Attachment 9

Interactive Resources Group, Historic Resource Evaluation, September 2016

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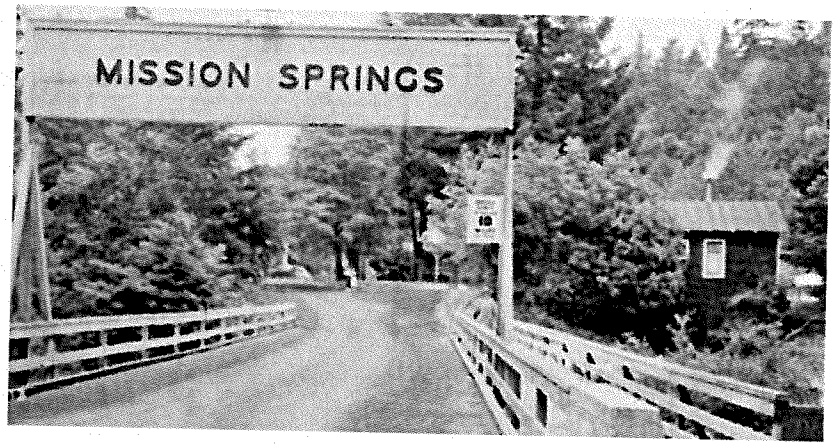
HISTORIC RESOURCE EVALUATION

Mission Springs Camps and Conference Center
1050 Lockhart Gulch Road
Scotts Valley, CA 95066

September 6, 2016



Prepared for
Mission Springs
1050 Lockhart Gulch Road
Scotts Valley, CA 95066

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INTERACTIVE
RESOURCES
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Architects & Engineers

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Introduction

At the request of Mission Springs and the County of Santa Cruz, Interactive Resources, Inc. (IR) has undertaken a Historic Resource Evaluation of thirteen structures located within the Mission Springs Camps and Conference Center (Mission Springs) campus on Lockhart Gulch Road, in unincorporated Santa Cruz County, California. As part of the environmental review process for the proposed Mission Springs Camps and Conference Center Use Permit Amendment project, the County has requested that a historic resource evaluation be completed addressing the structures that are proposed to be altered or demolished and were constructed over fifty years ago. This report is intended to provide a historical evaluation of the specified buildings through a thorough analysis of the property, its history, and its historical associations in order to determine if any qualify as historical resources as defined by the California Environmental Quality Act (CEQA). The evaluation addresses the significance criteria of the National Register of Historic Places, the California Register Historical Resources and the Santa Cruz County historic resource inventory.

Methodology

IR prepared this historic resource evaluation by reviewing existing materials provided by the client, undertaking targeted archival research, and conducting a site visit to inspect the property and buildings and take photographs. Archival research was carried out at the Santa Cruz County Zoning and Planning Department and the Recorder and Assessor's Offices, and through numerous on-line sources. The site visit was conducted on July 14, 2016.

Records Search

A records search was conducted at the Northwest Information Center of the California Historical Resource Information System (CHRIS) in Rohnert Park, California.

As part of the records search, IR also reviewed the following local and state inventories for built environment cultural resources in and adjacent to the study area:

- *California Inventory of Historic Resources* (California Department of Parks and Recreation 1976);
- *Five Views: An Ethnic Historic Site Survey for California* (California Office of Historic Preservation 1988);
- *California Points of Historical Interest* (California Office of Historic Preservation 1992);
- *California Historical Landmarks* (California Office of Historic Preservation 1996);
- *An Architectural Guidebook to San Francisco and the Bay Area* (Cerny 2007); and
- *Directory of Properties in the Historic Property Data File* (California Office of Historic Preservation April 5, 2012). The directory includes the listings of the NRHP, National Historic Landmarks, the CRHR, California Historical Landmarks, and California Points of Historical Interest.

Literature and Map Review

IR reviewed the following publications, maps, and websites for historical information about the study area and its vicinity:

- *California Place Names* (Gudde 1998);
- *Historic Spots in California* (Hoover et al. 1990);
- *California 1850: A Snapshot in Time* (Marschner 2000);
- *Historical Atlas of California* (Hayes 2007);
- *Santa Cruz Quadrangle, California.*, 60-minute topographic quadrangle (U.S. Geological Survey 1902);
- *Felton, Calif.*, 7.5-minute topographic quadrangle (U.S. Geological Survey 1955, 1968, 1980, 1991);
- *Historical aerial photographs of Scotts Valley* (Nationwide Environmental Title Research, 1953, 1968, 1991, 2005, 2009, 2010, and 2012);
- University of California Santa Cruz Digital Collections, Map Library Collections at http://digitalcollections.ucsc.edu;
- *An Architectural Guidebook to San Francisco and the Bay Area* (Cerny 2007);
- Online Archive of California at http://www.oac.cdlib.org;
- Calisphere at http://www.calisphere.universityofcalifornia.edu; and
- The Scotts Valley History Web at http://history.scottsvalleychamber.com.

Evaluation Summary

CEQA defines a "historical resource" as any resource that meets one or more of the following criteria:

- Listed in, or eligible for listing in, the California Register of Historical Resources;
- Listed in a local register of historical resources;
- Identified as significant in an historical resource survey meeting the requirements of section 5024.1(g) of the Public Resources Code; or
- Determined to be an historical resource by a project's lead agency.

The following evaluation was based on the eligibility criteria for the National Register of Historic Places (NRHP) which requires that the resource be at least fifty years old (except under special circumstances), that it retain its historic integrity, and that it be significant under at least one of four criteria. These four criteria include: association with historic events, association with important persons, distinctive design or physical characteristics, and the potential to provide important information about history or prehistory. In determining National Register eligibility, the author weighed known historical associations, architectural merit, and the current level of integrity. The historic significance of the properties was also evaluated using the established criteria of the California Register of Historical Resources (CRHR) in order to assess eligibility for listing in the state register. Finally, the County of Santa Cruz maintains an inventory of

historic resources which identifies significant historical resources in the unincorporated portion of the County. The County's specific criteria for listing were also used to evaluate the subject properties.

None of the properties are currently listed in the NRHP, the CRHR or the County of Santa Cruz Historic Resource Inventory, and it does not appear that the properties have been previously evaluated. After conducting a thorough evaluation of the properties, it appears that none of the subject buildings are individually eligible for listing in the national, state or local inventories due to a lack of individual significance. Further, while a potential Mission Springs Historic District, focusing primarily on the surrounding seasonal cabins, might be eligible for listing; it does not appear that any of the subject buildings would contribute to a potential district because the subject properties were either constructed outside of the proposed period of significance or lack historic integrity. Therefore, the subject buildings do not appear to be historical resources for the purposes of CEQA (CCR Title 14(3) §15064.5).

Historical Context

Summary History of the Scotts Valley Region

In the early 1830s, Jose Antonia Bolcoff was granted Rancho San Augustin, an approximately 4,400 acre region that encompassed today's City of Scotts Valley and the surrounding region, including the land that would become Mission Springs. In 1841, Rancho San Augustin then transferred to Joseph Ladd Majors, whom was married to Bolcoff's sister-in-law. Majors maintained a large ranch where he raised livestock, operated a distillery and grew wheat.

In 1846, Majors sold Rancho San Augustin to Hiram Daniel Scott. Scott brought his family out from Maine and in 1856, transferred the property to his father, Daniel Scott. Most of the property was then subdivided between Hiram's father and brothers, whom further divided and sold off parcels over the ensuing decades. Maps indicate that the land that would become Mission Springs was purchased by Matilda Eaton prior to 1880.

In 1858, a turnpike was constructed from Santa Cruz through Scotts Valley, making Scotts Valley a stagecoach stop and a commercial center for the region. By the late 1880s, land in the Scotts Valley area was predominately being used for dairy ranching, although other types of ranches and farms still persisted. The region remained mostly agricultural until the 1930s, when other area industries focused primarily on tourism or the area's natural resources began to develop. A State Highway replaced the old stage coach route in the 1920s leading to the increase in tourist-related industries such as stores, gas stations, motels and novelty attractions. Industrial development centered on natural resources and included quarries, sawmills and lumberyards.

Growth in the region continued after World War II with the establishment of a municipal airport (operating from 1962-1983) and the development of an electronics industry. Although Santa Cruz looked to annex Scotts Valley in the early 1960s, those plans never came to fruition and Scotts Valley incorporated in 1966. Scotts Valley has developed in a small bedroom community primarily for

commuters to the south San Francisco Bay area. The Scotts Valley boundaries exclude the Mission Springs site, and the subject property remains as unincorporated land within the County of Santa Cruz. [1]

Summary History of the Mission Springs Camps and Conference Center Property

In the mid-1870s, Samuel and Matilda Lockhart acquired property it the Scotts Valley region that would eventually become the site of Mission Springs. Santa Cruz County maps from 1880 and 1906 indicate that the subject property was transferred to Matilda and that she remarried farmer John Eaton. It is unknown exactly what type of farming the family engaged in, however it possibly could have been dairy ranching which was very common in the area.[2] Census records through the 1920s indicate that the property owners, whom were related to Matilda Lockhart Eaton, where "home farmers." In 1920, Clara Eaton Ryder (daughter of Matilda) moved back to her family property and is listed as living with her husband William Henry Ryder, her mother Matilda Eaton, her son George Ryder and Horace S. Lockhart a brother-in-law. Post-1921, following Matilda Lockhart Eaton's death the property was transferred to Mr. and Mrs. George L. Houghton.

In the early 1920s, a Swedish religious group known as the California Mission Sunday School and Young People's League (League) held several conferences throughout California focused on growing their organization. The League's objective was stated to "promote earnest Christian living among its members by conventions, conferences, etc., and to do aggressive Christian work through such missionary and evangelistic efforts as the League shall find most expedient." As part of their efforts the group established a committee to "work for the future plan of a suitable summer camp where conferences would be held and other meetings arranged for." After searching throughout the Santa Cruz Mountains, the League finally found a suitable property known as the "old Lockhart Ranch" on the west side of Scotts Valley. A swindler first tried to scam the League in their process to purchase the property, but the League prevailed and purchased the first forty-five acres of what was to become Mission Springs from Adele C. and William Ferrell, the daughter and son-in-law of George L. and Ellie C. Houghton for $6,000 in 1925.[3]

The League named the property Mission Springs, as was suggested by Carolyn Engstrom of Oakland, and promptly began planning the development of the site. In an effort to raise money to make needed improvements and build the infrastructure, the League hired Lloyd Bowman to survey and divide the property into over 200 parcels in order to establish small lots of less than an acre a piece to be leased to private parties for a period of 99 years. The leases originally averaged $125 per lot and the owners

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[1] The summary history of the Scotts Valley region was taken from several sources including: H. H. Bancroft, *History of California, Vols. III-V. The Works of Hubert Howe Bancroft, Volume XXII,* (San Francisco, CA: The History Company, Publishers, 1886); Gloria Anne Laffey, *Evaluation of Potential Historic Structures in the City of Scotts Valley,* (February, 1990), online at http://history.scottsvalleychamber.com/history/history/page41/page41/htm accessed August 2016; and Douglas E. Kyle, *Historic Spots in California,* revised edition, (Palo Alto, CA: Stanford University Press, 2002), 455.

[2] 1870 United State Federal Census, electronic document, www.ancestry.com; Alexius, *Mission Springs,* (Sacramento, CA, May 1944); T. W. Wright, Map of Santa Cruz County, 1880-1881, (1880), Sheets 23 and 26; and Punnett Brothers, *Official Map of the County of Santa Cruz,* (San Francisco, CA, 1906).

[3] Alexius, *Mission Springs.*

typically designed and constructed their own small cabins on the parcels.[4] Post-1950, Missions Springs expanded with the acquisition of property to the north and east of the original forty-five acres. By 1976, Mission Springs included approximately 200 acres, after having purchased surrounding properties from owners such as Bibbler, Rodriquez, Steiner, Beach and Nelson-Wells, and today the total size of the property is closer to 300 acres.[5]

Initially the existing buildings from the Houghton ranch, including a farmhouse, a barn and the old Lockhart cabin, were renovated and employed for use by the League. During the first few years of Mission Springs, the numerous development projects included the construction of a bridge, dormitories, comfort stations, and spaces and buildings for worship. By 1944, the League owned forty-nine acres and buildings on the property included: the Tabernacle, the Manager's Building, the Memorial Hall (which was the rehabilitated Houghton farmhouse), the Cafeteria and Gift Shop, three dormitories, several comfort stations, seven single cabins, and two double cabins. The main buildings were constructed around a central lawn area. Finally, surrounding the Conference Center grounds there were seventy-three private cabins that had been constructed by lessees.

The next wave of development occurred from the mid-1950s through the mid-1960s. The swimming pool and pool house were constructed in an area known as Mission Woods, on property formerly owned by Albert R. Inscho. Then following the loss of both Memorial Hall (the original Houghton farmhouse) and Laurel Lodge due to fires, several new buildings were constructed including: Fireside Hall, Laurel Lodge, Fir, Pine, Oak and Hemlock cabins, Redwood Chapel and the Worship Center. In 1967, Mission Springs expanded further with the development of the Frontier Ranch youth camp located northeast of the original property boundaries.

Numerous hardscape improvements were undertaken in in mid-1970s at the area just west of the main central lawn, including the construction of paved walkways, planters and the information kiosk. Over the years, Mission Springs has purchased or been donated many of the private cabins close to the Conference Center grounds. In some cases, Mission Springs has used the cabins for additional housing and elsewhere they have converted the buildings into offices for the Conference Center. Much of the recent development projects have been undertaken at the Frontier Ranch area of the property, with a new lodge having been completed in 2003. Closer to the Conference Center grounds, two new bridges were constructed in 2008 and 2011, and a new waste water treatment facility was installed in 2014. Currently, renovations to return the Tabernacle to a worship center are underway.

Mission Springs Major Building Chronology

1925 45 acres purchased by the Swedish Evangelical Missionary Association of California for the Sunday School and Young People's League.

1926 The property was surveyed, roads were established, and 213 lots were plotted.

[4] Lloyd Bowman, Surveyor, *Subdivision No. 1 of Mission Spring Conference Ground*, (Santa Cruz County, July 1926); and Vi Martinson and Esther Anderson, *Mission Springs*, (San Jose, CA, February 1976).
[5] Alexius, *Mission Springs*, 26; and Frontier Ranch website http://www.frontier-ranch.com/about/history.

Construction included: the first bridge over Lockhart Creek, roads, two dormitories, a water reservoir, and the renovations of the existing Houghton farmhouse and barn. Builder C. A. Hillberg supervised the construction of the new buildings.

Residents whom had leased lots began construction of individual cabins.

Three cabins were built at the Auto Camp by volunteers.[6]

1927 First Annual Conference held at Mission Springs.

The original Lockhart cabin was moved to a new site.

Men's and Ladies' dormitories constructed under the supervision of C. A. Hillberg.

Rev. N. M. Nilsen served as the Manager of Mission Springs and oversaw much of the initial development.

1930 The Tabernacle was constructed. The building was designed by L. G. Bergren of San Francisco.[7]

The "old barn" was torn down.

J. M. Johnson a contractor from San Francisco built a cafeteria and a small dormitory and enlarged the existing dormitories.[8]

1934 The original bridge was replaced.

1944 Development on the League's forty-nine acre property that had been completed to date included: the Tabernacle, the Manager's Building, the Memorial Hall, the Cafeteria and Gift Shop, three dormitories, several comfort stations, seven single cabins, and two double cabins.[9]

1950 To date seventy-five private cabins had been constructed.

1953 The swimming pool and pool house were built on the recently acquired Mission Woods property.

1955 Memorial Hall (the original Houghton farmhouse) burns down.

1956 Construction of Fireside Hall completed on the same site as the original Houghton farmhouse.

1957 Cathedral Grove (the outdoor amphitheater) improvements completed.

1960 Oak, Pine, Hemlock and Fir Cabins were constructed with four bedrooms each. Drawings indicate the design may have been completed or at least overseen by Director Paul Nelson. Engineering was undertaken by Vincent A. Arena Structural Engineers of San Jose.[10]

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[6] Alexius, *Mission Springs,* 29.
[7] Ibid., 32.
[8] Ibid., 41.
[9] Ibid.
[10] Project drawings on file at Mission Springs.

1961 The original Laurel Lodge burns down.

1962 Redwood Memorial Chapel constructed on a site in Mission Woods.

1963 The construction of the new Laurel Lodge was completed.

The Auto Camp was converted to a trailer park, and several existing cabins were removed from the site.[11]

1964 The Worship Center was constructed on the site of the original Laurel Lodge.

1967 Frontier Ranch was established.

1969 The Tabernacle was converted from a worship center to a craft and recreation center.

1974 New mall, kiosk and hardscaping improvements to the Conference Center lawn area were completed. The design was envisioned by Director Paul Nelson.

2003 The new Frontier Lodge was completed at Frontier Ranch.

2008 A new bridge was constructed 750 feet down from the original entrance.

2011 The 1922 wood bridge was replaced with a new steel and concrete structure.

2014 The waste water treatment plant was completed.[12]

2016 Tabernacle renovations are under construction.

Architectural Context

The development of Mission Springs was originally undertaken as a volunteer effort by members of the League and most of the early designs were executed in what can best be described as the Vernacular style. The later buildings from the period ranging from the mid-1950s to mid-1960s illustrate influences of Modernism and are somewhat in the Contemporary style. No architects have been identified as having been associated with the design of any of the structures at Mission Springs. Likely there were no architects involved in the design of the early, pre-1944 buildings. Any architects employed for the later buildings have not been identified in any documentation reviewed. Few records exist on file at the County offices, limited drawings were available for review at Mission Springs, and no architects are identified in either of the Mission Springs anniversary books that were published in 1944 and 1976. It appears that much of the design work was done on a volunteer basis and by leaders of the camp working in conjunction with contractors and builders. In the case of the post-1950 buildings it is assumed that engineers were employed to ensure structural stability. Construction drawings for the Oak and Hemlock

[11] Mission Springs permit files on file at the Santa Cruz County Planning Department.
[12] Mission Springs website at http://www.missionsprings.com/history.

cabins were prepared by Vincent A. Arena, a structural engineer from San Jose. The direction of the camp and conference center development and design appears to have been primarily influenced by the organization's leaders in charge at the time. Various directors have included: Lawrence Anderson, Rev. Eldon Toll, Howard Pellon, Paul Nelson and David Olson.[13]

Vernacular/National Folk

The National Folk (circa 1850-1930) style of architecture is rooted in the Vernacular building tradition based on local materials. A useful approach to understanding what Vernacular style is, is by defining what it *is not*. That is, Vernacular architecture is not overly formal or monumental in nature, but rather is represented by relatively unadorned construction that is not designed by a professional architect. Vernacular architecture is the commonplace or ordinary building stock that is built for meeting a practical purpose with a minimal amount of flourish or otherwise traditional or ethnic influences.[14]

Vernacular crossed over into National Folk as the railroad allowed distant mills and factories to mass-produce a standardized design that spread across the United States. This new industrial-based method of home construction replaced older construction that employed heavy beams and hewn frames with balloon-framed buildings and allowed carpenters of modest skill to easily plan, build, and ornament a modern house to the limits of taste and budget.[15]

Several character-defining features of the Vernacular style include:

- Simple roofline, with a medium to low-pitch;
- Small building footprint, generally rectangular;
- Simple construction techniques and mass-produced materials; and
- Design and construction by a carpenter with no visible or discernable style.

The early buildings at Mission Springs were designed with the general characteristics of a utilitarian design. Most of the early buildings and cabins were constructed with a focus on speed, economy and simplicity, rather than on architectural design. While not all from the same time period, buildings that would fit within the Vernacular/National Folk style category include: Creekside Lounge, 306 Tabernacle Drive and 316 Tabernacle Drive. The Maintenance Office appears to have been constructed later than the buildings previously listed, but the design and form appear to follow the simplistic style of the numerous nearby Vernacular buildings.

Modern: Contemporary

The other structures that are the focus of this report (Fireside Hall, Fir, Pine, Hemlock and Ivy Cabins, the Pool House and Redwood Chapel) while still quite utilitarian, illustrate the influences of Modernism that

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[13] Martinson, *Mission Springs*, 36-7.
[14] Upton and Vlach, *Common Places: Readings in American Vernacular Architecture,* (Athens, GA: University of Georgia Press, 1986), xv-xxi, 426-432.
[15] Virginia McAlester, *A Field Guide to American Houses,* (New York, New York: Alfred A. Knopf, 1992), 88-101.

was typical of the period and commonly found throughout California. Post-war modern building designs eschewed details from Period Revival style, and focused primarily on form, simplicity and function.

Modern architecture generally includes such characteristics as:

- Simple forms;
- Overhanging eaves;
- Emphasis on horizontality; and
- Minimal ornament.

The Contemporary substyle often features elements such as gable roofs with wide overhanging eaves and exposed roof beams. Heavy piers frequently support the gables, and while wood, brick and stone may all be used for cladding, traditional detailing is typically absent.[16] The Redwood Chapel is the clearest example of the Contemporary style. The other buildings from this period such as the cabins in Mission Woods and the pool house illustrate clear influences of Modernism in general; however, none of the subject buildings designed in the Modernist-influenced style stand out as distinctive or significant for their architectural design.

Property Description

Overall Camps and Conference Center Grounds

Mission Springs Camps and Conference Center in the Santa Cruz Mountains occupies approximately 300 acres of unincorporated land in central Santa Cruz County and is situated approximately ten miles north of the City of Santa Cruz and just west of Scotts Valley. Portions of the mountainous and heavily wooded property are still largely undeveloped. The land is located primarily between Lockhart Gulch Road to the west and Nelson Road to the east, with a narrow section containing an Recreational Vehicle (RV) Camp extending west beyond Lockhart Gulch Road along the creek. The conference center is located around a flat lawn area at the southern end of the property along Lockhart Gulch Road. A bridge crosses over the creek from Lockhart Gulch Road to the conference center area which features numerous facilities surrounding the central lawn including: a dining hall, Fireside Hall, the Worship Center, the Tabernacle, several cabins, a nursery, administrative offices, Laurel and Wellander Lodges and Creekside Lounge. The hills surrounding the conference center are occupied with small single family homes and cabins along narrow winding roads, and outdoor amphitheater is nestled into the hillside to the east. Directly north and uphill of the main Conference Center grounds is the area known as Mission Woods, which contains the pool, the pool house, a small chapel, and four cabins. Northeast of the main conference center grounds are the Frontier Ranch and Wild Oak youth camp areas.

[16] McAlester, *A Field Guide*, 477-483.

Main Conference Center Grounds

Fireside Hall (APN 070-151-21)

Fireside Hall stands directly across from the vehicular bridge at the Mission Springs' southern entrance and just south of the central lawn. West of the building is the dining hall, and the basketball courts are located to the east. The single-story, wood-frame building is generally L-shaped in plan, covers 4,210 square-feet and features an asphalt shingle-clad combination gable, hipped and shed roof with exposed rafter tails at several eaves. Wide, horizontal shiplap siding clads the building's exterior, and sliding vinyl windows with flat wood surrounds are typical throughout. The foundation appears to be poured concrete with sections of decorative brickwork at the base extending into low planters at the south side. Paved concrete pathways surround the building and a raised concrete porch covered by a shed roof extension protects the primary entrance at the center of the south façade. Two pairs of double single-lite doors open off of the entry porch: one in the east façade and one in the south façade. A plywood-clad chimney stands centered at the east gable end wall and a brick chimney extends from the roof near the junction of the hip and the gable.

At the west side, the hipped roof extends past the wall and is supported by a row of wood posts creating a covered porch across the façade. Unlike the other façades, two, wood-frame, twelve-lite shop windows extend out from the west façade which also features three flush doors and one vinyl sliding window. A shed roofed addition containing toilet rooms extends out on the north side. The north façade is punctuated by two vinyl-frame sliding doors, one flush door, two bathroom entry alcove openings, one pair of single-lite double doors and two sliding vinyl windows. The front, south façade maintains three sliding vinyl windows east of the entry porch, and two combination sliding and fixed vinyl windows and one gable vent to the west of the porch. Finally, a temporary wood ramp provides an accessible route to the raised entry porch.

Maintenance Office (APN 070-161-21)

The small, single-story, hipped-roof maintenance office stands at the eastern edge of the paved basketball court, just below the Old Tabernacle. The rear, eastern wall of the structure is built into the retaining wall located along the western edge of Tabernacle Drive. The building is rectangular in plan and covers a footprint of approximately 150 square-feet. A poured concrete foundation, which steps up to the eastern retaining wall, supports the exterior walls clad in painted shiplap siding with flat corner boards. Asphalt shingles cover the roof. Wood rafter tails extend under the eave at all four sides and a gutter stretches across the eave at the front, west façade. The west façade features the only openings with one, flush door penetrated by a nine-lite window and one sliding vinyl window with false muntins. Both opening maintain flat wood surrounds.

Creekside Lounge (APN 070-151-21)

The single-story Creekside Lounge and Outdoor Education Center stands northwest of the conference center lawn, north of the Worship Center and just south of the northern vehicular bridge entrance. The wooded site slopes steeply to the west down to Lockhart Gulch, and an asphalt-paved parking lot and driveway abuts the front, east side of the building. Rectangular in plan, the building features a simple

asphalt-shingle clad gable roof with exposed rafter tails; is rectangular in plan; and covers an area of approximately 1,200 square feet. Small sections of the roof extend to provide awnings over the two entrances in the east façade and the bay window at the west façade. The south and east façades are clad in horizontal shiplap siding with a half round profile to give the appearance of wood log construction. Narrow, vertical wood boards clad the north and west façades, and a mural has been painted atop the cladding at the north gable end wall. The building is supported by a wood post and beam system on concrete footings and maintains a wood deck at the south end.

The front, east façade is punctuated by one flush door and a pair of doors including one flush and one with nine lites. Each door opening is flanked by two, wood-frame, twelve-lite windows extending out from the face of the wall. A brick veneer accents the base of the east wall and a gutter runs the length of the eave. A vinyl sliding door pierces the south gable end wall providing access to the deck; and three window openings penetrate the west façade: one sliding vinyl, one combination fixed and single-hung vinyl bay window, and one sliding window.

While indisputable evidence has not yet been found, historic photographs indicate that the Creekside Lodge may have been converted from the original Men's Dormitory. The buildings appear to be in a similar location, be of generally the same size and form, and to have had the same exterior cladding (see Figures 13 and 14). If these are the same building, then significant alterations have occurred including: change to the eastern roofline, the replacement of cladding on the north and west facades, and the replacement of doors and windows.

306 Tabernacle Drive, Ivy Cabin (APN 070-162-43)

The cabin at 306 Tabernacle Drive is sited at the upper end of a steeply sloped and wooded parcel across the parking lot and Tabernacle Drive from the Creekside Lounge and is flanked by two cabins. A narrow path and stair lead from the street up to the cabin. The small, single-story building is L-shaped in plan and covers an area of approximately 330 square-feet. Asphalt shingles clad the gable roof with projecting eaves and exposed rafters. Horizontal clapboard composite siding and shiplap wood siding cover the exterior walls in addition to a section of vertical board and an area of exposed building paper. The building is of wood frame construction and sits on a concrete footing foundation. The north, front façade is punctuated by a one-lite-over-three-panel wood door protected by a wall-mounted shed-roofed awning; a pair of three-lite-over-one-lite wood windows with flat wood surrounds to the west of the door; and one six-lite wood window with no trim to the east. The west façade is pierced by another pair of three-lite-over-one wood windows and one six-lite wood window; both windows feature flat wood surrounds. A partially enclosed hot water heater stands at the south gable end wall adjacent to a sealed off door opening. Finally, a six-lite wood window with flat wood surrounds penetrates the south façade near the east corner, and no openings are located in the east wall.

316 Tabernacle Drive Cabin (APN 070-162-42)

The cabin at 316 Tabernacle Drive stands between 306 Tabernacle Drive (Ivy Cabin) and Laurel Lodge. The steeply sloped and heavily wooded parcel maintains a raised single-story residence that is approximately 720 square-feet in size. The building, sited among several large redwoods, is L-shaped in plan with an asphalt shingle-clad cross-gable roof and an L-shaped, flat-roofed covered deck over a

carport and storage room addition to the southwest. Concrete steps lead from the Tabernacle Drive up to the deck and front entrance. The house maintains a variety of siding types including: vertical T-111 board, vertical board and batten, shiplap with a half round profile and V-groove shiplap. The majority of the fenestration consists of replacement sliding vinyl window units with flat wood surrounds. However, the north façade is punctuated by three wood windows: one six-lite and two nine-lite units. Additionally, three skylights have been installed at the roof. Concrete footings are visible beneath posts at the deck and a segment of a poured concrete foundation is extant under the main house. One flush door provides access from the deck at the west side and a modern fiberglass door serves as the main entrance in the south façade.

Mission Woods

Pool House (APN 070-121-29)

The pool and pool house are located north of and at a higher elevation than the main conference center grounds in the area known as Mission Woods. Located at the end of Tabernacle Drive, the pool area and the adjacent asphalt-paved parking lot are set within a heavily wooded landscape. A chain-link fence surrounds the concrete paved pool deck. The L-shaped pool occupies the northeast corner of the site with a three-quarters circular-shaped baby pool to the south and the single-story, rectangular pool house at the western edge. The 1,080 square-foot pool house features a shed roof with overhanging eaves and exposed rafters at the east and west sides, and horizontal shiplap siding at the exterior walls. The structure consists of wood framing on top of a poured concrete foundation.

The east, front façade faces the pool and is punctuated by an opening for the snack bar counter at the south end, one two-lite wood window with obscured glass, one window opening with plywood infill and two rows of wood-frame clerestory windows with wire mesh infill. Between the two spans of clerestory windows, a small shed-roofed storage closet projects out from the façade and is flanked by two wing walls that screen low concrete ramps and locker room entrances. The narrow south façade is punctuated by two opening with flat wood surrounds: one flush door and one opening for the snack bar counter. The rear, west façade features two doors and another opening for the snack bar with narrow, molded wood trim. A narrow, plywood shed stands at the plain north end wall.

Redwood Chapel (APN 070-121-29)

Standing alone at the top of a steep driveway just west of and downhill from the pool facility is the 1,240 square-foot Redwood Chapel. The single-story building is rectangular in plan with an asphalt shingle-clad gable roof and a poured concrete slab foundation. The roof features wide overhanging eaves with exposed rafters, a plain wood fascia and an extension supported by wood posts at the northeast corner to provide a cover over an exterior concrete patio. The building is clad in vertical board and batten siding, except at the front entry configuration. The main entrance is centered on the south, front façade beneath a wide eave and pronounced wood beam, and consists of a center bay with a pair of flush doors topped by a fixed single-lite transom and an expanse of natural-finished horizontal siding above. Flanking the center bay are two five-lite fixed wood-framed windows spanning from the floor to the ceiling and infilled with glass of alternating colors. Two stone-clad piers extending out from the face of the wall complete the chapel entrance which is lit at the exterior by a hanging globe light fixture.

The east façade is punctuated by three sliding aluminum-frame windows, one aluminum-frame sliding glass door, and one flush door. The openings all feature simple flat wood trim. There are no openings in the north façade. A brick chimney stands near the north end of the west façade which also includes a built-in exterior wood storage unit, three aluminum-frame sliding windows, two small jalousie windows and two flush doors.

Fir and Pine Cabins (APN 070-121-29)

The Fir and Pine cabins are situated just south of and downhill from Redwood Chapel on a flat clearing. A gravel parking area covers the site west of the cabins and a wooded hillside slopes up to the east, behind the cabins. The two single-story buildings are rectangular in plan with asphalt shingle-clad gable roofs with exposed rafter tails and a roof extension supported by a wood post and beam structure at the entry porches. The buildings are essentially identical and are sited at a slight angle from each other, following the terrain of the hillside. The wood-frame structures are supported by a poured concrete foundation and are clad in shiplap wood siding with vertical wood board at the upper section of the gable end walls. The fenestration consists of both aluminum and vinyl sliding windows with flat wood surrounds. One flush wood door punctuates the north, south and west façade of each cabin. Lastly, a small, plywood-clad shed-roofed utility closet with a single-panel wood door extends out from the east side of each building.

Hemlock and Oak Cabins (APN 070-121-29)

The Hemlock and Oak cabins are located on Tabernacle Drive directly east of and downhill from the Fir and Pine cabins, and present a very similar design to the Fir and Pine cabins as well. Nestled among a grove of redwoods, the wood-frame buildings stand on poured concrete foundations and feature gable roofs with exposed rafter tails and a roof extension supported by a wood post and beam structure at the front entry porch. The cabins are clad in wood shiplap siding with vertical wood boards at the upper sections of the gable end walls, and they maintain flush door with molded wood surrounds at the front façades and flat wood trim at all other façades. A combination of steel multi-lite fixed and casement windows punctuate the exterior walls and are surrounded with flat wood trim only at the front façades. A small, shed-roofed, plywood-clad utility closet stands at the north end of the Oak cabin, and a section of the rear wall of the Hemlock cabin was replaced with plywood cladding and small sliding vinyl window.

RV Park (Auto Camp)

Cabins (APN 070-141-06)

Three, small single-story buildings stand at the northwest end of the RV parking lot, just east of the creek among large redwood trees. The cabins are rectangular in plan and each footprint covers an area of approximately 70 square-feet. The simple shed roof structures appear almost identical and are sited with the front façades of two facing east and the front façade of one facing west. Standing on wood foundations, the cabins are connected at the exterior by a raised wood deck.

Each building is clad in painted plywood sheets with flat wood corner boards. Rolled asphalt roofing covers the shed roofs. The shed roofs of the two western cabins slopes down to the west and the shed roof on the eastern cabin slopes to the east. Exposed rafters extend to the plain fascia board at the high end of

the shed roofs. The front, deck-facing facades each feature one door opening with a flush door below a two-lite sliding vinyl window. A wall-mounted light fixture extends from the wall adjacent the doorway at each cabin. There are no openings in any of the side façades, and one large two-lite sliding vinyl window penetrates each of the back façades.

Evaluation Criteria

National

National Register Bulletin Number 15, *How to Apply the National Register Criteria for Evaluation*, describes the Criteria for Evaluation as being composed of two factors. First, the property must be "associated with an important historic context."[17] The National Register of Historic Places identifies four possible context types, of which at least one must be applicable at the national, state, or local level. As listed under Section 8, "Statement of Significance," of the National Register of Historic Places Registration Form, these are:

> "A. Property is associated with events that have made a significant contribution to the broad patterns of our history.
>
> "B. Property is associated with the lives of persons significant in our past.
>
> "C. Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
>
> "D. Property has yielded, or is likely to yield, information important to prehistory or history."[18]

Second, for a property to qualify under the National Register's Criteria for Evaluation, it must also retain "historic integrity of those features necessary to convey its significance."[19] While a property's significance relates to its role within a specific historic context, its integrity refers to "a property's physical features and how they relate to its significance."[20] To determine if a property retains the physical characteristics corresponding to its historic context, the National Register has identified seven aspects of integrity. These are:

> "Location is the place where the historic property was constructed or the place where the historic event occurred...
>
> "Design is the combination of elements that create the form, plan, space, structure, and style of a property...

[17] *How to Apply the National Register Criteria for Evaluation*, National Register Bulletin, no. 15 (Washington, D.C.: United States Department of the Interior, 1997), 3.
[18] *How to Complete the National Register Registration Form*, National Register Bulletin, no. 16A (Washington, D.C.: United States Department of the Interior, 1997), 75.
[19] *How to Apply the National Register Criteria for Evaluation*, 3.
[20] Ibid., 44.

"Setting is the physical environment of a historic property...

"Materials is the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property...

"Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory...

"Feeling is a property's expression of the aesthetic or historic sense of a particular period of time...

"Association is the direct link between an important historic event or person and a historic property."[21]

Since integrity is based on a property's significance within a specific historic context, an evaluation of a property's integrity can only occur after historic significance has been established.[22]

Criteria Consideration A

Certain types of properties are not usually considered eligible for listing in the National Register. One of these types is religious properties. Religious properties can only be found eligible for listing in the National Register if they meet specific criteria consideration as published in the CFR Title 36, Part 60. A religious property must derive its primary significance from architectural or artistic distinction or historical importance outside of its religious significance. This requirement is based on the avoidance of any appearance of judgment by the government about the validity of any religion or belief. The subject buildings at Mission Springs would be required to meet Criteria Consideration A because the building were constructed by a religious institution and are presently owned by a religious institution. A religious property can be found eligible if it meets any of the three following requirements:

- It is significant under a theme in the history of religion having secular scholarly recognition; or
- It is significant under another historical theme, such as exploration, settlement, social philanthropy, or education; or
- It is significantly association with traditional cultural values.[23]

State

California Office of Historic Preservation's Technical Assistance Series #6, *California Register and National Register: a Comparison*, outlines the differences between the federal and state processes. The context types to be used when establishing the significance of a property for listing on the California Register of Historical Resources are very similar, with emphasis on local and state significance. They are:

[21] Ibid., 44-45.
[22] Ibid., 45.
[23] Ibid., 26.

