions ratings assume a base level of deterioration due to neglect not comparable to ratings for buildings in active use. Base level exterior deterioration includes poor roofing materials, loose and peeling paint exposed wood exhibiting dry rot, loose and dilapidated siding, and poor drainage at the base of the building due to overgrowth and poor grading. Base level interior deterioration includes deteriorated finishes, water damage, pests and droppings, non-functional or outdated electrical, plumbing, mechanical systems. Conditions ratings of buildings and features are as follows:

- Excellent – Intact without deterioration.
- Good – Intact with minor repairable deterioration
- Fair – Deteriorated, portions require replacement
- Poor – Severely deterioration or missing requiring replacement

### Recommendations

Rehabilitation recommendations for reuse or stabilization (for exterior viewing) are based on the structure's condition and related adaptability. As is common with historic buildings, certain conditions will require special procedures during rehabilitation. The removal of loose and peeling paint, likely lead-based, will require abatement, as well as preparation and encapsulation of remaining lead-based paint. Other toxic building materials such as mastics and asbestos will require identification and abatement. Removal and cleaning of pest droppings that contain hazardous viruses require special services. Eradication of rodents and relocation of other animals require the expertise of an extermination or wildlife specialist.

The Historic Resource Study determined the Hawthorns property is potentially eligible to the National Register of Historic Places and similarly to the California Register of Historic Resources as a historic district. As such, recommendations include the application of the California Historical Building Code (CHBC), which may be applied to qualified historical buildings or properties defined in the CHBC as "Any building, site, object, place, location, district or collection of structures, and their associated sites, deemed of importance to the history, architecture or culture of an area by an appropriate local, state, or federal governmental jurisdiction" including those "determined eligible for national, state or local historical registers." Local jurisdictions have their own procedures for determining whether a building or property is considered a qualified historic resource. Jurisdictions may review historical documentation prepared for a property and determine that the CHBC may be applied or require that the resource be formally listed in order to apply the CHBC. Historical status should be verified with the Town of Portola Valley and any other local agencies which may be involved in processing permits.

**California Historical Building Code**

For a new use, the California Historical Building Code (CHBC) provides alternate provisions for the retention of historic fabric while providing for a reasonable level of safety. General provisions include the continuation of an existing use or occupancy or change in occupancy without mandating compliance with the regular code, the California Building Code (CBC).

In terms of fire protection, the addition of a CHBC-compliant automatic sprinkler system can eliminate one-hour occupancy separations or reduce required separations of more than an hour to one-hour resistive construction. In terms of egress, non-standard original stair railing, tread, and riser dimensions may be retained as long as no distinct hazard is identified by the enforcing agency. An enforcing agency may require an additional handrail or other modification, which could be done in a manner compatible with the historic building. Alternative accessibility provisions are helpful for those cases where the regular code would require excessive alterations. These alternatives allow for more compact toilet room layouts, non-standard door widths, and review of specific conditions on a case-by-case basis.

Given the site's close proximity to a known active fault, the 2010 CBC (regular code) seismic requirements for "near site effect" would be 1.5 times the seismic design force levels for even a comparable new structure not within a seismic zone. In this case, the CHBC has the alternate provision for seismic lateral force level for evaluation of historic buildings of approximately 75% of the CBC seismic force level for new buildings, including consideration of near site effects (2012 Supplement). The CHBC also allows for consideration of the allowable strengths of existing materials in a way that allows for less invasive retrofit methods that may otherwise destroy additional historic fabric.

The use of archaic materials and methods is also included in the CHBC, allowing for the retention and in-kind replacement of historic materials such as glazing. Where glazing is in locations subject to human impact as defined by the California Building Code, historic or in-kind glazing can be used along with preventive measures approved by the enforcing agency including safety film applied to the glass, guards or signage per the CHBC.

There are also alternative provisions for mechanical, plumbing, and electrical requirement. The biggest impact provision in this CHBC chapter is that historic buildings are exempt from compliance with energy conservation standards where it threatens historic fabric. This provision is especially important for the retention of historic windows. Where regular code would require their replacement, the CHBC allows for their retention. Windows are often built of old growth wood and compatible with and stabilized to the historic building, whereas, replacement sash can change the building appearance and even if they are built of wood, it is likely a softer variety that is prone to warping.

Similar to the provisions for historic buildings, the CHBC also outlines general provisions for qualified historical districts, sites, and open spaces. These broader provisions apply to site plan layout configurations such as pedestrian/equestrian/vehicular circulation, topography, and drainage; landscape elements including plants, structures, lighting, water features, and pedestrian/equestrian/vehicular surfaces; and functional elements such as utility placement, erosion control and environmental measures.

## A. HAWTHORN HOUSE

### General Description & Brief Development History

The Hawthorn House is a large, over 9,000 square-foot, two-story, wood-framed structure with an attic and basement, built adjacent to and inside existing unreinforced stone and concrete grout retaining walls, set on a relatively flat area of the site. The outline of the house evolved from original construction and subsequent renovations. The house was originally constructed in 1887 for Judge James Monroe Allen by architect William F. Smith and was more complex with undulating facades. Based on the 1893 historic photograph below and 2013 field observations, the heavy dashed line on the first and second floor plans in Appendix C depicts the original complex configuration. In 1916, the Newhall-Woods family, who purchased the property, constructed several additions infilling areas of the original plan, making the plan outline more rectangular. The 1916-era additions and subsequent renovations include: removal of the main north entry portico roof to add a second floor sleeping porch (Room 205) above; enclosure of the sitting porch west of the main entry to create a butler's pantry (Room 107) and secondary dining area (Room 105); addition of a wrap-around porch at the northeast corner at the main entry, which extended into original landscaping at the east; addition of a seven-sided room (Room 103) at the east end of the south façade; addition of two second story sleeping porches at the south façade (Rooms 212 & 215) along with one associated bathroom (Room 214); and the reconfiguration of windows and renovation of what likely was a north bedroom to a sleeping porch/dining area (Room 206).

*Image 14. The Allen Family at the Hawthorn House, north façade. (Credit: G.T. White, 1893, Town of Portola Valley Collection)*

*Image 15. The Hawthorn House in 2010, north façade. (Credit: Photographer unknown, 2010)*

**A1. Hawthorn House Architectural Description**

Exterior

Roof

The roof is a complex configuration of moderately pitched surfaces. The roof has six gable ends, two each facing north and south and one each facing east and west. The south porch has a shed roof and the north porch shed roof wraps around the northeast corner. There are two exterior decks that occur at the second floor between Rooms 212 and 215 and between Rooms 205 and 206. It is not clear how these decks were originally waterproofed but at some point, more recently, roll roofing and sheet metal flashing was installed to combat water intrusion to the rooms below. The seven-sided addition on the south side of the house has a faceted shed roof. Three red brick chimneys penetrate the west, northeast, and southeast roof surfaces. The existing roof is composed of sections of asphaltic roll roofing and asphaltic shingles installed over original wood shingles over 1x skip sheathing. Roof drainage includes wood gutters with sheet metal collector heads and downspouts, and sheet metal lined spill-out openings at the upper exterior porch decks.

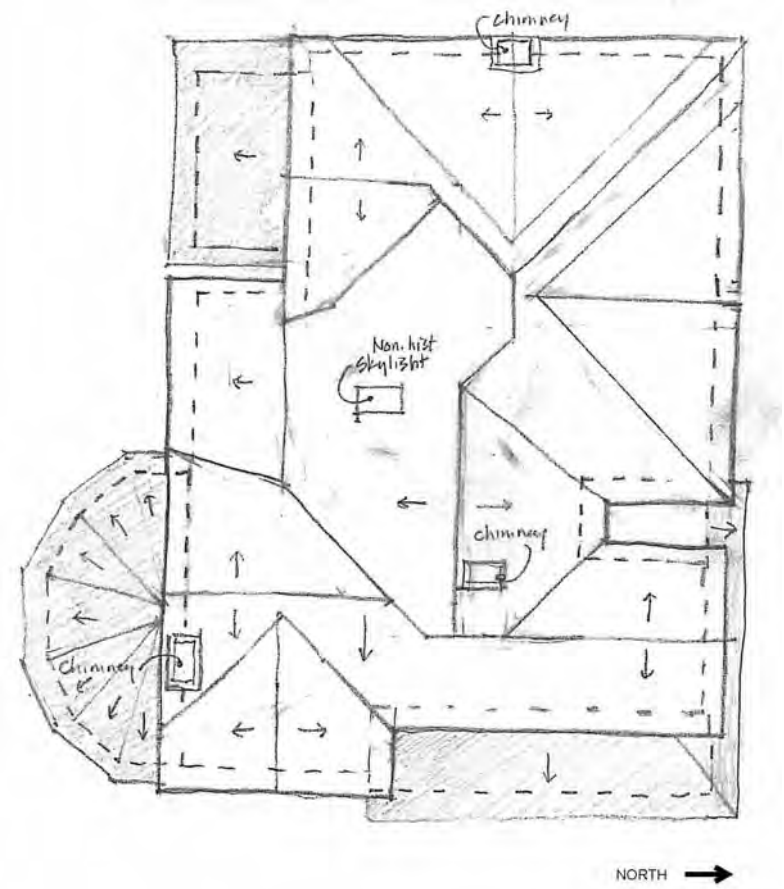


***Figure 5. Hawthorn House Roof Plan.*** *Approximate layout based on as-built drawings and observations.*

*Image 16. Deck at second floor between Room 205 and 206, looking northeast.*

Exterior Walls

The exterior wood finishes are painted. The exterior is clad in various types of wood shingles and siding. The base of the building at the south porch and seven-sided addition are clad in vertical board siding with a flat board trim at the top edge and corners. At the northeast corner of the house, the stucco-faced concrete retaining and foundation walls at the base of the building are exposed with the exception of the north side of Porch 1, which has a finish board beneath the deck edge, three shingle courses and vertical board siding. The main two stories of the structure are clad in square-end shingles of various widths with a band of uniform decorative diamond-shaped shingles centered in the height of the upper story level. The second story has a projecting flared base with a sculpted molding beneath, which transitions back to the face of the lower story. The slightly pitched soffit of the upper story eave is finished with flat boards and decorative brackets at the building corners and beneath gables. The attic-level gables are clad with decorative shingles with tri-faceted ends, sculpted gable trim, flat soffit boards, and, at some, multiple decorative brackets flanking window openings and supporting a small triangular portion at the apex.

Porches

The northeast and south porches have similar detailing with wood tongue-and-groove decking, wood stairs, bead board ceilings, wood posts and a simple low railing with two horizontal rails and closely spaced vertical pickets. The northeast porch, as the main entry to the Hawthorn House, has a formal stair flanked by wood side walls extending up from the north driveway remains and posts clad in shingles. The south porch is simpler with simple steps and bare posts.

The Woods family first floor library addition, second floor sleeping porches, and two exterior decks are obvious additions in that there are vertical gaps between the addition walls and the original exterior wall. The additions are clad in shingles at the exterior and interior and trim similar to the original walls but are not integrated with the exterior envelope and allow air and weather to penetrate through the gaps. The north deck has a door access from both enclosed sleeping porches 205 and 206. The south deck is visible through west windows at enclosed sleeping porch 215 and is also flanked by the east wall of sleeping porch 212. Both decks have low rails shingled similarly to the exterior walls. There are small rectangular penetrations at the base of the rail to allow the deck to drain to the exterior. Sheet metal lining at the penetration projects beyond the shingled face of the building but does not connect to collectors or downspouts.

Foundations

The house is supported on wood posts at the basement that sit within a perimeter retaining structure of stone and concrete grout. At the exterior, the retaining structure has limited exposure except at the east façade, finished in thick stucco. At the basement interior, the composition of retaining walls is visible, concrete with stone rubble and darker grout material visible at the base of walls. Horizontal lines on the concrete indicate large wide wood boards were used to cast the concrete. Wood framing members set directly against the concrete walls support the floor framing above along with intermediate posts within the basement. The red brick chimneys extend to the basement and appear to be founded on concrete foundations similar to the retaining walls.

Doors

The extant doors are primarily stile-and-rail wood doors. The exterior basement door is composed of vertical wood planks and interior doors vary from plank to stile-and-rail to wood frame with mesh. The exterior doors at the first and second floor have glazing and interior doors are solid panel with the exception of those exterior doors enclosed by additions, which have glazing. At the interior, the doors are stile and rail panel doors with wide wood trim. Most doorway trim is chamfered with vertical trim that projects past the head of the door and has a rounded top. Trim at second floor bathrooms and sleeping porches and the attic spaces is simpler with squared corners. There are two large pocket doors that exist between Room 101 (entry vestibule) and Room 102 (living room) and between Rooms 203 and 204. Door hardware includes highly decorative brass escutcheons at sliding doors, hinges and a few escutcheons at swinging doors that remain at the main spaces and simpler ball hinges at secondary doors. Most escutcheons are missing and there appear to be only a few simple brass door knobs remaining.

Windows

Unusually large double-hung windows occur at the first level at primary spaces, intermediate and small double-hung windows occur at secondary spaces at the first through attic levels and there are only a few windows at the basement. The glazing is historic 1/8 inch flat glass. Casement windows with interior casement screens are common to the exterior additions at the second floor. Most window trim is chamfered with vertical trim that projects past the head of the window and has a rounded top similar to door trim. Trim at second floor bathrooms and sleeping porches and the attic spaces is simpler with squared corners. Double-hung window hardware includes brass sash locks, highly decorative sash lifts, pulleys on either side of each sash, and sash chain. Casement window brass hardware includes a thumb latch between paired sash, hinges, and sash pull on the stile.

*Image 17-18. Hawthorn House, Door at Dining Room 104 and Room 102 pocket door hardware.*


*Image 19-20. Hawthorn House, Living Room 102, window and window sash lift.*

Interior

Basement

The Basement is approximately 2,500 square feet in area and its layout is fairly open with a few partition walls along the north side enclosing Rooms A, B and C and Stair 2 in close proximity to the south exterior entry accessed via steps from the exterior. The Hawthorn House basement is unfinished with exposed concrete retaining structures and floors, chimney brickwork, painted wall framing, and unfinished wood joists at the ceiling. Rooms A and B have wood-framed partition walls with wood board siding on one side. Room C has a wood framework covered with metal mesh. There is an antiquated mechanical system at the basement that distributes heated air throughout the building via decorative cast iron grilles located at the base of walls at upper floors.

*Image 21. Hawthorn House, Basement looking west, Stair 2 enclosure in the foreground.*

First Floor

The main entrance to the Hawthorn House is set within a large covered porch, which wraps the northeast corner of the building, accessed via a large wood stair that leads from the looped driveway at the north onto the porch. The First Floor is approximately 2,800 square feet in area. The main entry door with flanking sidelights opens to a spacious foyer (Room 101) notable for its large centrally located fireplace/chimney and ornate grand stair (Stair 1), which wraps behind the chimney to the second floor. The adjacent sitting room is accessed through a wide opening from the foyer with pocket doors. The sitting room (Room 102) has a similar large fireplace against the west wall. A doorway from the sitting room enters the 1916-era library addition (Room 103) to the south, which encloses the original exterior wall of the sitting room and the base of the chimney serving Room 102. The dining room (Room 104), north of and accessed from the sitting room, is distinguished by decorative wooden casework along the entire west wall and composed of a central arch with sitting bench lit by windows and flanking side cabinets with glazed panel doors. At the north end of the dining room, French glazed doors enter Room 105, an exterior sitting porch enclosed by walls at the north and east around 1916. The dining room (Room 104) and the adjacent enclosed porch (Room 105) separate the primary spaces from the support spaces at the west. A second exterior entrance from the rear south porch enters a small vestibule (Entry 106) that opens to both the dining room and the opposite guest bathroom (Room 109). The guest bathroom has a water closet, lavatory, shower room and closet.

The service or support spaces at the west include the butler's pantry (Room 107) with direct access to the dining room and enclosed porch and a large central kitchen (Room 108) flanked by multiple pantries on either side (Rooms 110-112). Entry 106 is directly adjacent to Stair 2, a secondary stair, which is accessed from the butler's pantry. A separate service entry at the west wall of Kitchen 108 opens to small landing and step to the access drive along the west side of the house. Adjacent to this entry is a short shaft like projection at the exterior which appears to enclose a flue for the stove that once existed on the interior side of the wall. The west façade also has another projection, which appears to be a storage bin where wood or coal may have been delivered from the outside and could be accessed from inside through a small access door in Room 111.