"1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States; or

"2. It is associated with the lives of persons important to local, California, or national history; or

"3. It embodies the distinctive characteristics of a type, period, region, or method of construction or represents the work of a master, or possesses high artistic values; or

"4. It has yielded, or is likely to yield, information important to prehistory or history of the local area, California, or the nation."[24]

Integrity must also be determined for a property to be listed on the state register. The California Register of Historical Resources maintains a similar definition of integrity, while provided for a slightly lower threshold than the National Register.

In addition to separate evaluations for eligibility to the California Register, the state will automatically list resources if they are listed or determined eligible for the NRHP through a complete evaluation process.[25]

Unlike the National Register, the California Register does not maintain a Criteria Consideration for religious properties. The only Criteria Considerations under the California Register are for moved resources, resource less than fifty years old and reconstructed building.[26]

Local

Santa Cruz County Code, Chapter 16.42, Section 050 establishes ratings of significance and criteria for listing properties and districts in the Santa Cruz County historic resources inventory. "Structures, objects, sites and districts shall be designated as historic resources if, and only if, they meet one or more of the following criteria and have retained their architectural integrity and historic value:

1) The resource is associated with a person of local, State or national historical significance.

2) The resource is associated with an historic event or thematic activity of local, State or national importance.

3) The resource is representative of a distinct architectural style and/or construction method of a particular historic period or way of life, or the resource represents the work of a master builder or

[24] *California Register and National Register: A Comparison*, California Office of Historic Preservation Technical Assistance Series, no. 6 (Sacramento, CA: California Department of Parks and Recreation, 2006), 1.
[25] All State Historical Landmarks from number 770 onward are also automatically listed on the California Register. (*California Register of Historical Resources: The Listing Process*, California Office of Historic Preservation Technical Assistance Series, no. 5 [Sacramento, CA: California Department of Parks and Recreation, n.d.], 1.)
[26] *California Register and National Register: A Comparison*, 3.

architect or possesses high artistic values.

4) The resource has yielded, or may likely yield, information important to history.

Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource is eligible for listing on the National Register, meets the criteria for listing on the California Register (Pub. Res. Code §5024.1, Title 14 CCR, Section 4852), or is eligible for designation as a local landmark.

Evaluation of Significance

Current Designations

None of the subject buildings are currently listed individually or as contributing structures to a district on the National Register or the California Register, or identified in the County inventory.

Age

The first consideration for determining a property's eligibility is age. Typically, a resource must be at least fifty years old to be included in either the National Register or the California Register. Most of the subject buildings appear to have been constructed prior to 1966 and are therefore greater than fifty years old. The buildings that meet the age requirement include: Creekside Lounge, 306 Tabernacle Drive, 316 Tabernacle Drive, Fireside Hall, the pool house, Redwood Chapel, Fir and Pine cabins, and Hemlock and Oak cabins.

No documentation has been found to confirm the construction dates of the Maintenance Office and three cabins at the RV Park. A thorough inspection of historic photographs in combination with the on-site analysis indicates that the Maintenance Office was likely constructed in the 1960s or later. At this time there is no definitive proof that the building is fifty years old. In regards to the cabins at the RV Park, there also is no definitive proof as to the exact age of the buildings. Most likely they were constructed post-1962, when several existing cabins were demolished and a use permit for a trailer park was issued. Given the type of construction and the lack of any similar detailing to any other buildings at the Mission Springs grounds it is unlikely that these cabins are meet the minimum age requirement.

District Evaluation: Mission Springs Camp and Conference Center

After reviewing the history of the property and conducting a intensive site visit, it appears that it would be most appropriate to evaluate the site for eligibility as a historic district. A historic district "possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development."[27] None of the buildings assessed at the Mission Springs Camp and Conference Center appear to be *individually* eligible for listing in the national, state or local registers for historical associations, associations to significant persons or for individual architectural distinction. However, there appears to be the potential for a historic district due to the

[27] *How to Apply the National Register Criteria for Evaluation*, 5.

concentration of buildings united historically by the establishment of the Mission Springs Camp and Conference Center. As a district, portions of the Mission Springs Camp and Conference Center property appears to be potentially significant under Criterion A/1/2 within the context of associations with events that have made a significant contribution to the broad patterns of local or regional history, as well as under Santa Cruz County Criteria 3 as a resource that is representative of a distinct construction method of a particular historic period or way of life.

Criterion A (NRHP) / 1 (CRHR)/ 2 (Santa Cruz County): The Mission Springs Camp and Conference Center was developed on a former ranch property in the mid-1920s as a religious camp for a community affiliated with the Swedish Evangelical Missionary Association of California. Mission Springs was constructed in a mountainous and heavily wooded region of unincorporated Santa Cruz County, just west of Scotts Valley. In order to bolster the financial resources available for the development of the camp, much of the original forty-five acres were subdivided into parcels averaging one-half acre a piece and leased to individuals associated with the organization for the construction of seasonal cabins. The Mission Spring's buildings were originally constructed around the flat lawn area in the southwest section of the property, while the single-family cabins were established along winding streets throughout the hills surrounding the camp. By the end of the first twenty-five years of development, this unique community in the Scotts Valley area with strong ties to Californians of Swedish heritage and consisting of a religious camp and conference center grounds surrounded by seasonal cabins was firmly established and maintained a strong and distinct identity within the region. A second wave of development of the camp and conference center occurred post-World War II, following the loss of several original buildings due to fire and with the onset of a campaign to purchase more property and expand the camp facilities. The camp and conference center continues to function today with the same religious mission on which it was originally founded.

As an insularly developed community with significant ties to immigrants of Swedish heritage and within the context of early community development within the Santa Cruz Mountains and Scotts Valley area, it appears that as a district the initial construction (the first twenty five years) at Mission Springs, focusing primarily on the residential construction, maintains strong associations with events that have made a significant contribution to the broad patterns of local history, and the cultural heritage of Santa Cruz County. Therefore, it appears that the property would be potentially eligible for listing under Criterion A/1/2.

Criterion B (NRHP) / 2 (CRHR)/1(Santa Cruz County): While many people were involved the establishment of Mission Springs, research has not shown the property to be directly associated with the lives of persons significant in our past within a local, state or national context. Therefore, it appears that the property would not be eligible for listing under Criterion B/2.

Criterion C (NRHP) / 3 (CRHR)/3 (Santa Cruz County): Many of the buildings at Mission Springs can best be described as Vernacular/National Folk in style, with most of the post-World War II buildings maintaining many characteristic of the Modern/Contemporary styles. None of the individual designs appear to be unique or exceptional examples of their style or type within the scope of American or Californian architectural history or within the smaller regional context. No architects, planners or master

builders have been identified as having been associated with the overall layout or any of the subject structures at Mission Springs.

As individual examples of an architectural style, the buildings at Mission Springs lack significant distinction; however as a potential district the community as a whole, inclusive of the seasonal cabins, does illustrate a unique development method with the formation of the camp and conference center surrounded by individually-constructed single-family cabins in varying designs located throughout the surrounding hills. In particular at the County level, the potential district does appear to be "representative of a distinct… construction method of a particular historic period or way of life," with an entire community established in the early twentieth century consisting of seasonal cabins, Vernacular in style, and constructed by individuals connected to Mission Springs and the Swedish Evangelical Missionary Association of California. Therefore, the individual subject buildings appear to not meet the level of significance for listing relative to design under Criterion C/3. However, Mission Springs as a potential district focusing primarily on the earliest seasonal cabins maintains unique planning and development patterns that appear potentially eligible under Criterion C/3 and at the County level under Criteria 3.

Criterion D (NRHP) / 4 (CRHR): It does not appear that the buildings at Mission Spring have yielded, or are likely to yield, information important to prehistory or history of the local area, California, or the nation, and therefore do not appear significant under Criterion D/4.

Criteria Consideration A

Mission Springs was developed as a religious camp and conference center and still serves as a religious facility today. Therefore, it is important to note that in order to be eligible for the NRHP the property must meet Criteria Consideration A. If the potential district were to be found eligible for listing in the NRHP it could only be determined significant under the general historical theme of settlement and development, and could not be found significant based solely on the site's religious history. However, for the purposes of CEQA, a resource is not required to meet the high standards of the national criteria for listing, but only needs to meet the eligibility requirements for listing on the state or local registers, which do not have any criteria considerations for religious properties.

Period of Significance

The period of significance refers to the span of time during which significant events and activities occurred. Under Criterion A (NRHP)/ 1 (CRHR)/ 2 (County of Santa Cruz) and Criterion C (NRHP)/ 3 (CRHR)/ 3 (County of Santa Cruz) the period of significance for the potential Mission Springs Historic District appears to be during the first phase of development of the original forty-five acres spanning from 1926, the date which construction of the camp and conference center began, to circa 1950, the date when Mission Springs began to purchase additional properties and expand the camp facilities. The first phase of development is directly tied to the establishment of Mission Springs, the transformation of the property from a ranch to a religious camp and conference center, the initial layout of the campus and the construction of the surrounding individual seasonal cabins. The period from 1926-c.1950 encompasses the era during which the development of the site made a significant contribution to the broad patterns of

local history, the cultural heritage of Santa Cruz County, and illustrates a unique way of life of the early community members associated with Mission Springs and the League.

Contributing Resources

A contributing resource is any building, structure, object or site within the boundaries of a defined historic district which reflects the significance of the district as a whole, either based on historic associations, historic architectural qualities or archaeological features. A district may be considered eligible even if all of the components lack individual distinction, provided that the grouping achieves significance as a whole within its historic context.

The potential Mission Springs Historic District would consist of an integrated collection of buildings rather than of individual resources. Resources that would contribute to the potential Mission Springs Historic District are buildings that were constructed or renovated within the period of significance from 1926-c.1950; are located on the original forty-five acres (see Figure 33 below for an approximation of the potential boundary); and maintain historic integrity. The majority of the potential contributing resources would consist of the seasonal cabins constructed surrounding the camp and conference property that were leased to help fund the initial development. The three buildings that are the subject of this report and appear to fall within the period of significance and are located on the original forty-five acres include:

- Creekside Lounge
- 306 Tabernacle Drive, Ivy Cabin
- 316 Tabernacle Drive Cabin

The exact ages of the three buildings listed above have not been definitely determined through archival research. Historic photos illustrate that the Creekside Lounge may have been the Men's Dormitory at one time and certain architectural features, such as the siding indicate it was likely constructed during the proposed period of significance (see Figures 13 and 14). Also, while assessor's records indicate the two cabins on Tabernacle Drive as having been constructed in 1953, no other evidence corroborates that date. Again, architectural features such as some remaining windows and exterior siding indicate that they might have been originally constructed earlier than 1953, and would therefore potentially fall within the period of significance.

Non-contributing Resources

A district can also contain building, structures, sites, objects or open spaces that do not contribute to the significance of the district. Most of the buildings addressed in this report fall outside the proposed period of the significance and/or are not located on the original forty-five acre parcel (see Figure 33 below). These buildings include:

- Fireside Hall (1956)
- Maintenance Office (post-1965)
- Pool House (1953, located Mission Woods)
- Redwood Chapel (1962, located in Mission Woods)
- Fir and Pine Cabins (1960, located in Mission Woods)

- Hemlock and Oak Cabins (1960, located in Mission Woods)
- RV Park Cabins (post-1962)

Evaluation of Integrity

After the historic significance has been established, the resource's historic integrity must also be assessed. For a property to qualify as historically significant under the National Register's Criteria for Evaluation, it must retain "historic integrity of those features necessary to convey its significance." The California Register of Historical Resources maintains a similar definition of integrity, while provided for a slightly lower threshold than the National Register. While a property's significance relates to its role within a specific historic context, its integrity refers to "a property's physical features and how they relate to its significance." Further, for a building to meet registration requirements under Criteria C/3 (Architecture) as an individual resource, the property would need to retain sufficient character-defining features in order to reflect design intent. To determine if a property retains the physical characteristics corresponding to its historic context, the National and California Registers have identified seven aspects of integrity, as described previously in this report.

In the case of the assessment of a district, the majority of the components that add to the district's historic character, even if they are individually undistinguished, must possess integrity, as must the district as a whole.[28] Because the potential district has yet to be fully defined and evaluated, the following assessments of integrity address only the resources which are the subject of the report and appear to be potentially eligible as contributors to the potential district. The integrity of the potential district as a whole is not addressed, because it is beyond the scope of this report and the level of assessment required for the subject permit application.

Assessment of the Creekside Lounge integrity:

Location
It appears that the building remains at its original site, and therefore retains the integrity of location.

Design
The property retains a significantly diminished integrity of design. Most of the windows appear to be replacements and much of the original siding has been changed. Although not confirmed, the building may have once been the Men's Dormitory, if that is the case, then the building appears to have been further altered with a revised roof line and relocation of entrances. Overall the building maintains only its original form and a few features that illustrate its original design. Therefore, the building does not retain integrity of design.

Setting
The building was originally constructed as a support structure for the Mission Springs Camp and Conference Center. The building is sited among several large redwood trees and stands on a steep site that

[28] *How to Apply the National Register Criteria for Evaluation*, 5.

slopes down to Lockhart Gulch. Today the building functions as a support structure for Mission Springs and remains part of the wooded campus. Overall, it appears that the building maintains its integrity of setting.

Materials
The building appears to have lost much of its original siding and fenestration. Therefore, the building does not appear to maintain its integrity of materials.

Workmanship
The building retains some of its original construction as illustrated in the remaining siding, but a significant amount has been lost to alteration leading to a much diminished integrity of workmanship.

Feeling
The building maintains its integrity of feeling, as it clearly illustrates its aesthetic and historic nature as a Mission Springs support structure.

Association
Finally, the building maintains its integrity of association to the Mission Springs Camp and Conference Center.

Findings
Overall, the Creekside Lounge appears to retain integrity of location, setting, feeling and association, but due to significant alterations at the buildings appears to have significantly lost most of its integrity of design, materials and workmanship leading to an overall loss of integrity.

Assessment of 306 Tabernacle Drive's integrity:

Location
It appears that the building remains at its original site, and therefore retains the integrity of location.

Design
The building has undergone alterations, deferred maintenance and lost some of its character defining features. The overall mass and form appear to be intact; however most of the original siding has been changed, an opening enclosed, and an awning added over the entry. The building does appear to maintain several potentially original windows. Overall, the building maintains a diminished integrity of design.

Setting
The building was originally constructed as a cabin for an individual associated with Mission Springs and sited on a forested hillside. Today, the building remains set within a wooded setting within Mission Springs. Overall, it appears that the building maintains its integrity of setting.

Materials
The building appears to have lost much of its original siding, trim and at least one exterior door. Therefore, the building does not appear to maintain its integrity of materials.

Workmanship
A significant amount the original siding and trim has been lost, leading to a much diminished integrity of workmanship.

Feeling
The building maintains its integrity of feeling, as it clearly illustrates its aesthetic and historic nature as a cabin at Mission Springs.

Association
Finally, the building maintains its integrity of association to the Mission Springs Camp and Conference Center.

Findings
Overall, the cabin at 306 Tabernacle Drive appears to retain integrity of location, setting, feeling and association, but due to numerous alterations and deferred maintenance, the buildings appears to have lost most of its integrity of design, materials and workmanship leading to a general loss of integrity.

Assessment of 316 Tabernacle Drive's integrity:

Location
It appears that the building remains at its original site, and therefore retains the integrity of location.

Design
The building's design presents numerous alterations. A large, two-story, flat-roofed deck, carport and storage area addition extends out from the front of the cabin obscuring the original design features. Further, much of the original siding material has been replaced, as have most of the windows and exterior doors. Only a few character defining features remaining including some of the wood siding and potentially two original windows. Due to the significant alterations, the building does not retain integrity of design.

Setting
The building was originally constructed as a residential cabin sited on a forested hillside at Mission Springs. The primary change in setting for the cabin was the adjacent construction of Laurel Lodge in 1963. While now owned by Mission Springs, and no longer leased to a private individual, the building still serves as a residence. Overall, it appears that the building maintains most of its integrity of setting.

Materials
The building appears to have lost much of its original siding and fenestration. Therefore, the building does not appear to maintain its integrity of materials.

Workmanship
The building retains little of its original construction. Due to the significant amount of original features that have been lost to alterations the building no longer retains integrity of workmanship.

Feeling

The large addition at the front of the building in conjunction with the numerous alterations have diminished the cabin's integrity of feeling.

Association
Finally, the building does still maintain its integrity of association, as a cabin connected with the Mission Springs Camp and Conference Center.

Findings
Overall, the cabin at 316 Tabernacle Drive appears to retain integrity of location, setting and association, but due to significant alterations at the buildings appears to have significantly lost most of its integrity of design, materials, workmanship and feeling leading to an overall loss of integrity.

Conclusion

The subject buildings that have been evaluated do not appear to be individually historically significant under any of the established criteria and would not be individually eligible for listing in the national, state or local registers. It appears that there may be a potential historic district at Mission Springs encompassing the structures built on the original forty-five acres (see Figure 33 below) within the initial period of development 1926-c.1950. The focus of the potential district would be primarily on the seasonal residential cabins and potentially some of the Mission Springs Camps and Conference Center buildings if they also were constructed within the period of significance, are located on the original forty-five acres, and maintain historic integrity.

Additional research and analysis would be required to more definitely establish a potential historic district and identify potential contributing resources. The additional work, which would include a parcel survey of the entire forty-five acres, is outside of both the scope of this evaluation and the scope of the required cultural review for the permit application necessitating this report. Regardless, the focused research and analysis completed for this project indicates that none of the subject buildings would contribute to a potential historic district due to having been constructed after the proposed period of significance or having a lack of integrity stemming from extensive alterations. Therefore, the subject buildings identified in this report (Creekside Lounge, 306 Tabernacle Drive, 316 Tabernacle Drive, Fireside Hall, the Maintenance Office, the pool house, Redwood Chapel, Fir and Pine cabins, Hemlock and Oak cabins, and the RV Park cabins) do not appear to be historical resources as defined by the California Environmental Quality Act (CEQA) Section 21084.1; as such none of the proposed work included in the current Use Permit Amendment application would not have a significant impact on any identified historic resources.

Consultant Qualifications

Pursuant to Code of Federal Regulations, 36 CFR Part 61, the author, Kimberly Butt, AIA, meets the Secretary of the Interior's qualification standards for professionals in historic architecture and architectural history.

Figures

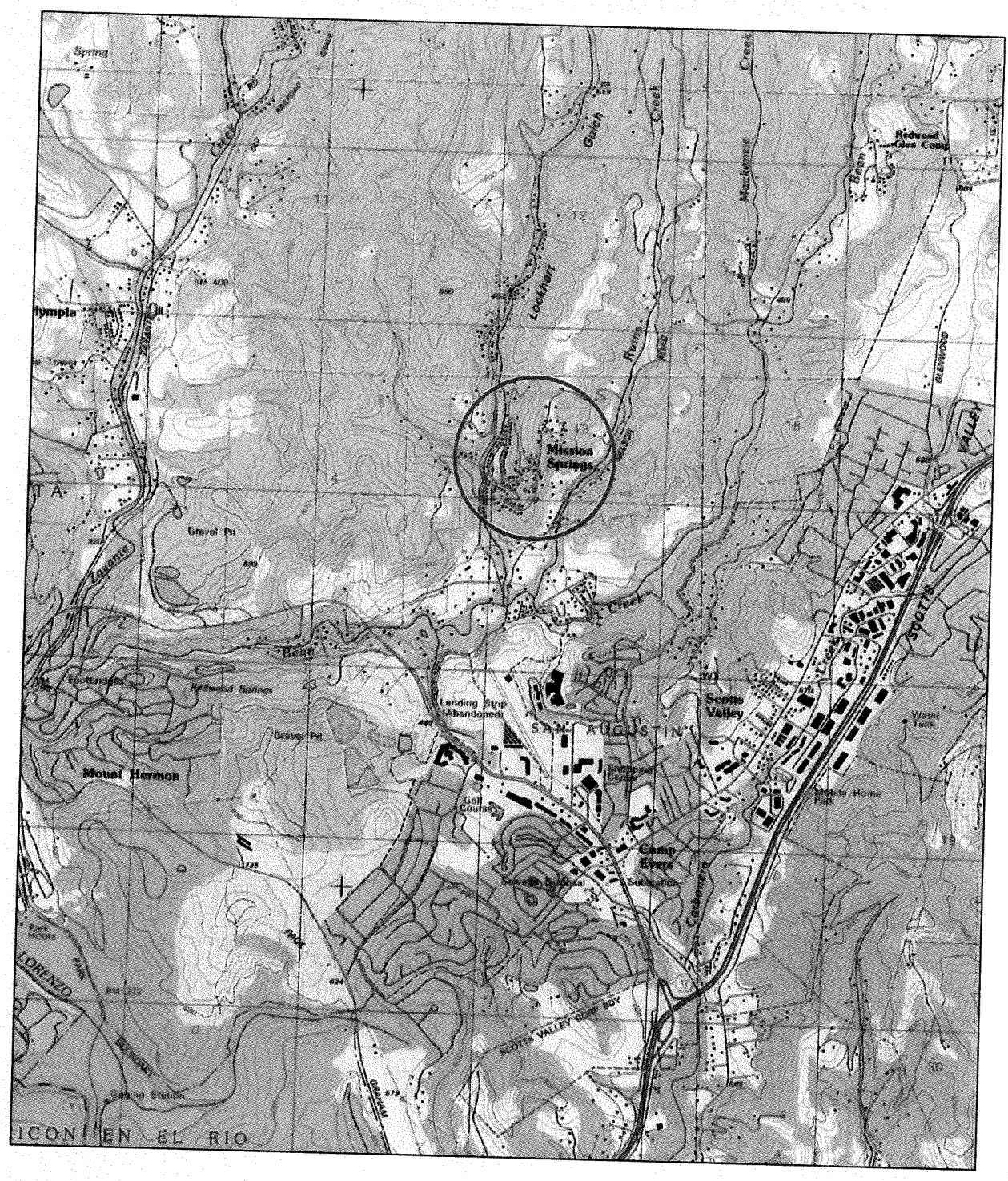

Figure 1: USGS Map showing the property location circled.

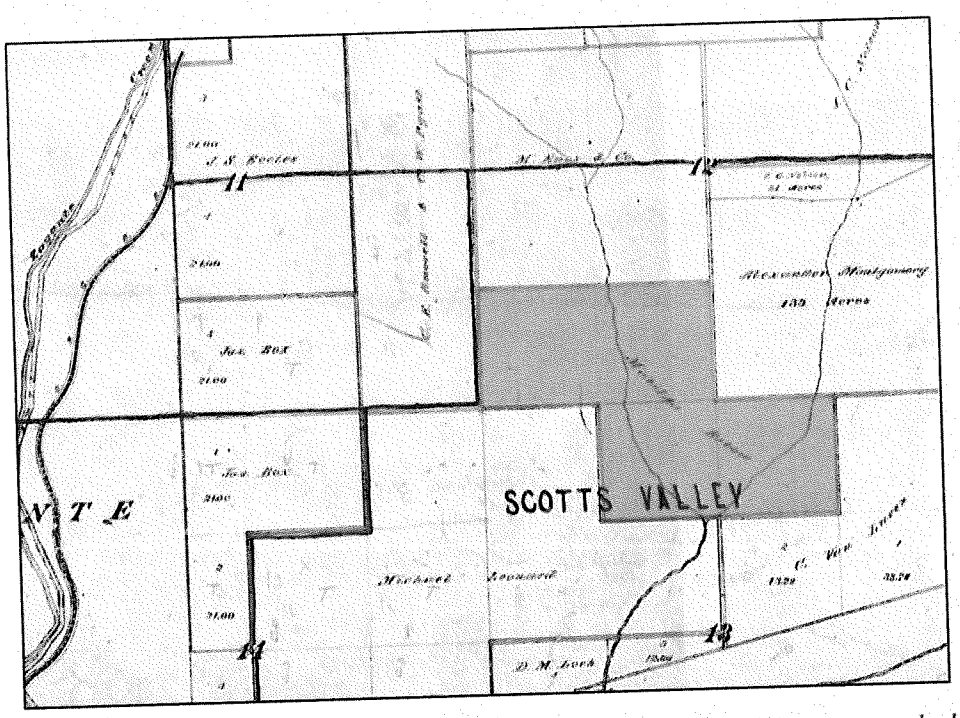

Figure 2: 1880-81 Map of Santa Cruz County with the Matilda Lockhart Eaton property shaded. Source: Wright, T. W. 1880 Map of Santa Cruz County, 1880-81, Sheet 26.

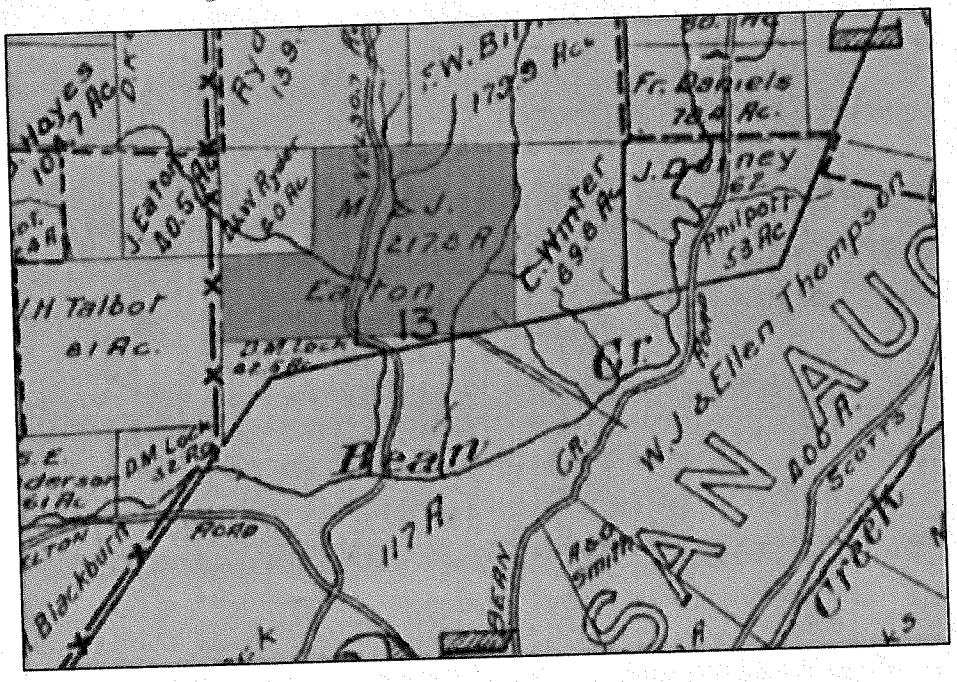

Figure 3: Map of Santa Cruz County from 1906 with the Matilda and John Eaton property shaded.

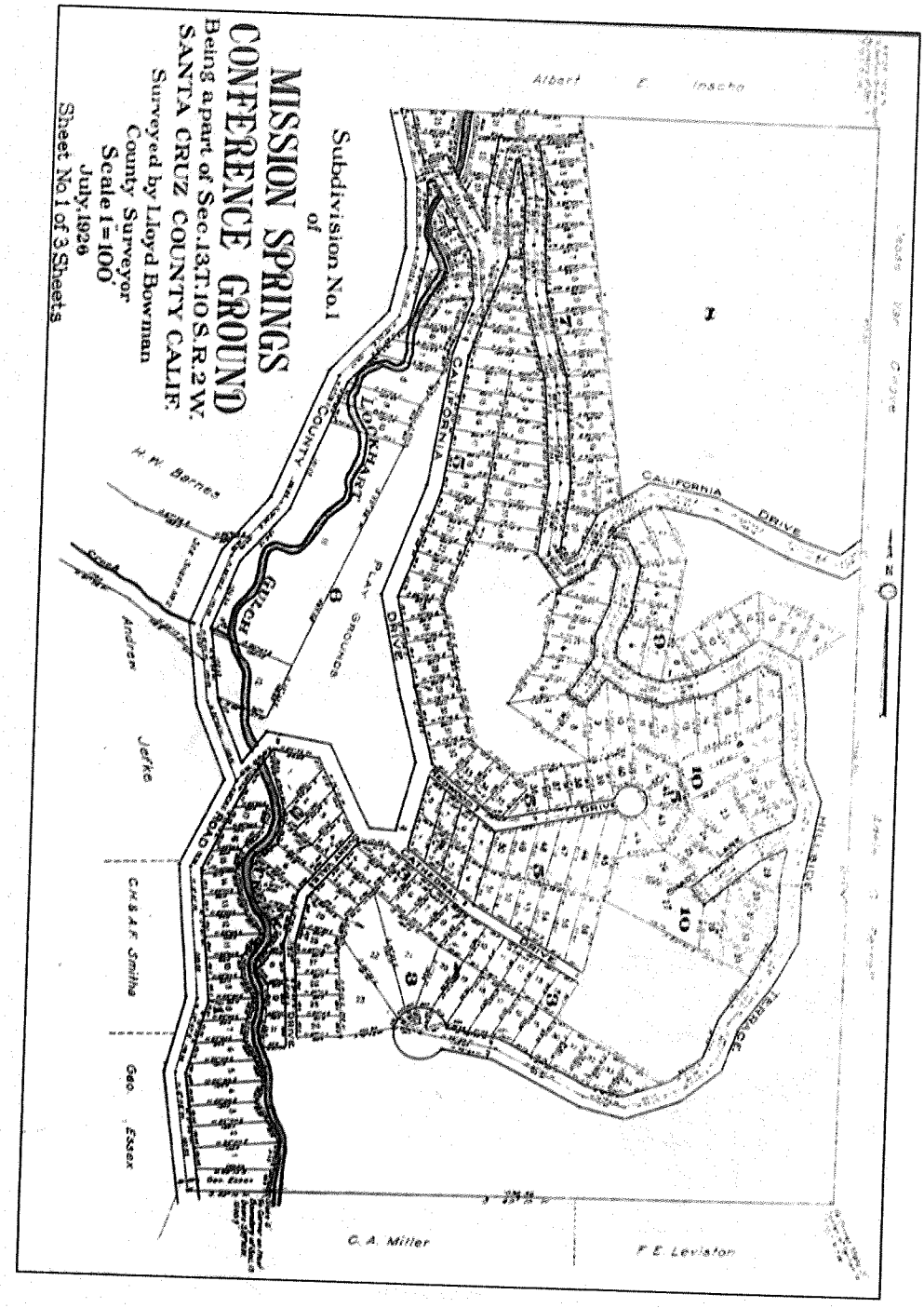

Figure 4: Subdivision map filed by Mission Springs in 1926.

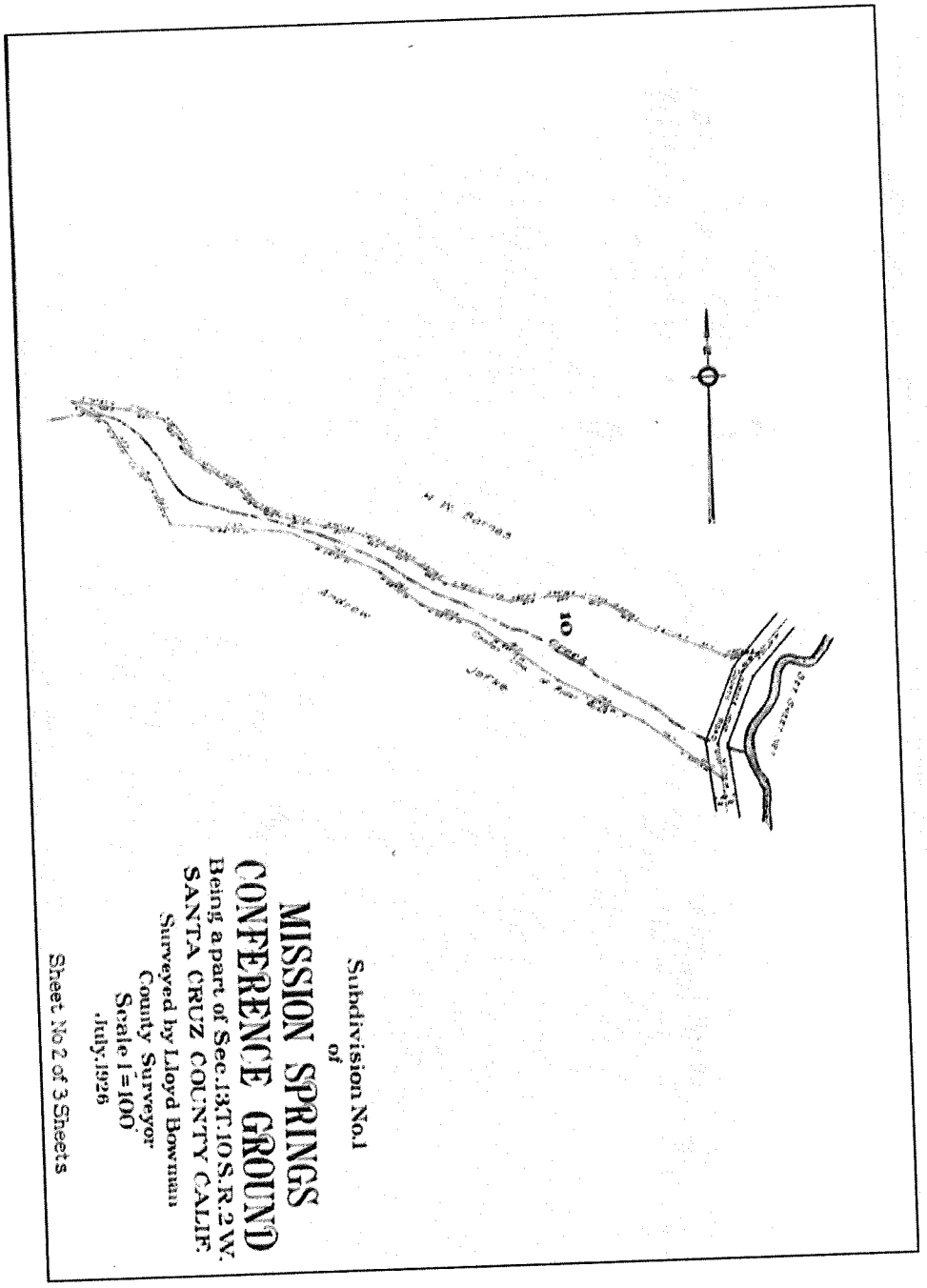

Figure 5: Subdivision map filed by Mission Springs in 1926. Sheet 2 above shows the parcel that would be the RV Park.

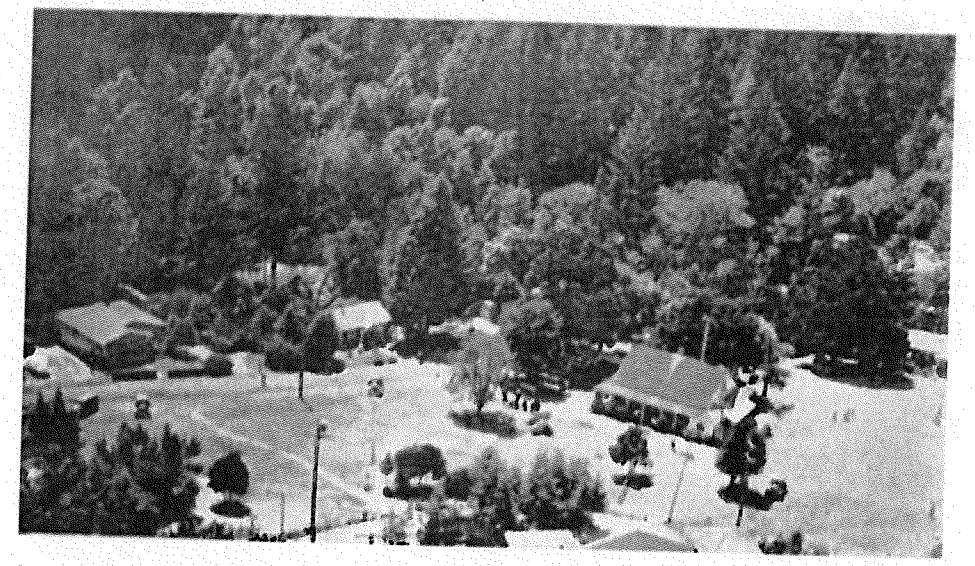

Figure 6: Mission Springs looking northeast toward the central lawn area c. 1944. Note the original Houghton Farmhouse on the right side of the image at the location of the present day Fireside Hall. Source: Mission Springs, 1944.

Figure 7: View across the central lawn looking south, 2016.