The primary spaces at the first floor are highly finished with stained tongue-and-groove wood flooring, plaster walls and ceilings, wood base, chair and picture rail and distinctive wood trim at doors and windows. Fireplaces at Rooms 101 and 102 are red brick with mantle (stone at 101 and wood at 102) and hearth tile with border tile. The first floor fireplaces have arched openings. The support spaces at the first floor have plaster walls and ceilings, wood tongue-and-groove floors covered by resilient sheet flooring, probably linoleum, and painted bead board wainscot and chair rail. The library interior walls are finished in shingles similar to those on the exterior, but stained rather than painted, tongue-and-groove flooring, bead board ceilings, and a red brick chimney. The interior of Room 105 is finished in painted shingles matching those on the exterior.

*Image 22. Hawthorn House, southeast seven-sided library addition (Room 103).*

*Image 23-24. Hawthorn House, grand stair (Credit: Tom Vlasic, 10/3/2008) and fireplace at main entry.*

*Image 25. Hawthorn House, Dining Room 104, decorative casework at south wall.*

*Image 26-27. Hawthorn House, Kitchen 107 and 108.*

Second Floor

Stair 1 leads to a second floor stair hall which accesses the master suite to the east and the secondary bedrooms at the west. The second floor is about 3,100 square feet in area and is comprised of several bedrooms and bathrooms, and 1916-era sleeping porches. The master bedroom suite is located along the entire eastern side of the second level. There is a bedroom (Room 203) at the south end with a semi-private bathroom (Room 202), a door to the corridor and a set of double pocket doors that separate it from the adjacent sitting room. There are two closets between the bedroom and the central sitting room (Room 204). A sleeping porch (Room 205) is located on the north end of the master suite, overlooking the front entry. There are two large fireplaces within the master suite at Rooms 203 and 204 composed of red brick with wood mantles and hearth and border tile. The fireplaces are similar to those on the first floor but with rectangular openings. The master suite sleeping porch addition removed the original entry portico, which can be seen in the 1893 photograph (Image 14).

The three additional bedrooms (Rooms 208, 211, 213) each have sleeping porches (Rooms 206, 212, 215), individual bathrooms (Rooms 209, 210, 214), and closets (203A & B, 208A, 211A, 213A). Each bedroom has either direct or hallway access to full bathrooms. These bathrooms are similar in detailing, and are co-located, two back-to-back to serve the four bedrooms (including the master). It appears that three bathrooms were original to the 1887 design and construction and bathroom 209 was inserted at a later date within bedroom 208. This bathroom also has a water closet that has a different lever handle than the other three bathrooms. Stair 2, which runs down to the first floor, and Stair 3, which runs up to the third floor from the second floor, are embedded within a cluster of rooms on the second floor separated by a small linen closet (216A) along a narrow hallway (216).

Bedrooms on the second level are finished with stained tongue-and-groove wood flooring, plaster walls and ceilings, wood base, chair and picture rail and distinctive wood trim at doors and windows. The second floor sleeping porch additions have stained bead board walls and ceilings and wood tongue-and-groove floors; Room 206 has plaster ceilings and upper walls and, at Room 212, the original exterior, now enclosed, is shingled. Distinctive to the sleeping porches are the multiple casement windows with window screens. The bathrooms at the second floor have plaster walls and ceilings, wood tongue-and-groove floors covered by resilient sheet flooring, and painted bead board wainscot and chair rail.

*Image 28. Hawthorn House, Second Floor Master Suite, Room 203 (Credit: Tom Vlasic, 10/3/2008).*

*Image 29-30. Hawthorn House, Second Floor Bathroom 210 and sleeping porch addition, Room 205 over main entry.*

Attic Level

Tucked into the roof gables, the attic level is about 1,700 square feet. It has a large central space (Room 301) surrounded by small rooms at each gable (Rooms 302-308) and a small bathroom (Room 304). Rooms 302 and 305 each have small closets with access to roof framing (Rooms 302A, 306, 307). Room 301 also has two access doors to roof framing. The attic level is simply finished with wood tongue-and-groove flooring, painted plaster walls, wood base, and vaulted plaster ceilings with limited head height, simple painted door and window trim, painted bead board wainscot in Room 304 with chair rail, and closets with stained bead board walls and ceilings.

*Image 31. Hawthorn House, Attic*

Stairs

There are three stairways within the Hawthorn House. Stair 1 rises from the first floor foyer (Room 101) to second floor stair hall (201). Stair 2 rises from the basement to the second floor. Stair 3 connects the second floor to the attic level. The stairways have plaster walls, base trim, and wooden stairs. Stair 1 is stained and has a highly decorative railing along the stair and a guard at the second floor landing with decorative newel posts at the first and second floors. The stair hand rail is sculpted and supported by vertical square-profile pickets at each tread connected by two horizontal pickets between which is a sculpted baluster. Stair 2 is a simple secondary stairwell with bead board walls and a plain wood wall rail. The lower section of Stair 2 leading to the basement has painted walls, the upper section leading to the second floor has stained walls and painted plaster walls and wood floor at the second floor landing. Stair 3 is tertiary and has painted plaster walls and wood stair, no wall rail, and four simple square newel posts with painted bead board low guard wall around the stair opening at the attic level.

## A2. Hawthorn House Architectural Condition

Exterior

Roof

The condition of the Hawthorn House roof is poor, in general. There is evidence that leakage has occurred in the past damaging and staining interior finishes, primarily plaster. To prevent leakage, asphaltic roll roofing and asphaltic shingles were installed years after original construction over original wood shingles over 1x skip sheathing. Second floor roof decks appear to retain water as evidenced by dark deposits on the roll roofing where pooling may have occurred and rotted wood at the bottom rail of the door

to the deck. The existing wood gutters are deteriorated and disconnected from the downspouts, of which sections are missing. Many of the eave soffit wood boards are missing and exposed wood rafter tails appear to have dry rot. The chimney brickwork appears intact and in good condition.

*Image 32. Hawthorn House, south façade.*

Exterior Walls

The Hawthorn House exterior walls, including wood shingles and siding, are fair in general. There are, however, specific areas where greater deterioration is evident: deterioration at the base of the siding in contact with earth; moisture infiltration at exterior corners where shingles have separated; severe shingle deterioration at the central section of the second story south façade and the bottom row of shingles above the vertical board skirt at the seven-sided addition. The shingles covering the small storage bin and flue enclosure at the west façade are in poor condition. The exterior paint finish has deteriorated and wood siding and shingles are exposed and appear dry and brittle. When the 1916-era additions were constructed, it is clear that they were not adequately connected to the original building walls and flashed. There are sizable gaps between the additions and original exterior walls, which allow water intrusion and pest access. Where bee colonies were removed, residual material may exist that would attract bees in the future. A portion of the west elevation has been treated with a foamy substance which has coated shingles and edges of chimneys.

Porches
The north porch stair is more intact than the south porch stair and exterior stair to the basement, which are in poor condition and severely deteriorated and collapsed. At each porch, portions of the decking, posts, and railings are in poor condition.

Foundations
The Hawthorn House foundation is generally in fair condition. At the east and north sides of the house, where the concrete retaining walls at the base of the building are exposed, the stucco finish appears to be cracked and delaminated from the substrate. The condition of the stucco may indicate damage at the concrete beyond. There is a section of foundation missing at the north wall, west side. The basement was observed as fairly dry, however, dampness was evident along the lower part of the retaining structures. It is not known whether there has been flooding or other water issues but water stains at wood finishes and some efflorescence are visible at the concrete floor. See the Structural Description for further detail.

*Image 33. Hawthorn House, southwest corner, damaged retaining structure at the corner of the building base (left) adjacent Porch 2, where siding is at grade.*

Doors and Windows
The exterior wood doors are in fair condition with deteriorated exterior paint coatings, broken glass, and water damage at the bottom. Most interior doors are in good condition but most of the operational hardware is missing. The windows are in fair condition, most with broken glazing and wood damage. The windows are covered with plywood at the exterior and although not observed, it is likely the exterior has paint and glazing putty deterioration and wood sill dry rot. Window hardware is in good condition.

<u>Interior</u>
The interior finishes are mostly intact and in fair condition. There are few large sections of wall and ceiling plaster in various rooms that are water damaged due to roof leaks. Also, several areas of wall finish were recently removed and patched as a result of bee

hive removal activities completed in 2012-2013. Wallpaper is loose and peeling in most locations. Woodwork including base, chair rail, picture rail and casework is in good condition and finish paint and stain are substantially intact. The wood floor and stain finish are worn and resilient floor covering, probably linoleum, in support spaces and enclosed porches is deteriorated, cracked and detached from the wood substrate. Interior paint and stained surfaces are dusty and worn.

**A3. Hawthorn House Architectural Recommendations**

General

Since the Hawthorn House is sited on a relatively flat area of the site, directly adjacent to road access, and is fairly intact with large interior spaces, which are highly adaptability, the building is a good candidate for reuse. Exterior envelope repairs and structurally stabilization would greatly improve the condition of the building. The intact interiors would require finish repairs and various infrastructure improvements to prepare for a new use. Depending on the new use, the building should be studied further to determine if more invasive measures are necessary to improve functionality, such as for accessibility.

Exterior

Roof

The existing asphaltic roll roofing and asphaltic shingles should be removed. It is likely that for fire safety, the original shingle roof beneath could not be reinstalled but should be documented for size and configuration before removal along with any existing roof membrane. Existing wood board sheathing underneath should be retained and damaged boards replaced where they occur. Recommended replacement roofing should include new structural sheathing, a new roof membrane, flashing and new wood shingles to match the original or new asphalt roofing to match the appearance of documented historic shingles. Where roofing at eaves and the soffit boards beneath have deteriorated or are missing to the extent that rafter tails are exposed and exhibit dry rot and biological growth, the rafter tails should be treated with biocide. If the rafter tail ends are no longer stable and crumbly because of decay, they should be consolidated, which is a process using products to waterproof, strengthen, and rebuild deteriorated wood profiles. Splicing the ends with new wood is recommended where the decay extends further up the member. The roofing and soffit boards should be built back to their original profile to protect the interior framing. Although the wood gutter could be reconstructed, this may be expensive and an issue for long-term maintenance. So, painted galvanized sheet metal gutters connected to new sheet metal downspouts are recommended. The profiles of these elements should be compatible with the building. Additional, grade-level concrete splash guards should be placed underneath downspouts to direct water away from the building foundation.

Exterior Walls

The building exterior should be repainted to protect exterior wood finishes. Limited replacement of shingles should occur at the base shingles, building corners, west façade storage bin and flue enclosure, and the central section of shingles at the second floor, south façade. Where vertical board siding extends to grade, these boards should be replaced with rot-resistant wood such as redwood or cedar with slightly modified detailing to separate it from the grade 1 to 2 inches so that the historical appearance is

maintained. At other locations, where foundations are visible and the existing shingles are above grade, new in-kind shingles can be elevated to a minimum of 8 inches, as generally required by the California Building Code for non-rot resistant wood, above grade as long as they lap the foundations in a similar fashion to the existing condition. Corner shingle replacement would additionally allow the installation of building paper to protect these vulnerable areas from water intrusion. A more invasive strategy to create a tighter exterior envelope for a rehabilitation project especially if conditioning of the interior is desired could be to replace all exterior siding and shingles in-kind allowing the installation of new building paper and flashing at openings overall. This option is secondary as the replacement of the varied decorative shingles in-kind would be at a substantial cost unless it is necessary for a new mechanical system to efficiently condition the interior.

Where bee colonies were removed, the repair process will include removal of finishes, thorough cleaning and treatment of affected areas by an expert in bees to prevent the bees from returning, and refinishing. Entire sections of damaged framing at these locations should be replaced in-kind and be re-covered with building paper and shingles to seal the exterior envelope. Similarly, where foam spray has been applied at the west wall, the condition should be reviewed for replacement of shingles and framing.

The vertical gaps that separate the 1916-era building additions from the original exterior walls invite water intrusion and pests. The joint between the walls of the addition and the adjacent original exterior wall should be closed with additional framing, building paper and heavy-duty waterproof membrane to seal the joint. The south library addition, Room 103, and Porch 2 have no foundations and display evidence of settlement in the sloping of the floor as noted in the structural section which follows the architectural evaluation. It is recommended that the library addition and Porch 2 be jacked up to align better and be structurally connected with the main original structure when new foundations underneath are constructed.

Porches

Repairs at first level porches should include replacement of portions of wood decking and securing railing attachments. Where deteriorated wood occurs, consolidation, a process to waterproof, strengthen, and rebuild deteriorated wood profiles of minor deterioration and minimal depth can be used. Dutchmen for more extensive deterioration can be performed to partially replace wood elements. Severe deterioration of entire members should be replaced in-kind. Porch steps should be rebuilt with new concrete foundations, pressure treated wood for support where in contact with concrete, and rot resistant lumber such as redwood for other components including stringers, stair treads and risers.

Foundations

The perimeter of the Hawthorn House should be cleared of debris and vegetation and the grade manipulated to drain water away from the building foundations. The deteriorated exterior stucco finish should be replaced with new to match the existing intact sections. The wall should be more thoroughly assessed for conditions that allow water to infiltrate. Cracks and missing sections of the original concrete foundation should be repaired to prevent water infiltration. See the Structural Recommendations for further detail.

Doors and Windows
Exterior surfaces of doors and windows should be refinished for more durability by removing loose and peeling paint, priming and recoating with two coats of finish paint. Interior finishes should be touched up or refinished depending on the level of finish deterioration. Wood doors and windows should be repaired by consolidation of minor deterioration, Dutchmen for partial replacement or replacement of the entire door to match the existing where an assembly is not salvageable. Broken glazing and deteriorated glazing putty should be replaced in-kind. Although possible based on any extant hardware, it may be cost prohibitive to replicate original hardware. So, it is recommended that new compatible hardware be installed where it is missing.

Interior
At the interior, wall paper should be removed, damaged plaster walls and ceilings repaired, and plaster repainted overall. Woodwork should be cleaned and painted or stained to match the existing condition. Stained wood floors should be sanded and refinished as should similar flooring beneath non-original finishes. Resilient sheet flooring where it exists should be removed, the floor investigated to determine if the original finish was wood or linoleum and refinished accordingly. If the subfloor is not high grade wood, it is likely that an applied flooring material was intended, in which case a similar resilient flooring, such as vinyl or linoleum, should replace the existing.

**A4. Hawthorn House Structural Description**

General
The Hawthorn House is a two-story wood-framed structure with an attic and basement level, constructed on unreinforced stone and concrete grout foundations.

The structural system for the Hawthorn House building consists of the following:
- 1x skip sheathing at the roof with asphaltic roofing over wood shingles.
- The roof skip sheathing is supported by 2x4 roof rafters at 24 inches on center and 2x6 hip rafters.
- The roof framing is supported by interior wood stud walls above Floor 3 and by exterior stud bearing walls, typically 2x6 studs at 16 inches on center.
- The attic level framing system consists of 1x tongue-and-groove sheathing overlain by 1x finish flooring supported by 2x12 floor joists at 16 inches on center which span primarily north-south and are supported by the north and south exterior walls and interior stud walls below Floor 3. The interior wall and ceiling finishes appear to be primarily plaster on wood lath.
- The intermediate floor (Floor 2) framing and wall system is similar to the Floor 3 framing system described above.
- The ground floor (Floor 1) framing system over the basement consists of 1x tongue-and-groove sheathing overlain by 1x finish flooring supported by 2x12 floor joists at 16 inches on center. The floor joists span primarily north-south and are supported by interior wood beam and post lines consisting of 6x6 beam lines at approximately 10’-0” on center supported by 6x6 posts at approximately 6’-6” to 7’-0” on center (Image 34). In addition, these joists and the building exterior stud walls from above are supported by unbraced wood stud walls that are built adjacent to and inside of the existing unreinforced stone and concrete grout basement exterior retaining walls (Image 35).

*Image 34. Hawthorn House, Basement looking east.*

*Image 35. Hawthorn House, Basement, Room A, north wall looking northwest.*

- The interior beam and post lines in the basement are assumed to be supported on unreinforced concrete pier footings, which were not visible during our site visits (Image 36). The continuous exterior foundations and retaining walls are of unreinforced stone and concrete grout construction (Image 37). The south Porch 2 floor has an existing unreinforced concrete foundation along the west exterior side of the porch only. The library addition (Room 103) does not appear to have a foundation around its entire perimeter. Both of these framing systems were noted to have floors that slope toward the west, evidence of site and foundation settlements over time.

*Image 36. Hawthorn House, post footing at main basement.*

*Image 37. Hawthorn House, Basement, Room A, west wall.*

- Lateral (wind or seismic) loads are resisted primarily by the exterior wood sheathing and interior plaster and wood paneling finishes on the exterior stud walls as well as by the wood lath and plaster finishes on the interior stud walls. The existing 1x sheathing at the roof level and the existing 1x straight sheathing and finished flooring at the floor levels act as diaphragms to transfer the lateral loads to the interior and exterior walls. There does not, however, appear to be a clear mechanism for transfer of the code required lateral loads from the upper levels to the foundations below, as very few of the walls above Floor 1, including the exterior walls, extend into or are braced at the basement level.
- Based on our limited walkthrough observations, the structure of the Hawthorn House building appears to be in fair to good condition and appears to have performed adequately over its life, including in past earthquake events. Any structural deficiencies noted are addressed in the Code Considerations section.
- The exceptions noted were the lack of proper site drainage around the building, the need for additional crawlspace venting, minor areas of deterioration and dry rot damage at the main roof eaves and the exterior porch eaves and lack of proper wood-earth separation in some locations.

Foundations

The existing foundations (where exposed) are of unreinforced stone and concrete grout construction (Image 38). These foundations, where observed, appear to have performed poorly over their life. Any structural deficiencies noted in the existing foundations are addressed under the Code Considerations section.

*Image 38. Hawthorn House, corner east of basement entry.*

Wall Structures
The existing interior and exterior wood stud walls appear to be in fair to good condition with the exception being some limited areas of the plaster finishes on the interior and exterior walls that show evidence of cracking and plaster delamination. A more detailed survey should be performed to confirm the extent of this damage. Seismic deficiencies noted in the existing walls and their connections to the floor and roof diaphragms are addressed under the Code Considerations section.

Roof Structure
The existing roof framing, except at exposed rafter ends and at roof diaphragm edges exposed to weather, appeared to be in fair to good condition. However, based on our preliminary analysis to date, the roof framing and their connections are inadequate to support the roof dead and code required live loads without additional strengthening. This deficiency is addressed in more detail in the Structural Recommendations section. Seismic deficiencies noted in the existing roof diaphragm and its connections to the existing interior and exterior walls are addressed under the Code Considerations section.

Floor Structures
The existing floor framing systems, with the exception of some limited areas of floor slope and deflection (believed to be related to foundation settlements) appeared to be in good condition. However, based on our preliminary analysis to date, the existing 6x6 beams supporting Floor 1 appear to be undersized for the existing dead loads and code required live loads. This structural deficiency is addressed in more detail in the Structural Recommendations section. Any seismic deficiencies noted in the existing floor diaphragms and their connections to the existing interior and exterior walls are addressed under the Code Considerations section.

**A5. Hawthorn House Structural Code Considerations**

A preliminary seismic analysis of the Hawthorn House building structure was completed based on known structural information. This analysis was based on the lateral load regulations of Section 8-706 of the 2010 California Historical Building Code with the 2012 Supplement, including Tables 8-8-A and 8-8-B, allowable capacities for existing materials. The seismic lateral force level for evaluation of historic buildings required by this code section is equivalent to approximately 75% of the 2010 California Building Code seismic force level for new buildings, including consideration of near site effects, i.e., increased seismic loads for sites, such as the Hawthorns site, located in close proximity to known active faults.

Even if a full seismic upgrade would not otherwise be required, our preliminary analysis indicated that there are several structural deficiencies that would be prudent to address if the building, vacant now, is proposed to be reoccupied in the future.

**A6. Hawthorn House Structural Condition**

The structural deficiencies noted are summarized below. The proposed strengthening to address these deficiencies is covered in the Structural Recommendations section.

Roof Diaphragm Capacity
The existing 1x skip sheathing does not have adequate capacity to transfer the code required wind or seismic forces to the interior and exterior shear walls or to brace the walls out-of-plane. In addition, the connections of the roof diaphragm to the interior and exterior shear walls are likely deficient.

Floor Diaphragm Capacities
The existing 1x sheathing and finish wood flooring appears to have adequate capacity to transfer the code required wind or seismic forces to the existing interior and exterior shear walls. However, the connections of the floor diaphragms to these walls are likely deficient.

Existing Shear Wall Capacities
A detailed survey of the existing exterior wall sheathing was not possible during this phase. However, based on our preliminary analysis, the existing exterior wood sheathing and interior plaster or wood paneling finishes on the exterior walls as well as the wood lath and plaster finishes on the interior walls, in general, appear to have adequate capacity to resist the code required wind or seismic forces although some moderate to significant damage to the existing finishes is likely to occur in a moderate to severe earthquake in close proximity to the site. The exceptions are the east-west oriented interior and exterior walls between Floors 1 and 2 and below Floor 1 where very few interior walls from above extend into the basement level and the exterior wood stud walls supporting the exterior walls from the levels above are unbraced and not connected (bolted) to the existing foundations to transfer the code required wind or seismic forces to the existing foundations.

Existing Foundations
Based on our site observations, the existing site soil conditions, and our experience with similar foundation systems, the existing unreinforced stone and concrete grout foundations appear to have performed poorly over the life of the building, and have inadequate capacity to resist their tributary dead and code required live and lateral (wind or seismic) loads without replacement or additional strengthening. In several locations, the existing exterior basement retaining walls and their foundations were noted to be cracked or crumbling, with loose and displaced stones (Image 38).

The Geotechnical Assessment (Appendix B) noted that the existing exterior footing embedment depths (TP1 and TP2 test pits) meet the minimum recommended embedment depths. The embedment depths of the existing interior foundations are unknown without further investigation.

Additional Noted Deficiencies
In addition to the deficiencies noted above, the following deficiencies/maintenance issues were noted but not reviewed in detail:

- More crawlspace vents will likely be required.
- Portions of the existing roof rafter tails and exterior porch roof rafter tails and eave boards will need to be repaired or replaced.
- The existing 6x6 beams supporting Floor 1 floor framing appear to be undersized for the existing dead loads plus code required live loads and will require strengthening.
- Improvement of the bracing of masonry fireplace/chimneys to floor and roof diaphragms.

## A7. Hawthorn House Structural Recommendations

General
Protect Foundations, Basement Level, and Porch and Sunroom Crawlspace Framing:

- Provide proper grading to direct site water, including roof runoff, away from existing or new foundations.
- Provide overall site and foundation drainage to keep site water away from the existing foundations and to prevent infiltration and accumulation of surface water in the basement and crawlspaces.
- Provide proper, code required, wood-earth separation between the existing or new exterior wall sill plates and adjacent soil grades.

Structure
Roof Framing Strengthening

- Strengthen existing roof framing throughout by sistering (doubling up) the existing roof rafters and hip beams at all roof members and by improving the connections of all existing and new roof rafters to the existing (strengthened) hip beams.

Roof Diaphragm Strengthening:

- Improve roof diaphragm capacity by the addition of new 5/8 inch plywood sheathing throughout over the existing 1x skip sheathing. This will also require reroofing of the entire roof. Improve roof diaphragm connections to the existing interior and exterior walls by the addition of new plywood edge nailing to existing (or new) blocking over walls and new Simpson galvanized steel framing clips to attach the blocking to the existing interior and exterior wall top plates.

Improve Floor Diaphragm Connections to Interior and Exterior Walls and Wall to Foundation Connections:

- Provide additional Simpson galvanized steel framing clips to improve the connection of the existing floor diaphragms to existing or new blocking over interior and exterior walls, including new interior shear walls noted below, and additional connections (bolting) of the existing or new interior and exterior wall foundation sill plates to the existing (or new) foundations. Strengthen existing basement 6x6 support beams by the addition (sistering) of new wood beams or new steel channels to the side(s) of the existing beams, as required, and provide new solid blocking over the tops of all interior beam lines to laterally brace the existing floor joists at their supports.

Improve Existing Shear Wall Strength:

- Provide new plywood sheathing on the interior face of selected exterior walls and on selected interior walls, primarily for the north-south oriented walls between Floors 1 and 2 and in the basement area. Extend interior walls above Floor 1 into the basement level at selected locations and provide new foundation bolting, including new Simpson galvanized steel hold downs, if required, at new interior and existing exterior walls, to existing (or new) foundations to improve overall building seismic performance.

Improve Existing Foundations:

- Investigate existing foundations in more detail and provide localized strengthening (new reinforced concrete) of existing concrete foundations, as required, in areas where new interior and exterior plywood shear walls are proposed in the basement area as well as under existing 6x6 posts. In addition, shore the existing structure, and replace the existing unbraced exterior wood stud walls in the basement area with new reinforced concrete retaining walls and foundations placed adjacent to the existing perimeter unreinforced retaining walls and foundations, and provide new connections and bolting of the existing exterior walls above and Floor 1 floor diaphragms to the top of the new concrete retaining walls. In addition, provide new continuous reinforced concrete foundations around the perimeters (3 sides) of Porch 2 and library addition (Room 103). All new foundations as well as new elements for strengthening of existing foundations should comply with the recommendations of the Geotechnical Assessment (Appendix B).

Improve Masonry Fireplace/Chimney Bracing:

- Investigate masonry fireplace/chimneys and provide additional bracing (steel straps) to the floor and roof diaphragms.

**A8. Hawthorn House Heating, Ventilation and Air Conditioning**

Description

Of the historic buildings, only the Hawthorn House was originally built with a heating system. There was never any air conditioning. Heating was provided by a coal-fired central sheet metal furnace, manufactured by W.W. Montague & Co., with cast iron furnace plate with flue opening and sheet metal ducts wrapped in asbestos insulation. The air circulated through the furnace and ducts by convection (gravity feed) without the use of a fan, which modern furnaces use to distribute air. The heated air was distributed via ducts to decorative brass registers along the base of walls throughout the house, which are of historic value in addition to the furnace itself.

In addition to the furnace, the house has four red brick fireplaces exhausted by two brick chimneys, which served the main entry room 101, sitting room 102, and the master suite rooms 203 and 204.

Condition

Although, the central furnace system is an excellent example of turn of the 19th century heating systems, overall, it is in poor condition. The deficiencies of the system are extreme and unacceptable by today's code standards and are inadequate for heating (and cooling). The chimneys are in good condition with brickwork intact and the hearth carbon stained.

*Hawthorn House Heating and Ventilation System Components*




*Image 39-41. Original Montague central furnace, ductwork, and original directions for use.*

*Image 42-43. Historic heating register (left) and non-historic heating register and duct extension (right).*

*Image 44. Fireplace chimney.*

Recommendations

It is recommended that the historic furnace be retained at the basement for its interpretive value. Wall registers can and should be retained and reused. Non-historic registers with ducts that extend into spaces need not remain. The asbestos insulation should be abated. A new heating and ventilating system, such as a new gas furnace with galvanized sheet metal ductwork wrapped in batt insulation, should be similar in routing to the existing system, utilize the existing grilles, and also meet the requirements of a new use. Depending on the planned use, the addition of an air conditioning system may be desirable.

Although the historic fireplaces, if inspected, could be reused to burn wood, local jurisdictions may have restrictions on their use in regard to air quality. Since they are part of the architecture and retain historic integrity, it is recommended that the fireplaces remain, their flues be cleaned but be non-functional.

See Table HVAC-1 Hawthorn House and related images that identify heating and ventilating related elements (and condition) by building.

**Table HVAC - 1**

| **HAWTHORN HOUSE** | | |
|---|---|---|
| Fixture Assessment - Basement | Reuse | Reference Image |
| Furnace and ductwork with insulation containing asbestos | no | 42 |
| | | |
| Fixture Assessment - First Floor | Reuse | Reference Image |
| Heating register - historic | yes | 43 |
| Fireplace – Room 101 | yes | 24 |
| Fireplace – Room 102 | yes | 19 |
| | | |
| Fixture Assessment - Second Floor | Reuse | Reference Image |
| Heating register – non-historic | no | 44 |
| Fireplace – Room 203 | yes | 28 |
| Fireplace – Room 204 | yes | 28 similar |
| | | |

## A9. Hawthorn House Plumbing

Description

Fixtures
There are six bathrooms in the Hawthorn House. Bathroom 109 has a ceramic water closet, cast iron basin, and sheet metal enclosed shower with shower head and faucets. At the second floor, the four bathrooms are fairly similar each with a ceramic tank-style water closet, cast iron lavatory with marble counter, and cast iron tub. The attic bathroom is smaller and has one remaining fixture, a ceramic water closet. Additional fixtures occur at two kitchens (Rooms 107, 108) at the first floor with cast iron basins. At the second floor, Rooms 205, 206, 212 and 215 have a free standing metal cabinets with integral sink and drain board. See Table PLUMB-1, which identifies plumbing elements and a reference image.

Piping
The domestic cold and hot water piping is galvanized throughout the house and copper is used only to connect the hot water heaters. The waste and vent piping is cast iron.

***Hawthorn House First Floor Plumbing Fixtures***

*Image 45-47. Lavatory, Water Closet & Shower at Bathroom 109.*

*Image 48-49. Sink/Faucet at Kitchen 107 & Sink/Faucet at Kitchen 108.*

***Hawthorn House, Second Floor Plumbing Fixtures***


*Image 50-51. Typical Portable Sink Unit at Sleeping Porches; Water Heater (Bath 202)*



*Image 52-54. Typical Water Closet; Typical Lavatory; and Typical Bathtub*

***Hawthorn House, Attic Plumbing Fixtures***

*Image 55. Hawthorn House, Water Closet at Bathroom 304.*

Condition

In general, the abandoned piping is in poor condition. The historic lavatories, kitchen sinks, portable sink units, and bathtubs retain visual integrity and are in fair to good condition. The attic lavatory is missing. The historic water closets retain visual integrity and are in fair to poor condition. The first floor shower enclosure is rusted and in poor condition. The water heater is rusted and in poor condition. None of the fixtures have been tested for function.

Recommendations

The Hawthorn House bathrooms are highly historically intact in terms of finishes and fixtures. The retention of historic fixtures would maintain historical character and integrity of spaces. Reuse may be slightly more expensive and involve cleaning, testing for function, and replacement of miscellaneous parts. On an individual basis, as listed in Table PLUMB-1, fixtures were reviewed for reuse or replacement. Water closets reuse may be less desirable and their condition may preclude it, so these may be replaced. The historic lavatories, kitchen sinks, and portable sink units should be reused. Bathtubs should be retained. Faucets should be replaced. The first floor non-historic shower enclosure should be replaced with a compatible bathtub or shower assembly. The non-historic water heater should be replaced with a new water heater installed in a concealed location. New fixtures should be compatible with historic spaces. The plumbing system should be replaced including piping and internal components. New piping should be concealed to the greatest extent possible.

Table PLUMB - 1

| **HAWTHORN HOUSE** | | |
|---|---|---|
| Fixture Assessment - Basement | Reuse | Reference Image |
| No fixtures found | n/a | n/a |
| Fixture Assessment - First Floor | Reuse | Reference Image |
| Lavatory – Bathroom 109 | yes | 45 |
| Water Closet – Bathroom 109 | no | 46 |
| Shower – Bathroom 109 | no | 47 |
| Sink – Kitchen 107 | yes | 48 |
| Sink – Kitchen 108 | yes | 49 |
| Fixture Assessment - Second Floor | Reuse | Reference Image |
| Portable Sink Unit – Room 205, 206, 212, 215 | yes | 50 |
| Water heater – Bathroom 202 | no | 51 |
| Water Closet – Bathroom 202, 209, 210, 214 | no | 52 |
| Lavatory – Bathroom 202, 209, 210, 214 | yes | 53 |
| Bathtub – Bathroom 202, 209, 210, 214 | yes | 54 |
| Fixture Assessment -Attic | Reuse | Reference Image |
| Water Closet – Bathroom 304 | no | 55 |

## A10. Hawthorn House Electrical

Description

Light Fixtures
Exterior historic light fixtures include a ceiling-mounted with glass dome shade fixture at the north porch, a missing fixture at the south porch where only an exposed bulb exists, and a sheet metal wall-mounted lantern fixture with opaque shade at the west wall above the doorway. In addition, non-original security fixtures were installed in 2013 at various locations around the building. Interior light fixtures range from simple to more decorative. Interior historic fixtures include basic lamp holders with exposed bulbs and canopy at basement and utility spaces; simple shallow cone shades at vestibules and corridors; decorative brass candelabra-type walls sconces of the single and double variety at the main entry, living, dining, and bedrooms; and brass pendant fixtures with globe shades at the main entry and second floor stair hall.

Power and Wiring
The original building power consists of an old fused distribution panel that is abandoned. This panel is fed with aluminum cable and feeds the power to the Hawthorn House including lights and receptacles. The interior wiring is old knob and tube, an antiquated system composed of single, insulated copper conductors, insulated by porcelain tubes when run through wall and ceiling framing penetrations and supported by porcelain knob insulators along their length. The switch plates and receptacle covers are non-historic and mostly plastic. The receptacles, which are mostly ivory in color are located along the dark brown stained base.