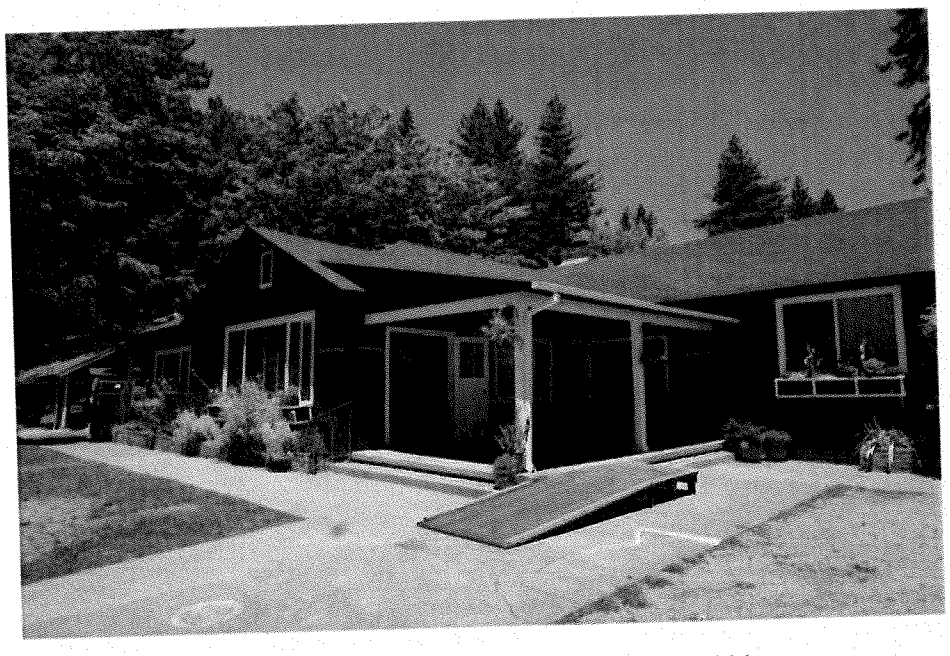

Figure 8: The main entrance at Fireside Hall, 2016.

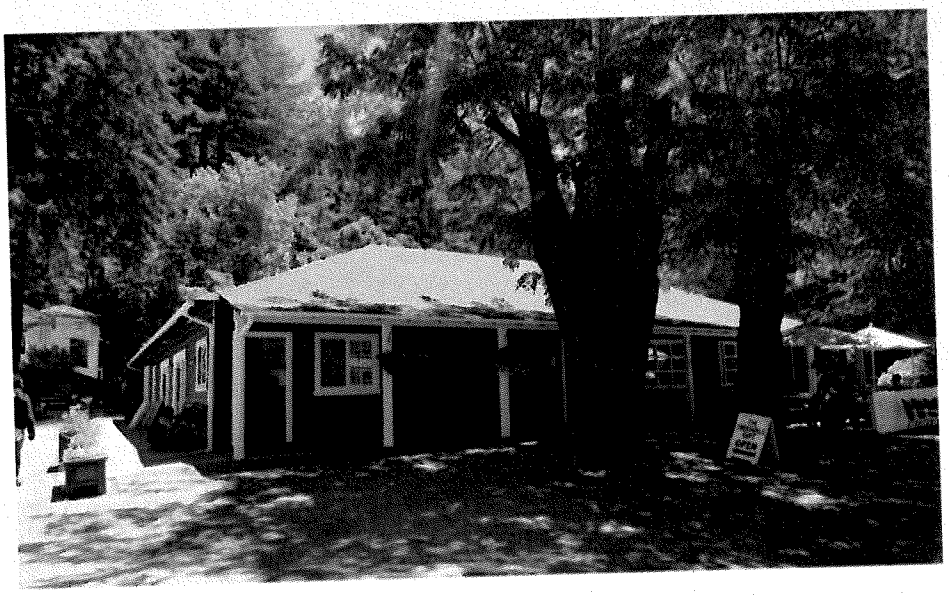

Figure 9: West side of Fireside Hall, 2016.

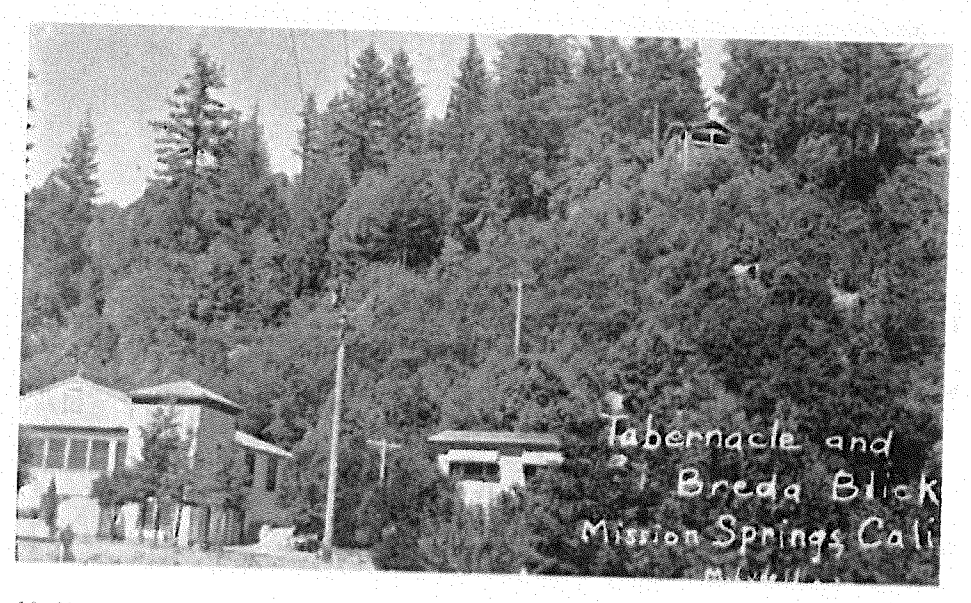

Figure 10: View of the Tabernacle from the approximate location of the present day Maintenance Office. Source: Mission Springs, 1944.

Figure 11: Maintenance Office front façade, 2016.

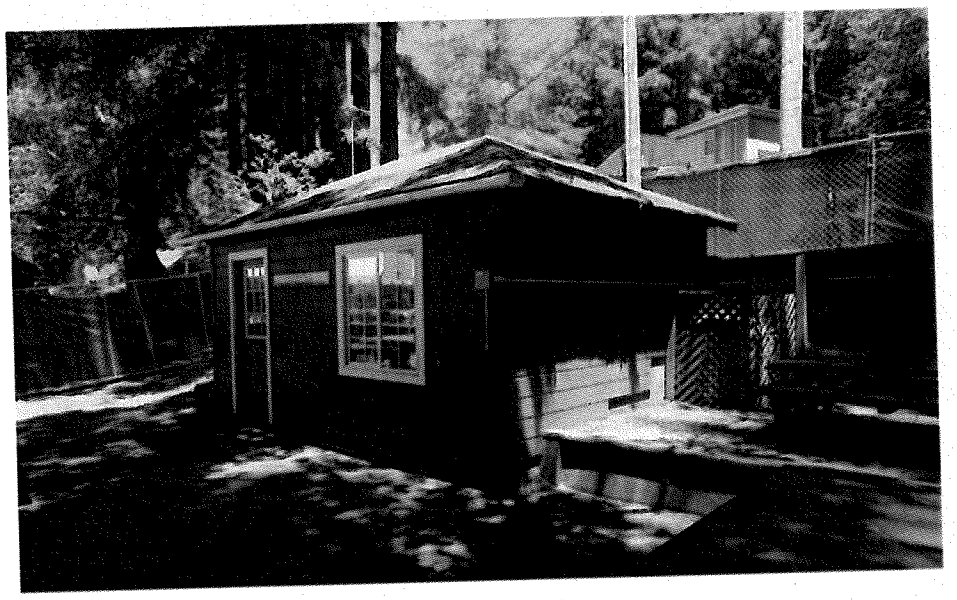

Figure 12: Maintenance Office looking northwest, 2016.

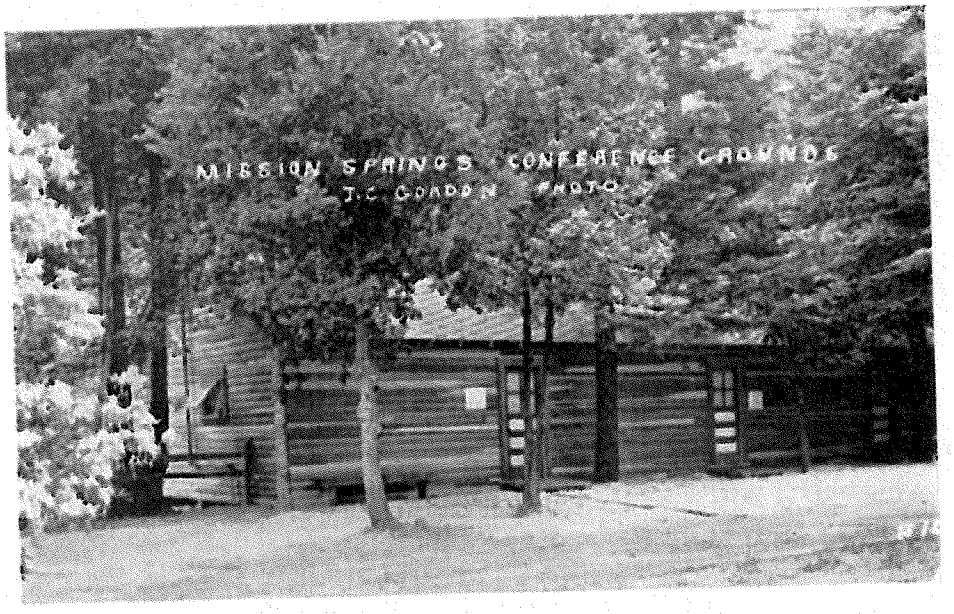

Figure 13: Men's Dormitory c. 1944. Note the similarities in the setting, overall shape and massing, and siding to the present day Creekside Lounge. Source: Mission Springs, 1944.

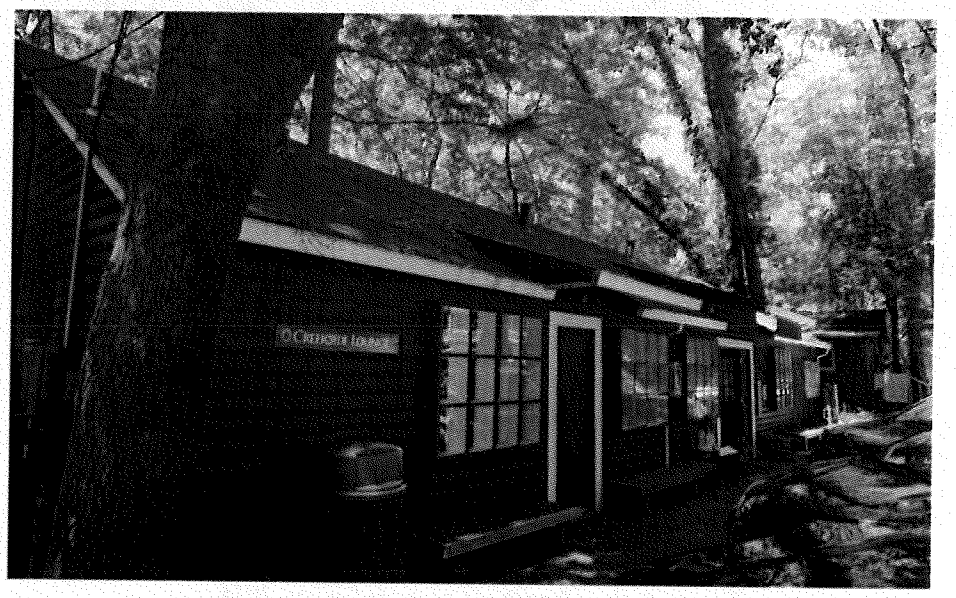

Figure 14: Creekside Lounge front façade, 2016.

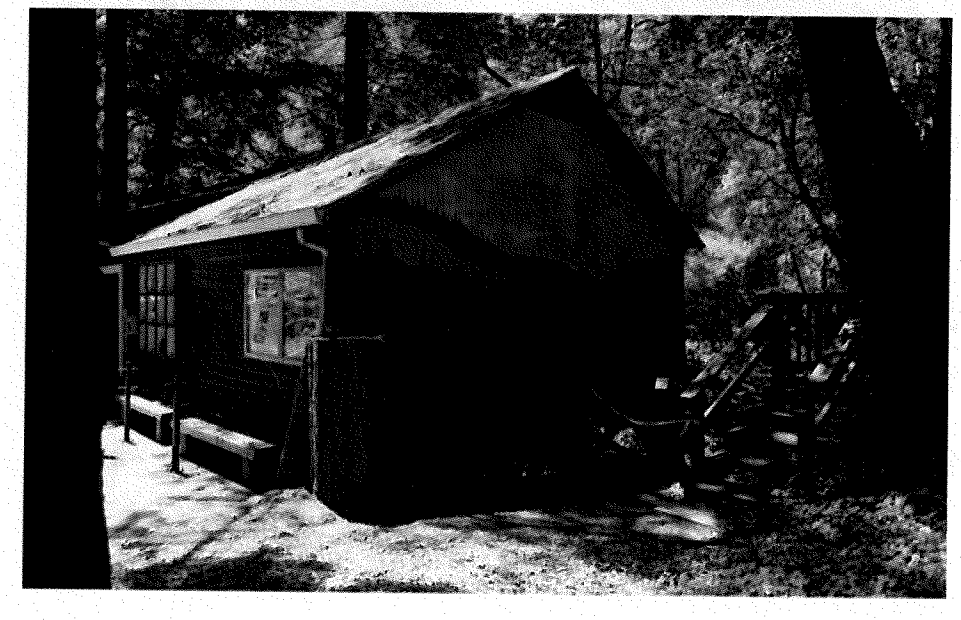

Figure 15: Creekside Lounge north facade with mural, 2016.

Figure 16: Rear facade of Creekside Lounge, 2016.

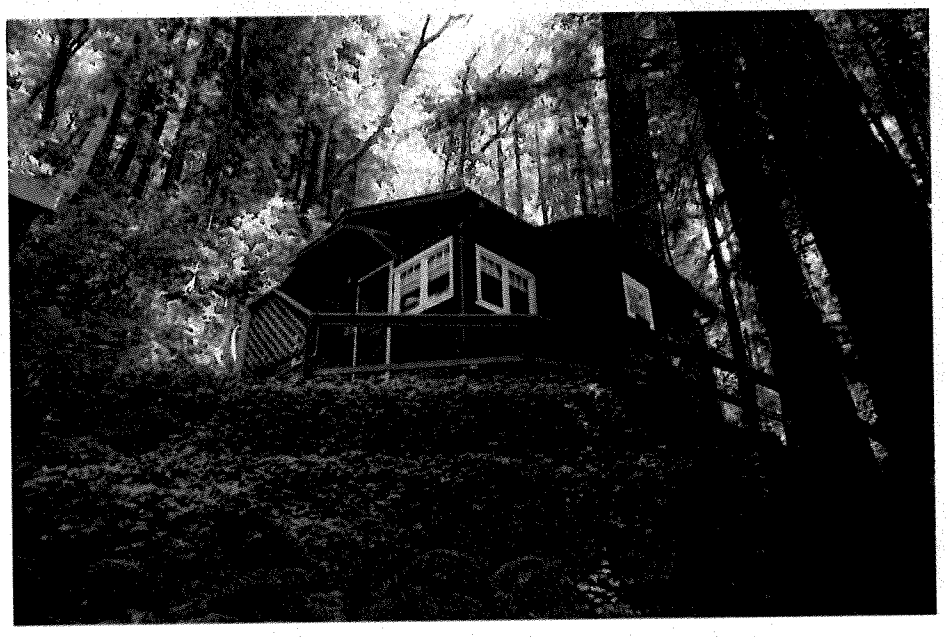

Figure 17: Ivy Cabin, 306 Tabernacle Drive, 2016.

Figure 18: Ivy Cabin, 306 Tabernacle Drive, southwest corner, 2016.

Figure 19: 316 Tabernacle Drive front façade, 2016.

Figure 20: 316 Tabernacle Drive south facade and roof, 2016.

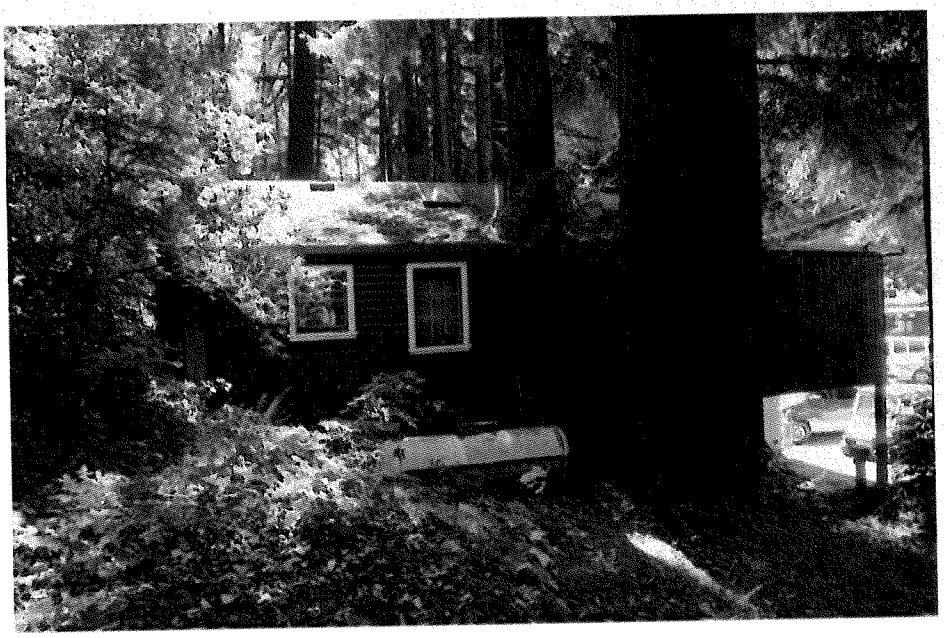

Figure 21: 316 Tabernacle Drive north façade, 2016.

Figure 22: Pool and pool house, 2016.

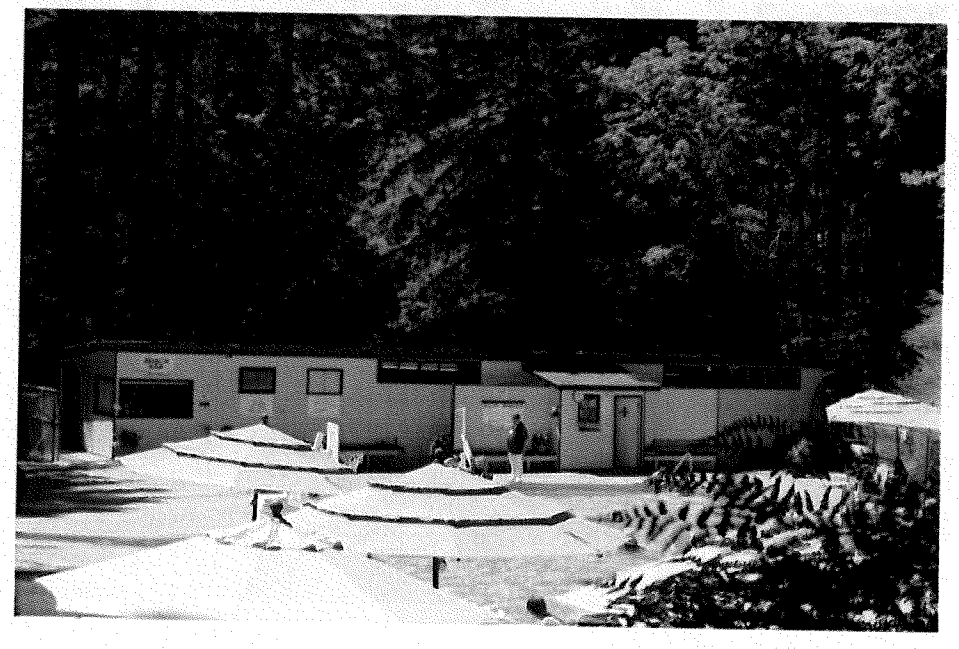

Figure 23: Pool house front façade, 2016.

Figure 24: Redwood Memorial Chapel, 2016.

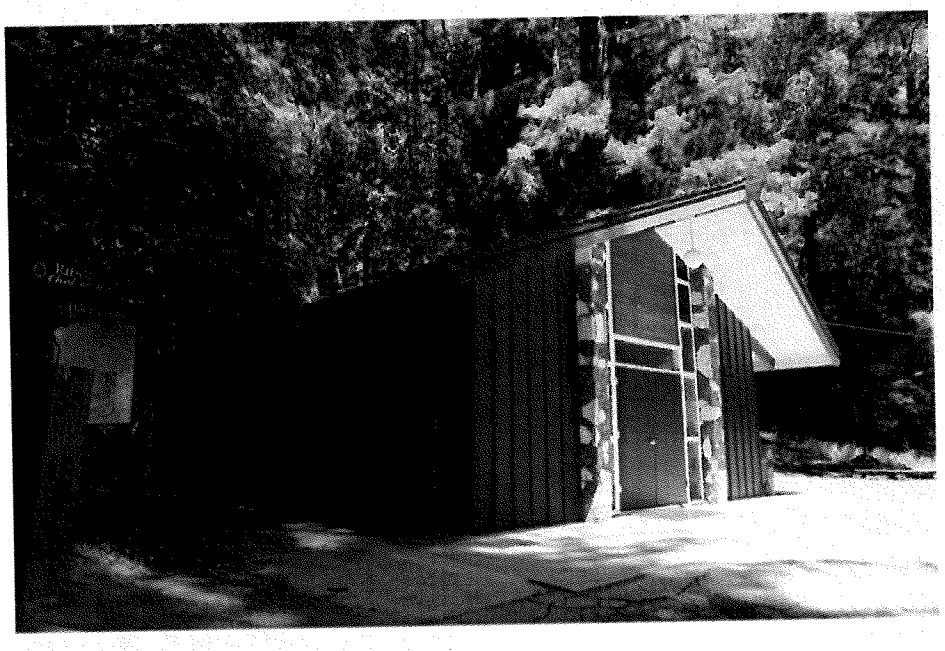

Figure 25: Redwood Memorial Chapel front entrance, 2016.

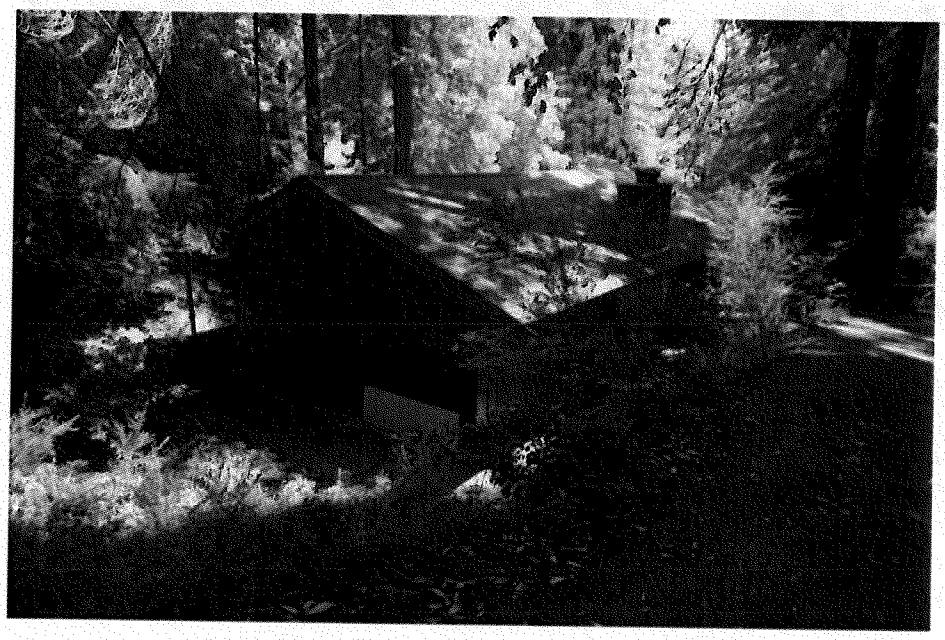

Figure 26: Redwood Memorial Chapel back corner, 2016.

Figure 27: Fir and Pine Cabins, 2016.

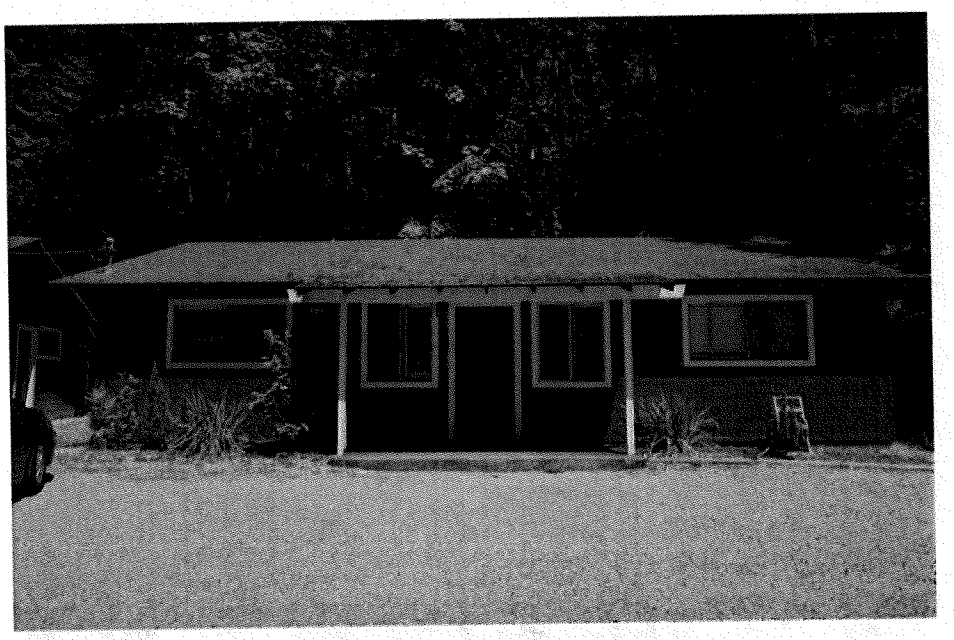

Figure 28: Front facade of Pine Cabin, 2016.

Figure 29: Oak and Hemlock Cabins, 2016.

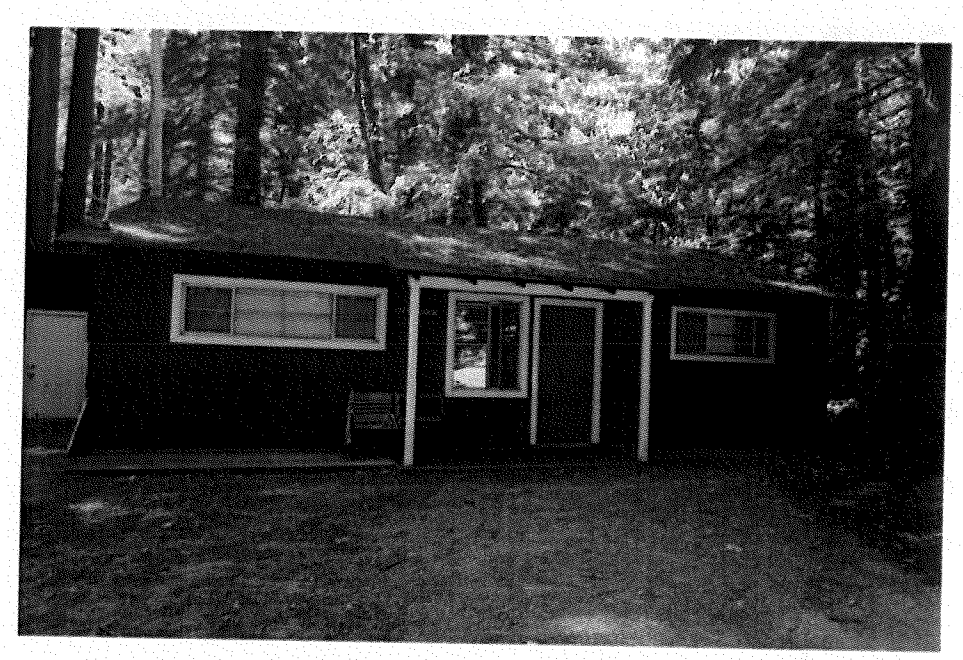

Figure 30: Hemlock Cabin front façade, 2016.

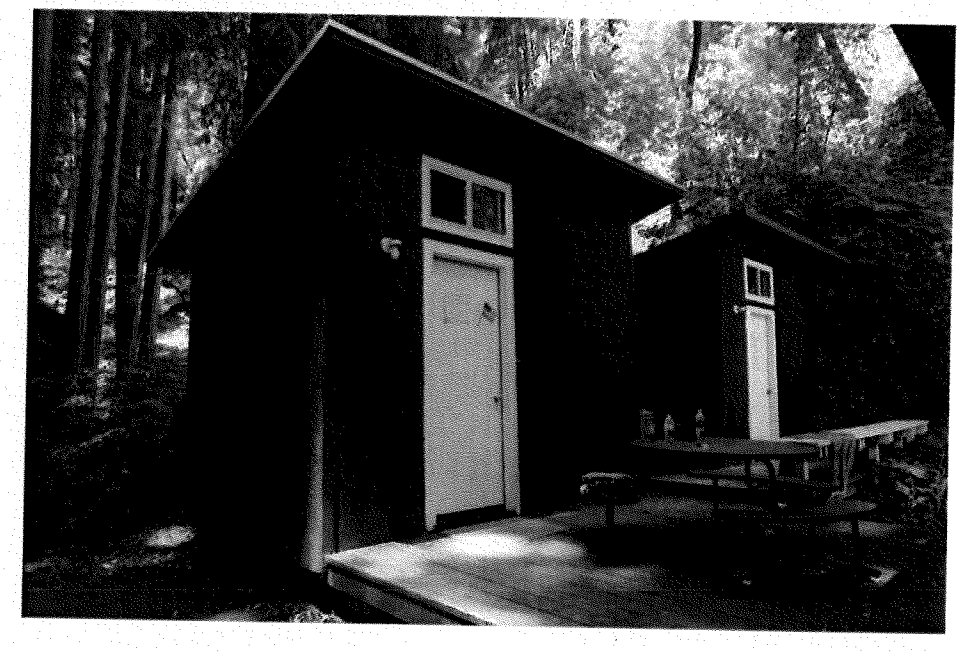

Figure 31: Cabins at the RV Park, 2016.

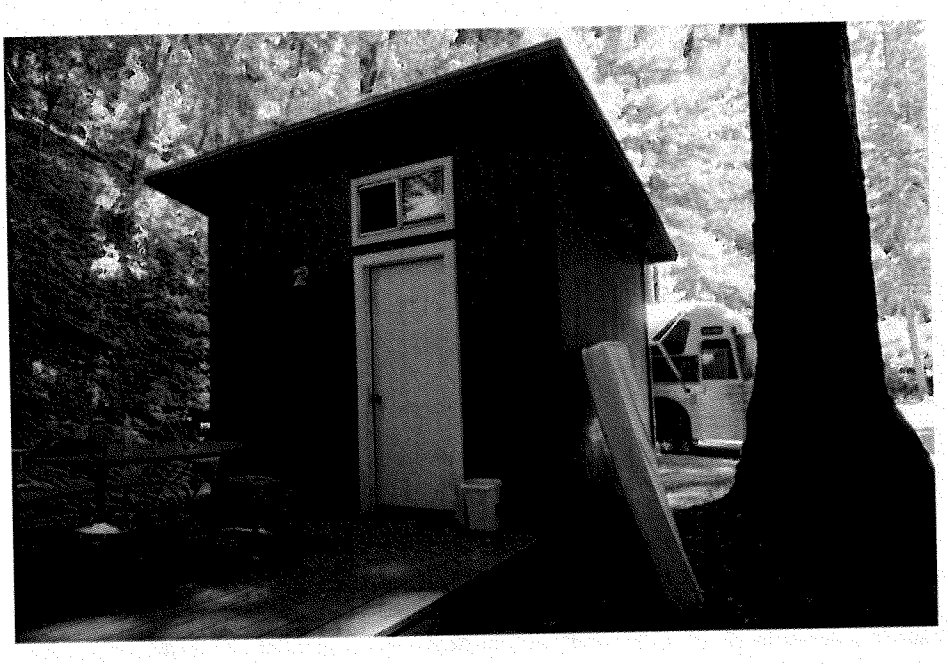

Figure 32: Cabins at the RV Park, 2016.

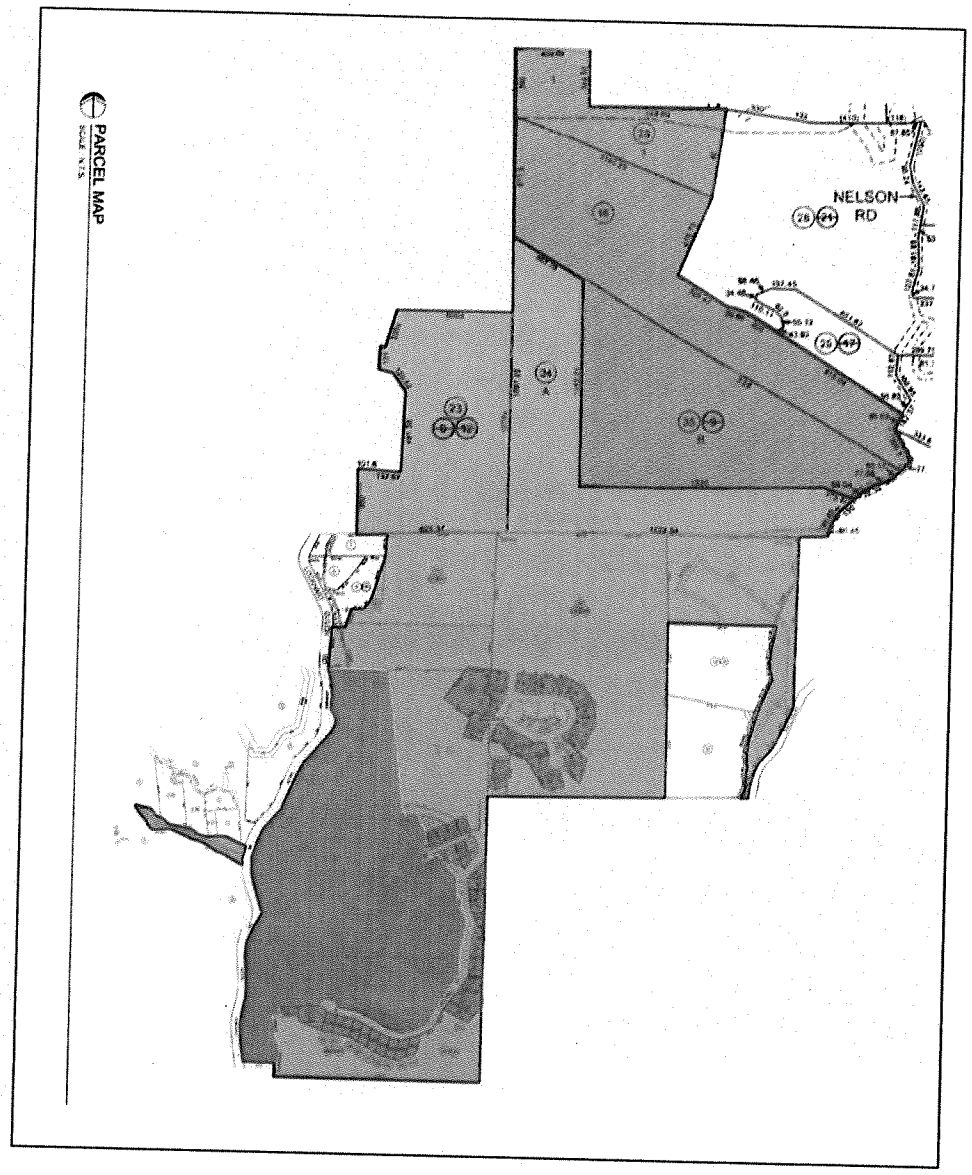

Figure 33: Parcel map showing the extent of the Mission Springs Camp and Conference Center property. The orange shaded area to the south represents the extent of the potential historic district. Note: The dark shaded small parcels are owned by the Pacific Southwest Conference of the Evangelical Church.