There is also a new temporary load center (distribution panel) that serves exterior security lighting. There are two 20 amp breakers, one for the Hawthorn House and one for the Garage. This temporary distribution panel has not been energized.

Condition
The exterior lantern fixture metal is corroded. The shade of the dome fixture at the north porch is dirty. Many interior fixtures require replacement of missing or broken shades. There are missing fixtures at the exterior and interior where fixture remnants and/or bulbs exist.

All the wiring and panels are abandoned and should not be re-energized, as they are not to current code, and are a fire hazard. Most switch plates are missing and receptacle covers are in poor condition.

***Hawthorn House, Exterior Light Fixtures***


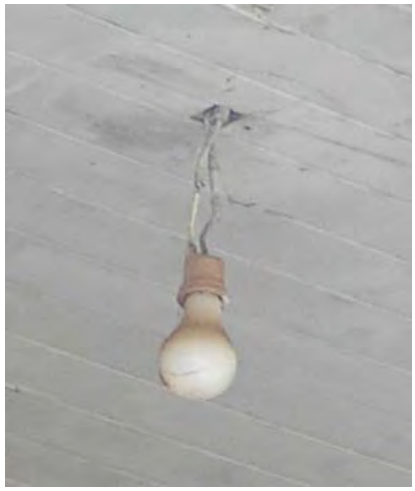

*Image 56-57. Porch 1 dome fixture (left) and Porch 2 bulb with missing fixture (right).*


*Image 58-59. West Entry lantern fixture (left) and non-historic security lighting (right).*

***Hawthorn House, Typical Interior Light Fixtures***



*Image 60-62. Single (left) and double (center) brass candelabra-type fixtures with floral shade and shallow cone shade fixture (right).*


*Image 63-64. Brass pendant globe fixture and basic lamp holder with exposed bulb.*

Recommendations

Historic light fixtures should be investigated for rewiring to current code. If reuse is possible, refurbishment should include rehabilitation of finishes to remove corrosion and dirt. The fixtures should use incandescent bulbs to maintain a historical appearance but, if desired, fluorescent bulbs may be used where there are concealing shades.

All wiring, equipment, switch plates and receptacle covers should be replaced and new conduit concealed. Depending on the type of reuse, the number of receptacles required will likely increase and be required at a certain height and spacing. Receptacles and switch plates should match their substrate to blend rather than contrast. See the Site Utilities Recommendations in Section IV, which describes the replacement of the temporary electrical service with a new permanent service with separate distribution for exterior site lighting and building lighting and electrical system.

***Hawthorn House, Sampling of Electrical System Components***

*Image 65. Panel Board.*

*Image 66-67. Knob and tube wiring.*

*Image 68-69. Dilapidated receptacles and conduit.*

## B. GARAGE

### General Description & Brief Development History

The Garage is a simple Craftsman one-story wood-framed structure with an attic set on unreinforced concrete foundations constructed on a gently sloped grade, which falls from west to down to the east. The Garage was constructed in 1916 with a first floor garage and residential attic, comprising 2,200 square feet of area. The Garage plan is rectangular with two later additions: a lean-to on the east side of the garage and, on the west side, an exterior stair and deck at the attic level where the existing dormer has been modified for a doorway to the attic.

*Image 70. Garage, north façade, view of the garage openings.*

### B1. Garage Architectural Description

Exterior

Roof

The gable roof is moderately pitched with shed dormers on the east and west. The roof surfaces are composed of asphaltic shingles with sections of roll roofing over original wood shingles over wood skip sheathing. The roof eave projects from the face of the building walls and the eave soffit is finished with wood boards. Roof drainage is composed of wood gutters with sheet metal downspouts.

*Image 71. Garage, west façade with stair to attic apartment.*

Exterior Walls

The exterior walls of the Garage are painted. The wall and gable faces are simply clad with rectangular shingles of varied widths run in regular horizontal courses over diagonal wood sheathing. A wide horizontal trim board runs under the overhanging eave at the wall and slimmer board trim runs at the gable roofline. At the west, it appears that during a later remodel, the roof was cut out under the shed dormer to create an exterior deck and entryway to the second level apartment. The side walls of this inset are faced with horizontal wood boards and the eave of the roof does not project past the side walls.

Additions

The exterior wood stair and deck at the west are painted. The stair has exposed stringers, riser boards and treads finished with boards or shingles where boards are missing or deteriorated. Three pairs of posts support the stair. Between posts, on each side of the stair, run an upper handrail and lower rail. The deck landing is supported by posts and surfaced in plywood. The landing has a railing similar to the stair between posts with the exception of the southwest corner, where the railing is enclosed with flat wood boards facing the landing and shingles at the exterior side. A wood plank bench was also added at the eave of the roof on the east side of the landing adjacent to the attic inset entry. The area under the deck is open and the side of the Garage west wall is visible.

The east lean-to structure is composed of wood posts, a shed roof with roll roofing covering original wood shingles and exposed skip sheathing. The north side is finished in painted wood shingles matching the Garage and the south side is clad in painted vertical board and batten siding. The east side has no wall enclosure. The lean-to does not have foundations or post footings.

Foundations
The Garage concrete foundations are barely visible above grade at the perimeter except at the east, where the foundation is exposed approximately three feet above grade. At the interior north wall, the foundation steps up 3 feet and 6 to 8 inches of wall is visible under the wood finished wall at the other walls. Horizontal lines are visible on the concrete indicating the use of wood boards to cast the concrete. See the Structural Description for further detail.

*Image 72. Garage, concrete foundation at the east wall with vertical cracks and settlement.*

Doors
The extant doors are stile-and-rail wood doors. The exterior doors are painted at the exterior and stained at the interior. The Garage has three large garage openings at its north exterior wall. The three wood garage doors each have two bi-folding leafs (two leafs hinged together which slide on a track above) and one swinging leaf, each six-light glazed over solid panel. There is one exterior wood door at the attic level of the west façade, accessed from the exterior stair deck landing. The attic entry door is a single-panel, ten-light door with non-historic steel hinges and locking hardware. Interior doors are solid, mostly two-panel with a one-panel door at the stair and are stained. The door trim is a simple 4 inch stained wood casing. Interior door hardware includes brass hinges, a few non-historic hinges, and brass knobs, and at least two doors with glass knobs.

Windows
The main level windows light the garage, stair to the attic, and a small toilet room. The attic level is lit by three grouped windows within a semi-circular arch at each gable end

and five windows at two shed dormers. The windows are wood with simple wood trim, painted at the exterior and stained at the interior. The double-hung window hardware includes brass sash locks, two sash lifts, pulleys on either side of each sash, and sash cord. Hopper windows at shed dormers have two brass sash chains and a center brass latch.


*Image 73-74. Garage, interior view of garage door; window and toilet room door*

Interior

Garage Level
The main floor is 1,100 square feet in area and consists of a large open garage space, eleven feet in height with a small toilet room and interior stair to the attic clustered at the southeast corner. The garage has built-in wooden casework at the south wall including a long counter with drawers and cabinets below and a higher cabinet to the west.

The detailing of the interior is simple and vernacular and the primary finish is stained wood. Garage level finishes include concrete flooring and perimeter concrete stem wall, which is visible at the room perimeter, vertically-oriented bead board walls and ceilings, base, and quarter round ceiling trim. The concrete slab-on-grade is scored and has a central metal drain grille and plates. The toilet room has the same finishes as the main space.

Attic Level
The interior stair accesses a central attic space used as a kitchen. There are two bedrooms at the north and south ends of the attic and a central vestibule, each connected via doorways from the kitchen. The south bedroom has a small closet. The west entry vestibule has a small toilet room to the south. An entry door from the

vestibule accesses the exterior deck at the west. The overall attic floor area is approximately 1,100 square feet.

The attic has tongue-and-groove flooring, horizontally-oriented bead board walls and bead board ceilings with base trim and quarter round trim at wall and ceiling joints. The kitchen area has non-fixed casework and a sink mounted in a wood frame at the southwest corner. The attic toilet room has the same finishes as the second floor but with resilient sheet flooring over wood floor.

*Image 75-76. Garage, stair to attic.*

*Image 76. Attic Kitchen, view of sink.*

Stair

The stair has a rounded first tread and decorative but simple railing with newel post and closely spaced vertical pickets. The walls and ceilings of the stair are finished similarly to the garage and toilet room.

*Image 77. Garage, base of stair.*

*Image 78. Garage, newel post.*

## B2. Garage Architectural Condition

Roof

The Garage roof, which is in fair to poor condition, is composed of asphaltic shingles with sections of roll roofing laid over deteriorated original wood shingles likely laid over roofing felt which covers the wood skip sheathing nailed to wood roof framing. There is evidence that leakage has occurred in the past, damaging and staining interior finishes, primarily wood. To prevent leakage, asphaltic roofing was installed over original wood shingles but appears to be deteriorating causing continued water infiltration. The existing wood gutters are deteriorated and disconnected from the downspouts, of which only portions exist. Many of the eave soffit boards are missing and exposed rafter tails appear to have dry rot. At the second level apartment entryway, the inset area which was cut out from the roof does not have an adequate roof overhang at the side walls, which has caused severe deterioration of the board siding at the side walls, the roof edge, and the deck at the entry, which is not adequately flashed at the wall joint or sloped to drain. The wood bench has created a dam at the roof edge causing severe wood rot at the bench and roof eave.

*Image 79. Garage, deterioration at roof at east side (above).*

*Image 80. West deck, severe deterioration at attic entry side walls and bench at eave.*

Exterior Walls

The shingles are in fair condition overall and poor condition at the bottom of exterior walls where the shingles have rotted as a result of earth contact. Shingles and siding at the south façade, west façade where the existing deck meets the building and underneath, and the attic entry are in poor condition. The paint finish has deteriorated and wood siding and shingles are exposed and appear dry and brittle. In addition, water appears to have drained on wall surfaces due to poor roof drainage. The shingles at the outside exterior corners appear separated, which may allow water intrusion. At the second level, the wood at entry side walls are deteriorated and warped due to lack of overhang and eave protection.

Additions

The exterior stair and entranceway deck are in poor condition including the plywood decking, railing, and steps. The deck landing is improperly sloped, constructed of inappropriate materials, and has no protective curb flashing along the wall. The stair is unstable and has minimal footings, which vary in size. The marble treads at the bottom of the wood stair are cracked and spalled. The deck seat at the edge of the roof interferes with roof drainage.

The lean-to structure is in extremely poor condition. The roof is partially collapsed and has severe water damage, the vertical wood board and batten siding is in fair condition and the wood shingle siding is in good condition except at the base of the wall where it is in contact with earth. The wall paint finish is worn and faded. Posts and wall assemblies, directly adjacent to grade, are likely deteriorated from ground contact.

*Image 81. Garage, lean-to addition at east side of building, view of collapsed roof.*

Foundations
The exterior condition of the Garage foundation is fair in general. Portions of the foundation and slab-on-grade are cracked and have settled downward to the east.

Doors and Windows
The exterior garage doors are in fair condition with deteriorated paint, warping, broken glass, water damage at the bottom. The west door at the attic level is in fair condition with deteriorated exterior paint and interior worn stain and gouges. Most interior doors are in good condition and hardware mostly extant. The toilet door does not close and there is panel damage at a second door.

The windows are in fair condition, most with broken glazing, wood damage, and likely exterior paint and glazing putty deterioration, and sill dry rot, which are not visible since the windows are covered with plywood at the exterior. Window hardware is fair with tarnished brass finish deterioration.

Interior Finishes
The interior concrete slab at the garage level is cracked and has oil and water stains. The garage bead-board-finished walls are intact, and in good condition. The garage ceiling, finished in the same wood paneling, is in fair condition except for one large section where a roof leak has resulted in substantial damage to the paneling. The attic apartment interior finishes are fairly intact. The wood floor stain finish is worn and resilient sheet floor covering at the upper toilet room is deteriorated.

**B3. Garage Architectural Recommendations**

General
Since the Garage is sited on a relatively flat area of the site, adjacent to road access, and is fairly intact, it is a good candidate for reuse. Exterior envelope repairs and structurally stabilization would greatly improve the condition of the building. The interior would require finish repairs and various infrastructure improvements to prepare for a new use. Depending on the new use, the building should be studied further to determine if more invasive measures are necessary to improve functionality, such as for accessibility.

Exterior

Roof
The existing multi-layer roofing should be replaced with a new roof membrane and new wood shingles to match the original or new asphalt roofing to match the appearance of documented historic shingles. Exposed rafter tails should be treated for rot and consolidated and protected by a new bead board eave soffit. Although the wood gutter could be reconstructed, this may be expensive and an issue for long-term maintenance. So, painted galvanized sheet metal gutters connected to new sheet metal downspouts are recommended. The profiles of these elements should be compatible with the building. Additional, grade-level concrete splash guards should be placed underneath downspouts to direct water away from the building foundation.

Exterior Walls

The building exterior should be repainted to protect exterior wood finishes. To protect the interior, a basic improvement should be to repair and seal the exterior corners with new shingles over new building paper and flashing lapped underneath intact adjacent shingles. The shingles at the base of the building should also be replaced. Since existing foundations are visible at the perimeter of the Garage, new foundations can be visible and shingles installed to be a minimum 8 inches, as generally required by the California Building Code for non-rot resistant wood, above the grade. Shingles at the south façade, west façade under where the existing deck meets the building, and the second floor entry should also be replaced due to their poor condition. A more invasive strategy to create a tighter exterior envelope for a rehabilitation project, especially if conditioning of the interior is desired, could be to replace all exterior shingles in-kind allowing the installation of new building paper and waterproofing at openings overall. Since the Garage is a smaller structure than the Hawthorn House and has uniform shingles, the option for complete replacement may be more feasible and recommended since at least two facades are in poor condition.

Additions

The east lean-to addition should be removed to allow more light into the garage and open up views through the original east windows at the exterior wall of the first floor garage space. While it is preferable to eliminate the exterior access to the attic apartment and convert the structure back to its original design, if this access is required for a new use such as for secondary egress, a new code-compliant compatible stair and entryway deck should be constructed in a manner that is sloped to drain and adequately flashed, retaining and repairing the base marble treads. In addition, where the original roof line was modified at the dormer to provide an inset exterior attic entrance, the side walls, roof eave, and decking will need to be repaired. This work should entail removal of deteriorated wood siding and framing, rebuilding of the side walls incorporating new flashing and extending the roof eaves over the side walls with new gutters and downspouts to route water and prevent shedding on wall surfaces. The wood bench at the roof eave should be removed and the severely deteriorated roof eave framing and roofing replaced.

Foundations

The perimeter of the Garage should be cleared of debris and vegetation and the grade manipulated to drain water away from the building. To stabilize the structure, the east foundation wall and interior slab should be repaired and reinforced. See Structural Recommendations for further detail.

Doors and Windows

Exterior surfaces of doors and windows should be repainted for more durability by removing loose and peeling paint, priming and recoating with two coats of finish paint. Interior stained finishes should be touched up or refinished depending on the extent of stain deterioration. Doors and windows should be repaired, replacing warped, rotted or broken members. Broken glazing and deteriorated glazing putty should be replaced in-kind. Since most brass hardware is extant, it should be retained including glass knobs at doors. Brass coatings need not be restored but should be cleaned and polished. Where hardware is missing, it is recommended that new compatible hardware be installed.

Interior

At the interior, the concrete slab cracks should be repaired where most severely settled at the east side for a more even walking surface and the floor surface cleaned. The wood finishes including bead board walls, ceilings and attic wood floor should be cleaned and refinished where there is water damage or wear to match the existing intact wood finish. Conduit, wiring, and plumbing, which are exposed at the garage space, should be concealed where possible especially if a rehabilitation project has a use other than for a vehicle garage.

**B4. Garage Structural Description**

General
The existing Garage building is a wood-framed one-story structure with an attic level supported by concrete foundations and a concrete slab-on-grade. There is a one-story lean-to addition along the east side of the Garage and a freestanding exterior stairway and deck addition at the west used as an exterior access to the attic-level apartment.

The structural system for the Garage building consists of the following:

- 1x6 skip sheathing at approximately 10 inches on center at the roof with rolled asphalt roofing over wood shingles.
- The roof sheathing is supported by “carpenter built” trusses at 32 inches on center consisting of 2x6 roof rafters, 2x10 floor/ceiling joists and 2x6 diagonal members nailed, and at some joints, bolted, together at the member intersections.
- The roof framing and roof trusses appear to span the full east-west width of the building and are supported on the exterior stud bearing walls which appear to be typically 2x4 studs at 16 inches on center.
- The second floor (partial floor) framing system consists of 1x tongue-and-groove straight sheathing overlain by 1x finish flooring. The framing consists of the 2x10 floor joists at 32 inches on center that are the bottom chords of the roof trusses noted above with possibly additional floor joists existing between the roof trusses.
- The continuous exterior north, south and west foundations, and the east foundation retaining wall adjacent to the lean-to addition, all appear to be of unreinforced concrete construction.
- Lateral (wind or seismic) loads are resisted primarily by the exterior diagonal wood sheathing and interior plaster and wood paneling finishes on the exterior stud walls. The existing 1x roof sheathing and the existing 1x straight sheathing and finished flooring at the floor level act as diaphragms to transfer the lateral loads to the exterior walls, which are then transferred to the existing exterior foundations.
- Based on our limited walkthrough observations, the main structure of the Garage building appears to be in good condition and appears to have performed well over its life, including in past earthquake events. Any structural deficiencies noted are addressed in the Code Considerations section.
- The exceptions noted were the lack of proper site drainage and areas of wood-earth contact around the building, and significant areas of deterioration and dry rot damage at the main roof eaves and the exterior north entry stair and landing.

The structural system for the Garage lean-to addition to the east consists of the following:

- 1x4 skip sheathing at approximately 8 inches on center at the roof with asphalt shingles over wood shingles.
- The roof sheathing is supported by 2x6 roof rafters at 32 inches on center which span the full east-west width of the addition. The 2x6 roof rafters are nailed to the sides of the 2x10 floor/ceiling joists of the Garage floor framing at the west end and are supported by 2-2x8 built-up edge beams that span approximately 8'-3" between 6x6 posts along the east edge of the addition. Significant portions of the existing roof structure are partially collapsed and are unsafe (Image 82).

*Image 82. Garage, east lean-to addition, detail of collapsed roof.*

- The north and south exterior walls of the addition consist of 2x4 at 24 inches on center stud walls with vertical 1x board siding.
- No foundations appear to exist for the east exterior posts, which appear to be embedded in the ground only (Image 83). No foundations appear to exist at the north and south exterior walls.

*Image 83. Garage, east lean-to addition, post on grade.*

- Based on our limited walkthrough observations, the structure of the Garage addition appears to be in very poor condition, and appears to have performed poorly over its life. The following sections address the main Garage building structure only as it is assumed that the existing east lean-to addition is planned to be removed and will not be replaced.

Foundations
The existing foundations (where exposed) are of unreinforced concrete construction. No independent field testing to verify the concrete compressive strength and the extent of reinforcing steel, if any, was possible within the scope of this report. These foundations, where observed, appear to have performed poorly over their life. Any structural deficiencies noted in the existing foundations are addressed under the Code Considerations section.

Wall Structure
The existing interior and exterior wood stud walls appear to be in fair to good condition with the exception being some areas at the base of the exterior walls where there is evidence of moisture infiltration and possible water damage as well as dry rot due to wood-earth contact. A more detailed survey should be performed to confirm the extent of this damage. Seismic deficiencies noted in the existing walls and their connections to the floor and roof diaphragms are addressed under the Code Considerations section.

Roof Structure
The existing roof framing, except at exposed rafter ends and at roof diaphragm edges exposed to weather, appeared to be in fair to good condition. Based on our preliminary analysis to date, the roof “trusses” are adequate, in general, to support the roof dead and code required live loads without additional strengthening, except possibly at the connections. Seismic deficiencies noted in the existing roof diaphragm and its connections to the exterior walls are addressed under the Code Considerations section.

Floor Structure
In general, the existing floor framing appears to be in good condition. Any seismic deficiencies noted in the existing floor diaphragm and its connections to the exterior walls are addressed under the Code Considerations section.

**B5. Garage Structural Code Considerations**

A preliminary seismic analysis of the Garage structure was completed based on known structural information. This analysis was based on the lateral load regulations of Section 8-706 of the 2010 California Historical Building Code with the 2012 Supplement, including Tables 8-8-A and 8-8-B, allowable capacities for existing materials. The seismic lateral force level for evaluation of historic buildings required by this code section is equivalent to approximately 75% of the 2010 California Building Code seismic force level for new buildings, including consideration of near site effects, i.e., increased seismic loads for sites, such as the Hawthorns site, located in close proximity to known active faults.

Even if a full seismic upgrade would not otherwise be required, our preliminary analysis indicated that there are several structural deficiencies that would be prudent to address if the building, vacant now, is proposed to be reoccupied in the future.

**B6. Garage Structural Condition**

The structural deficiencies noted are summarized below. The proposed strengthening to address these deficiencies is covered in the Structural Recommendations section.

Roof Diaphragm Capacity:
The existing 1x skip sheathing does not have adequate capacity to transfer the code required wind or seismic forces to the exterior shear walls or to brace the walls out-of-plane. In addition, the connections of the roof diaphragm to the existing interior stud walls and existing exterior shear walls are likely deficient.

Floor Diaphragm Capacity:
The existing 1x sheathing and finish wood flooring appears to have adequate capacity to transfer the code required wind or seismic forces to the existing exterior shear walls. However, the connections of the floor diaphragm to these walls are likely deficient.

Existing Shear Wall Capacities:
A detailed survey of the existing exterior wall sheathing was not possible during this phase. However, in general, the existing exterior diagonal wood sheathing and interior plaster or wood paneling finishes appear to have adequate capacity to resist the code required wind or seismic forces. The exception is the north exterior wall which has many openings and has inadequate capacity to resist its tributary code required wind or seismic forces (Image 84). Also, the exterior walls are not adequately connected (bolted) to the existing (or new) foundations to transfer the code required wind or seismic forces.


*Image 84. Garage, north façade with three garage entryways.*

Existing Foundations:
Based on our site observations, the existing site soil conditions, and our experience with similar structures, the existing unreinforced concrete foundations have performed poorly over the life of the building, have inadequate embedment depths (See Appendix B, Geotechnical Assessment, test pits TP3 and TP4) and minimum embedment depth recommendations of the Geotechnical Assessment, and have inadequate capacity to resist their tributary dead and code required live loads as well as code required lateral (wind or seismic) loads without replacement or additional strengthening.

Additional Noted Deficiencies:
In addition to the deficiencies noted above, the following deficiencies/maintenance issues were noted but not reviewed in detail:

- Portions of the existing roof rafter tails (Image 85) and the exterior wall framing, including the studs and foundation sill plates, will need to be repaired or replaced.
- The existing west exterior entry stair and landing framing is severely damaged and deteriorated and is unsafe.

*Image 85. Garage, south façade, detail of exposed rafters originally enclosed by eave and soffit boards, which should be rebuilt where missing.*

**B7. Garage Structural Recommendations**

General
Protect Foundations and Exterior Wall Framing:

- Provide proper grading to direct site water, including roof runoff, away from existing or new foundations.

- Provide overall site and foundation drainage to keep site water away from the building.
- Provide proper, code required, wood-earth separation between the existing or new exterior wall sill plates and adjacent soil grades.

Garage Structure
Roof Diaphragm Strengthening:

- Improve roof diaphragm capacity by the addition of new 5/8 inch plywood sheathing throughout over the existing 1x skip sheathing. This will require reroofing of the entire roof. Improve roof diaphragm connections to the existing exterior walls, including new, proposed shear walls (steel Hardy Frame) at the north exterior wall as noted below, by the addition of new plywood edge nailing to existing blocking over walls and new Simpson galvanized steel framing clips to attach the blocking to the existing exterior wall top plates.

Improve Floor Diaphragm to Exterior Wall and Exterior Wall to Foundation Connections:

- Provide additional Simpson galvanized steel framing clips at the exterior wall top plates and existing (or new) diaphragm edge blocking to improve the connection of the existing floor diaphragm to existing or new blocking and existing exterior wall top plates. In addition, provide new foundation bolting of (existing or new) exterior wall foundation sill plates, including new Simpson galvanized steel hold downs, if required, to the existing (or new) foundations to improve the overall building seismic performance.

Improve Existing Shear Wall Strengths:

- Provide new 24 inch wide (or 2 – 18 inches wide) steel Hardy Frame panel(s) in the north exterior wall to laterally brace this side of the building and to improve the overall building seismic performance.

Improve Existing Foundations:

- Investigate existing foundations in more detail, as required, and provide strengthening of the existing east exterior concrete foundation retaining wall, and new reinforced concrete replacement foundations around the entire exterior on the remaining three sides of the building. All new foundations should comply with the recommendations of the Geotechnical Assessment (Appendix B).

## B8. Garage Heating, Ventilation and Air Conditioning

Description

There was never a heating or air conditioning system in the Garage. An odd heating-related element however, is partially in place on the first floor of the Garage, a copper flue that could have been used for either a wood fired water heater or possibly a still.

Condition

The condition of the existing copper flue is fair but is disconnected and its original use is not clear.

*Image 86. Flue and Piping.*

Recommendation

The existing copper flue and piping should be removed. A new heating, ventilation, and air conditioning system should be installed if desired for a reuse project. A new system should consist of concealed equipment and ductwork so that the interior historic appearance is maintained. The system may consist of individual fan coil units concealed in secondary spaces, which supply the main spaces via grilles that are compatible with the interiors.

## B9. Garage Plumbing

Description

Fixtures

There are two bathrooms, one on each of two floors of the Garage building. The first floor toilet room has a historic tank-style ceramic water closet and cast iron lavatory. The second floor bathroom has a non-historic tank-style ceramic water closet, historic cast iron lavatory, and non-historic sheet metal shower enclosure.

The first level garage has a historic ceramic laundry-type utility sink with deep basin and two spigots mounted on the wall above the basin. The second floor kitchen historic cast iron basin is set within a wood-framed support mounted to the wall. Non-historic chrome-finished faucets and a spout are mounted on the wall above the basin.

Piping
The domestic cold and hot water piping is galvanized throughout the Garage; including connection to the hot water heater. Copper piping was only used for connections to the shower piping. The waste and vent piping is cast iron. Surface mounted pipes occur on the walls and ceilings of the garage space.

Condition
In general, the abandoned piping is in poor condition. The historic lavatories and sinks retain visual integrity and are in fair condition. The historic water closet retains visual integrity and is in fair to poor condition. The non-historic water closet is in fair condition. The water heater and shower enclosure are rusted and in poor condition. None of the fixtures have been tested for function.

***Garage First Floor Plumbing Fixtures***


*Image 87. Water Heater (left)*


*Image 88. Sink/Faucet*


*Image 89. Water closet*


*Image 90. Laundry Sink/Faucet*

***Garage Second Floor Plumbing Fixtures***

*Image 91. Sink/Faucet*

*Image 92. Water closet*

*Image 93-94. Shower & Piping*

*Image 95. Sink/Faucet*

Recommendations

The retention of historic fixtures would maintain historical character and integrity. Reuse may be slightly more expensive and involve cleaning, testing for function, and replacement of miscellaneous parts. On an individual basis, as listed in Table PLUMB-1, fixtures were reviewed for reuse or replacement. Retrofit of the historic water closet may be less desirable and its condition may preclude reuse but the non-historic water closet may be functional and reusable. The historic lavatories and sinks should be reused. Faucets should be replaced. The non-historic shower enclosure should be replaced with a new bathtub or shower assembly. The non-historic water heater should be replaced with a new water heater installed in a concealed location. New fixtures and hardware should be compatible with historic spaces. The plumbing system should be replaced including piping and internal components. New piping should be concealed to the greatest extent possible.

| Table PLUMB - 1 | | |
|---|---|---|
| **Garage** | | |
| Fixture Assessment – First Floor | Reuse | Reference Image |
| Water Heater - Garage | no | 87 |
| Lavatory -Toilet Room | yes | 88 |
| Water Closet - Toilet Room | no | 89 |
| Sink - Garage | yes | 90 |
| Fixture Assessment – Second Floor | Reuse | Reference Image |
| Lavatory - Toilet Room | yes | 91 |
| Water Closet - Toilet Room | yes | 92 |
| Shower - Toilet Room | no | 93-94 |
| Sink - Kitchen | yes | 95 |

**B10. Garage Electrical**

Description

Light Fixtures
Exterior light fixtures include a historic wall mounted lantern fixture with opaque shade on the west wall at the northwest corner adjacent to the exterior stair and lamp holders with exposed bulbs at the ends of the dormer at the second floor entry. Other non-historic exterior security lighting from 2013 occurs above the garage openings at the east wall. Interior light fixtures are basic including utilitarian lamp holders with exposed bulbs, a few of which have simple historic shallow cone shades and concealed conduit. There is also a non-historic wall sconce at the entry at the second floor.

*Image 96. Historic lantern fixture.*

*Image 97. Historic shallow cone shade fixture.*

Power and Wiring

The incoming power to the Garage is from the Hawthorn House main distribution panel via overhead wires, which have been removed. The Garage has (2) 50 amp, 120/240 volts panel boards that serve the lights, receptacles, pumps, space heaters and water heater. The switch plates or receptacle covers are non-historic plastic or metal. Surface mounted electrical conduit occurs on the walls and ceilings of the garage space.

There is also a new temporary load center (distribution panel) that serves exterior security lighting. There are two 20 amp breakers, one for the Hawthorn House and one for the Garage. This temporary distribution panel has not been energized.

*Image 98. Garage, electrical wires at exterior northwest corner.*

Condition

The light fixtures are in fair to poor condition. The exterior historic metal fixtures are corroded. Many interior fixtures have missing shades.

The panels are old, abandoned for years and may not be electrically safe to use. The wiring to this house is routed via conduit and old knob and tube. Switch plates and receptacle covers are in poor condition.

Recommendations

With the exception of intact historic exterior lantern fixtures and historic interior fixtures with cone shades, which should be investigated for rewiring to current code, other light fixtures should be replaced with new compatible fixtures. If reuse of historic fixtures is possible, refurbishment should include rewiring and rehabilitation of finishes to remove excess corrosion and dirt. Ideally, the fixtures should use incandescent bulbs to maintain a historical appearance but, if desired, fluorescent bulbs may be used where there are concealing shades.

The existing electrical system including conduit, wiring and electrical panels should be replaced with new code compliant equipment. Non-historic switch plates and receptacle covers should be replaced. Conduit should be concealed to the greatest extent possible. Depending on the reuse, the spacing between and number of receptacles will likely increase and will be required to be located at an accessible height if the reuse is commercial. The receptacle and switch plate covers should match their substrate so they blend rather than detract from the historic finishes. See the Site Utilities Recommendations in Section IV, which describes the replacement of the temporary electrical service with a new permanent service with separate distribution for exterior site lighting and building lighting and electrical system.

**Garage Electrical System Components**

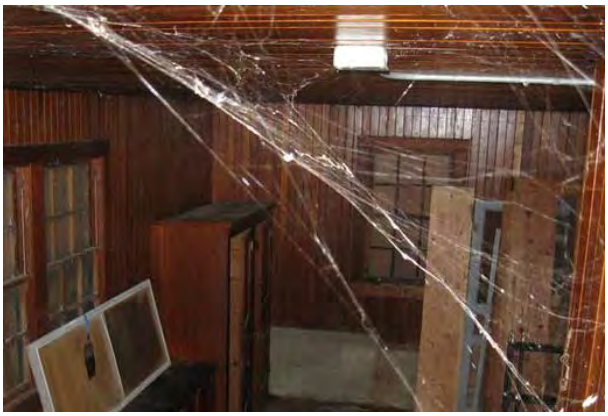

*Image 99-100. Conduit and receptacle at garage ceiling; Light lamp holder.*

*Image 101. Receptacle*

*Image 102. Receptacle*

*Image 103. Switches*

## C. COTTAGE

### General Description & Brief Development History

The Cottage is a simple vernacular one-story wood-framed structure with an attic and crawl space, approximately 1,300 square feet in area, set on unreinforced concrete foundations, sited on a moderately sloped grade which falls from west down to the east. In plan, the building is rectangular with an exterior stair at the main east entry. A secondary entry is located on the west side of the building. The Cottage predates the Hawthorn House and was built circa 1885.

*Image 104. Cottage, east façade.*

### C1. Cottage Architectural Description

Exterior

Roof

The roof is hipped, steeply pitched, with a flat section at its apex. Gables project from the main roof toward the east and west. The roof is composed of asphaltic shingles over original wood shingles over 1x skip sheathing. The roof eave projects from the face of

the building walls and the eave soffit is finished with wood boards. Roof drainage is composed of wood gutters with sheet metal downspouts.