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Appendix A: Mission Springs Archaeological Records Search Summary

Mission Springs Archaeological Records Search Summary

The historical records search indicated CA-SCR-8 (P-44-000016) is located approximately 400 meters southeast of Mission Springs Project Area on the south side of Nelson Road. This recorded site, aka "The Ruins", is a series of sandstone formations that was confused by laypeople in the mid-ninetieth century as being of cultural origin (San Francisco Chronicle 1856). The geologic origin of the site was confirmed in 1864 by a Yale University scientist (Clark 1986). An ambiguous archaeological site survey record indicated hand auger testing near the site and describing "A Shell Mound Site" (Edwards 1982). It was confirmed that this description was intended to mean a marine fossil shell deposit rather than a cultural deposit (Robert Edwards, personal communication).

On July 14, 2016, John Schlagheck, M.A., RPA, Holman & Associates, surveyed the areas where proposed construction would likely impact previously undisturbed soil. These areas were between Old Tab and the basketball court, surrounding and just south of the Fir and Pine cabins, and the west end of the RV parking area.

Ground cover was variable but generally considered adequate for the purpose of the survey. Where soil was partially exposed a small hoe was used to remove light vegetation and duff. The soil in the area is fine medium gray silt with heavy organic content. Other than the flat areas that have clearly been graded to accommodate the present conference center and related facilities, the general area of Mission Springs has moderate to steep slopes adjacent to Lockhart Gulch Creek that are not strongly associated with prehistoric habitation areas.

The surveyor found no indication of archaeological materials or features on the surface and no evidence that suggests the presence of underground cultural material. No chert or other material commonly used as raw material for prehistoric tool manufacture was found. Similarly, no other materials associated with use of the property during prehistoric times, such as concentrations of burned faunal remains or charcoal, were observed. Notwithstanding modern debris, no historical period material was found within the survey area.

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1902 Santa Cruz, Calif. [Quadrangle]. Topographic Map, 30-minute series.
1945 Ben Lomond, Calif. [Quadrangle]. Topographic Map, 15-minute series.
1955 Santa Cruz, Calif. [Quadrangle]. Topographic Map, 7.5-minute series.
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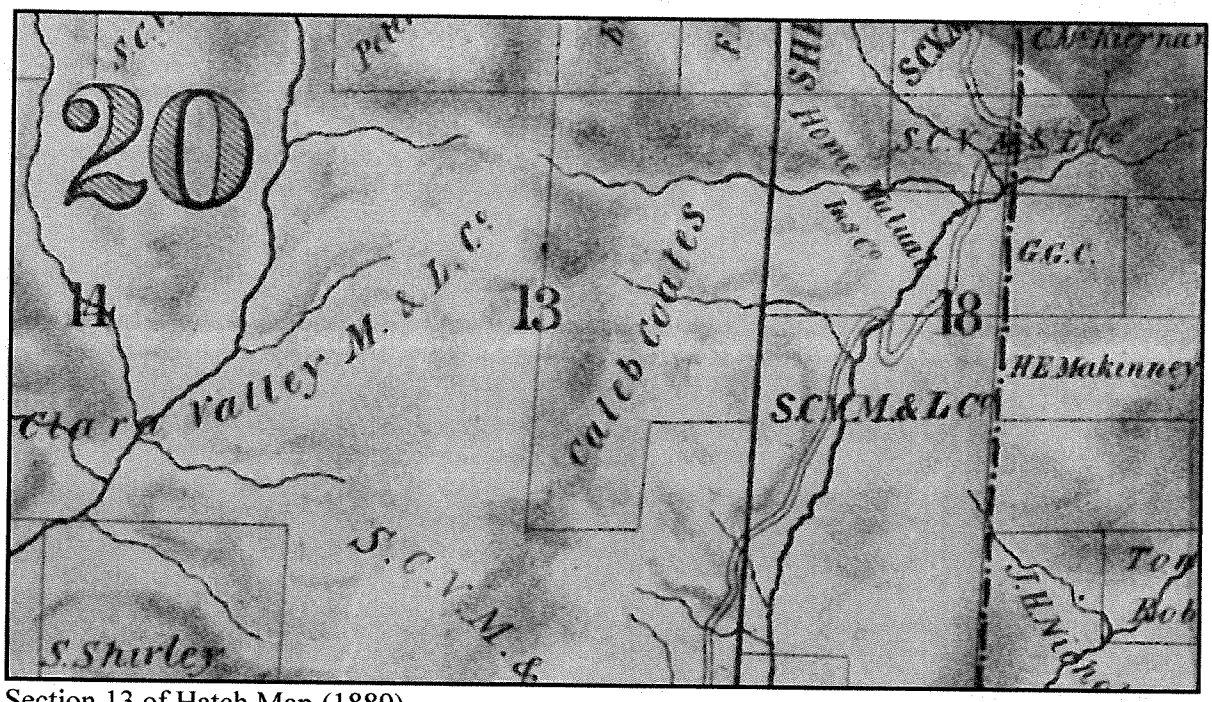
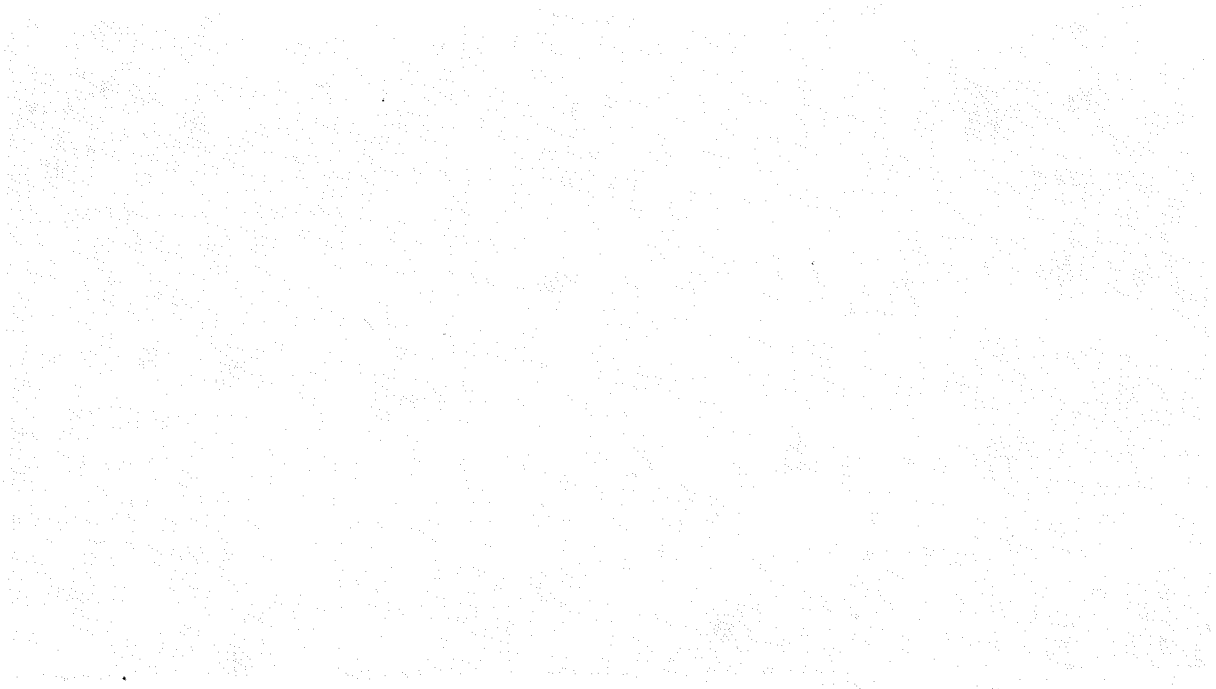
2016 Official Map of Santa Cruz County (1889) by Andrew Jackson Hatch. UCSC Digital Collection. www.digitalcollections.ucsc.edu. Accessed 07/15/2016.



Section 13 of Hatch Map (1889)



Attachment 10

Holman & Associates, Archeological Evaluation, July 2016

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Section 13 of Hatch Map (1889)

Attachment 11

TreanorHL, Historic Resources Evaluation, December 2018

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TREANORHL

December 20, 2018

Mission Springs Camps and Conference Center
Scotts Valley, California

HISTORIC RESOURCES EVALUATION
ADDENDUM – IMPACTS AND MITIGATIONS

INTRODUCTION

In the fall of 2016, a historic resource evaluation was completed for fourteen buildings at Mission Springs. These buildings included those that were proposed to be altered or demolished and were constructed over fifty years ago. The evaluation concluded that none of the individual structures were eligible for listing in federal, state or local registers. However, a potential historic district was identified that encompassed an area larger than the immediate Mission Springs Camps and Conference Center (see Significance Summary below). The evaluation was presented in a report: *Historic Resource Evaluation, Mission Springs Camps and Conference Center, Scotts Valley, California*, and dated September 6, 2016 (2016 Report).

The 2016 Report only evaluated the historic significance of Mission Springs and did not analyze the proposed project for potential impacts to historic resources. The County of Santa Cruz subsequently requested that such an analysis be undertaken. This report provides a summary of the 2016 Report, a description of the proposed project, an analysis of the proposed project's potential impacts on historic resources and recommends mitigation measures if necessary.

METHODOLOGY

The 2016 Report surveyed and researched the Mission Springs Camps and Conference Center and the buildings that comprised the central campus. In the proposed project, the surveyed buildings are located in plan areas identified as the Conference Center Core, Mission Woods and Spring Creek.[1] In addition, research showed that individually-constructed, single-family cabins were located nearby the conference center.

For this report, as only two years have passed since the original field work, TreanorHL did not deem it necessary to re-survey the buildings and the project team has assured that no changes to the buildings have taken place over this time period. TreanorHL reviewed the proposed project and received clarifications to certain questions about the designs from the project team. Based on these assurances and TreanorHL's familiarity with the conference center, we proceeded to analyze potential impacts of the project on historic resources.

[1] WMB Architects, Mission Springs Camps & Conference Center Use Permit Amendment, 09-01-2015.

SIGNIFICANCE SUMMARY

For the 2016 report, the evaluation of historic significance was based on the eligibility criteria for the National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR) and the County of Santa Cruz's criteria for placing properties in the county's inventory of historic resources, which identifies significant historical resources in the unincorporated portion of the county. The evaluation was presented in the 2016 Report.

"None of the properties are currently listed in the NRHP, the CRHR or the County of Santa Cruz Historic Resource Inventory, and it does not appear that the properties have been previously evaluated. After conducting a thorough evaluation of the properties, it appears that none of the subject buildings are individually eligible for listing in the national, state or local inventories due to a lack of individual significance. Further, while a potential Mission Springs Historic District, focusing primarily on the surrounding seasonal cabins, might be eligible for listing; it does not appear that any of the subject buildings would contribute to a potential district because the subject properties were either constructed outside of the proposed period of significance or lack historic integrity. Therefore, the subject buildings do not appear to be historical resources for the purposes of CEQA."[2]

The conclusion of the 2016 report further stated the following:

"The subject buildings that have been evaluated do not appear to be individually historically significant under any of the established criteria and would not be individually eligible for listing in the national, state or local registers. It appears that there may be a potential historic district at Mission Springs encompassing the structures built on the original forty-five acres (see Figure 33 below) within the initial period of development 1926-c.1950. The focus of the potential district would be primarily on the seasonal residential cabins and potentially some of the Mission Springs Camps and Conference Center buildings if they also were constructed within the period of significance, are located on the original forty-five acres, and maintain historic integrity.

"Additional research and analysis would be required to more definitely establish a potential historic district and identify potential contributing resources. The additional work, which would include a parcel survey of the entire forty-five acres, is outside of both the scope of this evaluation and the scope of the required cultural review for the permit application necessitating this report. Regardless, the focused research and analysis completed for this project indicates that none of the subject buildings would contribute to a potential historic district due to having been constructed after the proposed period of significance or having a lack of integrity stemming from extensive alterations. Therefore, the subject buildings identified in this report (Creekside Lounge, 306 Tabernacle Drive, 316 Tabernacle Drive, Fireside Hall, the Maintenance Office, the pool house, Redwood Chapel, Fir and Pine cabins, Hemlock and Oak cabins, and the RV Park cabins) do not appear to be historical resources as defined by the California Environmental Quality Act (CEQA) Section 21084.1..."[3]

---

[2] Kimberly Butt, *Historic Resource Evaluation, Mission Springs Camps and Conference Center*, (Richmond, California, Interactive Resources, Inc., 2006), 4.
[3] Ibid., 25.

PROPOSED PROJECT

The proposed project includes interior remodeling, exterior additions to existing buildings, new construction, and demolition of existing buildings. The Building Summary Table summarizes these proposed changes to the camps and conference center. The Table has two sections. The left hand section of the table lists buildings in the Building Summary tables on drawing sheets UP-4, UP-5 and UP-6. This table section has four columns.

Drawing ID:	Buildings are numbered C-1 to C-16, M-1 to M-4 and S-1 to S-3.
Building Name:	Building name from the tables.
Proposed Work:	Lists no change, façade improvement, interior remodel, new addition, new construction.
HRE Survey Status:	The evaluation of buildings in the 2016 report identified buildings that did not contribute to a potential historic district (Non-Contributing) or had lost their integrity (Building Lost Integrity). NA is used for new construction as no evaluation is possible for buildings not yet constructed. Not Evaluated is used for buildings that were not evaluated in the 2016 report.

The right hand section lists buildings listed in the Notes on drawing sheets UP-4 and UP-5. This section also has four columns.

Drawing Note:	These are the numbers in the Notes. These buildings are on the same site as the buildings in the right hand section and are slated for demolition. One building, Maintenance Office, has no number, but is located on the site of the proposed Fireside Lounge and Amphitheater.
Building Name:	Building name used in the HRE.
Proposed Work:	In all cases, the proposed work is the demolition of existing buildings that are on the site of proposed new construction.
HRE Survey Status:	The evaluation of buildings in the 2016 report identified buildings that did not contribute to a potential historic district (Non-Contributing) or had lost their integrity (Cabins Lost Integrity).

Individual descriptions of proposed new construction are presented in the Impacts and Mitigations section.

REGULATORY FRAMEWORK

The regulatory background provided below offers an overview of federal, state and local criteria used to assess historic significance.

National Register of Historic Places

National Register Bulletin Number 15, *How to Apply the National Register Criteria for Evaluation*, describes the Criteria for Evaluation as being composed of two factors. First, the property must be "associated with an important historic context."[4] The NRHP identifies four possible context types, of which at least one must be applicable at the national, state, or local level. As listed under Section 8, "Statement of Significance," of the National Register of Historic Places Registration Form, these are:

> A. Property is associated with events that have made a significant contribution to the broad patterns of our history.
>
> B. Property is associated with the lives of persons significant in our past.
>
> C. Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
>
> D. Property has yielded, or is likely to yield, information important to prehistory or history.[5]

Second, for a property to qualify under the National Register's Criteria for Evaluation, it must also retain "historic integrity of those features necessary to convey its significance."[6] While a property's significance relates to its role within a specific historic context, its integrity refers to "a property's physical features and how they relate to its significance."[7] To determine if a property retains the physical characteristics corresponding to its historic context, the National Register has identified seven aspects of integrity. These are:

> Location is the place where the historic property was constructed or the place where the historic event occurred...
>
> Design is the combination of elements that create the form, plan, space, structure, and style of a property...
>
> Setting is the physical environment of a historic property...
>
> Materials is the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property...

---

[4] *How to Apply the National Register Criteria for Evaluation*, National Register Bulletin, no. 15 (Washington, D.C.: United States Department of the Interior, 1997), 3.
[5] *How to Complete the National Register Registration Form*, National Register Bulletin, no. 16A (Washington, D.C.: United States Department of the Interior, 1997), 75.
[6] *How to Apply the National Register Criteria for Evaluation*, 3.
[7] Ibid., 44.

> Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory...
>
> Feeling is a property's expression of the aesthetic or historic sense of a particular period of time...
>
> Association is the direct link between an important historic event or person and a historic property.[8]

Since integrity is based on a property's significance within a specific historic context, an evaluation of a property's integrity can only occur after historic significance has been established.[9]

Criteria Consideration A

Certain types of properties are not usually considered eligible for listing in the National Register. One of these types is religious properties. Religious properties can only be found eligible for listing in the NRHP if they meet specific criteria consideration as published in the CFR Title 36, Part 60. A religious property must derive its primary significance from architectural or artistic distinction or historical importance. This requirement is based on the avoidance of any appearance of judgment by the government about the validity of any religion or belief. The subject buildings at Mission Springs would be required to meet Criteria Consideration A because the building were constructed by a religious institution and are presently owned by a religious institution. A religious property can be found eligible for any of the three following reasons:

- It is significant under a theme in the history of religion having secular scholarly recognition; or
- It is significant under another historical theme, such as exploration, settlement, social philanthropy, or education; or
- It is significantly association with traditional cultural values.[10]

California Register of Historical Resources

California Office of Historic Preservation's Technical Assistance Series #6, *California Register and National Register: a Comparison*, outlines the differences between the federal and state processes. The context types to be used when establishing the significance of a property for listing on the California Register of Historical Resources (CRHR) are very similar, with emphasis on local and state significance. They are:

> 1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States; or
>
> 2. It is associated with the lives of persons important to local, California, or national history; or

[8] Ibid., 44-45.
[9] Ibid., 45.
[10] *How to Apply the National Register Criteria for Evaluation*, National Register Bulletin, no. 15. Washington, D.C.: United States Department of the Interior, 1997, 26.

3. It embodies the distinctive characteristics of a type, period, region, or method of construction or represents the work of a master, or possesses high artistic values; or

4. It has yielded, or is likely to yield, information important to prehistory or history of the local area, California, or the nation.[11]

Integrity must also be determined for a property to be listed on the state register. The CRHR maintains a similar definition of integrity, while provided for a slightly lower threshold than the National Register.

In addition to separate evaluations for eligibility to the CRHR, the state will automatically list resources if they are listed or determined eligible for the NRHP through a complete evaluation process.[12]

Unlike the NRHP, the CRHR does not maintain a Criteria Consideration for religious properties. The only Criteria Considerations under the California Register are for moved resources, resource less than fifty years old and reconstructed building.[13]

County of Santa Cruz

Santa Cruz County Code, Chapter 16.42, Section 050 establishes ratings of significance and criteria for listing properties and districts in the Santa Cruz County historic resources inventory. "Structures, objects, sites and districts shall be designated as historic resources if, and only if, they meet one or more of the following criteria and have retained their architectural integrity and historic value:

1) The resource is associated with a person of local, State or national historical significance.

2) The resource is associated with an historic event or thematic activity of local, State or national importance.

3) The resource is representative of a distinct architectural style and/or construction method of a particular historic period or way of life, or the resource represents the work of a master builder or architect or possesses high artistic values.

4) The resource has yielded, or may likely yield, information important to history.

Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource is eligible for listing on the NRHP, meets the criteria for listing on the CRHR (Pub. Res. Code §5024.1, Title 14 CCR, Section 4852), or is eligible for designation as a local landmark.

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[11] *California Register and National Register: A Comparison*, California Office of Historic Preservation Technical Assistance Series, no. 6 (Sacramento, CA: California Department of Parks and Recreation, 2006), 1.

[12] All State Historical Landmarks from number 770 onward are also automatically listed on the California Register. (*California Register of Historical Resources: The Listing Process*, California Office of Historic Preservation Technical Assistance Series, no. 5 [Sacramento, CA: California Department of Parks and Recreation, n.d.], 1.)

[13] California Register and National Register: A Comparison, California Office of Historic Preservation Technical Assistance Series, no. 6 (Sacramento, CA: California Department of Parks and Recreation, 2006), 3.

California Environmental Quality Act

When a proposed project may adversely affect a historical resource, the California Environmental Quality Act (CEQA) requires a city or county to carefully consider the possible impacts before proceeding (Public Resources Code Sections 21084 and 21084.1). CEQA equates a substantial adverse change in the significance of a historical resource with a significant effect on the environment (Section 21084.1). The Act explicitly prohibits the use of a categorical exemption within the CEQA Guidelines for projects which may cause such a change (Section 21084).

A "substantial adverse change" is defined as "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired." Further, that the "significance of an historic resource is materially impaired when a project "demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in the California Register of Historical Resources;" or "demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources..." or demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA."

CEQA effectively requires preparation of a mitigated Negative Declaration or an EIR whenever a project may adversely impact historic resources. Current CEQA law provides that an EIR must be prepared whenever it can be fairly argued, on the basis of substantial evidence in the administrative record, that a project may have a significant effect on a historic resource (Guidelines Section 15064).

For the purposes of CEQA (Guidelines Section 15064.5), the term "historical resources" shall include the following:

1. A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in, the California Register of Historical Resources (Pub. Res. Code SS5024.1, Title 14 CCR, Section 4850 et.seq.).

2. A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

3. Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing in the CRHR (Public

Resources Code Section 5024.1, Title 14 CCR, Section 4800.3) as follows:

A. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

B. Is associated with the lives of persons important in our past;

C. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

D. Has yielded, or may be likely to yield, information important in prehistory or history.

IMPACTS AND MITIGATIONS

Significance Thresholds

The significance thresholds in this analysis are consistent with the environmental checklist in CEQA Guidelines Appendix G. The project would have a significant effect on a historic architectural resource if it would cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines section 15064.5(b).

A "substantial adverse change" is defined by CEQA Guidelines section 15064.5 as "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired." The significance of a historical resource is "materially impaired," according to CEQA Guidelines section 15064.5(b)(2), when a project "demolishes or materially alters in an adverse manner those physical characteristics" of the resource that do any of the following:

(A) Convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources.

(B) Account for its inclusion in a local register of historical resources pursuant to Public Resources Code section 5020.1(k) or its identification in a historical resources survey meeting the requirements of Public Resources Code section 5024.1(g), unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant.

(C) Convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

Generally, a project that follows the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings*, or the *Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating*

Historic Buildings (1995), Weeks and Grimmer, shall be considered as mitigated to a level of less than a significant impact on the historical resource.[14]

Approach to Analysis

This section identifies impacts on historic resources and considers direct and indirect impacts on historic architectural resources based on the definitions set forth in CEQA Guidelines section 15064.5. Once a resource has been identified as significant, it must be determined whether the project would cause a "substantial adverse change" that would materially impair the significance of the resource. Material impairment occurs when there is demolition or alteration of the resource's physical characteristics such that it can no longer convey its historical significance and justify its inclusion in the CRHR or other applicable listing. Mitigation of effects on historical architectural resources may involve avoiding demolition of the resource, revising a proposed project to minimize the effect, or, where avoidance or minimization is not feasible, documenting the resource. Note that documentation may not reduce significant effects on a historical architectural resource to a less-than-significant level.

Impact Analysis

Impact 1: The proposed project would alter or demolish some of the existing structures on the project site. None of the affected structure possess historic significance and the proposed alterations and demolition would not cause substantial adverse changes to individual historic resources. (Less than Significant)

The 2016 report evaluated 14 buildings that were 50 years old or older and that could be affected by the proposed project. No changes are proposed for the three existing cabins in the Spring Creek area of the project. Interior remodeling and a new exterior addition are proposed for the Oak and Hemlock Cabins. A new addition is proposed for the Redwood Chapel and the Registration Office/Creekside Lounge would receive exterior façade improvements. Seven of these buildings are proposed for demolition: Firehouse Hall, Maintenance Office, Ivy Cabin, 316 Tabernacle Drive (cabin), Fir and Pine Cabins and the Pool House. The 2016 evaluation concluded that nine of the buildings were non-contributing to a potential historic district (see discussion below) and three had lost their integrity and therefore did not qualify as historic resources. Since none of these individual buildings were identified as historic resources, the proposed project could not have a substantial adverse impact.

Impact 2: The proposed project would construct new buildings within the core area of the conference grounds; specifically the Conference Center, Mission Woods and Spring Creek. These new buildings could cause a substantial adverse change to a potential historic district by indirectly affecting the character-defining features and distinctive location, setting, design, materials, workmanship, feeling, and association of the potential historic district. However, by following the Secretary of the Interior's Standards for the Treatment of Historic Properties the proposed project "shall be considered as mitigated to a level of less than a significant impact on the historical resource."[15] (Less than Significant).

Proposed New Construction

[14] California Environmental Quality Act, CEQA Guidelines, 15064.5(b)(3). 179.
[15] Ibid., 179.

The following new buildings would be constructed as part of the proposed project. They are located in the Conference Center, Mission Woods and Spring Creek subareas. The descriptions are based on drawings in the Use Permit Rev 3 set dated May 18, 2018.

Dining Hall (Conference Center): The two-story dining hall and kitchen building is roughly complex in plan with a gable roof. As rendered in the drawings, the building is assumed to have vertical wood siding and stucco cladding. The east elevation, with entrances to the dining hall, has a glazed façade with a central stone fireplace/chimney. The north elevation features multiple gable rooflines, a secondary entrance with glazed double doors and covered walkway.

Fireside Lounge (Conference Center): This one-story wood frame building is rectangular in plan. The rendering shows vertical wood siding and a gable roof with a wide eave overhang. An entry porch with gable roof and square posts shelters the main entrance with glazed double doors. The multi-lite windows are found on the north and east elevations.

New Lodge (Conference Center): Capped by a gable roof, this three-story building is roughly rectangular in plan. It is clad in a variety of materials including stucco, vertical wood siding, and large expanses of glazed bays with brick piers at the first floor. The main entry is located under an eyebrow at this same level. Punched openings are located at the second floor. Three open balconies are located at the third floor.

Bell Tower (Conference Center): The 46'-6" tall bell tower has a tapered stone base with what appears to be vertical wood siding above. The steep hipped roof features a clock. The tower is capped with a cross.

Covered Recreation (Conference Center): The tall, gable-roofed, one-story structure is open on all four elevations. It provides protection to a basketball court.

Mission Woods Lodge (Mission Woods): The two-story lodge building is V-shaped in plan with a gable roof. It has stucco cladding on the first floor and what appears to be vertical wood siding on the second floor. A central gable porch shelters the glazed main entrance with double doors. Multi-lite windows of different sizes punctuate the Northwest elevation. The gable roof with brackets feature a stone chimney, two gabled dormers, and a central shed dormer.

Pool Building and Seasonal Staff Housing (Spring Creek): These two buildings have not yet been designed.

Potential Historic District

The 2016 Report identified a potential historic district eligible under Criterion A and C (NRHP) and Criterion 1 and 3 (CRHR). For Criterion A/1, the 2016 Report stated the following:

> As an insularly developed community with significant ties to immigrants of Swedish heritage and within the context of early community development within the Santa Cruz Mountains and Scotts Valley area, it appears that as a district the initial construction (the first twenty five years) at Mission Springs, focusing primarily on the residential construction, maintains strong associations with events that have made a significant contribution to the broad patterns of local history, and

> the cultural heritage of Santa Cruz County. Therefore, it appears that the property would be potentially eligible for listing under Criterion A/1/2.[16] (Emphasis added)

For Criterion C/3, the 2016 Report said this about the design and architecture of the district:

> Many of the buildings at Mission Springs can best be described as Vernacular/ National Folk in style, with most of the post-World War II buildings maintaining many characteristic of the Modern/Contemporary styles.[17]
>
> As individual examples of an architectural style, the buildings at Mission Springs lack significant distinction; however as a potential district the community as a whole, inclusive of the seasonal cabins, does illustrate a unique development method with the formation of the camp and conference center surrounded by individually-constructed single-family cabins in varying designs located throughout the surrounding hills. In particular at the County level, the potential district does appear to be "representative of a distinct... construction method of a particular historic period or way of life," with an entire community established in the early twentieth century consisting of seasonal cabins, Vernacular in style, and constructed by individuals connected to Mission Springs and the Swedish Evangelical Missionary Association of California... Mission Springs as a potential district focusing primarily on the earliest seasonal cabins maintains unique planning and development patterns that appear potentially eligible under Criterion C/3 and at the County level under Criteria 3.[18] (Emphasis added)

"The early buildings at Mission Springs were designed with the general characteristics of a utilitarian design. Most of the early buildings and cabins were constructed with a focus on speed, economy and simplicity, rather than on architectural design."[19] The architecture can be characterized as Vernacular with the following features:

- "Simple roofline, with a medium to low-pitch;
- Small building footprint, generally rectangular;
- Simple construction techniques and mass-produced materials; and
- Design and construction by a carpenter with no visible or discernable style."[20]

At Mission Springs, additional characteristics include low, one-to-two story buildings, the use of wood as an exterior material, gable roofs, and punched windows.

Analysis

The project proposes to construct eight new buildings limited to the core area of the campus: Conference Center, Mission Woods and Spring Creek. As described above, these new buildings are all one- to three-story, detached buildings with gabled roofs and what appears to be wood siding. Other

[16] Butt, Historic Resources Evaluation, 19.
[17] Ibid., 19.
[18] Ibid., 20.
[19] Ibid., 9.
[20] Ibid., 9.

cladding materials include stucco and stone. Generally, the windows are all multi-lite assemblies. They have mainly rectangular floor plans, except for the Mission Woods Lodge which is V-shaped in plan.

The 2016 Report concluded that none of the buildings evaluated the buildings possessed historic significance either as individual structures, or as contributors to the potential historic district. "The focus of the potential district would be primarily on the seasonal residential cabins and potentially some of the Mission Springs Camps and Conference Center buildings if they also were constructed within the period of significance, are located on the original forty-five acres, and maintain historic integrity." The 2016 Report went on to say that the earliest seasonal cabins exemplified a unique development method with the formation of the camp and conference center surrounded by individually-constructed single-family cabins in the Vernacular style with its associated features. Since these offsite contributing resources are physically separated from the project site, there would not be any direct impacts to structures identified as individual contributing resources, but there could be indirect effects to the historic district. New construction would take place within the proposed project site and would consist of freestanding, detached structures. In evaluating the proposed new construction, Secretary of the Interior's Standards 1 – 8 are less applicable since they pertain to proposed work to an existing building. Standards 9 and 10 reference "related new construction" and "adjacent or related new construction", and are the most applicable for evaluating the proposed project.

Standard 9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

The proposed new buildings' massing, size, scale, and architectural features are appropriate to their Conference Center setting and also would not impact the historic integrity of the historic district. Integrity is the ability of a property to convey its historic significance. To retain historic integrity a property will always possess several, and usually most, of the aspects. The retention of specific aspects of integrity is paramount for a property to convey its significance. There are seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association of the potential historic district.

Location is the place where the historic property was constructed or the place where the historic event took place.

New construction would take place within the proposed project site. The proposed structures are freestanding and detached, and would not affect the location of potential contributing historic resources in the Conference Center. Additionally, with all new construction restricted to the project site, there would not be any effect on any of the seasonal cabins identified as potential contributing resources to the potential historic district.

Design is the composition of elements that constitute the form, plan, space, structure, and style of a property (in this case, the historic district).

The characteristics of the proposed new construction (see above) are compatible with the Vernacular design features of the potential historic district and its contributing resources.

Setting is the physical environment of a historic property that illustrates the character of the place.

With all new construction confined to the project site and the compatibility of the new design with the character of the potential historic district, there would not be any effect on the Setting of the potential historic district.

Materials are the physical elements combined in a particular pattern or configuration to form the aid during a period in the past.

The new buildings are physically separated from the buildings identified as potential contributors to the potential historic district and their design uses materials similar to those that characterize the potential historic district. Therefore, materials used in the potential historic district would not be affected.

Workmanship is the physical evidence of the crafts of a particular culture or people during any given period of history.

The new buildings are physically separated from the buildings in the potential historic district. Therefore, the workmanship that is characteristic of the contributing resources would not be affected.

Feeling is the quality that a historic property has in evoking the aesthetic or historic sense of a past period of time.

The characteristics of the proposed new construction are compatible with the Vernacular design features of the potential historic district and its contributing resources. This aspect of design together with the physical separation of the seasonal residential cabins from new construction would allow the historic district's aesthetic and historic sense to be maintained.

Association is the direct link between a property and the event or person for which the property is significant.

The direct link between the historic district and its strong associations with events that have made a significant contribution to the broad patterns of local history, and the cultural heritage of Santa Cruz County will be retained, and the historic district would remain sufficiently intact to convey that relationship.

Standard 10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

New buildings are within the project site and physically separate from the contributing resources in the historic district. Any of these buildings could be removed in the future without affecting the form and integrity of the historic district.

Impact 3. The proposed project envisions two new buildings that have not been designed: a new Pool House and at Mission Woods and proposed Seasonal Staff Housing at Spring Creek. The design of these

buildings could have a significant adverse impact on the historic resource. (Less than Significant with Mitigation)

Mitigation 3. The Pool House and Seasonal Staff Housing would be evaluated for compliance with the Secretary of the Interior's Standards for Rehabilitation.

A professional qualified in Architectural History, or Historic Architecture,[21] shall review the designs for the new Pool House and Seasonal Staff Housing for compliance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* or the *Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings*. The evaluation of the designs shall be submitted to the County of Santa Cruz for review and approval. By following the *Secretary of the Interior's Standards for Rehabilitation,* the new construction will not have a substantial adverse impact to historic resources.

[21] Architectural History
The minimum professional qualifications in architectural history are a graduate degree in architectural history, art history, historic preservation, or closely related field, with coursework in American architectural history, or a bachelor's degree in architectural history, art history, historic preservation or closely related field plus one of the following:

1. At least two years of full-time experience in research, writing, or teaching in American architectural history or restoration architecture with an academic institution, historical organization or agency, museum, or other professional institution; or
2. Substantial contribution through research and publication to the body of scholarly knowledge in the field of American architectural history.

Historic Architecture
The minimum professional qualifications in historic architecture are a professional degree in architecture or a State license to practice architecture, plus one of the following:

1. At least one year of graduate study in architectural preservation, American architectural history, preservation planning, or closely related field; or
2. At least one year of full-time professional experience on historic preservation projects.

Such graduate study or experience shall include detailed investigations of historic structures, preparation of historic structures research reports, and preparation of plans and specifications for preservation projects
(National Park Service n.d., Secretary of the Interior's Professional Qualification Standards, accessed October 30, 2018, https://www.nps.gov/history/local-law/arch_stnds_9.htm).

Attachment 12

Santa Cruz County GIS, Mapped Archeological Resources,

January 2019

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Mapped Archeological Resources

Santa Cruz County GIS Maps, February 2019

Attachment 13

Zinn Geology, Preliminary Geological Feasibility Report,

December 2016

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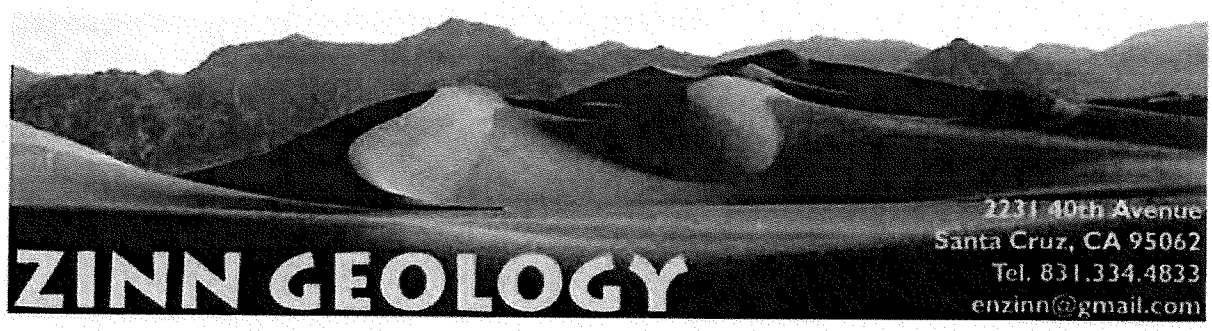


Revised 8 December 2016 Job # 2015003-G-SC

Mission Springs Christian Camp & Conference Center
c/o Ed Hultgren - Executive Director
1050 Lockhart Gulch Road
Scotts Valley, CA 95066

Re: Geological feasibility investigation for select sites for "Use Permit Amendment"
Mission Springs Christian Camp & Conference Center
Scotts Valley, California

Dear Mr. Hultgren:

This letter summarizes our geological feasibility investigation of select sites on the above-listed property, and the potential future geologic hazards and attendant risks that may be posed to the proposed future development at those sites. Our work is partially based on the plans by WMB Architects dated 26 October 2016. We have also already completed a geological feasibility report for the proposed Mission Woods Lodge (see our geology report dated 12 April 2015), which included some preliminary mapping for the current Spring Creek and Conference Center Core Site improvements.

The work proposed for this project is not intended to completely fulfill the type of geologic services needed to satisfy the County of Santa Cruz Planning Department regulations for performing design-level work. We can build upon the feasibility work outlined in this letter and complete design-level geological work under a separate scope of service at a later date, if warranted.