*Image 105. Cottage, west façade.*

*Image 106. Cottage, east entry stair.*

Exterior Walls

The exterior wood finishes are painted. The exterior base level is clad in vertical board siding. The main level is primarily clad in horizontal drop siding with a narrow band of shingles just above the windows and below the roofline demarcating the transition to the attic level. Horizontal wood trim courses divide the various siding and vertical wood board trim at the corners of the building.

Stair

The exterior wood stair at the east has treads set on exposed stringers, open risers and a light railing on one side. The railing is composed of newel posts at the landing and two rails and vertical square balusters with intermediate horizontal members between balusters. The horizontal rails at the landing are not original as they are flat boards nailed to the face of the newel posts, inconsistent with the sloped railing at the stair, which is more defined in profile and centered on the newel posts. The enclosed area underneath the landing is sheathed similarly to the base of the building with vertical board siding and accessed by an opening covered in plywood. Although it has some inconsistencies, it could be an early addition.

Foundations

The Cottage concrete foundations are minimally visible above grade at the perimeter with wood siding extending to grade. See the Structural Description for further detail.

Doors

There are four exterior doors, three at the east façade and one at the west façade. One east and one west door access to the interior first floor. The crawl space has an access at the northeast corner and a window at the south and east facades. There is also an access door under the exterior stair covered with plywood. Most extant doors are stile-and-rail wood doors. The east exterior door has a glazed upper panel with two lower panels. The west exterior door is missing. The interior doors are solid 4-panel doors, some painted and some stained. The doors have simple wood board trim. The door hardware includes brass hinges, escutcheons and knobs.

Windows

The crawl space has a window at the north and east facades. All main level rooms are lit by windows. The attic level is lit by one window at each gable end. The windows are wood double-hung with simple board casing. Most sash have two lights at the first floor but a few have no divided lights at the first floor and attic level. The window hardware includes brass sash locks, sash lifts, pulleys on either side of each sash, and sash cords.

Interior

Crawl Space

The crawl space occurs on the east side of the building but only the northeast corner of the crawl space was observed. The space extends approximately under a third of the building to the west. The space has about five feet of head room and has interior wood board finished walls. The concrete foundation is visible on the exterior side of the space.

First Floor

The main floor is approximately 600 square feet and is divided into three east-west sections. The central section is a large room with the main east entry door to the exterior stair. The south section of the building has a small west entry vestibule, which enters a larger room. The north section of the building has two equally divided rooms with a floor raised about 2 feet above the main level accessed via four steps. The northwest room appears to have been used as a bathroom but the fixtures are missing. Within this room, is a ladder/stair that accesses the partially finished attic space.

The detailing of the interior is simple and vernacular and the primary finish is stained wood. Limited paint exists at some trim and door leafs. Main level stained wood finishes include tongue-and-groove flooring; bead board walls and ceilings; base, chair rail and quarter round ceiling trim; crown molding at the north rooms; and trim at doors and windows. The wood wall boards below the chair rail appear to be stained with a darker stain, possibly a second coating at a later date. In addition, there are sections of painted chair rail and walls that are inconsistent with the majority of spaces, which are stained. Sections of vinyl flooring also exist over the original wood floor at the central and the northwest room. The central space has a kitchen area with non-historic casework, a counter, and a sink.


*Image 107-108. Cottage, Door to room 104; Ladder/Stair to Attic at Room 105.*

Attic

The attic is approximately 600 square feet. It appears it was originally one large open space. Non-historic walls, about eight feet in height, were inserted to divide the space into three rooms: one larger central room (Room 201) on the north side, accessed by the stair-ladder from the first level; and two smaller rooms (Rooms 202 and 203) on the south side of the attic space, accessed through separate doorways from Room 201. The three rooms are not capped with a ceiling but are open to the attic roof. A large 6 inch high non-historic platform was added at the center of the attic, primarily in the main space but encroaching into the secondary rooms. The platform is wood-framed with masonite board finish.

The attic has wood tongue-and-groove wood flooring. The low perimeter walls, approximately three feet high are covered in unpainted gypsum board applied to original horizontal finish boards over framing. Above the low perimeter walls, from which the roof springs, the framing is exposed to the flat section at the apex of the roof. Wood-framed partition walls that divide the space are finished in gypsum board. The doorways at partition walls are simple openings, with no frames or doors installed.

*Image 109. Cottage, Attic floor at platform and ladder/stair opening.*

*Image 110. Cottage, Attic framing partially finished with gypsum board.*

**C2. Cottage Architectural Condition**

Exterior

Roof

The Cottage roof is in very poor condition. There is evidence that leakage has occurred in the past damaging and staining interior finishes, primarily at the northwest corner. Although asphaltic shingles were installed over original wood shingles over 1x skip sheathing to prevent further leakage, the roll roofing appears deteriorated, and may still allow water to infiltrate to the interior. The existing wood gutters are deteriorated and disconnected from the downspouts, of which only portions exist. Many of the eave soffit boards are missing and exposed rafter tails appear to have dry rot.

Exterior Walls
The Cottage exterior wood finished walls appear to be in fair condition, however, as expected, the wood siding is deteriorated at the bottom of walls that are in contact with earth. The paint finish has deteriorated and wood siding and shingles are exposed and appear dry and brittle. Siding & shingles at exterior corners appear to have separated which may allow water infiltration.

Stair
The exterior wood stair, landing, and enclosure beneath are collapsing and, thus, are in poor condition. The stair has minimal footings and the entire assembly is unstable.

Foundations
The Cottage the unreinforced concrete foundation condition is poor in general. Portions of the foundation are deteriorated or missing.

Doors and Windows
The exterior east door is in fair condition with deteriorated coatings. The doors at the west, under the east stair, and crawl space are missing. Most of the interior doors are in fair condition and one is severely damaged. Most door hardware is missing except at one door.

The windows are in fair condition, most with broken glazing, glazing putty deterioration, and wood damage. The windows are covered with plywood at the exterior and although not observed, it is likely the exterior paint has deteriorated and the sills have dry rot. Brass window hardware is tarnished.

Interior
The interior is fairly intact although the appearance of the natural wood stain varies due to water stains, wear, and mismatched stain. There are also areas where paint has been applied in contrast to the overall natural stained appearance. The floor is worn and is covered with pest droppings, dirt, debris, and remnants of vinyl floor covering.

**C3. Cottage Architectural Recommendations**

General
Since the Cottage is in poor condition and has limited access due to its siting on steeper grade than the other buildings, split level first floor interior, and ladder access to the attic, it is more likely that the Cottage will be stabilized for exterior viewing rather than interior reuse. In light of this, repairs are recommended to secure the exterior envelope and structurally stabilize the building and the perimeter should be cleared and maintained. In case of interior reuse, basic repairs and eradication of pests are recommended. Depending on the type of reuse, the building should be studied further to determine if invasive measures are necessary to improve functionality and access.

Exterior

Roof
The existing multi-layer roofing should be replaced with a new roof membrane and new asphalt roofing to match the appearance of documented historic shingles. Exposed rafter

tails should be treated for dry rot and consolidated and protected by a new bead board eave soffit. The existing drainage system should be replaced. Although wood gutters could be reconstructed, the expensive and long-term maintenance may not be feasible. So, compatible new painted galvanized sheet metal gutters connected to new sheet metal downspouts are recommended. Additionally, grade-level splash guards should be placed underneath downspouts to direct water away from the building foundation.

Exterior Walls

Repainting of the exterior is recommended to protect the wood finishes. Exterior corner repairs should include installation of new flashing and building paper, which would lap underneath the adjacent siding and shingles, and be capped with new replacement in-kind vertical trim boards. After installation of building paper and flashing at the base of the wall to protect it from weather and water run-off, vertical board siding should be replaced in-kind. Since the historical appearance of the base vertical board siding is meant to be close to grade and should extend over new foundations, it is recommended that replacement siding should be of rot resistant wood, such as redwood, with slightly modified detailing to raise it 1 to 2 inches above grade with painted end grain.

Stair

It is recommended that the exterior stair be replaced in-kind to match the original appearance and stabilized with new footings and connection to the building. Since the original appearance of the rails at the landing is unknown, the railings may be designed in a compatible manner with the original railing configuration at the sloped stair rail. The enclosure underneath the east stair can be reinstated in a manner more compatible with the base of the building.

Foundations

The perimeter of the Cottage should be cleared of debris and vegetation and the grade manipulated to drain water away from the building foundations. The west side of the building, on the uphill side, should be provided with drainage swales to prevent water from running down the hill toward the west wall. See Structural Recommendations for further detail.

Doors and Windows

Exterior surfaces of doors and windows should be repainted for more durability by removing loose and peeling paint, priming and recoating with two coats of finish paint. Interior stained finishes should be touched up or refinished depending on the extent of stain deterioration. The east door should be repaired, the missing exterior doors and two severely damaged interior leafs should be reconstructed. Windows should be repaired and deteriorated sills consolidated. Broken glazing and deteriorated glazing putty should be replaced in-kind. Missing hardware may be replaced with matching or compatible hardware. Remaining brass hardware should be cleaned and polished.

<u>Interior</u>

At the interior, the wood ceiling, walls and floor finishes should be cleaned at a minimum to remove dirt, debris, and pest droppings. If the interior is reused, the worn floor should be restained, non-original painted and mismatched stained surfaces should be stripped and the overall spaces stained to provide a consistent appearance. At the attic, non-historic partition walls, gypsum board, and the raised platform should be removed and the original wood surfaces and exposed framing repaired and stained for a consistent

appearance. If the historic ladder/stair to the attic is considered a hazardous condition, by the enforcing agency, for the reuse of the attic as an occupied space, a new code-compliant stair may be installed. Ideally, a new stair would be inserted in the same space to minimize change and retain the original circulation intent.

**C4. Cottage Structural Description**

General
The existing Cottage is a one-story wood-framed structure with an attic and crawlspace set on concrete foundations.

The structural system for the Cottage building consists of the following:

- 1x6 skip sheathing at approximately 10 inches on center at the roof with asphalt shingles over wood shingles.
- The roof skip sheathing is supported by 2x4 roof rafters at 24 inches on center and 2x6 hip rafters.
- The roof framing spans the full width of the building and is supported on the exterior stud bearing walls which appear to be typically 2x6 studs at 16 inches on center. There is also a flat roof portion at the center of the main roof.
- The second, or attic, floor framing consists of 1x solid tongue-and-groove sheathing supported by 2x8 (2" x 7½" to 7¾") floor joists at 16 inches on center which span north-south and are supported by the north and south exterior walls and interior stud walls/beam and post lines below the loft floor framing. There is also a 1x finished wood ceiling at the underside of the floor joists.
- The ground floor framing system over the crawlspace consists of 1x straight sheathing overlain by 1x finish flooring. Access to the crawlspace was very limited during our site visits. The framing appears to consist of 2x6 floor joists at 16 inches on center. Floor joists appear to generally span north-south between the exterior foundation walls and interior crawlspace wood stud cripple walls (assumed).
- The interior wood cripple walls in the crawlspace are assumed to be supported on unreinforced continuous concrete footings. The continuous exterior foundations are of concrete construction, assumed to be unreinforced, based on portions of the footings visible during our site visits.
- Lateral (wind or seismic) loads are resisted primarily by the exterior wood sheathing and interior wood paneling finishes on the exterior stud walls. The existing 1x roof sheathing and the existing 1x straight sheathing and finished flooring at the floor levels act as diaphragms to transfer the lateral loads to the exterior walls, which are then transferred to the existing exterior foundations.
- Based on our limited walkthrough observations, the main structure of the Cottage building appears to be in fair condition and appears to have performed adequately over its life, including in past earthquake events, although there was evidence of long term settlements and floor unevenness noted during our site visits, evidence of foundation settlements and movements over time. Any structural deficiencies noted are addressed in the Code Considerations section.
- The exceptions noted were the lack of proper site drainage around the building, the need for additional crawlspace venting, significant areas of deterioration and dry rot damage at the main roof eaves and the crawlspace flooring and joists at the west entry (Image 113). In addition, there are extensive areas of soil-wood contact at the

base of the exterior wood stud walls that has led to dry rot damage and deterioration at these walls at the wood stud wall to foundation interface. The full extent of this damage is unknown without more detailed site surveys. Also, the existing exterior east entry wood stair is severely dry rot damaged and unsafe and should be removed and be replaced with a new wood stair and landing, if a replacement stair is planned.

Foundations

The existing foundations (where exposed) appear to be of unreinforced concrete construction. No independent field testing to verify the concrete compressive strength and the extent of reinforcing steel, if any, was possible within the scope of this report. These foundations, where observed, appear to have performed poorly over their life (Image 111). Any structural deficiencies noted in the existing foundations are addressed under the Code Considerations section.

*Image 111. Cottage, north façade, detail of east corner foundation.*

Wall Structure

The existing interior and exterior wood stud walls appear to be in fair to good condition with the exception being some areas of the exterior walls where there is evidence of moisture infiltration and possible water damage as well as dry rot damage related to soil-wood contact (Image 112). A more detailed survey should be performed to confirm the extent of this damage. Seismic deficiencies noted in the existing walls and their connections to the floor and roof diaphragms are addressed under the Code Considerations section.

*Image 112. Cottage, south façade, detail of east corner.*

Roof Structure

The existing roof framing, except at exposed rafter ends and at roof diaphragm edges exposed to weather, appeared to be in fair to good condition. However, based on our preliminary analysis to date, the roof framing and their connections are inadequate to support the roof dead and code required live loads without additional strengthening (Image 114). This deficiency is addressed in more detail in the Structural Recommendations section. Seismic deficiencies noted in the existing roof diaphragm and its connections to the exterior walls are addressed under the Code Considerations section.

*Image 113. Cottage, west façade, detail of exposed rafters.*

*Image 114. Cottage, roof framing and sheathing as seen from the attic.*

Floor Structures

Access to observe the second, or loft, floor framing as well as the crawlspace framing was very limited during our site visits, although the existing floor framing appears to be adequate to support the floor dead loads and code required live loads. A more detailed investigation including exploratory openings to better expose existing floor framing conditions should be required to confirm this. Any seismic deficiencies noted in the existing floor diaphragm and its connections to the exterior walls are addressed under the Code Considerations section.

**C5. Cottage Structural Code Considerations**

A preliminary seismic analysis of the Cottage building was completed based on known structural information. This analysis was based on the lateral load regulations of Section 8-706 of the 2010 California Historical Building Code with the 2012 Supplement, including Tables 8-8-A and 8-8-B, allowable capacities for existing materials. The seismic lateral force level for evaluation of historic buildings required by this code section is equivalent to approximately 75% of the 2010 California Building Code seismic force level for new buildings, including consideration of near site effects, i.e., increased seismic loads for sites, such as the Hawthorns site, located in close proximity to known active faults.

Even if a full seismic upgrade would not otherwise be required, our preliminary analysis indicated that there are several structural deficiencies that would be prudent to address if the building, vacant now, is proposed to be reoccupied in the future.

## C6. Cottage Structural Condition

The structural deficiencies noted are summarized below. The proposed strengthening to address these deficiencies is covered in the Structural Recommendations section.

Roof Diaphragm Capacity:
The existing 1x skip sheathing does not have adequate capacity to transfer the code required wind or seismic forces to the exterior shear walls or to brace the walls out-of-plane. In addition, the connections of the roof diaphragm to the exterior walls are likely deficient.

Floor Diaphragm Capacities:
The existing 1x sheathing and finish wood flooring has adequate capacity, in general, to transfer the code required wind or seismic forces to the existing exterior shear walls. However, the connections of the floor diaphragm to these walls are likely deficient.

Existing Shear Wall Capacities:
A detailed survey of the existing exterior wall sheathing was not possible during this phase. However, in general, based on our preliminary seismic calculations, the existing exterior wood sheathing and interior plaster or wood paneling finishes do not have adequate capacity to resist the code required wind or seismic forces. In addition, the exterior walls are not adequately connected (bolted) to the existing foundations to transfer the code required wind or seismic forces.

Existing Foundations:
Based on our site observations, the existing site soil conditions, and our experience with similar structures, the existing unreinforced concrete foundations have performed poorly over the life of the building, have inadequate embedment depths (See Appendix B, Geotechnical Assessment, test pit TP5 and minimum embedment depth recommendations) and have inadequate capacity to resist their tributary dead and code required live loads as well as code lateral (wind or seismic) loads without replacement or additional strengthening.