The work performed in this investigation was primarily directed by our meeting on 6 September 2016 with Bryan Hayes, Josh Anderson, John Swift and County of Santa Cruz personnel (Joseph Hanna, Rick Parks and Jessica Duktig), when quite a bit of regulatory ground and agreements about the limits of our scope of service were covered in discussions with the County of Santa Cruz personnel. We also performed a cursory review of proprietary data and publicly available literature, including reports and letters from several past investigations completed by our firm on the Mission Springs property.

The primary objective of our investigation was to verify that the developments depicted on the WMB plans dated 26 October 2016 are geologically viable with respect to geological hazards

such as large, deep-seated landsliding, shallow landsliding, liquefaction and lateral spreading. The secondary objective was to ostensibly provide the County of Santa Cruz reviewer with a geological hazards and mitigation narrative for the select sites that will serve as their basis for the County's forthcoming analysis.

During our 6 September 2016 site meeting we "flagged" specific sites and buildings in conjunction with the County of Santa Cruz Geologist, Joseph Hanna, that were to be assessed for this feasibility investigation. We utilized the sheet numbers and building labels from the WMB maps to organize the inventory of structures that need to be addressed, which are as follows:

WBM Sheet Up 3.1 - Frontier Ranch - buildings F1, F2, F4, F7 and F9;
WBM Sheet 3.2 - Wild Oak Site - buildings W1, W2, W3, W4, W5;
WMB Sheet UP4 - Conference Center buildings C6 (Dining), C10 (Fireside Lounge) and C12 (two story lodge/40 Guest Lodge);
WBM Sheet UP6 - Spring Creek Site - address the new building;
WBM no sheet - Maintenance building.

Our following sections of the report reference these plate numbers and our attached figures include excerpts of the WBM sheets.

REGIONAL GEOLOGIC SETTING

The study area is located in the central Santa Cruz Mountains (Figure 1). The Santa Cruz Mountains are formed by a series of rugged, linear ridges and valleys following the pronounced northwest to southeast structural grain of central California geology. Underlying most of the Santa Cruz Mountains is a large, elongate prism of granitic and metamorphic basement rocks, known collectively as the Salinian Block. These rocks are respectively separated from contrasting basement rock types to the northeast and southwest by the San Andreas and San Gregorio strike-slip fault systems. Overlying the granitic basement rocks is a sequence of dominantly marine sedimentary rocks of Paleocene to Pliocene age and non-marine sediments of Pliocene to Pleistocene age (Figure 2).

Throughout the Cenozoic Era (the last 65 million years), this portion of California has been dominated by tectonic forces associated with lateral or "transform" motion between the North American and Pacific lithospheric plates, producing long, northwest-trending faults such as the San Andreas and San Gregorio, with horizontal displacements measured in tens to hundreds of miles. Accompanying the horizontal (strike-slip) movement of the plates have been episodes of compressive stress, reflected by repeated uplift, deformation, erosion and deposition. Near the crest of the Santa Cruz Mountains, this tectonic deformation is most evident in the sedimentary rocks older than the middle Miocene and consists of steeply dipping folds, overturned bedding, faulting, jointing, and fracturing. Along the coast, the ongoing tectonic activity is most evident in

the formation of a series of uplifted marine terraces. The Loma Prieta earthquake of 1989 is the most recent reminder of the geologic unrest in the region.

The camp property has also been profoundly influenced by the wetter Pleistocene climate which created the relatively uplifted series of alluvial flats and terraces that stretch from the City of Scotts Valley - Carbonera Creek area to the feeder stream valleys such as Lockhart Gulch at the Mission Springs Camp & Conference Center site.

REGIONAL SEISMIC SETTING

California's broad system of strike-slip faulting has had a long and complex history. Some of these faults present a seismic hazard to the subject properties. The most important of these are the San Andreas, Zayante(-Vergeles) and Monterey Bay-Tularcitos fault zones (Figures 2 and 3). These faults are either active or considered potentially active (Petersen et al., 1996; Working Group On Northern California Earthquake Potential [NCEP], 1996). Each fault is discussed below. Locations of epicenters associated with the faults are shown in Figure 3.

San Andreas Fault

The San Andreas fault is active and represents the major seismic hazard in northern California (NCEP, 1996). The main trace of the San Andreas fault trends northwest-southeast and extends over 700 miles from the Gulf of California through the Coast Ranges to Point Arena, where the fault extends offshore.

Geologic evidence suggests that the San Andreas fault has experienced right-lateral, strike-slip movement throughout the latter portion of Cenozoic time (the past 20 to 30 million years), with cumulative offset of hundreds of miles. Surface rupture during historical earthquakes, fault creep, and historical seismicity confirm that the San Andreas fault and its branches, the Hayward, Calaveras, and San Gregorio faults, are all active today.

Historical earthquakes along the San Andreas fault and its branches have caused significant seismic shaking in the Monterey Bay area. The two largest historical earthquakes on the San Andreas to affect the area were the moment magnitude (M_w) 7.9 San Francisco earthquake of 18 April 1906 (actually centered near Olema) and the M_w 6.9 Loma Prieta earthquake of 17 October 1989. The San Francisco earthquake caused severe seismic shaking and structural damage to many buildings in the Monterey Bay area. The Loma Prieta earthquake appears to have caused more intense seismic shaking than the 1906 event in localized areas of the Santa Cruz Mountains, even though its regional effects were not as extensive. There were also significant earthquakes in northern California along or near the San Andreas fault in 1838, 1865 and possibly 1890 (Sykes and Nishenko, 1984; NCEP, 1996).

Geologists have recognized that the San Andreas fault system can be divided into segments with "characteristic" earthquakes of different magnitudes and recurrence intervals (Working Group on California Earthquake Probabilities [WG], 1988 and 1990). A study by NCEP in 1996 has redefined the segments and the characteristic earthquakes for the San Andreas fault system in northern and central California. Two "locked" overlapping segments of the San Andreas fault system represent the greatest potential hazard to the properties.

The first segment is defined by the rupture that occurred from Cape Mendocino to San Juan Bautista along the San Andreas fault during the great M_w 7.9 earthquake of 1906. The NCEP (1996) has hypothesized that this "1906 rupture" segment experiences earthquakes with comparable magnitudes at intervals of about two hundred years.

The second segment is defined by the rupture zone of the M_w 6.9 Loma Prieta earthquake. Although it is uncertain whether this "Santa Cruz Mountains" segment has a characteristic earthquake independent of great San Andreas fault earthquakes, the NCEP (1996) has assumed an "idealized" earthquake of M_w 7.0 with the same right-lateral slip as the 1989 Loma Prieta earthquake but having an independent segment recurrence interval of 138 years and a multi-segment recurrence interval of 400 years.

The 2002 WG (2003) segmentation model is largely similar to that adopted by NCEP in 1996, although they have added far more complexity to the model, and have reduced the forecasted magnitudes for the different segments. The 2002 California probabilistic seismic hazard maps issued by the California Geological Survey (Cao et al., 2003) appear to have largely adopted the earthquake magnitudes issued by the 2002 WG. The most significant change in modeling the San Andreas Fault Zone by Cao et al. (2003) is the elimination of a singular listing of the penultimate event, the 1906 Mw 7.9 earthquake (although such an event can be derived by looking at the aggregate probability of the individual segments rupturing together, as they did in 1906).

In spite of the increasing complexity of the models addressing different size earthquakes with different recurrence intervals on the sundry segments of this fault, it is undeniable that the 1906 M_w 7.9 earthquake still eclipses all the other events which have occurred on the San Andreas fault in this region. Keeping this in mind, it is important that any site-specific seismic analyses performed for development on the properties take the 1906 event into account, particularly since the empirical evidence presented by field researchers indicates the 1906 event recurs every several centuries.

Zayante (-Vergeles) Fault

The Zayante fault lies west of the San Andreas fault and trends about 50 miles northwest from the Watsonville lowlands into the Santa Cruz Mountains. The southern extension of the Zayante fault, known as the Vergeles fault, merges with the San Andreas fault south of San Juan Bautista.

The Zayante-Vergeles fault has a long, well-documented history of vertical movement (Clark and Reitman, 1973), probably accompanied by right-lateral, strike-slip movement (Hall et al., 1974; Ross and Brabb, 1973). Stratigraphic and geomorphic evidence indicates the Zayante-Vergles fault has undergone late Pleistocene and Holocene movement and is potentially active (Buchanan-Banks et al., 1978; Coppersmith, 1979).

Some historical seismicity may be related to the Zayante-Vergles fault (Griggs, 1973). For instance, the Zayante-Vergles fault may have undergone sympathetic fault movement during the 1906 earthquake centered on the San Andreas fault, although this evidence is equivocal (Coppersmith, 1979). Seismic records strongly suggest that a section of the Zayante-Vergles fault approximately 3 miles long underwent sympathetic movement in the 1989 earthquake. The earthquake hypocenters tentatively correlated to the Zayante-Vergles fault occurred at a depth of 5 miles; no instances of surface rupture on the fault have been reported.

In summary, the Zayante-Vergles fault should be considered potentially active. The NCEP (1996) considers it capable of generating a magnitude 6.8 earthquake with an effective recurrence interval of 10,000 years. Alternatively, Cao et al. (2003) considers this fault capable of generating a maximum earthquake of Mw 7.0, with no stated recurrence interval.

Monterey Bay-Tularcitos Fault Zone

The Monterey Bay-Tularcitos fault zone is 6 to 9 miles wide, about 25 miles long, and consists of many en échelon faults identified during shipboard seismic reflection surveys (Greene, 1977). The fault zone trends northwest-southeast and intersects the coast in the vicinity of Seaside and Ford Ord. At this point, several onshore fault traces have been tentatively correlated with offshore traces in the heart of the Monterey Bay-Tularcitos fault zone (Greene, 1977; Clark et al., 1974; Burkland and Associates, 1975). These onshore faults are, from southwest to northeast, the Tularcitos-Navy, Berwick Canyon, Chupines, Seaside, and Ord Terrace faults. Only the larger of these faults, the Tularcitos-Navy and Chupines, are shown on Figure 2. It must be emphasized that these correlations between onshore and offshore portions of the Monterey Bay-Tularcitos fault zone are only tentative; for example, no concrete geologic evidence for connecting the Navy and Tularcitos faults under the Carmel Valley alluvium has been observed, nor has a direct connection between these two faults and any offshore trace been found.

Outcrop evidence indicates a variety of strike-slip and dip-slip movement associated with onshore and offshore traces. Earthquake studies suggest the Monterey Bay-Tularcitos fault zone is predominantly right-lateral, strike-slip in character (Greene, 1977). Stratigraphically, both offshore and onshore fault traces in this zone have displaced Quaternary beds and, therefore, are considered potentially active (Buchanan-Banks et al., 1978). One offshore trace, which aligns with the trend of the Navy fault, has displaced Holocene beds and is therefore active by definition (Buchanan-Banks et al., 1978).

Seismically, the Monterey Bay-Tularcitos fault zone may be historically active. The largest historical earthquakes *tentatively* located in the Monterey Bay-Tularcitos fault zone are two events, estimated at 6.2 on the Richter Scale, in October 1926 (Greene, 1977). Because of possible inaccuracies in locating the epicenters of these earthquakes, it is possible that they actually occurred on the nearby San Gregorio fault zone (Greene, 1977). Another earthquake in April 1890 might be attributed to the Monterey Bay-Tularcitos fault zone (Burkland and Associates, 1975).

The NCEP (1996) has assigned an earthquake of M_w 7.1 with an effective recurrence interval of 2,600 years to the Monterey Bay-Tularcitos fault zone, based on Holocene offshore offsets. Petersen et al. (1996) have a similar earthquake magnitude, but for a recurrence interval of 2,841 years. Their earthquake is based on a composite slip rate of 0.5 millimeters per year (after Rosenberg and Clark, 1995).

Cao et al. (2003) has developed a model for the Monterey Bay fault zone that combines slip rates of the different segments, resulting in a composite slip rate of 0.5 mm per year and a forecasted earthquake of Mw 7.3, with no stated recurrence interval. The Cao et al. (2003) model adopted implicitly assumes that all the assessed segments in the Monterey Bay fault zone each have an independent slip rate of 0.1 mm per year (based upon the one slip rate developed by Rosenberg and Clark, 1995 for the Tularcitos segment), and essentially assigns the composite slip rate to the Tularcitos trace of the Monterey Bay fault zone.

SELECT SITE CHARACTERISTICS, PROJECT IMPACTS AND MITIGATION MEASURES

This section addresses the site characteristics, impacts of the project related to geology and soils conditions and the recommended mitigation measures.

For this investigation, the project would generally be considered to have a significant effect on the environment if it would:

1. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
- Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (refer to Division of Mines and Geology Special Publication 42);
- Strong seismic ground shaking;
- Seismic related ground failure, including liquefaction;
- Landslides;
- Result in substantial soil erosion or the loss of topsoil;

- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

Two of the geological hazards listed above, fault rupture and seismic ground shaking, are either located far away from the project or are regional in nature and therefore ubiquitous to every development on the property. Their impacts on all of the select sites discussed below will be addressed in this section.

Fault Rupture

Rupture along faults can cause offset of the ground surface along the surface trace of the fault. The offset can damage roads and buildings and can break pipes or other underground utilities. No mapped fault traces cross the areas proposed for development. The nearest mapped active fault to the project area is the Zayante fault zone, approximately 2 ½ miles north-northeast of the project. Therefore, the potential for ground surface rupture due to faulting is considered to be low and no significant impacts would occur.

Seismic Ground Shaking

The proposed future developments project would be constructed in a region of high seismic risk, but as noted above, none of the sites are located within a State of California Earthquake Fault Zone and no active earthquake faults have been identified at any of the sites. The incorporation of project elements that properly implement typical building code mitigation measures (i.e., compliance with the most stringent applicable seismic codes and implementation of the recommendations of the soils reports for seismic safety) would further ensure that seismic ground shaking impacts are reduced.

The seismic shaking hazard is ubiquitous for this region, and typically presents a significant impact that can be mitigated to a less-than-significant level. Without mitigation, strong seismic shaking in the project vicinity could produce serious damaging effects to the proposed project. The effects of ground shaking on future planned structures and other improvements can be reduced by earthquake-resistant design in accordance with the latest adopted editions of the California Building Code. It is important to note, though, that even with adequate design and construction, some damage to structures may occur during a great earthquake. However, the damage due to high intensity shaking may be reduced by careful placement and construction of the structure. Past experience has shown that the quality of design and construction is far more important than the precise evaluation of ground motion parameters.

WBM Sheet Up 3.1 - Frontier Ranch - buildings F1, F2, F4, F7 and F9

Buildings F1, F2 and F4 - Wagon Wheel Dining Hall, Nurses Station and Climbing Tower Zip Line

Buildings F1, F2 and F4 are arranged in a semi-circle around a playing field situated in a broad bedrock saddle, near the heads of drainage swales that respectively descend to the east and west into Ruins Creek and Lockhart Gulch (Figure 5). The slopes in the vicinity of these developments are flat to moderately steep and appear to have Purisima Formation sandstone bedrock outcropping very near the ground surface.

No changes are currently proposed for the buildings, although that may change in the future.

Buildings F7 - Platform Tents

"Buildings F7" is a collection of fourteen seasonally-used platform tents, located upon the eastern flank of the main bedrock ridge and a east-descending spur ridge. The slopes in the vicinity of these developments are flat to moderately steep and appear to have Purisima Formation sandstone bedrock outcropping very near the ground surface. The tent platforms are supported by pier blocks that are shallowly embedded. Some evidence of slope creep around the pier blocks during our site visit.

Buildings labeled "F7" on Figure 6 were recognized in the 1975 Master Use Permit (personal communication with Bryan Hayes) and no changes are currently proposed for those buildings.

Buildings labeled "F7A" on Figure 6 were NOT recognized in the 1975 Master Use Permit and it is our understanding that Mission Springs will be permitting those structures in the future (personal communication with Bryan Hayes). None of the structures labeled "F7A" on Figure 6 appear to be subject to a greater than ordinary risk with respect to landsliding.

Buildings F9 - Platform Tents

"Buildings F9" is a collection of thirteen seasonally-used platform tents, located upon the eastern flank of the main bedrock ridge in an area where east-draining swales have been etched into the moderately steep terrain (Figure 6). The slopes in the vicinity of these developments are moderately steep to very steep and appear to have intensely fractured Santa Cruz Mudstone bedrock outcropping very near the ground surface. The tent platforms are supported by pier blocks that are shallowly embedded. Some evidence of slope creep around the pier blocks during our site visit.

Buildings labeled "F9" on Figure 6 were recognized in the 1975 Master Use Permit (personal communication with Bryan Hayes) and no changes are currently proposed for those buildings.

Buildings labeled "F9A" on Figure 6 were NOT recognized in the 1975 Master Use Permit and it is our understanding that Mission Springs will be permitting those structures in the future (personal communication with Bryan Hayes). None of the structures labeled "F9A" on Figure 6 appear to be subject to a greater than ordinary risk with respect to landsliding.

WBM Sheet UP-3.2 - Wild Oak - buildings W1, W2, W3, W4, W5

Building W1 - Meeting Room

Building W1 is an existing meeting room located on gently sloping ground near the apex of an alluvial fan that is draped atop a relatively uplifted fluvial terrace near the mouth of a drainage swale above Ruins Creek (Figure 7). All of those surficial materials are underlain at depth by Santa Cruz Mudstone bedrock.

Based upon the geological and geomorphic setting of this building site, it is our opinion that the surficial deposits have a low to moderate potential to liquefy.

It is our understanding that the structure may be modified in the future. Any modifications made should include a foundation upgrade with foundation design recommendations issued from a soils engineering investigation where warranted. Soils investigation reports should address the risks related to the hazard of liquefaction.

Building W2 - Boys Cabin

Building W2 is an existing cabin located near the transition of a steep hill side flank and the bottom of a drainage swale, adjacent to the paved access road (Figure 7). The structure appears to be founded upon colluvium, underlain at depth by Santa Cruz Mudstone bedrock at depth.

There are no current plans for changes to be made to this cabin. During our discussion with County personnel, the County Geologist, Joseph Hanna, indicated that the structure needed to have the foundation upgraded with foundation design recommendations issued from a soils engineering investigation where warranted.

Building W3 - Boys Cabin

Building W3 is an existing cabin that straddles the toe of a steep slope and a more gentle colluvial slope, all below the existing paved access road (Figure 7). The structure appears to be founded upon a colluvial wedge that lies atop a fluvial terrace related to the nearby drainage swale. Similar to Building W1, the entire site is underlain by Santa Cruz Mudstone bedrock at depth.

In our opinion, the back of the cabin (the portion facing the steep slope) appears to be subject to a low to moderate potential for future shallow landslides and small rockfalls. Although no plans for changes are in the works for this cabin, we discussed the hazards and potential risks posed to the structure with County of Santa Cruz personnel and concluded that the structure should not be occupied until the risk due to landsliding is mitigated through proper investigation and design or through relocation. Although we did not specifically identify and investigate an alternative location for this cabin, there appears to be multiple sites in this camp vicinity that could be geologically feasible and subject to ordinary risks due to geological hazards.

Building W4 - Girls Cabin

Building W4 is an existing cabin located on gently sloping ground, atop a dissected portion of the relatively uplifted fluvial terrace (Figure 7). The structure appears to be founded on fluvial terrace deposits which are underlain at depth by Santa Cruz Mudstone bedrock.

Based upon the geological and geomorphic setting of this building site, it is our opinion that the surficial deposits have a low to moderate potential to liquefy.

There are no changes planned at this time for the cabin. If any changes to the cabin are planned for the future, the foundation should be upgraded with foundation design recommendations issued from a soils engineering investigation where warranted. Soils investigation reports should address the risks related to the hazard of liquefaction.

Building W5 - Girls Cabin

Building W5 is an existing cabin located on a building pad notched into the base of a very steep slope, near the transition to the gentler slope related to the relatively uplifted fluvial terrace (Figure 7). The structure appears to be founded upon Santa Cruz Mudstone bedrock, colluvium and a shallow wedge of artificial fill.

In our opinion, the back of the cabin (the portion facing the steep slope) appears to be subject to a low to moderate potential for future shallow landslides and small rockfalls. Although no plans for changes are in the works for this cabin, it is our opinion that the risk related to this landsliding hazard should be mitigated and that the most economical way to do this is through relocation of the cabin to a less hazardous site. Although we did not specifically identify and investigate an alternative location for this cabin, there appears to be multiple sites in this camp vicinity that could be geologically feasible and subject to ordinary risks due to geological hazards.

WBM Sheet UP-4 -Conference Center - Buildings C6, C10 and C12

Building C6 - New Proposed Dining Hall

Building C6 is an existing building that will be expanded and upgraded in the future. The structure is located atop a gently-sloping relatively-uplifted fluvial terrace that is underlain by a 20-foot thick blanket of loose, saturated soils that are underlain at depth by Santa Margarita Formation bedrock (Figure 8). The site is not located within a flood hazard area, floodway area or other flood area. The surficial deposits appear to be liquefiable, based upon preliminary soils investigation work by Brian Bauldry of Pacific crest Engineering (personal communication with Brian Bauldry).

It is our understanding that the ongoing design investigation will eventually result in soils engineering and structural engineering recommendations to mitigate the risks related to liquefaction.

Building C10 - Fireside Lounge

Building C10 is a proposed 836 square foot meeting room. It is located on gently sloping ground at the base of a very steep slope, near the back edge of the relatively uplifted fluvial terrace (Figure 8). Based upon the drilling results for the nearby Building C6, it is our opinion that the structure lies upon the relatively loose blanket of sediments that overlie the bedrock at this location. Due to the paucity of drilling data at this location, we are uncertain about the thickness of the sediments, as well as uncertain about the precise underlying bedrock formation due to the fact that the proposed site is located near the contact between the Santa Margarita Formation and the Santa Cruz Mudstone.

The site is not located within a flood hazard area, floodway area or other flood area. Based upon the results at the C6 building site and the similar geomorphic setting of this building site, it is our opinion that the surficial deposits have a low to moderate potential to liquefy. Additionally, it is our opinion that the very steep slope behind the proposed site may be capable of low to moderate potential of issuing a shallow landslide deposit in the form of a debris flow that could strike the proposed site.

During our discussion at the site with the County Geologist, Joe Hanna, we concluded that a geological investigation and soils engineering investigation would need to be conducted at the site as part of the design process. The subsequent reports from those investigations will be required to adequately characterize the risks related to the liquefaction and shallow landsliding hazards and issue appropriate mitigation recommendations where warranted. Both reports will need to specifically address the possibilities of mitigating the risk debris flow hazard through either relocation of the structure or through a properly designed debris flow impact wall.

Building C12 - 2-Story Lodge

Building C12 is a proposed 9000 square 40-bed lodge that will be span the base of the very steep slope and gently sloping ground at the base of a very steep slope, at the back edge of the relatively uplifted fluvial terrace (Figure 8). The back of the structure will be notched into the Santa Cruz Mudstone bedrock on the very steep slope and project outward onto the terrace surface. Based upon the drilling results for the nearby Building C6 and the topographic and geological setting, it is our opinion that the structure will be founded on both bedrock (at the rear of the structure) and on the relatively loose blanket of sediments that overlie the bedrock at this location. Due to the paucity of drilling data at this location, we are uncertain about the thickness of the sediments, as well as uncertain about the precise underlying bedrock formation due to the fact that the proposed site is located near the contact between the Santa Margarita Formation and the Santa Cruz Mudstone.

The site is not located within a flood hazard area, floodway area or other flood area. It is our opinion that the surficial deposits have a low to moderate potential to liquefy. Additionally, it is our opinion that the very steep slope behind the proposed site may be capable of low to moderate potential of issuing a shallow landslide deposit in the form of a debris flow that could strike the proposed building.

During our discussion at the site with the County Geologist, Joe Hanna, we concluded that a geological investigation and soils engineering investigation would need to be conducted at the site as part of the design process. The subsequent reports from those investigations will be required to adequately characterize the risks related to the liquefaction and shallow landsliding hazards and issue appropriate mitigation recommendations where warranted. Both reports will need to specifically address the possibilities of mitigating the risk debris flow hazard through a properly designed debris flow impact wall or other structures that can mitigate the risk.

WBM Sheet UP-6 - Building S3 - Spring Creek Seasonal Staff Lodging

Building S3 - New Proposed Seasonal Staff Lodging

Building S3 is a new proposed 4400 square foot facility of seasonal staff lodging. The currently proposed building footprint lies upon a relatively uplifted fluvial terrace surface alongside Spring Creek, near its intersection with Lockhart Gulch (Figure 9). The terrace is backed by a very steep bedrock slope and lies downstream from a sharp bend in the primary channel for Spring Creek.

It is likely that the proposed footprint is underlain by the same blanket of loose, saturated soils that are present across the street at nearly the same elevation under Building C6. This site is likely underlain by Santa Margarita Formation bedrock below the terrace, and the steep slope behind it may be underlain by Santa Cruz Mudstone.

Although the site is not located within a flood hazard area, floodway area or other flood area, it may be subject to flooding in the future if Spring Creek jumps its channel at the upstream bend. In our opinion, there is no reason to require a detailed hydraulic analysis for Spring Creek at this stage of a feasibility investigation, since the site doesn't lie within a designated flood zone and any future risks related to flooding can be mitigated through relocation or raising of the structure. When the structure moves to the design stage, however, the flooding hazard and resultant risk should be adequately addressed through relocation of the proposed structure or adequate hydraulic analysis and engineering recommendations.

It is our opinion that the surficial deposits on the site have a low to moderate potential to liquefy. Additionally, it is our opinion that the very steep slope behind the proposed site may be capable of low to moderate potential of issuing a shallow landslide deposit in the form of a debris flow that could strike the proposed building.

During our discussion at the site with the County Geologist, Joe Hanna, we concluded that a geological investigation and soils engineering investigation would need to be conducted at the site as part of the future design process. The subsequent reports from those investigations will be required to adequately characterize the risks related to the liquefaction and shallow landsliding hazards and issue appropriate mitigation recommendations where warranted. Both reports will need to specifically address the possibilities of mitigating the risk debris flow hazard through adequate relocation of the structure or a properly designed debris flow impact/deflection wall or other structures that can mitigate the risk.

During the design process for Building S3 the septic system will likely need to be upgraded or brought into conformance with current codes and ordinances. If the septic system cannot be adequately set back or elevated far enough away from groundwater, the system may need to tie into the existing septic system for the conference center on the other side of Lockhart Gulch.

WBM Sheet UP-3 - Maintenance Facility Adjacent To Water Tank

We observed the newly proposed maintenance facility during our site visit with County personnel which is located on sheet UP-3 by WBM. We have also located the site on Figure 4 included with this letter.

The proposed site lies on old building pad sitting on a prominent, narrow, Santa Cruz Mudstone bedrock ridge. The pad appears to be have been created through scraping of the soil and weathered bedrock from the crest and side casting it to the western side of the gently sloping ridge crest. It is likely that Santa Cruz Mudstone lies right at the ground surface in the proposed building area, with the exception of the periphery where the side cast fill lies.

We did not observe any evidence of prior events of landsliding or ridge top shattering at the site. The presence of old, likely non-engineered fill near the periphery presents a risk with respect to

the process of soil creep. In our opinion there is no need for any further geological input for the site during the design phase. A soils investigation report should be prepared for the design of the structure, and the hazard of differential settlement derived from founding in both the bedrock and the side cast fill should be adequately characterized and mitigated where warranted.

PROJECT IMPACTS AND MITIGATION MEASURES

Fault Rupture

As noted previously, the potential for ground surface rupture due to faulting is considered to be low and no significant impacts would occur.

Seismic Ground Shaking

Impact 1-1: Seismic ground shaking at all of the sites may occur during the next major earthquake on a regional fault system. Such shaking can cause severe damage to or collapse of buildings or other project facilities and may expose people to injury or death or result in significant economic loss to the project. Seismic shaking at all of the sites presents a potentially significant impact.

Mitigation Measure 1-1: During design-level studies, the project soils engineer and project structural engineer should provide seismic design for the project consistent with the most current version of the California Building Code, at a minimum. If other, more conservative design guidelines are determined to be applicable to the project, those design guidelines should be followed.

This mitigation measure would reduce the impact due to seismic ground shaking at all of the sites to a less-than-significant level. Please note that the CBC design standards do not insure that the building will not be significantly damaged in the event of an earthquake on a nearby fault. The CBC design standard is intended primarily to protect the lives of the building occupants and reduce the risk of major structural failures. A building designed to CBC standards may nevertheless suffer damage sufficient to render it unusable.

Seismic-Related Ground Failure (Including Liquefaction)

Impact 1-2: The liquefaction potential is low to moderate for Buildings W1, W4, C6, C10, C12 and S3. Liquefaction at these sites presents a potentially significant impact.

Mitigation Measure 1-2: During design studies, the project soils engineer should adequately characterize the risks related to liquefaction and provide appropriate mitigation recommendations where warranted in conjunction with the project structural engineer. Implementation of adequate engineering characterization and design should mitigate the risk to a less-than-significant impact.

Landslides

Impact 1-3: The potential is low to moderate for shallow landsliding in the form of debris flows to strike Buildings W3, W5, C10, C12 and S3, which may damage the buildings. This is a potentially significant impact.

Mitigation Measure 1-3: During the design process for Buildings W3, W5, C10, C12 and S3, the risks related to shallow landsliding should be adequately characterized and mitigation recommendations issued via joint investigations by a soils engineer and geologist. The joint investigations should, at a minimum consider the following:

1. The thickness of colluvium on the slopes above the site;
2. The drainage patterns on the slope above the site that might trigger debris flows;
3. The size and terminal velocity of debris flows that might strike the buildings, if warranted;
4. Mitigation schemes such as relocating structures, constructing impact structures that will stop and capture the debris flow deposits, or constructing deflection structures that will guide the debris flow deposits away from structures.

Implementation of adequate geology and engineering characterization and design should mitigate the risk to a less-than-significant impact.

Impact 1-4: The potential is low to moderate for shallow landsliding and rock fall landsliding to undermine and damage the cabins labeled "F7A" and "F9A" on Figure 6. This is a less than significant impact.

Mitigation Measure 1-4: No specific mitigation measures are needed for the undermining hazard triggered by landsliding because the process presents a less than significant impact.

Erosion And Soil Creep

Soil erosion and soil creep caused by disturbance of the natural landscape during and following construction of any of the planned facilities could be a significant environmental impact. Potential erosion-related and soil-creep related impacts due to the present project should be addressed by the project soils engineer and project civil engineer during the design phase of the structures.

Soil Supporting Use of Waste Disposal Systems For Building S3

Impact 1-5: The potential is low to moderate for a standard or alternative septic system to be negatively impacted by high groundwater at the S3 building site, potentially causing system failure or impairing system functionality. This is a potentially significant impact.

Mitigation Measure 1-5a: During the design phase for Building S3, the septic system should be evaluated with respect to the hydrogeology conditions at the site. If warranted, the system should be upgraded to lower the likelihood of failure or impairment, as well as to bring it into conformance with current codes and ordinances. If this mitigation measure will not lower the impact to less than significant, or if it cannot be implemented, then Mitigation Measure 1-5b should be considered.

Mitigation Measure 1-5b: During the design phase for Building S3, the septic system may need to be rerouted and redesigned to allow for tie-in to the existing septic system for the Conference center area on the other side of Lockhart Gulch. Implementation of this mitigation measure will lower the impact to less than significant.

Flood Hazard For Building S3

Impact 1-6: The proposed Building S3 may be subject to flooding if Spring Creek jumps its channel at the upstream bend. The structure may be damaged if this occurs, resulting in a potentially significant impact.

Mitigation Measure 1-6a: Relocate the structure to an area with low flood hazard potential during the design phase. If this mitigation measure will not lower the impact to less than significant or cannot be implemented, then Mitigation Measure 1-6b should be considered.

Mitigation Measure 1-6b: When the structure moves to the design stage the flooding hazard and resultant risk may need to be adequately addressed through adequate hydraulic analysis and engineering recommendations. If this mitigation measure is implemented in the design of the structure, it will result in a less-than-significant impact.

Exceedance of Program EIR Standards of Significance

No program EIR standards of significance would be exceeded with the proposed developments for this project.

Based on the criteria evaluated herein, the proposed development as mitigated would not have a significant adverse impact related to geology and soils.

CUMULATIVE IMPACTS

Cumulative geology/soil impacts could occur as a result of the combined effects of the proposed project and other reasonable foreseeable projects on similar construction schedules. All of these projects are located in areas subject to seismic ground shaking. These projects would implement mitigation measures and project-specific mitigation measures to reduce potential seismic-related impacts to less-than-significant levels.

Cumulative soil erosion impacts could also occur with a combination of projects underway at similar times. The impacts of erosion related cumulative impacts and mitigation measures will be adequately addressed if the site specific potential erosion-related impacts are addressed by the project soils engineer and project civil engineer during the design phase of the structures.

Based on the significant criteria evaluated herein, the project as mitigated would not have a significant adverse cumulative impact related to geology and soils.

FINAL DISCUSSION

The overall objective for our investigation was to assess the feasibility of the proposed developments given the existing geological hazards and attendant risks. It is our opinion that all of the geological hazards identified for all the of structures considered in this letter can be adequately mitigated through either adequate geological investigation, adequate soils engineering investigation or a combination thereof. In our opinion the aforementioned studies should be conducted at the commencement of design studies, particularly with respect to structures that can be relocated as a way of mitigating the risks and impacts. There is no reason to require any of these studies prior to commencement of the design work, since we did not identify any geological "deal killers" that would absolutely preclude permitting or developing the structures identified in this letter.

INVESTIGATION LIMITATIONS

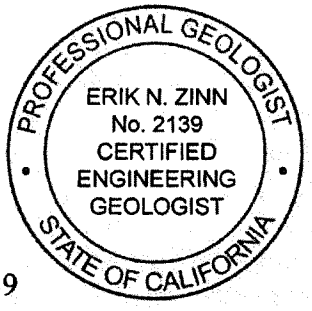
1. Our services consist of professional opinions and recommendations made in accordance with generally accepted engineering geology principles and practices. No warranty, expressed or implied, including any implied warranty of merchantability or fitness for the purpose is made or intended in connection with our services or by the proposal for consulting or other services, or by the furnishing of oral or written reports or findings. If the client desires assurances against project failures, he or she agrees to obtain appropriate insurance through his or her own insurance broker.

2. The analysis and recommendations submitted in this report are based on the geologic information derived from the steps outlined in the introduction and scope of investigation sections of this report. The information is derived from necessarily limited natural and artificial exposures. Consequently, the conclusions and recommendations should be considered preliminary.

3. The conclusions and recommendations noted in this report are based on qualitative estimates of probability and in no way imply the site will not possibly be subjected to ground failure or seismic shaking so intense that structures will be severely damaged or destroyed. The report does suggest that compliance with the recommendations noted in the report will reduce the risks associated with geologic hazards.

4. The findings of this report are valid as of the present date. However, changes in the conditions of property and its environs can occur with the passage of time, whether they be due to natural processes or to the works of man. In addition, changes in applicable or appropriate standards occur whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated, wholly or partially, by changes outside our control. Therefore, the conclusions and recommendations contained in this report cannot be considered valid beyond a period of six months from the date of this report without review by a representative of this firm.

Sincerely,
ZINN GEOLOGY



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Attachments: Figure 1 - Topographic Index Map
Figure 2 - Regional Geologic Map
Figure 3 - Regional Seismicity Map
Figure 4 - Local Geologic Index Map
Figure 5 - Excerpt From WBM Sheet UP-3.1
Figure 6 - Excerpt From WBM Sheet UP-3.1
Figure 7 - Excerpt From WBM Sheet UP-3.2
Figure 8 - Excerpt From WBM Sheet UP-4
Figure 9 - Excerpt From WBM Sheet UP-6

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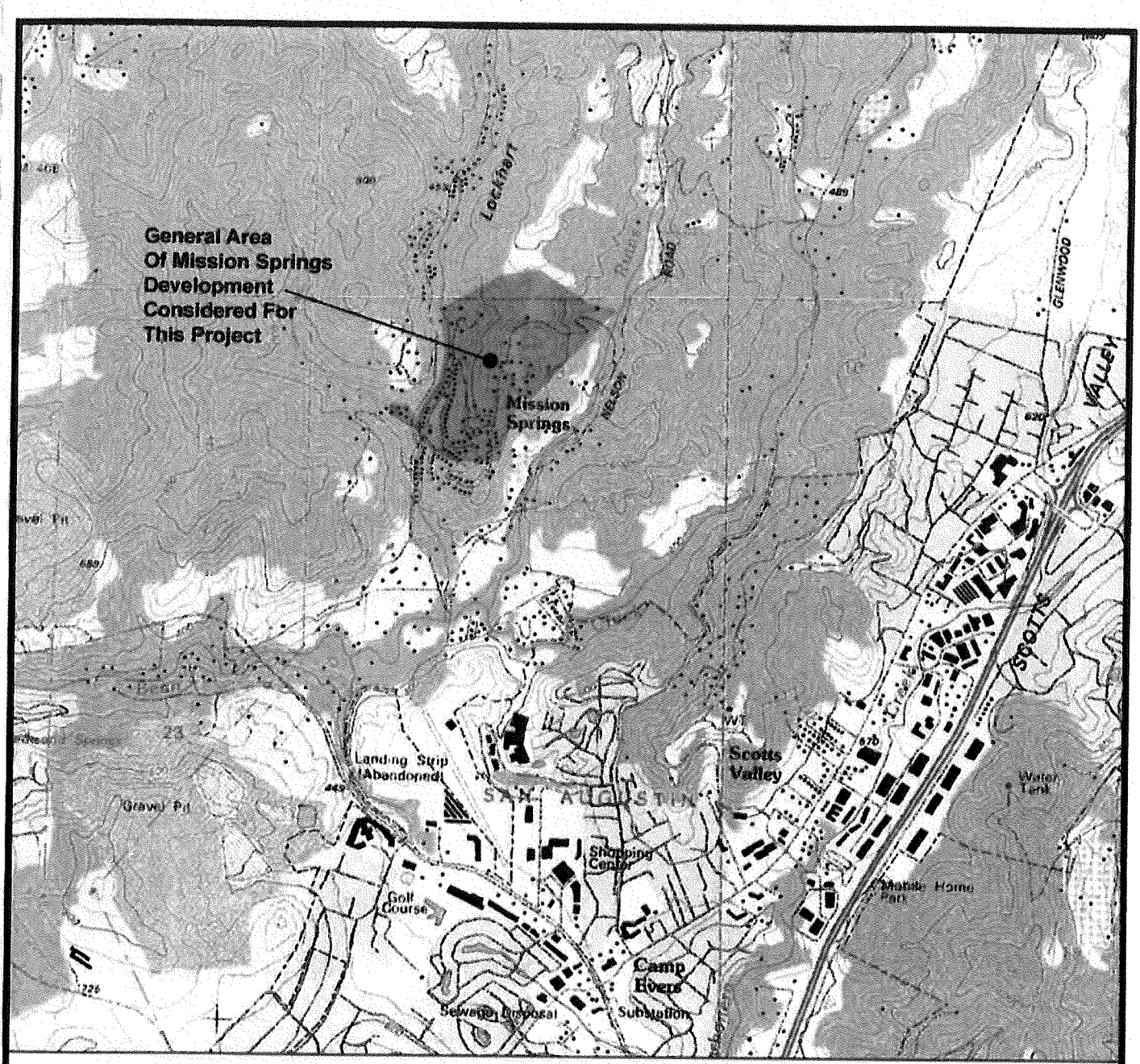

BASE MAP: U.S. Geological Survey, 1991, Felton quadrangle, California, 7.5' topographic series, scale 1:24,000.

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SCALE 1:24,000

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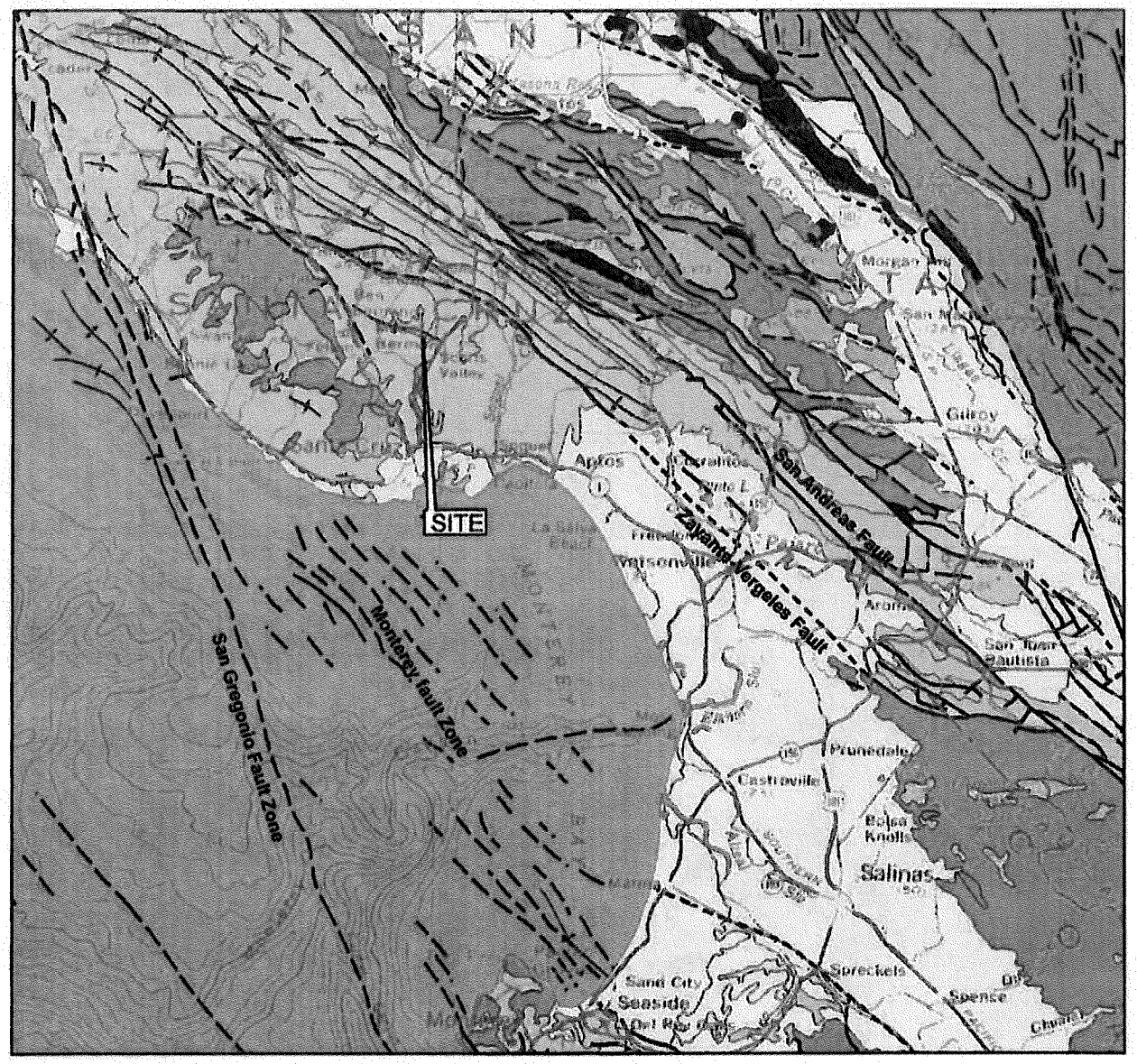
ZINN GEOLOGY

TOPOGRAPHIC INDEX MAP
Select Buildings Geological Feasibility Study
Mission Springs Camp & Conference Center
Scotts Valley, California

FIGURE #
1
JOB #
2015003-G-SC



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EXPLANATION

Geologic Units

- Quaternary Deposits
- Quaternary Volcanics
- Tertiary Sedimentary Rocks
- Tertiary Volcanic Rocks
- Pre-Tertiary Sedimentary Rocks
- Pre-Tertiary Volcanic Rocks
- Grantic Intrusive Rocks
- Franciscan Complex
- Ultramafic Rocks
- Pre-Tertiary Metamorphic Rock
- Pre-Cambrian Metamorphic and Igneous Rocks

Symbols

- contact
- fault, certain
- fault,approx. located
- fault, concealed or inferred
- anticline
- monocline
- syncline

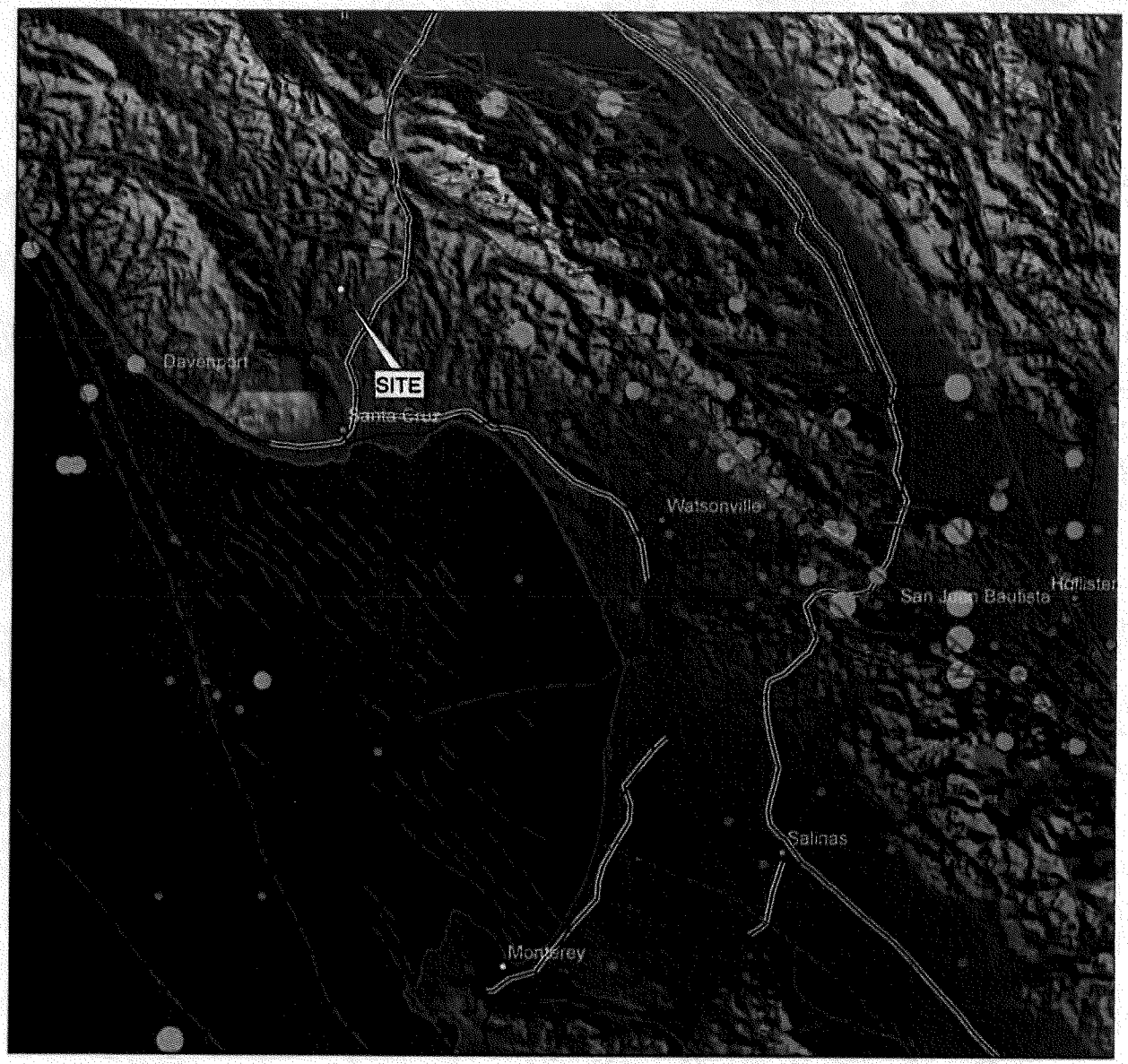
N
W E
S

SCALE 1:500,000
10 Miles 0

ZINN GEOLOGY

Regional Geologic Map
Select Buildings Geological Feasibility Study
Mission Springs Camp & Conference Center
Scotts Valley, California

FIGURE # 2
JOB # 2015003-G-SC



Seismicity Information: Magnitude 4 and greater earthquakes, compiled from various sources, 1769 to 2000; available at www.consrv.cagov/CGS/rghm/quakes/cgs2000_fnl.txt
Fault Information: Jennings, C.W., 1977, Geologic map of California: California Department of Conservation, Division of Mines and Geology, scale 1:750,000

EXPLANATION

Symbols

- fault, certain
- fault,approx. located
- fault, concealed or inferred

Earthquake Magnitude

- 4.0 to 4.99
- 5.0 to 5.99
- 6.0 to 6.99
- 7.0 +

N W E S

SCALE 1:500,000

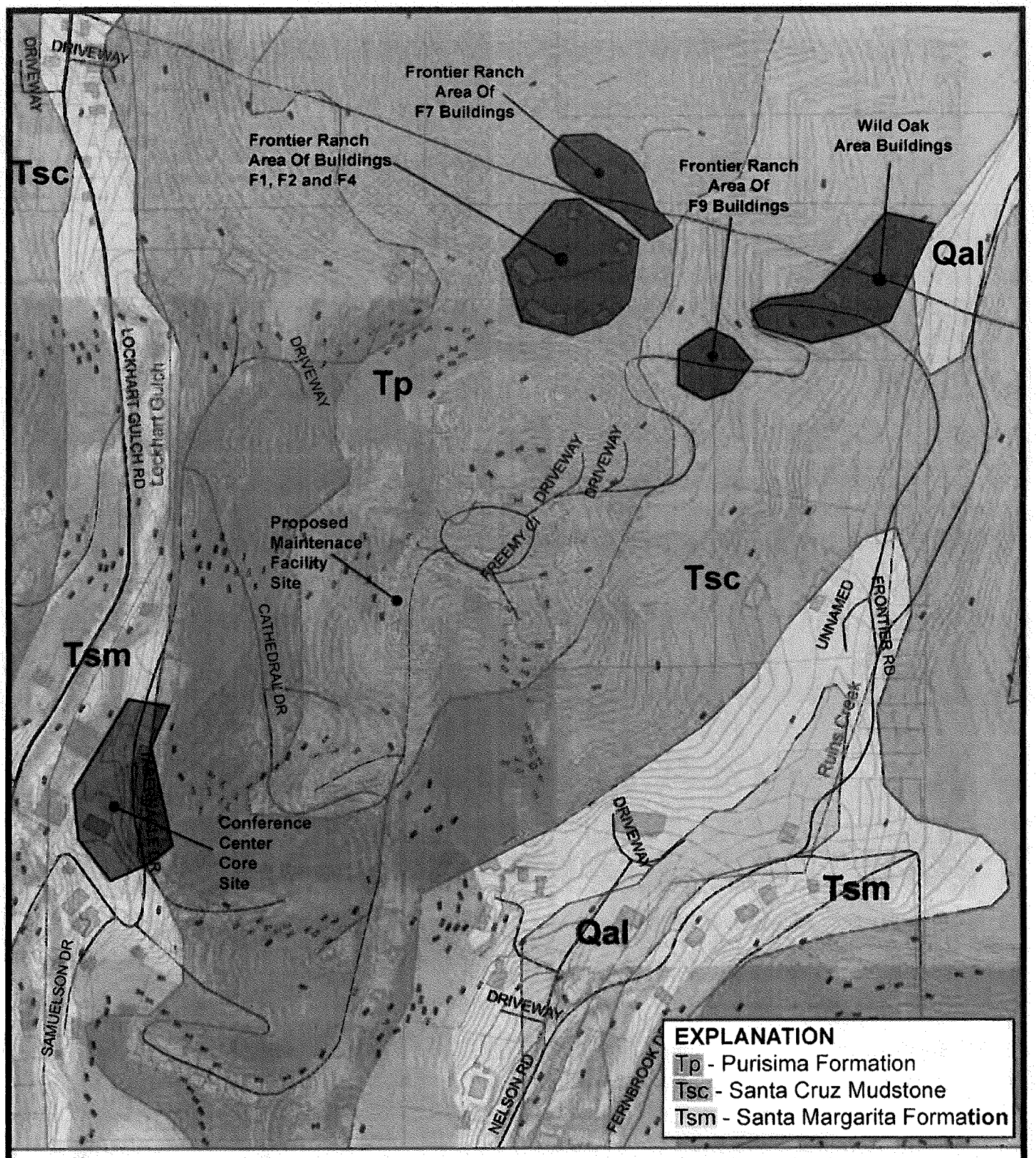
10 5 0 10

Miles

ZINN GEOLOGY

Regional Seismicity Map
Select Buildings Geological Feasibility Study
Mission Springs Camp & Conference Center
Scotts Valley, California

FIGURE # 3
JOB # 2015003-G-SC

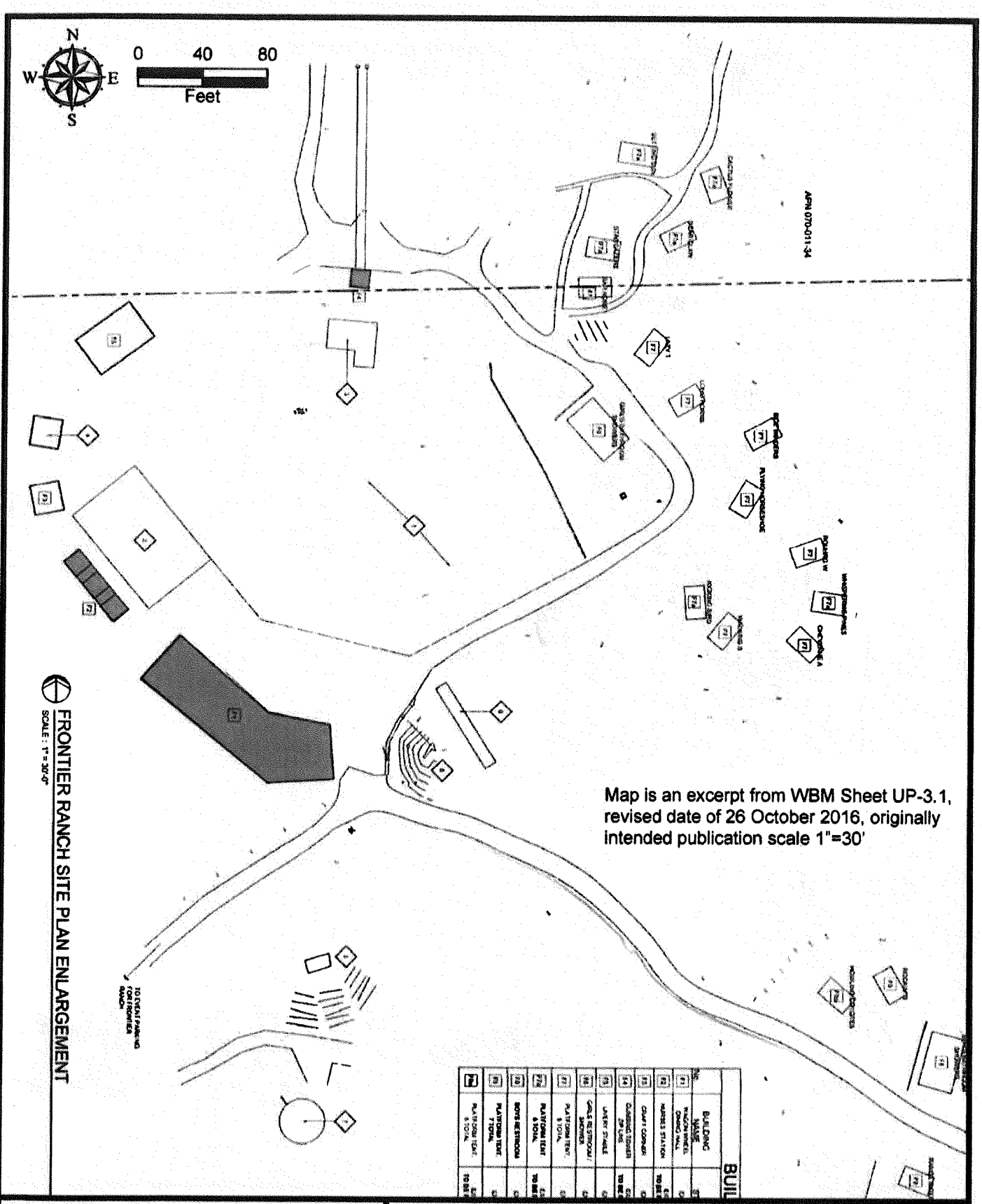


Map was compiled using GIS products made available to the public by the County of Santa Cruz

ZINN GEOLOGY

Local Geologic Index Map
Select Buildings Geological Feasibility Study
Mission Springs Camp & Conference Center
Scotts Valley, California

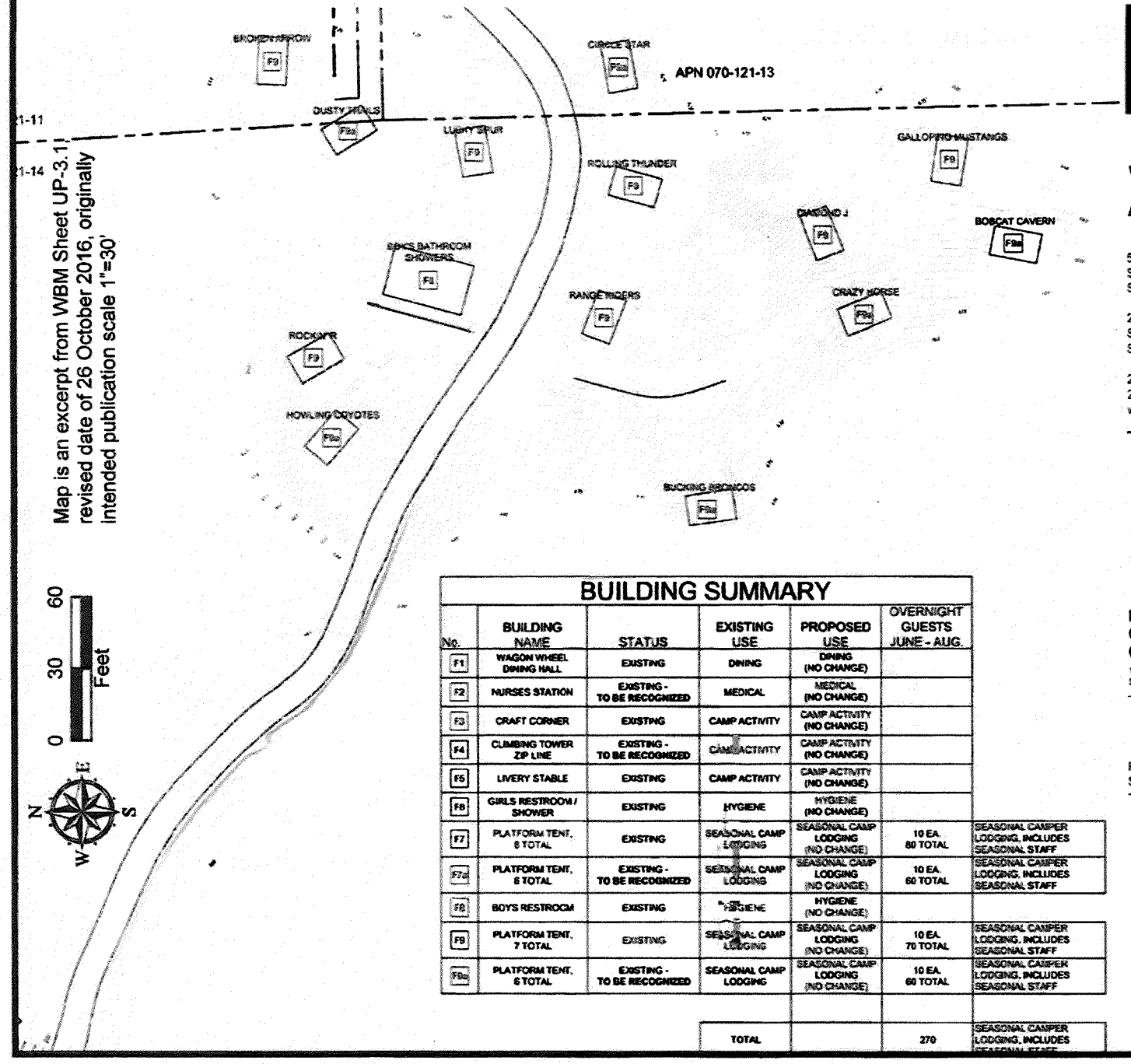
FIGURE #
4
JOB #
2015003-G-SC



ZINN GEOLOGY

Excerpt From WBM Sheet UP-3.1
Buildings F1, F2 & F4
Mission Springs Camp & Conference Center
Scotts Valley, California

FIGURE # 5
JOB # 2015003-G-SC



BUILDING SUMMARY

No.	BUILDING NAME	STATUS	EXISTING USE	PROPOSED USE	OVERNIGHT GUESTS JUNE - AUG.	
F1	WAGON WHEEL DINING HALL	EXISTING	DINING	DINING (NO CHANGE)		
F2	NURSES STATION	EXISTING - TO BE RECOGNIZED	MEDICAL	MEDICAL (NO CHANGE)		
F3	CRAFT CORNER	EXISTING	CAMP ACTIVITY	CAMP ACTIVITY (NO CHANGE)		
F4	CLIMBING TOWER ZIP LINE	EXISTING - TO BE RECOGNIZED	CAMP ACTIVITY	CAMP ACTIVITY (NO CHANGE)		
F5	LIVERY STABLE	EXISTING	CAMP ACTIVITY	CAMP ACTIVITY (NO CHANGE)		
F6	GIRLS RESTROOM / SHOWER	EXISTING	HYGIENE	HYGIENE (NO CHANGE)		
F7	PLATFORM TENT, 8 TOTAL	EXISTING	SEASONAL CAMP LODGING	SEASONAL CAMP LODGING (NO CHANGE)	10 EA. 80 TOTAL	SEASONAL CAMPER LODGING, INCLUDES SEASONAL STAFF
F7a	PLATFORM TENT, 6 TOTAL	EXISTING - TO BE RECOGNIZED	SEASONAL CAMP LODGING	SEASONAL CAMP LODGING (NO CHANGE)	10 EA. 60 TOTAL	SEASONAL CAMPER LODGING, INCLUDES SEASONAL STAFF
F8	BOYS RESTROOM	EXISTING	HYGIENE	HYGIENE (NO CHANGE)		
F9	PLATFORM TENT, 7 TOTAL	EXISTING	SEASONAL CAMP LODGING	SEASONAL CAMP LODGING (NO CHANGE)	10 EA. 70 TOTAL	SEASONAL CAMPER LODGING, INCLUDES SEASONAL STAFF
F9a	PLATFORM TENT, 6 TOTAL	EXISTING - TO BE RECOGNIZED	SEASONAL CAMP LODGING	SEASONAL CAMP LODGING (NO CHANGE)	10 EA. 60 TOTAL	SEASONAL CAMPER LODGING, INCLUDES SEASONAL STAFF
			TOTAL		270	SEASONAL CAMPER LODGING, INCLUDES SEASONAL STAFF

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209.944.9110 T
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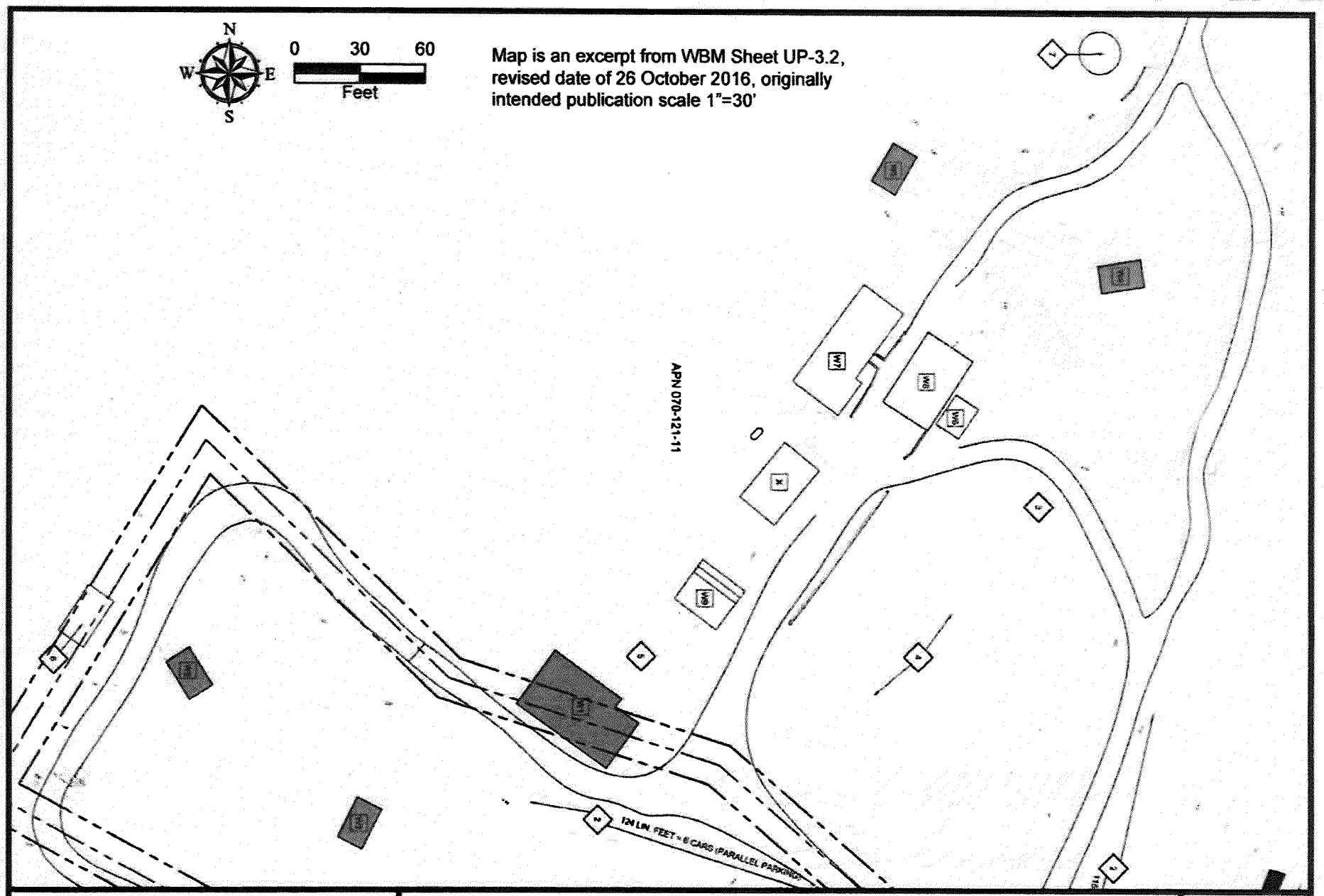
MISSION SPRINGS CAMPS AND CONFERENCE CENTER

1050 Lockhart Gulch Road
Scotts Valley, CA 95066

FRONTIER RANCH
SITE PLAN ENLARGEMENT

FIGURE # 6
JOB # 2015003-G-SC

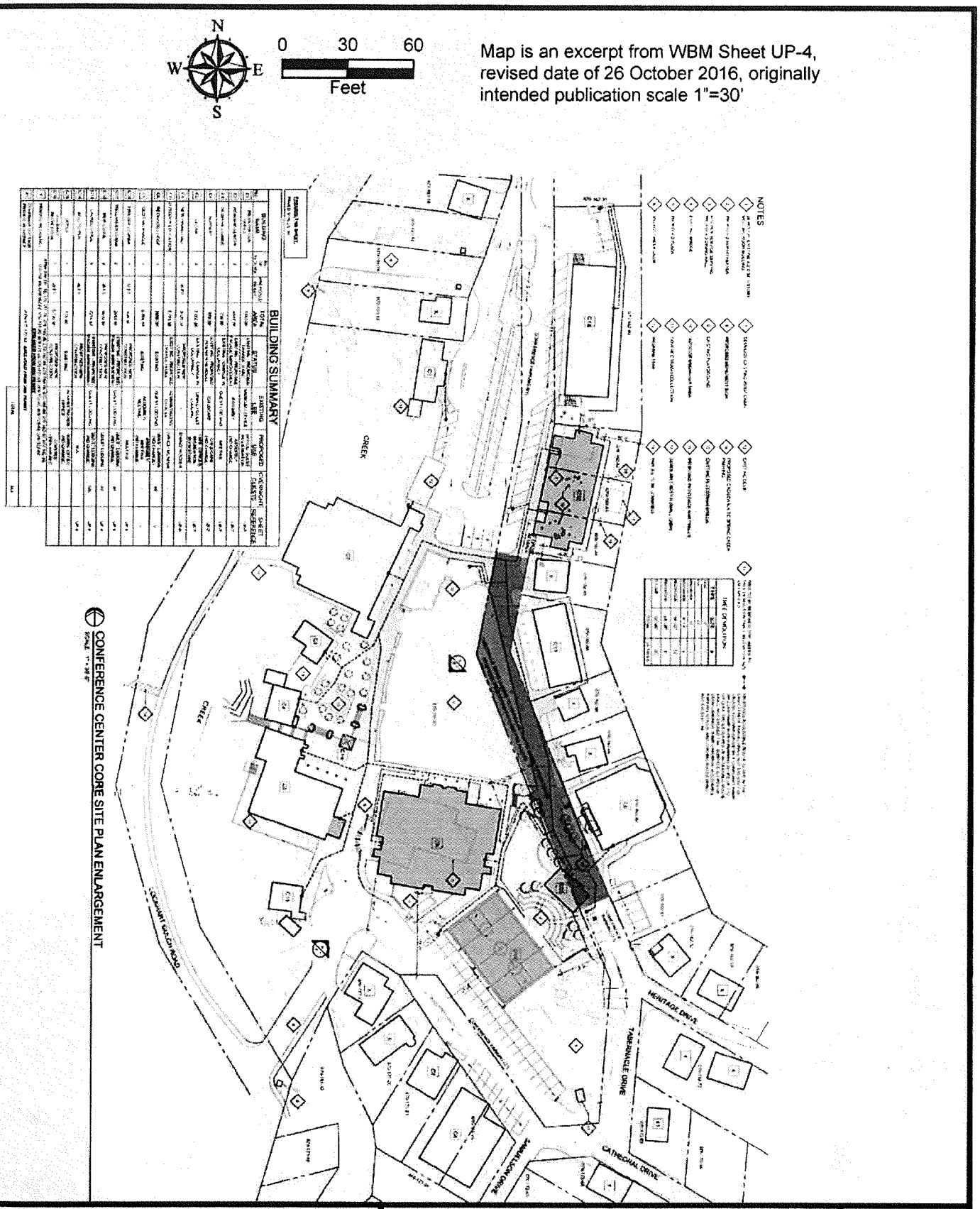
Excerpt From WBM Sheet UP-3.1
F9 Buildings
Mission Springs Camp & Conference Center
Scotts Valley, California



ZINN GEOLOGY

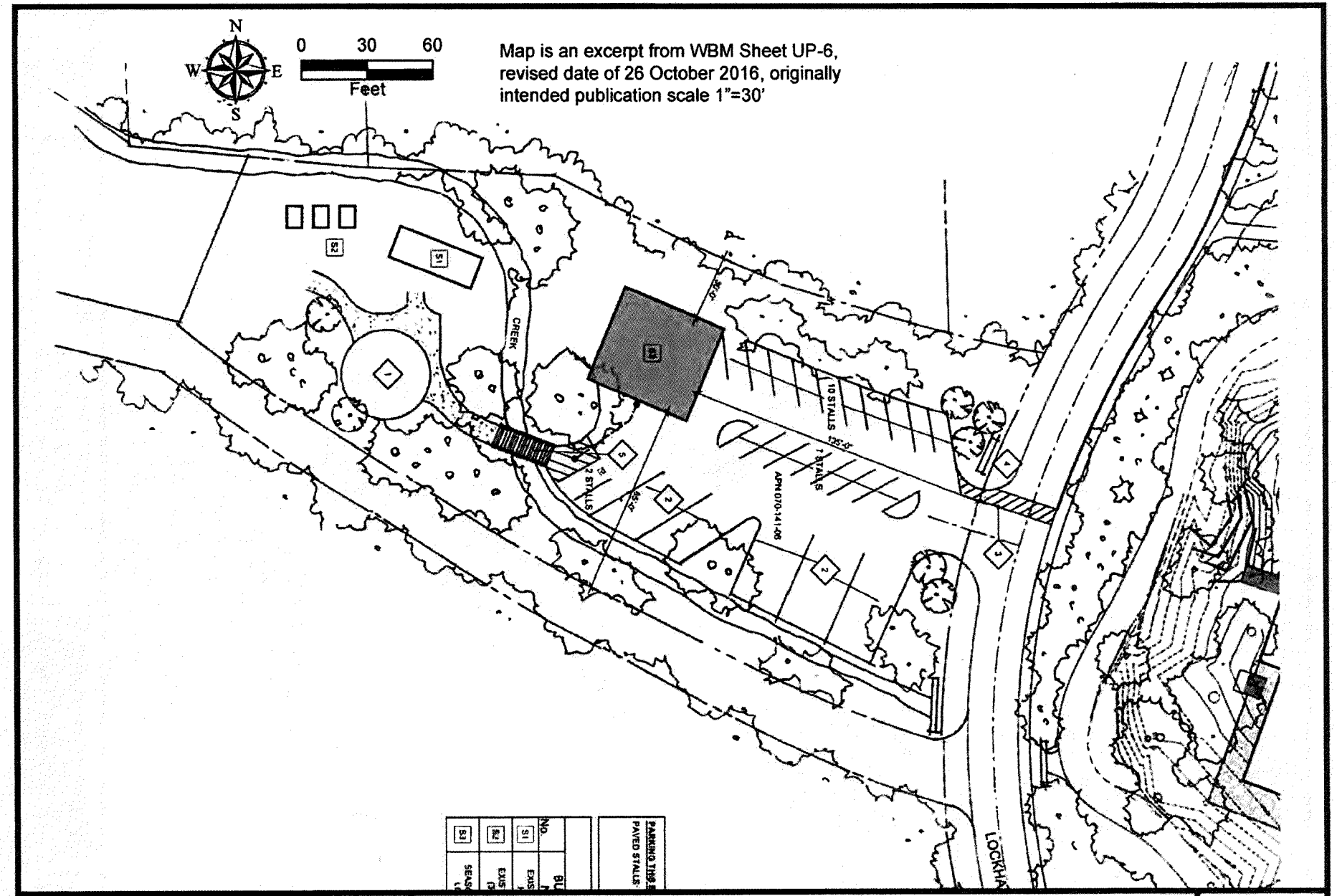
Excerpt From WBM Sheet UP-3.2
Buildings W1, W2, W3, W4 & W5
Mission Springs Camp & Conference Center
Scotts Valley, California

FIGURE #
7
JOB #
2015003-G-SC



Excerpt From WBM Sheet UP-4
Buildings C6, C10 & C12
Mission Springs Camp & Conference Center
Scotts Valley, California

FIGURE #
8
JOB #
2015003-G-SC



ZINN GEOLOGY

Excerpt From WBM Sheet UP-6
Building S3
Mission Springs Camp & Conference Center
Scotts Valley, California

FIGURE #
9
JOB #
2015003-G-SC

Attachment 14

Fall Creek Engineering, Revised Capacity Analysis for the Water and Waste Water Systems for 704 Use Permit Amendment,

September 2017

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FALL CREEK ENGINEERING, INC.
Civil • Environmental • Water Resource Engineering and Sciences
Tel. (831) 426-9054 1525 Seabright Ave., Santa Cruz, CA 95062 www.fallcreekengineering.com

September 11, 2017

Josh Anderson
Mission Springs Christian Camp and Conference Center
1050 Lockhart Gulch Road
Scotts Valley, CA 95066
josh.anderson@missionsprings.com

Subject: **REVISED Capacity Analysis for the Water and Wastewater Systems for 704 Use Permit Amendment**
Mission Springs Christian Camp and Conference Center
Scotts Valley, California

Dear Josh:

Fall Creek Engineering, Inc. (FCE) is pleased to present to you this letter presenting the capacity analysis completed for the existing onsite water and wastewater systems at the above-referenced project (Mission Springs). Mission Springs is a year-round full-service conference center with leasehold residences and a youth camp during the summer. Primary activities include youth camps, outdoor/environmental education programs, faith based conferences, and guest rental programs.