Additional Noted Deficiencies:
In addition to the deficiencies noted above, the following deficiencies/maintenance issues were noted but not reviewed in detail:

- More crawlspace vents will likely be required.
- Portions of the existing roof rafter tails, the exterior wall framing, including the studs and foundation sill plates, and portions of the crawlspace framing and flooring, will need to be repaired or replaced.
- The entire existing main roof framing will need to strengthened to support the roof dead loads plus code required roof live loads.
- The existing east exterior entry stair and landing framing is severely damaged and deteriorated and is unsafe.

## C7. Cottage Structural Recommendations

General
Protect Foundations and Exterior Wall and Crawlspace Framing:

- Provide proper grading to direct site water, including roof runoff, away from existing or new foundations.
- Provide overall site and foundation drainage to keep site water away from the existing foundations and to prevent infiltration and accumulation of surface water in the crawlspaces.
- Provide proper, code required, wood-earth separation between the existing or new exterior wall sill plates and crawlspace framing and adjacent soil grades.

Structure
Roof Framing Strengthening:

- Strengthen existing roof framing throughout by sistering (doubling up) the existing roof rafters and hip beams, at all roof members and by improving the connections of all existing and new roof rafters to the existing and new hip beams and the exterior stud wall top plates.

Roof Diaphragm Strengthening:

- Improve roof diaphragm capacity by the addition of new 5/8 inch plywood sheathing throughout over the existing 1x skip sheathing. This will also require reroofing. Improve roof diaphragm connections to the existing exterior walls, including new, proposed shear walls noted below, by the addition of new plywood edge nailing to existing (or new) blocking over the existing exterior walls and new Simpson galvanized steel framing clips to attach the blocking to the existing exterior wall top plates.

Improve Floor Diaphragm to Exterior Wall Connections:

- Provide additional Simpson galvanized steel framing clips at the exterior wall top plates and existing (or new) diaphragm edge blocking to improve the connection of the existing floor diaphragms to existing or new blocking and the existing exterior wall top plates.

Improve Existing Shear wall Strength:

- Provide new plywood sheathing on the interior face of selected exterior walls. In addition, provide new foundation bolting of (existing or new) exterior wall foundation sill plates, including new Simpson galvanized steel hold downs, if required, to existing (or new) foundations to improve overall building seismic resistance.

Improve Existing Foundations:

- Investigate existing foundations in more detail and, as required, provide new reinforced concrete replacement foundations around the entire exterior perimeter, and in the crawlspace areas, if required. All new foundations should comply with the recommendations of the Geotechnical Assessment (Appendix B).

## C8. Cottage Heating, Ventilation & Air Conditioning

Description
No heating, ventilation and air-conditioning related elements exist in the Cottage.

Recommendation
If the Cottage is stabilized for exterior viewing, no mechanical system would be required. If a reuse is planned, a heating, ventilation, and air-conditioning system may be desirable. In this case, a new system should consist of concealed equipment and ductwork so that the interior historic appearance is maintained. The system may consist of individual fan coil units concealed in secondary spaces, which supply the main spaces via grilles that are compatible with the interiors.

## C9. Cottage Plumbing

Description
Fixtures
The plumbing fixtures have been removed in Room 105, the only bathroom in the Cottage. Kitchen 103 has a basin set within a counter, which appear non-historic with counter mounted faucets that appear historic. There is a small water heater in the kitchen also.

***Cottage First Floor Plumbing Fixtures***

*Image 115. Water Heater*

*Image 116. Sink/Faucet*

Condition
The plumbing fixtures are in poor condition. The water heater is severely rusted and the sink appears dirty and corroded and the casework dilapidated.

The domestic cold and hot water piping is galvanized throughout the Cottage and copper was only used to connect the hot water heater. The waste and vent piping is cast iron. The piping is old and abandoned, and in poor condition.

Recommendations
If the Cottage is stabilized for exterior viewing, the plumbing system may be abandoned in place and pipes capped. If a reuse is planned, the plumbing pipes and fixtures should be replaced. The new compatible fixtures should be appropriate for the new use, keeping in mind the limited space and the appearance of the historic interiors.

## C10. Cottage Electrical

Description

Light Fixtures
Exterior light fixtures include two metal lantern fixtures with opaque shades adjacent to east and west first floor entries. Interior light fixtures are basic including utilitarian lamp holders with exposed bulbs, some with shallow cone shades, which appear historic. The attic has non-historic fluorescent tube fixtures.

Power and Wiring
The incoming power to the Cottage is from the Hawthorn House main distribution panel via overhead wires. The house has a 100 amp, 120/240 volts panel that serves the lights, receptacles, electric range and water heater. The wiring to this house is routed via exposed metal conduit with surface mounted metal junction boxes for switches and receptacles.

***Cottage Electrical System Components***

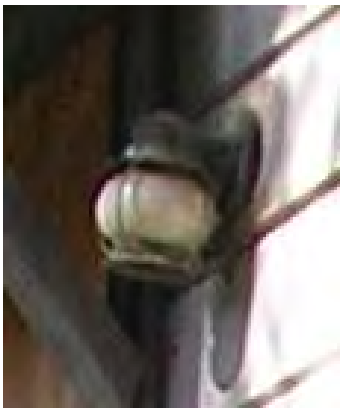

*Image 117-119. Exterior Lantern; Surface Conduit & Receptacle; Cone Shade Fixture*

Condition
The light fixtures are in fair condition. The exterior historic metal fixtures are corroded. The electrical conduit and junction boxes with switches and receptacle boxes are in poor condition.

This distribution panel is old, abandoned for years and may not be electrically safe to use. The conduit, wiring, receptacles and switches are old, not grounded, rusted and not suitable for service.

Recommendations
With the exception of intact historic exterior lantern fixtures and historic interior fixtures with cone shades, which should be investigated for rewiring to current code, other light fixtures should be replaced with new compatible fixtures. If reuse of historic fixtures is possible, refurbishment should include rewiring and rehabilitation of finishes to remove excess corrosion and dirt. Ideally, the fixtures should use incandescent bulbs to maintain a historical appearance but, if desired, fluorescent bulbs may be used where there are concealing shades.

The existing electrical system including conduit, wiring and electrical panels should be replaced with new code compliant equipment. Non-historic switch plates, receptacle covers, and junction boxes should be replaced. Since the building was not planned with a concealed electrical system, if it is not feasible to install a new concealed system, the components may be surface mounted but should match the substrate to blend rather than detract from the historic finishes. Depending on the reuse, the spacing between and number of receptacles will likely increase and will be required to be located at an accessible height if the reuse is commercial. See the Site Utilities Recommendations in Section IV, which describes how a new permanent site electrical service would be planned with separate distribution for exterior site lighting and building lighting and electrical system.

## D. LOWER BARN

### General Description & Brief Development History

The Lower Barn is a large one-story wood-framed vernacular structure built on a relatively flat area of the site with a high interior space and interior concrete slab-on-grade, approximately 4,400 square feet in area. The Lower Barn was one of the earliest buildings on site developed around 1887. In plan, the building is rectangular and, in section, composed of a large vaulted space with lean-to sections the length of the barn at the east and west sides, a south lean-to centered on the barn's south façade and an extended section of the east lean-to, which projects in plan to the south to create a slightly more complex shape.

*Image 120. Lower Barn, north façade.*

### D1. Lower Barn Architectural Description

<u>Exterior</u>

Roof

The Lower Barn roof is a large gable with shed roofs at the lean-to and shed additions. The roof is covered by corrugated galvanized sheet metal, which appears to cover an older wood shingle roof. The eaves have rafter tails and fascia boards and the ridge beam projects to the exterior at the gable ends.


*Image 121. Lower Barn, east façade.*


*Image 122. Lower Barn, interior.*

Exterior Walls
The exterior is clad in vertical wood board-and-batten siding with miscellaneous areas of patching with corrugated galvanized sheet metal. Although a bare wood finish was observed, the north façade appears to have a whitish coloring that may indicate a whitewash finish existed.

Foundations
There were little or no existing foundations observed at the Lower Barn and wood framing appeared to rest directly on grade. The interior existing unreinforced concrete slab-on-grade is a later addition and appears to embed interior posts and support some exterior wall elements. See the Structural Description for further detail.

Doors and Windows
The main north façade is the most distinctive with a large central side-sliding barn door flanked by secondary swinging doors. The doors have large sills and are set a foot or two above grade. The central loft door opening above the barn door is flanked by glazed six-light windows set in pairs. Generally, other exterior doors are board and batten with large metal strap hinges. Many of these are Dutch doors with swinging top and bottom leafs. Window openings are mostly unglazed openings with wood slats or shutters. The exterior openings have simple trim.

<u>Interior</u>
The interior is exposed framing with the back of the exterior board sheathing visible. The large central space is open with lower wood partitions at the east and west sides finished with vertical wood board and simply trimmed openings and no ceilings. The central vaulted space framing consists of posts extending up to rafters with skip sheathing and the underside of wood shingles and corrugated roofing visible from below. Some sections of the interior appear to be whitewashed. The main vaulted interior space has an unfinished concrete slab-on-grade, which was likely added and auxiliary spaces from the main space have wide 6x wood boards at the floor, which appear original.

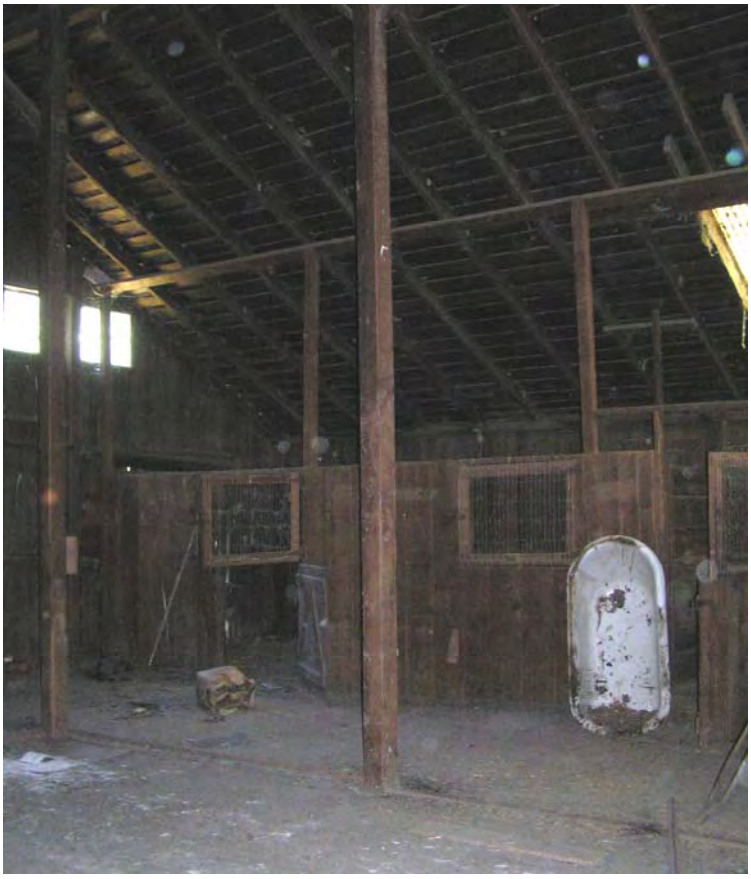

*Image 123. Lower Barn, interior looking northeast.*

**D2. Lower Barn Architectural Conditions**

Exterior

Roof
The condition of the roof is poor. The corrugated metal roof is rusted extensively and collapsed in locations. It is assumed that the older shingle roof beneath is severely deteriorated. There are no gutters or downspouts. The eave boards are missing in locations and the end grain of sheathing is exposed.

Exterior Walls
The Lower Barn walls are in poor condition. The exterior siding is detached, weathered, and in contact with earth. Many exterior vertical battens are missing. Sections of the building have collapsed at numerous locations.

Foundations
Since there are little or no exterior foundations, the wood framing, sheathing, and flooring at the perimeter and interior auxiliary spaces are in contact with grade and deteriorating. At the interior, the existing concrete slab-on-grade appears intact and supports interior posts at the main space but does not adequately extend to the perimeter.

Doors and Windows
The glazed windows at the north façade have broken panes. Other window and door openings are wracked from settlement or collapse of walls and the wood trim and edges of openings are likely deteriorated.

Interior Finishes
The interior framing and partitions and finishes appear fairly intact. The interior is inhabited by barn owls, their feathers and droppings cover the floor. Daylight is visible through exterior sheathing which has been patched in various locations with wood and corrugated sheet metal. The extent of whitewash is inconsistent and the finish is worn.

**D3. Lower Barn Architectural Recommendations**

General
The Lower Barn is in very poor condition with no foundations, poor roofing, dilapidated siding, and a single skin exterior envelope. It is also located further from the other primary historic structures. Therefore, it may be an unlikely candidate for rehabilitation. Minimally, the recommendation is to leave the structure fenced off as it currently stands. If intended to be accessed for exterior viewing, the perimeter should be cleared and maintained and the building should be structurally stabilized, repainted, and the roof repaired to prevent further deterioration. If reuse of the interior is intended, basic repairs are suggested as well as relocation or removal of wildlife and pests. The building would need to be studied further to determine if invasive measures are necessary to improve functionality depending on its use.

Exterior

Roof
The existing corrugated galvanized metal roofing should be removed. It is likely that for fire safety, the original shingle roof could not be reinstalled but should be documented for size and configuration before removal. Recommended replacement roofing should include new structural sheathing over new skip sheathing to match existing, a new roof membrane, edge and ridge flashing and a new asphalt shingle roofing similar to the historic type. The ends of skip sheathing should be treated and consolidated and eave boards reinstated to protect the sheathing end grain.

Exterior Walls
The exterior siding should be replaced where damaged and existing to remain stabilized by reattachment on additional nailers as described in the Structural Recommendations. Exterior boards and battens should be added where missing to match existing, using either new or salvaged material. The base of the building should be faced with rot-resistant wood boards or siding such as redwood or cedar so that the historical appearance is maintained. If desired, the exterior could be refinished to match the existing to further protect the siding. The exterior finish should be tested to determine if it is whitewash or paint.

Foundations
The perimeter of the Lower Barn should be cleared of debris and vegetation and, if feasible, the grade manipulated to drain water away from the building. New foundations to support the structure should be installed. See Structural Recommendations for further detail.

Doors and Windows
Doors should be repaired to close properly. Window shutters, where they exist should be closed, other openings could be covered with mesh or covered with wood boards to prevent the entry of pests.

Interior
It is recommended that a wildlife expert be consulted on the appropriate procedures to relocate barn owls since rehabilitation work would cause them disturbance in the short term and their occupation of the interior would be a long-term maintenance issue in terms of cleaning droppings and feathers. The interiors should be cleaned and remaining partitions and finishes reattached and stabilized.

**D4. Lower Barn Structural Description**

General
The existing Lower Barn building is a one-story, high bay wood-framed structure with several additions, built essentially on grade with little or no visible foundations, and interior, unreinforced concrete slab-on-grade.

The structural system for the Lower Barn building (the construction of the additions is similar and not covered in detail herein) consists of the following:

- 1x6 skip sheathing at approximately 10 inches on center at the roof with metal roofing over wood shingles.
- The roof skip sheathing is supported by 2x6 roof rafters at 32 inches on center.
- The footprint of the high bay Lower Barn structure is approximately 40’ north-south by 84’ east-west. The roof framing spans the full width of the building and is supported on the exterior wood stud and post bearing walls at the east and west exterior walls, which appear to be typically 2x6 studs between 6x6 posts, with the 6x6 posts at approximately 10’ on center. In addition, the roof framing is supported on 2 rows of interior 4x4 posts supporting 2x6 flat plate beams at approximately 10’ from the east and west exterior walls and 2 rows of interior 6x6 posts supporting 4x6 beams at approximately 20’ from the north and south exterior walls. The 4x4 and 6x6 posts are spaced at approximately 10’ on center in the north-south direction of the Lower Barn. The 2x6 rafters are spliced in the north-south direction spanning between 1x ridge nailers at the center of the Lower Barn roof.
- The Lower Barn roof framing, support beams and posts, and interior and exterior wall framing is generally open with little or no interior finishes. The interior walls which divide the space into various stalls generally have horizontal 1x siding which extends for only a partial height of the walls. The exterior walls are generally finished with vertical 1x wood siding/sheathing on the exterior which extends from grade to the top of the walls. In some locations the siding is missing or badly deteriorated. The north exterior wall is clad only partially in wood siding with the remainder of the wall being

clad in corrugated metal siding, likely due to damage and deterioration of the original wood siding over time.