This analysis was completed in support of the use permit amendment application to increase the maximum number of guests at Mission Springs. Use at Mission Springs varies seasonally and peaks in the summer months of June through August when the youth camps are open. Currently, the maximum number of guests at Mission Springs is 500 but the average occupancy is 486 guests during the peak season. Throughout the remainder of the year, the youth camps are closed and occupancy within the conference center drops. Therefore, September through May are considered the off-season and the average occupancy is 173 guests. The proposed use permit amendment would increase the maximum number of guests to 704 in the peak months and 359 in the off-season.

The intent of this letter is to analyze the capacity of the existing water and wastewater systems for the proposed increased number of guests. To estimate the projected increase for these systems, FCE used the proposed maximum number of guests (704) to provide a conservative estimate of the peak demand. This total represents a 45% increase from the average 486 guests during the peak summer months. In the off season, FCE assumed the number of guests will also increase by 45% up to 251 guests.

1. Existing Water System

The Mission Springs water system is a private water system that is owned by the Pacific South West Conference of the Covenant Church. The water system serves the camp and conference center and the leasehold residential community of Mission Springs, which includes approximately 126 homes. The water system supplies the domestic, fire and irrigation demand on the property.

The water system consists of two deep water well sources with four (4) water storage tanks and a branched water distribution system. The water system (No. 4400723) is regulated by the County of Santa Cruz under permit 3534, which was most recently issued in April 2003.

1.1. Wells

The two wells used by Mission Springs are located in the central portion of the main conference center area on either side of the basketball court. Well 1 is a standby source and was constructed in 1966 to a depth of 285 feet, the pump is set at approximately 78 feet, and the estimated yield is 60 gallons per minute (gpm). Well 2 is active and the main source of water and is used on a continuous basis. The well was constructed in 2001 to a depth of 252 feet, the pump is set at 85 feet, and the yield of the well is approximately 83 gpm, but can increase up to 100 gpm in wet months. Well 2 is currently operated by a pressure transducer installed on one of the main water storage tanks on the system. The well is turned on when the water level in the tanks is below the set point of the transducer and controller. Table 1 provides a summary of the well information.

Table 1. Water Supply Wells at Mission Springs

Well	Status	P.S. Code	Capacity	Depth
1	Standby	4400723-001	60 gpm	285 ft
2	Active	4400723-003	80-100 gpm	252 ft

The water quality from the wells is generally good and meets all primary maximum contaminant loads (MCLs) set by the California Division of Drinking Water (DDW). Mission Springs installed and operates a water treatment system to remove hydrogen sulfide, iron, and manganese to meet secondary MCLs. The treatment system is rated for 80 gallons per minute. If the system was operated for 24 hours a day, it can produce up to 115,200 gallons per day, which is higher than required to meet the current and future demand of the community.

Mission Springs provided annual water production data for 2009 through 2014 shown below in Table 2. For the complete years of 2009 through 2015, production ranges from 2,477,678 gallons in 2012 up to 3,210,918 gallons in 2011. The average water production was 7,516 gallons per day (gpd) and 2,743,342 gallons per year. The monthly production volumes for 2013, 2014, and 2015 have been included in the attachment titles County of Santa Cruz Source Meter Reporting Form. The production volumes include water used for meeting the domestic water demand and the irrigation demand.

Table 2. Annual Water Production at Mission Springs

Year	Months	Production (gal)	Daily Avg (gpd)
2009	Jan-Dec	2,771,570	7,593
2010	Jan-Dec	2,533,505	6,941
2011	Jan-Dec	3,210,918	8,797
2012	Jan-Dec	2,477,678	6,788
2013	Jan-Dec	2,969,580	8,136
2014	Jan-Dec	2,496,802	6,841
Average		**2,743,342**	**7,516**

Currently, Mission Springs reports total water use including both domestic and irrigation demand. FCE estimates that approximately 50% of the water demand supplies the residential parcels in the community, 25% serves the domestic water demand for the camp and conference center, and approximately 25% serves the irrigation demand of the camp during the dry season.

The associated average annual water demand for each use is presented below in Table 3.

Table 3. Water Demand by Current Use and Projected at Mission Springs

Use	% of Use	Average Curent Annual Demand (gal/year)	Projected Increase	Total Projected Annual Demand (gal/year)
Residential	50%	1,371,671	0	1,371,671
Irrigation	25%	685,836	0	685,836
Conference Center	25%	685,836	45%	993,474
Total	**100%**	**2,743,342**		**3,050,980**

FCE applied the 45% percent guest increase to the water demand for the camp and conference center to project the water demand at the proposed full occupancy. This results in a total water demand increase of approximately 11% for the water system.

The production rate of the existing water system exceeds the current and projected demand. Therefore, the water system will have the capacity to meet the increased demand from the increased number of guests.

1.2. Water Storage Tanks

Well water is stored in four water storage tanks (labeled Tank #3 – #6). Tanks #3 and #4 are galvanized riveted tanks with a capacity of 40,000 gallons each. Tank #5 is also a galvanized tank and holds approximately 50,000 gallons. Tank #6 is a bolted steel tank with a glass fused lining with a capacity of 250,000 gallons. The total water storage is 380,000 gallons.

The storage capacity required for fire suppression depends on the largest building served by the system. The largest proposed building will be the new Mission Woods Lodge (approximately 16,000 square feet). This building will be the largest building at Mission Springs and therefore dictates the required fire flow. For the purposes of this analysis, FCE has assumed the building will be constructed primarily of timber and would be building Type IV. Based on the California Fire Code (CFC), the required fire flow for this size and type of building without sprinklers would be 2,250 gallons per minute for 2 hours, or a total of 270,000 gallons. All new buildings will include fully automated sprinkler systems and the Lodge will qualify for a flow reduction of up to 75%, or a total of 67,500 gallons. Even without the reduction, the storage capacity in the existing water system exceeds the capacity for fire suppression for the Mission Woods Lodge (and therefore Mission Springs).

2. Existing Wastewater System

The existing wastewater system collects wastewater from the main conference center (including the area referred to as Mission Woods), Frontier Ranch, and Wild Oak. Each of the leasehold residences is on an individual standard septic system and they do not connect to the main wastewater treatment system. The wastewater is treated in an onsite treatment system and discharged to pressure-dosed leachfields on the eastern side of the property.

2.1. Collection System

The wastewater from the main conference center is collected in a 29,000 gallon pump tank and pumped up to Frontier Ranch where the sewer main transitions to a gravity line. The Frontier Ranch wastewater also flows in the gravity sewer main. The gravity sewer main follows Biblar Trail down to the wastewater treatment system. Wild Oak also has a pump tank to pump wastewater to the treatment system.

2.2. Treatment System

The onsite treatment system is an enhanced, recirculating Acqualogic biological filtration system designed by FCE and installed in 2014. The system was installed to meet 50% total nitrogen reduction requirements set by the Regional Water Quality Control Board (RWQCB) and the County of Santa Cruz.

The system was designed to reduce the concentrations of biochemical oxygen demand (BOD), total suspended solids (TSS), and total nitrogen for up to 36,300 gallons per day in the peak summer months and 25,000 gpd for the remainder of the year. The flow meter installed on the outlet of the system records daily flow. Since the system was brought online, the average daily discharge has been measured to be 5,546 gpd.

During the peak season, the average and maximum daily discharges were 7,688 gpd and 16,061 gpd, respectively. During the off-season, the average and maximum daily discharges were 4,542 gpd and 15,124 gpd, respectively. Assuming the increase in the daily flows are proportional to the increase in the number of guests, the average and maximum daily discharges based on 704 guests in the peak season are projected be 11,137 gpd and 23,265 gpd, respectively. In the off-season, the average and maximum daily discharges are estimated to be 6,579 gpd and 21,908 gpd, respectively. All current and projected daily flows are within the system's design capacity.

2.3. Disposal System

The treated water is disposed of in leachfields located near the treatment plant area, Wild Oak, and the parking area along Nelson Road. The system is permitted by the RWQCB under Waste Discharge Requirements (WDRs) Order No. R3-2014-0023. The WDRs prohibit the discharge from exceeding 25,400 gallons per day averaged over each month (30-day average).

The 30-day average daily discharge is shown below in Figure 1 for the POR from April 2014 through August 2015. The 30-day averages ranged from 2,440 gpd up to 9,221 gpd and averaged 5,725 gpd.

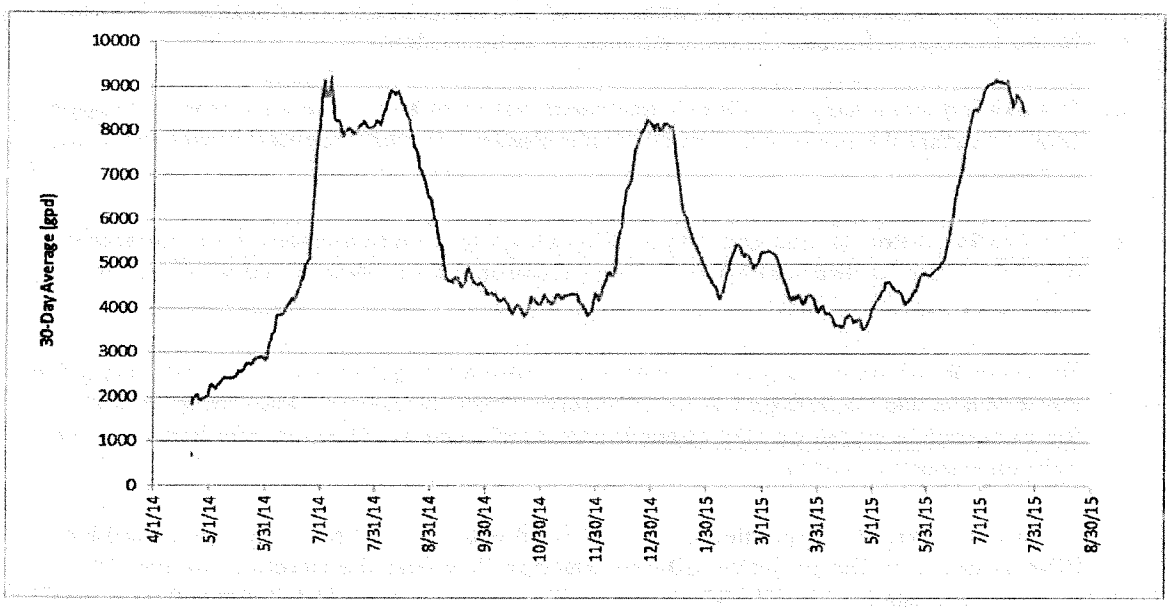

Figure 1. The 30-Day Average Discharge from Onsite Wastewater Treatment System Mission Springs (POR: April 2014 – August 2015)

The POR includes two peak seasons (June through August) when occupancy at Mission Springs is the highest. The average daily discharge (based on the 30-day average) for the peak seasons was 9,205 gpd.

The unit daily flow per person during the peak season is less than 20 gallons per person per day (gpcd). The proposed total guests at Mission Springs will be 704 and the corresponding flow rate to the treatment and disposal systems will be 14,080gpd, approximately half of the limit set by the WDRs.

3. Conclusions

Based on the analysis above, FCE finds the existing onsite water and wastewater systems meet the projected demand from the proposed increase in users based on the following information.

1. Mission Springs is a camp and conference center with leasehold residences. The camp and conference center operates year-round but occupancy varies seasonally with the peak

during the summer months of June through August and the off-season during the remainder of the year (September through May).

2. The current maximum number of guests at Mission Springs is 500. The average number of guests varies from 486 during the peak season and 173 during the off-season.

3. The proposed maximum number of guests is 704 in the peak months and 359 in the off-season.

4. FCE estimated the projected flows for the water and wastewater systems based on the maximum number of guests in the peak season (704 guests) and a proportional increase to the average off-season (a 45% increase to bring the total to 251 guests).

5. The existing water supply wells and treatment system at Mission Springs provide 80 gpm and will satisfy the projected domestic water demand for the proposed total number of guests.

6. The existing water storage capacity is 380,000 gallons which exceeds the requirement of 67,500 gallons for fire suppression of the proposed Mission Woods Lodge with a fully automated sprinkler system.

7. The capacity of the existing onsite wastewater treatment system is 36,300 gpd during the peak months and 25,000 gpd in the off-season. The projected maximum daily flow during the peak months based on 704 guests is estimated to be 23,265 gpd, which is within the existing system's capacity.

8. The disposal system is regulated by the RWQCB and is limited to 25,400 gpd based on a 30-day average. The projected 30-day average flow from the increased number of guests is estimated to be 14,080 gpd during the peak season which is within the existing system's discharge limits.

This concludes the capacity analysis of the existing water and wastewater systems. Thank you for the opportunity to assist with this project. If you have any questions or require any additional information, please do not hesitate to contact me at (831) 426-9054.

Sincerely,

ROBYN COOPER MS, P.E.
Senior Engineer

Attachment: County of Santa Cruz Source Meter Reporting Form

Attachment 15

Santa Cruz County GIS, Mapped Fire Hazard Areas, January 2019

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Mapped Fire Hazard Areas

Santa Cruz County GIS Maps, February 2019

Attachment 16

Fall Creek Engineering, Groundwater Basin Review, September 2017

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FALL CREEK ENGINEERING, INC.
Civil • Environmental • Water Resource Engineering and Sciences
Tel. (831) 426-9054 1525 Seabright Ave., Santa Cruz, CA 95062 www.fallcreekengineering.com

September 15, 2017

John Swift
Swift Consulting Services, Inc.
500 Chestnut St., Suite 100
Santa Cruz, CA 95060
john@swiftconsultingservice.com

Subject: **Groundwater Basin Review – Use Permit Amendment**
Mission Springs Christian Camp and Conference Center
Scotts Valley, California

Dear John:

Fall Creek Engineering, Inc. (FCE) has prepared this brief review of the water supply at Mission Springs in response to the comment from Santa Cruz County's Environmental Planner (County). Mission Springs applied for a Use Permit Amendment to increase their number of guests and staff. The site currently has two (2) wells that draw from a groundwater basin within the Santa Margarita aquifer and the County requested information about the impact this increased use may have on the aquifer. Based on Mission Springs' current project to install water meters and our review of local water district's water management plans, FCE anticipates that the proposed increased use at Mission Springs will have little-to-know impact on the underlying aquifer.

Mission Springs proposed to increase the maximum number of guests to 704 and 85 seasonal staff in the peak months and 359 guests and seasonal staff in the off-season. FCE prepared a letter dated September 11, 2017 that presented the anticipated increased water use and described that the existing water and wastewater facilities and infrastructure could accommodate the increased use. The letter estimated that the annual water use would increase by 11% from 2,743,342 gallons per year (gal/yr) to 3,050,980gal/yr. This is a net increase of less than 1 acre-foot per year (AFY).

The Santa Margarita aquifer supplies water to the Scotts Valley Water District (SVWD) and their 2015 Urban Water Management Plan (UWMP) cites the recent drought as contributing to observed drawdown in the aquifer. SVWD expects a net increase of 328 AFY from 2015 through 2040, but the UWMP states that the aquifer has capacity to support future development. Mission Springs' increased demand represents less than 0.3% of the expected increased demand on the aquifer.

The increased water demand will be offset by the submetering installation that is currently taking place at Mission Springs. The County adopted an ordinance to amend Chapter 7.71, Water Systems, to require water use measurement and reporting by the small water systems that the Health Services Agency (HSA) oversees. This was adopted as a water saving measure to reduce impacts to local aquifers.

To comply with the County's directive that all residences shall have water meters, FCE submitted a Water Meter Installation Plan on Mission Springs' behalf. The County accepted the work plan and Mission Springs has hired a contractor to install water meters for each residence.

Installing water meters at individual residences allows water providers to detect leaks and forced consumers to be accountable for individual water use. The 2002 EPA publication "Cases in Water Conservation: How Efficiency Programs Help Water Utilities Save Water and Avoid Costs" reported five (5) cities that had implemented water metering and/or leak detection and reported a decrease in water production of over 25%. For Mission Springs, this would be a savings of up to 500,000 gal/yr or over 1.5 AFY. In addition to installing water meters to all residences at Mission Springs, all new conference center buildings will have water meters and high-efficiency fixtures such as faucets, shower heads, and toilets.

Finally, Mission Springs may elect to complete a future project to reuse the treated wastewater on site. In 2013, Mission Springs installed an enhanced wastewater treatment system to collect and treat all the wastewater from the site. At the time of the installation, Mission Springs elected to include infrastructure that would support a future subsurface irrigation system. They invested in the upgrades to the control system, added pumps, a flow meter, and over 2,000 feet of 2"-diameter pipe to return the treated water to an area of the campus called Frontier Ranch. Once funding becomes available, Mission Springs will use this infrastructure and install the remaining equipment necessary to irrigate the field at Frontier Ranch. The field is approximately 1 acre and is currently irrigated in the summer months using treated domestic water from the aquifer. Once this system is installed, it has the potential to save over 500,000 gallons (or over 1.5 ac-ft) per year.

Based on this information, FCE concludes that the increased number of guests and staff and their associated demand on the groundwater supply will be offset by metering efforts (and possible future water reuse) at Mission Springs and therefore will not have significant impacts to the Santa Margarita basin.

Thank you for the opportunity to assist with this project. If you have any questions or require any additional information, please do not hesitate to contact me at (831) 426-9054.

Sincerely,

ROBYN COOPER MS, P.E.
Senior Engineer

Attachment 17

Pacific Crest Engineering Inc, Preliminary Storm-Water Drainage Feasibility Assessment, May 2015

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Pacific Crest Engineering Inc. www.4pacific-crest.com

444 Airport Blvd, Suite 106
Watsonville, CA 95076
Phone: 831-722-9446
Fax: 831-722-9158

May 1, 2015

Project No. 14112- SZ41-H23

Bryan Hayes
Mission Springs Christian Conference Center
1050 Lockhart Gulch Road
Scotts Valley, CA 95066

Subject: Preliminary Stormwater Drainage Feasibility Assessment
Proposed Drainage Improvements Associated with Extended Use Permit
Mission Springs Camp and Conference Center
1050 Lockhart Gulch Road
Santa Cruz County, California

Dear Mr. Hayes,

As requested, we have performed a preliminary assessment regarding the feasibility of discharging concentrated stormwater at two separate locations within the conference center. The subject drainage improvements are part of the Capital Development Campaign to restore and revitalize the Mission Springs Camp and Conference Center. The proposed Capital Development Campaign may include the construction of a new dining room, a new 40-bed lodge, the remodeling of Old Tabernacle Hall and other improvements around the recreational field, which is situated in the central section of the commons area. Additionally, a new 88-bed lodge and the remodeling of two small conference buildings located in the Mission Woods area north of the commons area are proposed.

The purpose of our feasibility assessment was to identifying potential sites where discharge of concentrated stormwater may be viable. Actual percolation testing or a detailed drainage investigation was outside our scope of service for this preliminary assessment

Commons Area Improvements

The proposed new construction in the commons area may include a new 40 bed lodge, a new dining hall and the remodeling of Old Tabernacle Hall. These buildings are proposed to be located adjacent to the east and south sides of the recreational field and commons area. The recreational field and commons area are currently being considered for discharging concentrated stormwater generated by the proposed improvements. The commons area is situated on an essentially flat to gently sloping river terrace. The terrace is bordered on the west by a slope that descends to Lockhart Gulch Creek and on the east by the ascending slope of a ridge flank.

The commons area is mapped on the USGS Geologic Map of Santa Cruz County (Brabb 1989) as being underlain by Santa Margarita Sandstone (Tsm, Upper Miocene) which typically consists of yellowish-gray to white, friable, granular, medium to fine grained sandstone. Santa Margarita Sandstone is locally calcareous and locally bituminous.

The bulk of the commons area is mapped on the USDA Soil Survey of Santa Cruz County as Soquel Loam (2% to 9% slopes), the upper 5 feet of which typically consists of silty, low-plasticity clay (CL) and low-plasticity silt (ML). The permeability of the Soquel Loam is described as moderately slow. The eastern edge of the commons area is mapped on the USDA Soil Survey of Santa Cruz County as Nisene -Aptos Complex (50% to 70% slopes), the upper 5 feet of which typically consists of silty sand (SM), clayey sand (SC) and low-plasticity clay (CL). The permeability of the Nisene -Aptos Complex is described as moderate.

An engineer from Pacific Crest Engineering Inc. drilled one test boring and hand augered two exploratory borings in the recreational field between Lockhart Gulch Creek and Tabernacle Drive. Additionally, 2 borings were drilled by Pacific Crest Engineering for an addition to "Old Tabernacle" hall, which is sited on the east side of the commons area. Borings were drilled by Bauldry Engineering for both the Cathedral Drive and Tabernacle Drive bridges, which are located along the west side of the commons area. The pertinent borings from these projects are provided in Appendix A along with a site plan showing their locations.

The following table lists the depth to groundwater and the soil types encountered within the infiltration zone in and around the commons area.

Commons Area Groundwater and Soil Types

Location	Boring No.	Depth to Groundwater	Soil Types	Fines Content
Commons Area	B-1	14 feet	Clayey Sand and Sand	10% to 36%
Commons Area	HA-1	5 feet	Silty Sand	43%
Commons Area	HA-2	3 feet	Silty Sand	16%
"Old Tab" Hall	B-1	Groundwater not encountered within the upper 49 feet	Low Plasticity Clay and Silty Sand	48% to 59%
"Old Tab" Hall	B-2	Groundwater not encountered within the upper 24 feet	Sandy Silt	55% to 61%
Cathedral Drive Bridge	B-4	27 feet	Silty Sand, Silt, Clayey Sand and Sand	22% to 62%
Tabernacle Drive Bridge	B-3	Groundwater not encountered within the upper 25½ feet	Silty Sand and Clayey Sand	37% to 46%
Tabernacle Drive Bridge	B-4	Groundwater not encountered within the upper 11½ feet	Silty Sand and Sand	5% to 43%

The near surface groundwater encountered in the recreational field may be due to the field being the low point in the commons area where surface runoff accumulates. The groundwater table dropped significantly on both the east and west sides of the recreational field, which is located in the center of the commons area.

Findings - Commons Area Drainage Feasibility

Based on the condition encountered in the commons area, it is our opinion that disposal of stormwater runoff using percolation pits, bioswales or other facilities sited along the east or west sides of the recreational field is feasible. Infiltrating storm water may also be feasible south of the existing dining hall and beneath the parking lot directly north of the recreational field.

The design of the infiltration system, including infiltration rates, will need to be determined by drilling additional test borings and performing percolation testing after the proposed location for storm water infiltration has been selected.

Mission Woods Improvements

The proposed construction and site improvements in the Mission Woods area along northern Tabernacle Drive, consists of the construction of a new 88 bed lodge. The new lodge is to be constructed in the same general area as the existing lodge, which is to be removed. The proposed building site is an essentially flat, previously graded, terrace at the base of a steep ascending slope.

The site of the proposed 88 bed lodge is mapped by Cooper•Clarke as situated within a large landslide. Zinn Geology performed a geologic investigation regarding the feasibility of the proposed construction with a focus on whether the site was underlain by landslide deposits, as depicted on the 1975 Santa Cruz County Landslide Map. Pacific Crest Engineering Inc. drilled three borings in association with Zinn Geology during their landslide investigation.

Zinn Geology has concluded that the site is feasible for the proposed project and that the site is not underlain by landslide deposits. For details refer to the Zinn Geology report titled "Geological feasibility investigation for proposed Mission Woods Lodge, Tabernacle Drive, Scotts Valley, California, County of Santa Cruz APN 070-121-29" dated 12 April 2015.

Zinn Geology has opined that the surficial material of the terrace upon which the new lodge is proposed "...appear to be composed of a suite fairly complex Pleistocene fluvial deposits that have been stranded as the Lockhart Gulch creek incised into the landscape." The composition of the alluvium vary due to different source material. The terrace also contains some colluvium from the adjacent slopes and pods of artificial fill.

The following table lists the depth to groundwater and the soil types encountered in the test borings we drilled within the Mission Woods alluvial terrace.

Mission Woods Groundwater and Soil Types

Location	Boring No.	Depth to Groundwater	Soil Types	Fines Content
Mission Woods	B-1	Groundwater not encountered within the upper 40 feet	Silt with Gravels	
Mission Woods	B-2	Groundwater not encountered within the upper 28 feet	Silty Sand	27% to 41%
Mission Woods	B-3	Groundwater not encountered within the upper 15 feet	Clayey Gravels and Clay with Gravels	40% to 59%

The soil in the eastern section of the proposed building site generally can be described as gravelly clay and silt with cobbles (colluvium). The colluvium overlies alluvium consisting of gravelly clay with mudstone and siltstone fragments. The native soils along the western section of the site were covered with a layer of fill. The fill appears to increase in thickness towards the western slope along Tabernacle Drive. The fill overlies fluvial deposits of variable soil types. Our boring in the southern section of the fluvial terrace was comprised of silty sand whereas our boring in the northern area was comprised of clayey gravels.

It is our understanding that the western section of the gravel parking area in front of the existing lodge buildings contains an old leach field that has functioned adequately.

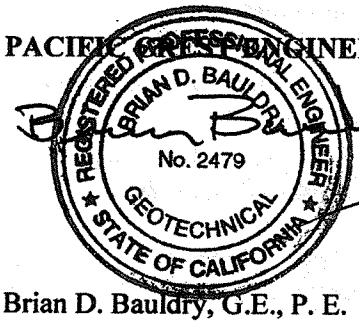
Findings -Mission Woods Drainage Feasibility

Based on our field and laboratory investigations and the findings of the geologic feasibility investigation by Zinn Geology, it is our opinion that disposal of stormwater runoff using percolation pits, bioswales or other facilities sited in the north central, south central or center areas of the existing gravel parking area situated in front of the existing lodge is feasible. Disposal of stormwater runoff in other areas may be feasible upon further investigation.

The design of the infiltration system, including infiltration rates, will need to be determined by drilling additional test borings and performing percolation testing after the proposed location for storm water infiltration has been selected.

Very Truly Yours,

PACIFIC CREST ENGINEERING INC.



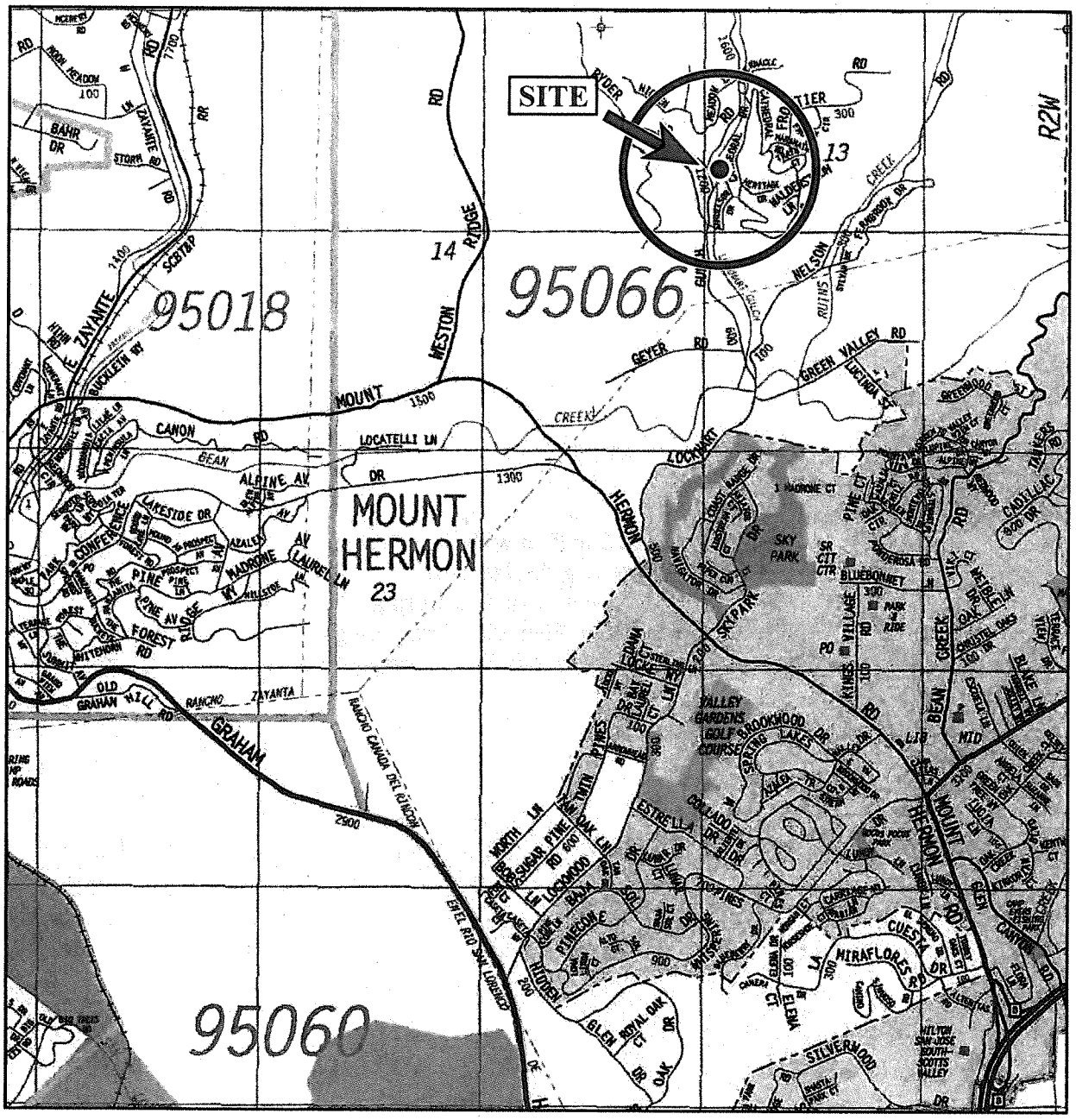
Brian D. Bauldry, G.E., P. E.
Vice-President – Geotechnical Group
G.E. 2479
Exp. 12/31/16

Elizabeth M. Mitchell, G.E.
President\Principal Geotechnical Engineer
G.E. 2718
Exp. 12/31/16

Copies: Brian Hayes

APPENDIX A

Regional Site Map
Commons Area Site Plan with Test Borings
Boring Log Explanation
Log of Commons Area Test Borings
Mission Woods Site Plan with Test Borings
Log of Mission Woods Test Borings



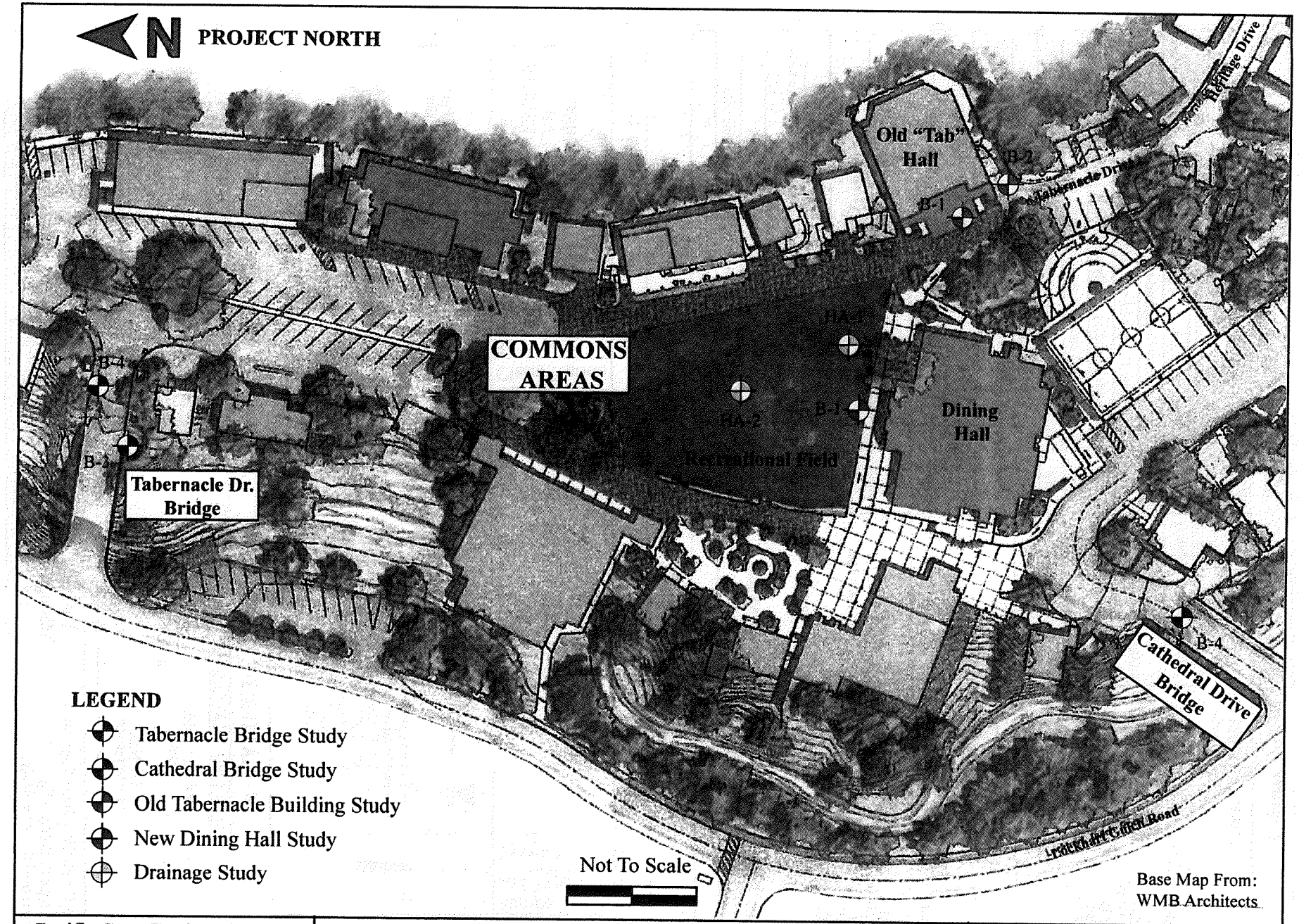
0 1900 ft.