- The interior wood posts may be supported on individual unreinforced concrete pad footings below the existing interior concrete slab-on-grade, however, these were not visible during our site visits. The exterior wall wood foundation plates or beams appeared to be resting directly on the ground, or, in limited areas, to be resting on the edge of the concrete slab-on-grade.
- Lateral (wind or seismic) loads are resisted primarily by the exterior vertical 1x wood siding/sheathing on the exterior surface of the exterior stud and post walls. The existing 1x roof sheathing acts as a diaphragm to transfer the lateral loads to the exterior walls, which then transfer these loads to grade level.
- Based on our limited walkthrough observations, the main structure of the Lower Barn building appears to be in fair to poor condition but appears to have performed adequately over its life, including in past earthquake events, although, based on our site observations and our past experience with several very similar barn structures, there are likely several structural deficiencies in both the vertical (dead and code required live) load carrying as well as the lateral (wind or seismic) load carrying systems for the structure. Any structural deficiencies noted are addressed in the Code Considerations section.
- In addition, we noted extensive areas of soil-wood contract at the base of the exterior wood stud walls, interior stall walls and interior support posts that has led to dry rot damage and deterioration at these walls and posts at the wood stud wall and post to soil interface. The full extent of this damage is unknown without more detailed site surveys.

Foundations

There were little or no existing foundations visible during our site visits (Image 124). No independent field testing or exploratory program to verify the presence or extent of existing foundations, if any, or their construction details, was possible within the scope of this report. Any structural deficiencies noted in the existing foundations and their impact on the building behavior is addressed under the Code Considerations section.


*Image 124. Lower Barn, north façade, doorways are above grade, no foundations visible.*

Wall Structure

The existing interior and exterior wood stud and post walls appear to be, generally, in fair condition with the exception being some areas of the exterior walls where there is evidence of moisture infiltration and possible water damage as well as dry rot damage related to soil-wood contact (Image 125). A more detailed survey should be performed to confirm the extent of this damage. Seismic deficiencies noted in the existing exterior walls and the absence of any foundation connections for these walls are addressed under the Code Considerations section.

*Image 125. Dry rot at base of walls.*

*Image 126. Lower Barn, interior view of roof framing looking northeast.*

Roof Structure

The existing roof framing, except at exposed rafter ends and at roof diaphragm edges exposed to weather, appeared to be in fair to good condition (Image 126). However, based on our site observations and our experience with evaluating several similar barns in the past, the roof framing and their connections are likely inadequate to support the roof dead and code required live loads without additional strengthening. This deficiency is addressed in more detail in the Structural Recommendations section. Seismic

deficiencies noted in the existing roof diaphragm and its connections to the exterior walls are addressed under the Code Considerations section.

**D5. Lower Barn Structural Code Considerations**

Due to the proposed level of reuse (no future occupied reuse) for the Lower Barn building, a preliminary gravity (dead and code required live) load and lateral (wind or seismic) load analysis of the Lower Barn building per the 2010 California Historical Building Code was not completed as part of this report. The summary of structural deficiencies in the section below is based on our site observations as well as our past experience in analyzing and evaluating similar barn structures.

Even if a full seismic upgrade would not otherwise be required, our preliminary analysis indicated that there are several structural deficiencies that would be prudent to address if the building, vacant now, is proposed to be stabilized for exterior viewing.

**D6. Lower Barn Structural Conditions**

The structural deficiencies noted are summarized below. The proposed strengthening to address these deficiencies is covered in the Structural Recommendations section.

Roof Diaphragm Capacity:
The existing 1x skip sheathing does not have adequate capacity to transfer the code required wind or seismic forces to the exterior walls or to brace the walls out-of-plane. In addition, the connections of the roof diaphragm to the exterior walls are likely deficient.

Existing Exterior Wall Lateral (Shear) Capacities:
A detailed survey of the existing exterior wall vertical 1x wood siding/sheathing and nailing was not possible during this phase. However, in general, based on our past experience, the existing exterior wood vertical 1x wood siding/sheathing does not have adequate capacity to resist the code required wind or seismic forces. In addition, the exterior walls are not adequately connected (bolted) to the ground (or any existing foundations) to transfer the code required wind or seismic forces.

Existing Foundations:
Based on our site observations, the existing site soil conditions, and our experience with similar structures, the existing Lower Barn structure has performed adequately over its life, however, due to the lack of existing foundations, the Lower Barn structure exhibits evidence of extensive differential settlements and is out-of-plumb and has inadequate capacity to resist the existing dead and code required live loads as well as code lateral (wind or seismic) loads without adding new foundation elements, at least in selected areas where vertical and lateral loads are concentrated.

Additional Noted Deficiencies:
In addition to the deficiencies noted above, the following deficiencies/maintenance issues were noted but not reviewed in detail:

- Portions of the existing roof rafter tails, the exterior wall framing, including the studs, vertical siding and foundation sill plates, will need to be repaired or replaced.
- The entire existing main roof framing will need to strengthened to support the roof dead loads plus code required roof live load.

## D7. Lower Barn Structural Recommendations

General
Protect (Existing and New) Exterior Wall Framing:

- Provide proper grading to direct site water, including roof runoff, away from any existing (or new) foundations.
- Provide overall site and foundation drainage to keep site water away from the base of the existing walls (and new foundations) and to prevent infiltration and accumulation of surface water at the base of the exterior walls.
- Provide proper, code required, wood-earth separation between the existing or new exterior wall sill plates and adjacent soil grades.

Structure
Roof Framing Strengthening:

- Strengthen existing roof framing throughout by sistering (doubling up) the existing roof rafters at all roof members and strengthening of the interior beam and post lines' existing top plates and existing beams, and by improving the connections of all existing and new roof rafters to the existing and new interior beams and the exterior stud wall top plates.

Roof Diaphragm Strengthening:

- Improve roof diaphragm capacity by the addition of new 5/8 inch plywood sheathing throughout over the existing 1x skip sheathing. This will also require removal of the existing metal roofing and overall reroofing. Improve roof diaphragm connections to the existing exterior walls, by the addition of new plywood edge nailing to existing (or new) blocking over the existing exterior walls and new Simpson galvanized steel framing clips to attach the blocking to the existing exterior wall top plates.

Improve Existing Exterior Wall Lateral (Shear) Strengths:

- As a minimum, replace any damaged or deteriorated exterior 1x vertical siding/sheathing, in kind. Re-nail all existing or new vertical siding to existing exterior wall studs, posts, top plates and (existing or new) sill plates. Add additional 2x horizontal members in all exterior walls, as required, to allow for additional nailing of the vertical siding consistent with the requirements based on a more detailed lateral (wind or seismic) analysis relative to the requirements of the 2010 California Historical Building Code. In addition, provide new foundation bolting of (existing or new) exterior wall foundation sill plates to new foundation elements.

Improve Existing Foundations:

- Investigate further and, as required, provide new reinforced concrete replacement foundations in selected areas around the entire exterior perimeter of the Lower Barn, and in the interior areas, primarily at interior posts, as required. All new foundations should comply with the recommendations of the Geotechnical Assessment (Appendix B).

**D8. Lower Barn Heating, Ventilation & Air Conditioning**

Description
No heating, ventilation and air-conditioning related elements exist in the Lower Barn.

Recommendation
Assuming the Lower Barn is stabilized for exterior viewing, no mechanical system would be required. If a reuse is planned, a new mechanical system may be desirable. In this case, a new system should consist of concealed equipment so that the interior historic appearance is maintained and be efficient for conditioning a large volume of space, possibly a radiant flooring system.

**D9. Lower Barn Plumbing**

Description
Galvanized pipes were found at the exterior of the Lower Barn serving hose bibbs.

Condition
Minor piping and hose bibbs are old and abandoned. The piping is considered unreliable.

Recommendations
Assuming stabilization for exterior viewing, the existing piping and hose bibbs should be abandoned in place and capped. A basic plumbing upgrade of pipes and hose bibbs may be desired for landscape maintenance purposes. If an interior reuse of the barn is planned, a more extensive plumbing upgrade is required including replacement of piping and hose bibbs and consideration of additional plumbing as required by the new use. New fixtures should be compatible with the historical appearance of the barn.

**D10. Lower Barn Electrical**

Description
There is no electricity supplied to the Lower Barn, neither electrical wiring or panels.

Recommendations
If stabilized for exterior viewing only, no electrical upgrade is required. Although, it may be beneficial for security and way finding to install site lighting. See the Site Utilities Recommendations in Section IV, which describes how a new permanent site electrical service would be planned with separate distribution for exterior site lighting and building lighting and electrical system.

If the barn is reused, it will require a new electrical system, including connection to the distribution panel, new conduit and wiring, receptacles, switches, and compatible light fixtures. The new system should be concealed to the greatest extent possible and/or the electrical elements painted to blend with the historic materials. Depending on the reuse, the spacing between and number of receptacles will likely increase and will be required to be located at an accessible height if the reuse is commercial.

## E. MISCELLANEOUS OUTBUILDINGS

There are numerous miscellaneous outbuildings within the vicinity of the primary buildings described previously. These outbuildings include the:

- Upper Barn – north end of the site adjacent to the HSC North Driveway
- Shetland Shed – west of the Cottage, next to olive groves
- Dog Sheds – southeast of the Garage
- Carriage Shed – north of the Lower Barn
- Pump House – east of Barn Road between the Garage and Lower Barn
- Coachman's Quarters – south of the Pump House
- Raccoon Sheds – south of the Lower Barn
- Horse Sheds – south of the Lower Barn and Coachman's Quarters, north of the Race Track
- Silo – west of the Lower Barn

Most of the outbuildings were probably constructed by the Newhall-Woods family but the Pump House and Coachman's Quarters appear to be older and may be related to the Allen family era. With the exception of the Coachman's Quarters, the granddaughter of Francis Newhall-Woods, Prudence Noon, identified her grandmother's past use of the other structures during a site walk in 2013.

*Image 127. Outbuilding, Upper Barn.*

*Image 128. Outbuildings, Shetland Shed.*

*Image 129. Outbuildings, Dog Sheds.*

*Image 130. Outbuildings, Carriage Shed*

*Image 131. Outbuilding, Pump House.*

*Image 132. Outbuilding, Coachman's Quarters.*

*Image 133. Outbuildings, Raccoon Shed in foreground, Horse Shed in background.*

*Image 134. Outbuilding, Shed southwest of Raccoon Shed.*

*Image 135. Outbuildings, Horse Sheds, two of four.*

*Image 136. Outbuilding, Silo west of barn, north side view of ladder enclosure.*

**Outbuildings Architectural Description**

Exterior

The outbuilding walls are composed of wood framing and board and batten siding and most have corrugated sheet metal roofs. The Upper Barn has large sections of wall finished in corrugated sheet metal and the Pump House is finished in horizontal drop siding. The outbuildings appear to have minimal foundations if any. Most doors are board and batten. Most window openings are without glazing or have mesh except at the Coachman's Quarters, where glazed multi-light windows exist. In addition, there is a small cylindrical silo, about 30 feet high and 15 feet in diameter, located adjacent to the Lower Barn Structure. It is composed of vertical wood boards with horizontal metal strips with a ladder enclosed by a cylindrical metal attachment on the exterior.

Interior

Some sheds are partially open with no exterior walls while others are more enclosed. The interiors have exposed framing with back of exterior sheathing visible. The Coachman's Quarters is unique among the outbuildings since it appears to have an enclosed living quarters with windows and a door and a section of the building that was used for utility with large openings. This section was possibly used for the storage of a carriage, tack, or for keeping and/or grooming animals. Although the name of the building was not confirmed, its close proximity to the large Lower Barn indicates that a coachman's quarters was a likely use.

**Outbuildings Architectural Conditions**

Most of the outbuilding structures are collapsing or in serious disrepair. Of the outbuildings, the Upper Barn is the most intact although it has sustained damage from fallen trees. The Coachman's Quarters is somewhat intact but it appears unstable with a bowed roof and misaligned posts. Due to the collapse of many structures the openings are wracked. Glazing is broken at the Coachman's Quarters windows.

**Outbuildings Architectural Recommendations**

Although retention is of the outbuildings is preferred, it is more important to retain and stabilize the primary structures since they provide both interpretative value and are the most adaptable for reuse in the future.

If some outbuildings were retained, the priority should be the Upper Barn, Coachman's Quarters, and Horse Sheds as they appear to be the most physically intact and retain character and integrity for their respective uses. If demolished, the outbuildings should be documented and demolished as they may be a fire or safety hazard in terms of long-term maintenance and use of the site.

No structural, mechanical, electrical and plumbing evaluations of the outbuildings were performed. Further assessment should be required to determine how these structures could be minimally rehabilitated. At minimum, architecturally, they require roof repair and general stabilization to maintain interpretative value. They should remain fenced off to prevent entry unless there is an allowance for future structural upgrade to allow access.

## VI. CONCLUSION

The Structure Conditions Assessment documents the existing conditions of each historic structure on the Hawthorns property and provides general recommendations for appropriate rehabilitation based condition, adaptability and historic value as described in the Hawthorn Historic Resource Study.

The District would only consider rehabilitation for interpretation and/or reuse of the existing buildings if a development partner is identified to provide funding for improvements. If no development partner is found, the primary structures should be mothballed.

A reuse project, wherein a partner proposes to occupy or use the structure, allows the partner to rehabilitate with a degree of flexibility, allowing for repair of the existing site and building(s) as identified in the Structure Conditions Assessment with some modification within the parameters set by the Historic Resource Study to maintain its character and integrity. Ultimately, productive use of this set of historic resources should be beneficial for its long-term maintenance and retention of historic character. The treatment of the primary structures depends on their condition and level of contribution to the historic district.

The primary buildings, from best to worst condition and adaptability, are the Hawthorn House, Garage, Cottage, and Lower Barn. The Hawthorn House and Garage are the most intact and adaptable structures and the surrounding circulation including site entries and drives provides fairly easy access. Future reuse schemes should consider the significance of the site; its conditions; the interests of the District, a potential development partner, and the community; and code issues including local planning, building, and fire requirements.

The Cottage, though in poor condition, is small enough that funds might easily be raised to rehabilitate it for interpretation and exterior viewing. The Lower Barn, which is in the worst condition and is an unlikely candidate for reuse, should be minimally rehabilitated for exterior viewing and interpretation. The various outbuildings are in very poor condition and constitute a long-term maintenance issue due to safety and fire hazards as abandoned dilapidated structures. If demolition is considered, the impact on the historic district should be assessed and discussed with the Town of Portola Valley to determine whether environmental review and mitigation, such as documentation, are required.

# VII. APPENDIX

## A. Methodology of Structure Conditions Assessment

The project team first reviewed background documents and considered the site's history and development as established by the Historic Resource Study completed as part of the overall assessment of the site. Using this background information, the project team evaluated the current conditions of the site utilities, buildings, and building infrastructure.

### Fieldwork

Fieldwork documentation included as-built drawings, photographs, and observation of conditions. As-built drawings were prepared by NV5 using high-resolution scanning to capture the site's features and buildings. Property scans contain detailed information from which basic elevations and plans and related interior photographs were extracted. This information was converted to computer-aided drafting (CAD) drawings. If required in the future, the source scan file can be tapped for more detailed information, which may be of use to a potential partner for site development. The drawings provided by NV5 were invaluable to the project team for the conditions survey. Since the property does not have live electrical power, the project team used flashlights to survey the structures, taking photographs to document conditions. The drawings were augmented and revised by Knapp Architects to better reflect the existing conditions. Photographs included in the assessment were taken by the project team in 2013 except those specifically credited within the document.

### Conditions

The site conditions assessment included review of site access and circulation, geology, sanitary sewer system, water service, storm drainage, and electrical service. The architectural, structural, mechanical, electrical, and plumbing evaluations focused on the primary historic structures, the Hawthorn House, Garage, Cottage and the Lower Barn. General observations and recommendations were made regarding the related Outbuildings. The buildings conditions assessment included review of the exterior envelope and interior finishes.

As the site has been vacant for many years, conditions ratings assume a base level of deterioration due to neglect not comparable to ratings for buildings in active use. See the introduction in the Structures Assessment Section V for more detail on base level deterioration and conditions ratings of buildings and features.

### Recommendations

Recommendations for reuse or stabilization (for exterior viewing) are based on the structure's condition and related adaptability. In addition, historic buildings often require special procedures, which include identification and abatement of loose and peeling lead-based paint, mastics, and asbestos; removal of pest droppings that contain hazardous viruses; and eradication of rodents and/or relocation of other animals. Recommendations assume the property is a historic resource potentially eligible to the National Register of Historic Places and similarly to the California Register of Historic Resources as a historic district based on the findings of the related Hawthorns Historic Resource Study. As such, recommendations include the application of the California Historical Building Code (CHBC), which may be applied to qualified historical buildings or properties with approval of local jurisdictions.