Scale

N

Base Map from The Thomas Guide

Pacific Crest Engineering Inc. 444 Airport Blvd., Suite 106 Watsonville, CA 95076	**Regional Site Map** Mission Springs Drainage Study Scotts Valley, California	Figure No. 1 Project No. 14112 Date: 5/1/15



Pacific Crest Engineering Inc. 444 Airport Blvd., Suite 106 Watsonville, CA 95076	**Commons Area Site Plan with Test Borings** Mission Springs Drainage Study Scotts Valley, California	Figure No. 2 Project No. 14112 Date: 5/1/15

UNIFIED SOIL CLASSIFICATION SYSTEM - ASTM D2488 (Modified)

PRIMARY DIVISIONS			GROUP SYMBOL	SECONDARY DIVISIONS
COARSE GRAINED SOILS MORE THAN HALF OF MATERIAL IS LARGER THAN #200 SIEVE SIZE	**GRAVELS** MORE THAN HALF OF COARSE FRACTION IS LARGER THAN #4 SIEVE	**CLEAN GRAVELS** (LESS THAN 5% FINES)	GW	Well graded gravels, gravel-sand mixtures, little or no fines
			GP	Poorly graded gravels or gravels-sand mixtures, little or no fines
		GRAVELS (MORE THAN 12% FINES)	GM	Silty gravels, gravel-sand-silt mixtures, non-plastic fines
			GC	Clayey gravels, gravel-sand-clay mixtures, plastic fines
	SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN #4 SIEVE	**CLEAN SANDS** (LESS THAN 5% FINES)	SW	Well graded sands, gravelly sands, little or no fines
			SP	Poorly graded sands or gravelly sands, little or no fines
		SANDS (MORE THAN 12% FINES)	SM	Silty sands, sand-silt mixtures, non-plastic fines
			SC	Clayey sands, sand-clay mixtures, plastic fines
FINE GRAINED SOILS MORE THAN HALF OF MATERIAL IS SMALLER THAN #200 SIEVE SIZE	**SILTS AND CLAYS** LIQUID LIMIT IS LESS THAN 35%		ML	Inorganic silts and very fine clayey sand silty sands, with slight plasticity
			CL	Inorganic clays of low to medium plasticity, gravelly, sand, silty or lean clays
			OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS LIQUID LIMIT IS BETWEEN 35% AND 50%		MI	Inorganic silts, clayey silts and silty fine sands of intermediate plasticity
			CI	Inorganic clays, gravelly/sandy clays and silty clays of intermediate plasticity
			OI	Organic clays and silty clays of intermediate plasticity
	SILTS AND CLAYS LIQUID LIMIT IS GREATER THAN 50%		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
			CH	Organic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS			PT	Peat and other highly organic soils

BORING LOG EXPLANATION

Depth, ft.	Sample No. and Type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	SPT "N" Value	Plasticity Index	Dry Density, p.c.f.	Moisture % of Dry Wt.	MISC. LAB RESULTS
1 2 3 4 5	1-1 L		← Ground water elevation ←Soil Sample Number ←Soil Sampler Size/Type L = 3" Outside Diameter M = 2.5" Outside Diameter T = 2" Outside Diameter ST = Shelby Tube BAG = Bag Sample						NOTE: All blows/foot are normalized to 2" outside diameter sampler size

RELATIVE DENSITY

SANDS AND GRAVELS	BLOWS/FOOT
VERY LOOSE	0-4
LOOSE	4-10
MEDIUM DENSE	10-30
DENSE	30-50
VERY DENSE	OVER 50

CONSISTENCY

SILTS AND CLAYS	BLOWS/FOOT
VERY SOFT	0-2
SOFT	2-4
FIRM	4-8
STIFF	8-16
VERY STIFF	16-32
HARD	OVER 32

Pacific Crest Engineering Inc. 444 Airport Blvd., Suite 106 Watsonville, CA 95076	**Boring Log Explanation** Mission Springs Drainage Study Scotts Valley, California	Figure No. 3 Project No. 14112 Date: 5/1/15

Tabernacle Bridge Study

JOB NO. 0709-SZ952-D17 REPORT DATE: May 8, 2007

Logged By SSC Date Drilled 4/4/07 Boring Diameter 3½"SS Boring No. 3

Depth, ft.	Sample No.	Symbol	SOIL DESCRIPTION	Unified Soil Classification	SPT "N" Value	Plasticity Index	Dry Density, p.c.f.	Moisture % of Dry Wt.	MISC. LAB RESULTS
1	3-1 L		Brownish gray Silty SAND, moist, very loose, non-plastic, some roots	SM					
2	3-2 T		Grayish brown Silty SAND, medium dense, non-plastic, some mudstone, gravels		4		89.5	16.1	37% Passing #200 sieve
3					13			16.9	
4									
5									
6	3-3 L		Gray with iron oxide staining Clayey SAND, moist, medium dense, some plasticity	SC					Direct Shear ϕ = 29° C = 330 psf
7									
8	3-4 T		Gray with iron oxide staining Clayey SAND, moist, medium dense, some plasticity		26		99.8	15.3	46% Passing #200 sieve
9					24			14.1	
10			Gravels and Cobbles 10-11'	SM-SP					
11									
12	3-5 T		Gray to dark gray Silty SAND, moist - wet, medium dense, non-plastic, some mudstone gravels						
13					21			22.1	
14									
15	3-6 L		Gray to dark gray Gravelly Silty SAND, wet, medium dense, non-plastic (mudstone and sandstone gravels)						
16					10		91.6	27.0	20% Passing #200 sieve
17									
18	3-7 L		Gray to light brown Sandy Silty GRAVEL, wet, medium dense, non-plastic (mudstone gravels)	GP					
19									
20	3-8 T		Gray Silty SANDSTONE (Tsm), moist, moderately hard		21		80.4	36.8	
21					50/5"			19.5	
22									
23									

Bauldry Engineering, Inc.

Figure No. 4 Log of Test Borings

Tabernacle Bridge Study

JOB NO. 0709-SZ952-D17 REPORT DATE: May 8, 2007

Logged By SSC Date Drilled 4/4/07 Boring Diameter 4"SS Boring No. 3 (cont)

Depth, ft.	Sample No.	Symbol	SOIL DESCRIPTION	Unified Soil Classification	SPT "N" Value	Plasticity Index	Dry Density, p.c.f.	Moisture % of Dry Wt.	MISC. LAB RESULTS
24	3-9 T		Gray Silty SANDSTONE, moist, moderately hard		50/5"			13.5	6% Passing #200 sieve
25			Boring Terminatedat 25½'						
26									
27									
28									
29									
30									
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									
41									
42									
43									
44									
45									
46									

Bauldry Engineering, Inc. Figure No. 5 Log of Test Borings

Tabernacle Bridge Study

JOB NO. 0709-SZ952-D17 REPORT DATE: May 8, 2007

Logged By SSC Date Drilled 4/6/07 Boring Diameter 4"SS Boring No. 4

Depth, ft.	Sample No.	Symbol	SOIL DESCRIPTION	Unified Soil Classification	SPT "N" Value	Plasticity Index	Dry Density, p.c.f.	Moisture % of Dry Wt.	MISC. LAB RESULTS
1				SM					
2	4-1 L		Brown Silty SAND, moist, loose, non-plastic						
3									43% Passing #200 sieve
4	4-2 T		Brownish gray Silty SAND, moist, medium dense, non-plastic, some mudstone		5		98.2	18.1	
5					10			20.8	
6				SM-SP					
7	4-3 L		Gray to light brown Gravelly Silty SAND, moist - wet, medium dense, non-plastic (mudstone gravels)						5% Passing #200 sieve
8					13		104.4	14.8	
9									
10	4-4 T		Gray to light brown Gravelly Silty SAND, wet, dense, non-plastic (mudstone gravels)						
11					39			24.6	
12			Boring Terminated at 11½′						
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									

Bauldry Engineering, Inc. Figure No. 6 Log of Test Borings

Old Tabernacle Building

LOGGED BY CLA DATE DRILLED 3/4/15 BORING DIAMETER 8" HS BORING NO. 1

Depth (feet)	Sample No. and Type	Symbol	Soil Description	Unified Soil Classification	SPT "N" Value	Plasticity Index	Dry Density (pcf)	Moisture % of Dry Wt.	Misc. Lab Results
			AC: 2" AB: 0"						
1	1-1 L		Very dark grayish brown (10YR 3/2) to very dark brown (10YR 2/2) Sandy CLAY, fine grained, poorly graded, low expansion potential, quartz rich, massive, friable, trace charcoal, trace organics, trace oxidation patches, damp, stiff	CL			92.2	23.2	52% Passing #200 Sieve
2					13		88.6	29.2	EI = 36
3	1-2 T		Color change to very dark grayish brown, trace angular shaped siltstone gravels and trace relict gravels, slight increase in clay content, damp, stiff						
4					14			25.8	
	1-3 L		Dark grayish brown (10YR 4/2) Sandy CLAY, very fine to fine grained sand, sand is quartz rich, trace yellowish red (5YR 5/6) oxidation patches randomly distributed throughout the sample, trace rootlets and trace angular shaped siltstone clasts up to 1/4 inch in diameter randomly distributed throughout the sample, damp, stiff	CL					
5					13		116.2	24.9	59% Passing #200 Sieve
6									
7									
8									
9	1-4 T		Color change to mottled dark grayish brown (10YR 4/2) and strong brown (7.5YR 5/8), trace charcoal and trace rootlets randomly distributed throughout the sample, trace angular shaped siltstone clasts and relict gravels/clasts, damp, very stiff						59% Passing #200 Sieve
10					19			29.6	
11									
12									
13									
	1-5 L		Mottled dark grayish brown (10YR 4/2) and strong brown (7.5YR 5/8) Clayey SAND with Gravel, fine to medium grained sand, sub-angular shaped, poorly graded, quartz rich, massive, friable, sub-angular to sub-rounded shaped siltstone clasts	SC					
14									48% Passing #200 Sieve
15					26		95.5	25.6	
16									
17									
18									
	1-6 T		Very dark grayish brown (10YR 3/2) Sandy CLAY with Gravel, intermediate plasticity, very fine grained sand, quartz rich, angular to sub-rounded shaped siltstone, mudstone, and very fine grained sandstone gravels up to 1/2 inches in diameter, trace oxidation patches, trace rootlets, and trace charcoal randomly distributed throughout the sample, damp, stiff	CL					
19									60% Passing #200 Sieve
20					12			34.9	
21									
22									
23									
	1-7 L		Gravel content increases with depth as soil grades to Sandy Gravelly CLAY, moist, very stiff	CL					
24					17		68.6	53.6	

Pacific Crest Engineering Inc. 444 Airport Blvd., Suite 106 Watsonville, CA 95076	**Log of Test Borings** Mission Springs Drainage Study Scotts Valley, California	Figure No. 9 Project No. 14112 Date: 5/1/15

Cathedral Bridge Study

JOB NO. 0711-SZ952-D18 REPORT DATE: August 31, 2009

Logged By SSC Date Drilled 4/11/07 Boring Diameter 4"SS Boring No. 4 (con't)

Depth, ft.	Sample No.	Symbol	SOIL DESCRIPTION	Unified Soil Classification	SPT "N" Value	Plasticity Index	Dry Density, p.c.f.	Moisture % of Dry Wt.	MISC. LAB RESULTS
24	4-6 T		Gray Clayey Gravelly SAND, angular mudstone gravels, moist-wet, medium dense, some plasticity	SC	14			40.3	
25									
26			Increase in drilling resistance						
27			Groundwater at 27'	GP					
28	4-7 L		Light brown Sandy GRAVELS and COBBLES, angular mudstone gravels, wet, dense, non-plastic		50/2"		70.5	46.5	12% Passing #200 sieve
29									
30									
31									
32	4-8 T		Light gray Silty SANDSTONE (Tsm), moist, moderately hard		50/2"			8.1	4% Passing #200 sieve
33			Boring Terminated at 32½'						
34									
35									
36									
37									
38									
39									
40									
41									
42									
43									
44									
45									
46									

Bauldry Engineering, Inc.

Figure No. 8 Log of Test Borings

Old Tabernacle Building

LOGGED BY CLA DATE DRILLED 3/4/15 BORING DIAMETER 8" HS BORING NO. 1

Depth (feet)	Sample No: and Type	Symbol	Soil Description	Unified Soil Classification	SPT "N" Value	Plasticity Index	Dry Density (pcf)	Moisture % of Dry Wt.	Misc. Lab Results
			AC: 2" AB: 0"						
1	1-1 L		Very dark grayish brown (10YR 3/2) to very dark brown (10YR 2/2) Sandy CLAY, fine grained, poorly graded, low expansion potential, quartz rich, massive, friable, trace charcoal, trace organics, trace oxidation patches, damp, stiff	CL			92.2	23.2	52% Passing #200 Sieve
2					13		88.6	29.2	EI = 36
3	1-2 T		Color change to very dark grayish brown, trace angular shaped siltstone gravels and trace relict gravels, slight increase in clay content, damp, stiff						
4	1-3 L				14			25.8	
5			Dark grayish brown (10YR 4/2) Sandy CLAY, very fine to fine grained sand, sand is quartz rich, trace yellowish red (5YR 5/6) oxidation patches randomly distributed throughout the sample, trace rootlets and trace angular shaped siltstone clasts up to 1/4 inch in diameter randomly distributed throughout the sample, damp, stiff	CL					59% Passing
6					13		116.2	24.9	#200 Sieve
7									
8									
9	1-4 T		Color change to mottled dark grayish brown (10YR 4/2) and strong brown (7.5YR 5/8), trace charcoal and trace rootlets randomly distributed throughout the sample, trace angular shaped siltstone clasts and relict gravels/clasts, damp, very stiff						59% Passing
10					19			29.6	#200 Sieve
11									
12									
13			Mottled dark grayish brown (10YR 4/2) and strong brown (7.5YR 5/8) Clayey SAND with Gravel, fine to medium grained sand, sub-angular shaped, poorly graded, quartz rich, massive, friable, sub-angular to sub-rounded shaped siltstone clasts	SC					
14	1-5 L								48% Passing
15					26		95.5	25.6	#200 Sieve
16									
17									
18			Very dark grayish brown (10YR 3/2) Sandy CLAY with Gravel, intermediate plasticity, very fine grained sand, quartz rich, angular to sub-rounded shaped siltstone, mudstone, and very fine grained sandstone gravels up to 1/2 inches in diameter, trace oxidation patches, trace rootlets, and trace charcoal randomly distributed throughout the sample, damp, stiff	CL					
19	1-6 T								60% Passing
20					12			34.9	#200 Sieve
21									
22									
23			Gravel content increases with depth as soil grades to Sandy Gravelly CLAY, moist, very stiff	CL					
24	1-7 L				17		68.6	53.6	

Pacific Crest Engineering Inc. 444 Airport Blvd., Suite 106 Watsonville, CA 95076	**Log of Test Borings** Mission Springs Drainage Study Scotts Valley, California	Figure No. 9 Project No. 14112 Date: 5/1/15

Old Tabernacle Building

LOGGED BY CLA DATE DRILLED 3/4/15 BORING DIAMETER 8" HS BORING NO. 1

Depth (feet)	Sample No. and Type	Symbol	Soil Description	Unified Soil Classification	SPT "N" Value	Plasticity Index	Dry Density (pcf)	Moisture % of Dry Wt.	Misc. Lab Results
25	1-7 L		Very dark grayish brown (10YR 3/2) Sandy Gravelly CLAY, very fine to fine grained, quartz rich sand, angular to sub-rounded shaped siltstone and mudstone gravels and clasts up to 1 inch in diameter, trace strong brown (7.5YR 5/8) and yellow (10YR 7/8) patches, moist, very stiff	CL	17		68.6	53.6	
29	1-8 T		Color change to grayish brown (10YR 4/2) as soil grades to Clayey Gravelly SAND, slight increase in coarseness and content of sand, fine grained with trace medium grains, slight decrease in gravel content, trace patches of charcoal randomly distributed throughout the sample, moist, very stiff Increase in drilling resistance from 30 to 33 1/2 feet	SC	14			24.5	27% Passing #200 Sieve
34	1-9 L		Light olive brown (2.5Y 5/3) SAND, clean, medium grained, poorly graded, sub-rounded shaped, quartz rich, massive, friable, moist, medium dense	SP					
35			Pale olive (5Y 6/3) and white (5Y 8/1) Sandy GRAVEL, trace binder, medium grained, sub-angular to sub-rounded shaped, quartz rich, gravel is angular to sub-angular shaped and up to 1/4 inch in diameter, fine grained, damp, very dense	GP	50/5"		116.1	11.2	
39	1-10 T		SANTA MARGARITA SANDSTONE; Described as pale olive (5Y 6/3) SAND, medium grained, sub-angular to sub-rounded shaped, poorly graded, clean, quartz rich, massive, friable, damp, very dense Drilling resistance remained dense		50/5"			8.0	
44	1-11 L		Color change to light olive gray (5Y 6.2), trace very dark gray (5Y 3/1) patches, damp, very dense		50/4"		98.5	5.6	

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Log of Test Borings
Mission Springs Drainage Study
Scotts Valley, California

Figure No. 10
Project No. 14112
Date: 5/1/15

Old Tabernacle Building

LOGGED BY CLA DATE DRILLED 3/4/15 BORING DIAMETER 8" HS BORING NO. 1

Depth (feet)	Sample No. and Type	Symbol	Soil Description	Unified Soil Classification	SPT "N" Value	Plasticity Index	Dry Density (pcf)	Moisture % of Dry Wt.	Misc. Lab Results
49	1-12 T		SANTA MARGARITA SANDSTONE BEDROCK; Described as light gray (5Y 7/2) SAND, medium grained, sub-angular to sub-rounded shaped, poorly graded, quartz rich, clean, massive, friable, dry, very dense		50/5"			5.1	
50			Boring terminated at 49 feet. No groundwater encountered.						
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									
61									
62									
63									
64									
65									
66									
67									
68									
69									
70									
71									
72									

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Old Tabernacle Building

LOGGED BY CLA DATE DRILLED 3/4/15 BORING DIAMETER 8" HS BORING NO. 2

Depth (feet)	Sample No. and Type	Symbol	Soil Description	Unified Soil Classification	SPT "N" Value	Plasticity Index	Dry Density (pcf)	Moisture % of Dry Wt.	Misc. Lab Results
			AC: 2" AB: 0"						
1	2-1 L		Dark gray (10YR 4/1) and very dark grayish brown Sandy SILT, trace binder, very fine grained, poorly graded, trace angular to sub-angular shaped siltstone clasts and sub-rounded siltstone gravels scattered throughout the sample, damp,firm	ML					
2									61% Passing
3	2-2 T		Sand content increases slightly with depth, trace rootlets randomly distributed throughout the sample, damp, stiff		6		72.1	31.9	#200 Sieve
4									56% Passing
	2-3 L		Slight increase in rootlet content, slight increase in gravel size and content, gravels up to 1 1/2 inches in diameter,	ML	9			26.2	#200 Sieve
5									Qu = 1.4 ksf
6			soil grades to very fine grained Sandy SILT with Gravel, moist, stiff		11		91.1	28.0	55% Passing #200 Sieve
7									
8									
9	2-4 T		Color change to dark grayish brown (10YR 4/2), slight decrease in size of gravels, up to 1/2 inch in diameter,						
10			lack of rootlets, trace angular to sub-angular shaped silt-stone clasts, damp, very stiff		21			31.1	
11									
12									
13									
14	2-5 L		Mottled gray (10YR 5/1) and strong brown (7.5YR 4/6) Silty SAND, silt content decreases with depth, very fine to fine grained grading to fine to medium grained near 15	SM					
15			feet, sub-rounded shaped, poorly graded, quartz rich, massive, friable, trace siltstone gravels up to 1/2 inch in diameter, damp, medium dense		30		109.8	19.6	46% Passing #200 Sieve
16									
17									
18									
19	2-6 T		Variegated light olive brown (2.5Y 5/3) and light gray (2.5Y 7/2) SAND, clean, medium grained with trace coarse to very coarse grains, poorly graded, quartz rich, massive, friable, trace sub-rounded to rounded and sub-angular granitic chert and sandstone gravels up to 1/2 inch in diameter, damp, very dense	SP					
20					50/6"			12.5	
21			Boring terminated at 24 feet. No groundwater encountered.						
22									
23									
24									

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Log of Test Borings
Mission Springs Drainage Study
Scotts Valley, California

Figure No. 12
Project No. 14112
Date: 5/1/15

New Dining Hall Study

LOGGED BY CLA DATE DRILLED 3/4/15 BORING DIAMETER 8" HS BORING NO. 1

Depth (feet)	Sample No. and Type	Symbol	Soil Description	Unified Soil Classification	SPT "N" Value	Plasticity Index	Dry Density (pcf)	Moisture % of Dry Wt.	Misc. Lab Results
1	1-1 L		Mottled grayish brown (10YR 4/2) and strong brown (7.5YR 4/6) Clayey SAND, fine to medium grained with trace coarse to very coarse grains, sub-angular to sub-rounded shaped, poorly graded, quartz rich, massive, friable, trace sub-angular to rounded shaped siltstone and very fine grained sandstone gravels up to 1 inch in diameter, moist, loose	SC					
2					5		97.3	20.9	19% Passing #200 Sieve
3	1-2 T		Color change to mottled grayish brown (2.5Y 5/2) and strong brown, slight increase in coarseness of sand, predominately medium grained, slight increase in size of gravel, up to 2 inches in diameter, moist, medium dense		15			24.6	
4	1-3 L			SP					
5			Sand content increases with depth to coarse grained and clay content decreases as soil grades to SAND with SILT, trace binder, color change to dark gray (5Y 4/1), very fine grained Sandy SILT lens with rootlets near 5 1/2 feet, wet, loose		6		96.6	23.4	10% Passing #200 Sieve
6									
7									
8									
9	1-4 T		Dark brown (7.5YR 3/2) Clayey SAND, fine grained, poorly graded, quartz rich, massive, friable, trace strong brown (7.5YR 5/8) oxidation patches randomly distributed throughout the sample, moist, medium dense	SC					36% Passing #200 Sieve
10					15			17.7	
11									
12									
13									
14	1-5 L		Dark grayish brown (10YR 4/2) Clayey SAND, fine to medium grained, sub-rounded shaped, poorly graded, quartz rich, massive, friable, trace rounded and weathered siltstone gravels up to 1/4 inch in diameter, very dark gray (10YR 3/1) Fat CLAY lens near 14 1/2 feet, micaceous, trace angular shaped weathered claystone clasts up to 1 inch in diameter, moist, medium dense	SC			95.0	27.0	31% Passing #200 Sieve
15					11		90.8	26.9	
16									
17									
18									
19	1-6 T		Trace strong brown (7.5YR 5/8) oxidation patches, dark gray (2.5Y 4/1) SILT lens from 19 to 19 1/2 feet, trace sub-angular to rounded shaped siltstone and very fine grained sandstone gravels up to 1/4 inch in diameter, moist to wet, medium dense						28% Passing #200 Sieve
20					26			30.0	
21									
22									
23									
24	1-7 L		Brown (10YR 5/3) Silty SAND, fine to medium grained, moist, very dense	SP	50/6"		97.9	24.9	15% Passing #200 Sieve

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New Dining Hall Study

LOGGED BY CLA DATE DRILLED 3/4/15 BORING DIAMETER 8" HS BORING NO. 1

Depth (feet)	Sample No. and Type	Symbol	Soil Description	Unified Soil Classification	SPT "N" Value	Plasticity Index	Dry Density (pcf)	Moisture % of Dry Wt.	Misc. Lab Results
25	1-7 L		Brown (10YR 5/3) Silty SAND, fine to medium grained, sub-angular to sub-rounded shaped, poorly graded, quartz rich, massive, friable, trace sub-angular to sub-rounded shaped siltstone gravels up to 1/4 inch in diameter, moist, very dense	SM	50/6"		97.9	24.9	15% Passing #200 Sieve
26									
27									
28									
29	1-8 T		Dark gray (5Y 4/1) Silty SAND, very fine grained sand, sand content increases with depth, massive, friable, quartz rich, trace weathered and friable siltstone clasts, trace brown (7.5YR 4/2) patches, trace rootlets randomly distributed throughout the sample, moist, very stiff	SM	25			26.8	42% Passing #200 Sieve
30									
31									
32									
33									
34	1-9 L		Dark gray (2.5Y 4/1) SAND, very fine to fine grained, poorly graded, quartz rich, clean, massive, friable, gravel lenses at 33 1/2 and 34 1/2 feet, sub-rounded to rounded siltstone gravels and angular clasts up to 1 1/2 inches in diameter, sand coarsens increases to fine to medium grained in the gravelly lenses, moist, very dense	SP	50/6"		89.4	23.3	
35									
36									
37									
38									
39	1-10 T		Lack of gravels, trace interbeds of silt, trace rootlets present within the sample, damp, medium dense		29			24.4	28% Passing #200 Sieve
40									
41									
42									
43									
44	1-11 L		Dark gray Gravelly Silty SAND, fine grained, poorly graded, clean, quartz rich, massive, friable, trace medium to coarse grained sand, sub-angular to rounded siltstone clasts and siltstone and very fine grained siltstone gravels up to 1 1/2 inches in diameter, damp, dense	SP	31		96.3	21.2	16% Passing #200 Sieve
45									
46									
47									
48									

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New Dining Hall Study

LOGGED BY CLA DATE DRILLED 3/4/15 BORING DIAMETER 8" HS BORING NO. 1

Depth (feet)	Sample No. and Type	Symbol	Soil Description	Unified Soil Classification	SPT "N" Value	Plasticity Index	Dry Density (pcf)	Moisture % of Dry Wt.	Misc. Lab Results
49	1-12 T		Dark gray (5Y 4/1) SAND with Gravel, medium grained, sub-angular to sub-rounded shaped, poorly graded, clean, quartz rich, massive friable, sub-rounded to rounded siltstone and sandstone gravels up to 1/2 inch in diameter, damp, very dense		50/6"			13.6	
50			Boring terminated at 49 1/2 feet. No groundwater encountered.						
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									
61									
62									
63									
64									
65									
66									
67									
68									
69									
70									
71									
72									

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Drainage Study

LOGGED BY BDB DATE DRILLED 2/12/15 BORING DIAMETER 4" HA BORING NO. HA-1

Depth (inches)	Sample No. and Type	Symbol	Soil Description	Unified Soil Classification	SPT "N" Value	Plasticity Index	Dry Density (pcf)	Moisture % of Dry Wt.	Misc. Lab Results
0			Dark brown Silty SAND, predominately fine grained, very moist	SM					
24			Strong brown Silty SAND with sub-rounded gravels to 1 inch in diameter, moist	SM				22.4	43% Passing #200 Sieve
36			Boring terminated at 3 feet due to caving soils. Groundwater encountered at 3 feet.						

1 2 3 4 5 6 7 8 9 10 11 12

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Log of Test Borings
Mission Springs Drainage Study
Scotts Valley, California

Figure No. 16
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LOGGED BY BDB DATE DRILLED 2/12/15 BORING DIAMETER 4" HA BORING NO. HA-2

Depth (inches)	Sample No. and Type	Symbol	Soil Description	Unified Soil Classification	SPT "N" Value	Plasticity Index	Dry Density (pcf)	Moisture % of Dry Wt.	Misc. Lab Results
0			Dark brown Silty SAND, predominately fine grained, very moist	SM					
1									
2			Light brown Silty SAND with Gravels and Cobbles, sub-rounded shaped, cobbles up to 5 inches	SM					
3									
4									
5			Boring terminated at 5 feet due to caving soils. Groundwater encountered at 5 feet.						
6									
7									
8									
9									
10									
11									
12									

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Log of Test Borings
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Scotts Valley, California

Figure No. 17
Project No. 14112
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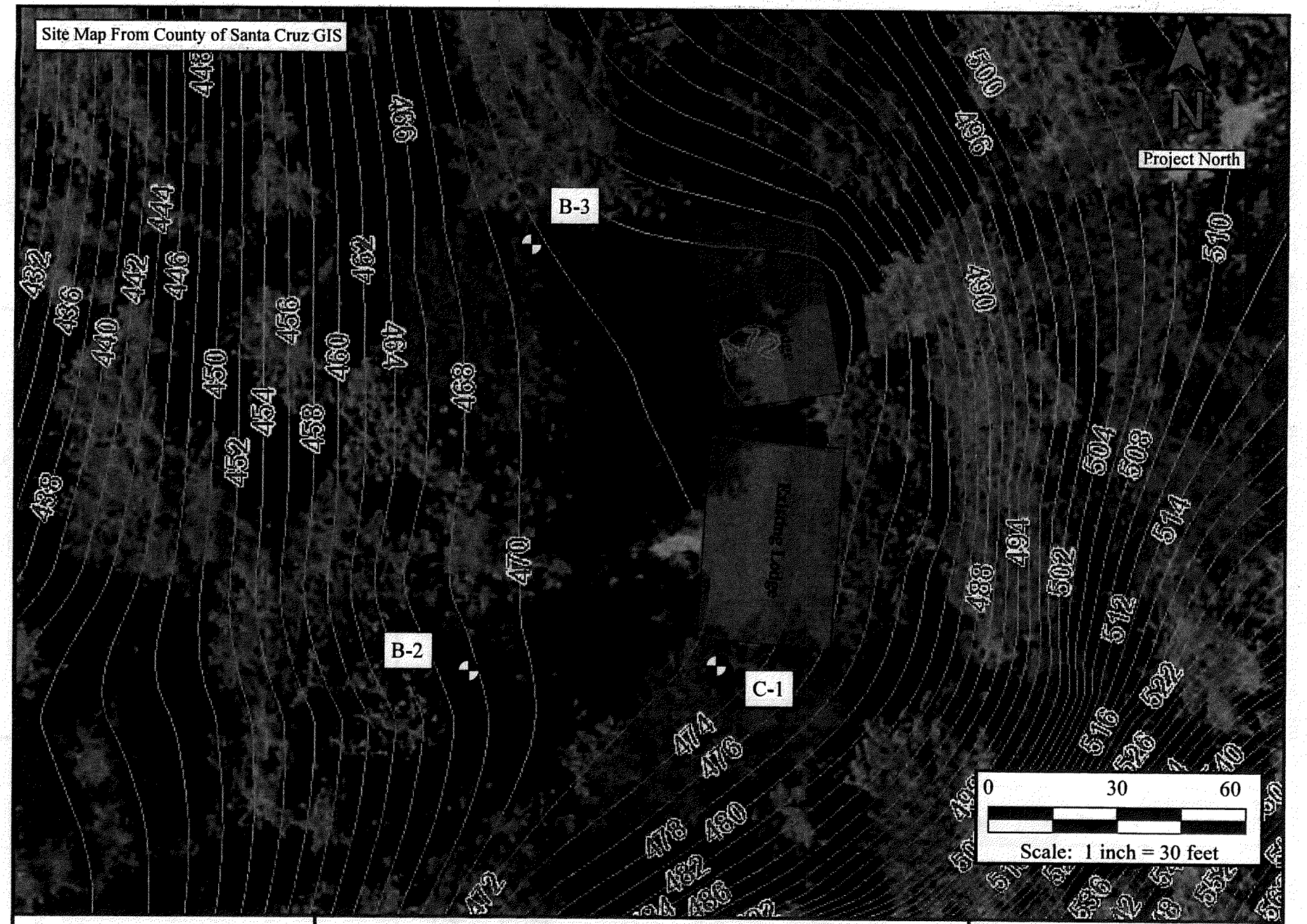

Pacific Crest Engineering Inc. 444 Airport Blvd., Suite 106 Watsonville, CA 95076	**Site Map Showing Approximate Boring Locations** Mission Springs Drainage Study Scotts Valley, California	Figure No. 18 Project No. 14112 Date: 5/1/15

LOGGED BY CLA DATE DRILLED 2/12/15 CORE DIAMETER 8" HS CORE NUMBER B-1 DRILL RIG: CME57

Groundwater intial depth and time: Ground Surface Elevation:

Groundwater final depth and time: Driller: Britton Exploration

depth (feet)	Time	Drilling Rate	Core Run	Length of each sound piece of core >4"	Pressure psi	Soil/Rock Description	USCS/Fm	pattern
						34 inches of recovery	Qc	
1						Grayish brown (2.5Y 5/2) and brownish yellow (10YR 6/8) SILT resulting		
						from weathered and fractured mudstone bedrock, sample is bedded/banded,		
2						friable, angular shaped clasts resulting from fx bedrock, mixed mudstone,		
						siltstone, and very fine grained sandstone with layers of soil and gravel, damp,		
3						(rockfall and landslide deposits)		
4								
5				0				
		832				30 inches of recovery. Sample is bedded, bioturbidation noted, fx, no clay		
6						gouges or slickensides noted		
7								
8						Hard coring conditions		
9								
10		834		0				
		838				18 inches of recovery		
						Dilated and intensely fx mudstone, no clay gouges or slickenslides, sharp		
11						contact at 14'8", bottom 4 inches of sample is less wx, more intact		
12								
13								
14								
15		841		0				
		846				60 inches of recovery (100%), pedagenic soil underlain by Alluvium	Qal	
16						Very dark gray (10YR 3/1) Fat CLAY, high plasticity, angular shaped strong		
						brown (7.5YR 5/8) and red (2.5YR 4/8) siltstone and mudstone clats		
17						scattered throughout the sample, color grades to brown (10YR 4/3) near 18		
						feet, increase in clast content, trace very fine grained sand, increase in		
18						moisture content, trace very fine grained sand, increase in moisture content		
						near 17'6", moist to wet from 17'6" to 20'		
19								
20		848						
		907				60 inches of recovery (100%)		
21						Alluvial Deposits		

Pacific Crest Engineering Inc. 444 Airport Blvd., Suite 106 Watsonville, CA 95076	**Log of Core Runs** Mission Woods Drainage Study Scotts Valley, California	Figure No. 19 Project No. 14112 Date: 5/1/15

LOGGED BY CLA DATE DRILLED 2/12/15 CORE DIAMETER 8" HS CORE NUMBER B-1 DRILL RIG: CME57

Groundwater intial depth and time: Ground Surface Elevation:

Groundwater final depth and time: Driller: Britton Exploration

depth (feet)	Time	Drilling Rate	Core Run	Length of each sound piece of core >4"	Pressure psi	Soil/Rock Description	USCS/Fm	pattern
						60 inches of recovery (100%). Alluvial Deposits described as brown (10YR	Qal	
22						4/3) Gravelly Fat CLAY, angular shaped siltstone and mudstone clasts near		
						21'4", cored through a section of mudstone described as bedded greenish gray		
23						(GLEY1 5/5GY) and brownish yellow (10YR 6/6) near 21'8' return to		
						Gravelly Fat CLAY, near 24'6" sharp contact and soil change to greenish gray		
24						sandy CLAY, intermediate plasticity, damp		
25		914						
		917				60 inches of recovery (100%)		
						Mottled greenish gray and brownish yellow Gravelly CLAY/ CLAY with		
26						Gravel, sample contains beds of Sandy CLAY/ Clayey SAND, gravel/ clast		
						content decreases with depth, damp		
27								
28								
29								
		923						
30		925				60 inches of recovery (100%) Re-worked Alluvial Fan		
						Deposits described as mottled light gray (5Y 6/2), dark gray (5Y 4/1), and		
31						strong brown Sandy CLAY, very fine grained sand, intermediate plasticity,		
						trace sub-angular to angular shaped siltstone/ mudstone clasts, moist		
32								
33						Sharp contact, unconformable		
34						Irregular, uncomfortable contact at 33'6". Re-worked alluvial fan deposits	Tsm	
						underlain by Alluvial sand/sandstone deposits		
35								
						34 inches of recovery		
						Brown (10YR 4/3) SAND, clean, medium grained with trace coarse grains,		
36						sub-rounded shaped, poorly graded, trce binder, quartz rich, massive, friable,		
						damp to moist		
37								
						Color change to light olive brown (2.5YR 5/4), lack of binder, slight decrease		
38						in coarseness of sand, predominately medium grained, damp		
39								
40						Boring terminated at 40 feet at 1015. No free-standing groundwater		
						encountered.		
41								
42								

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Mission Woods

LOGGED BY CLA DATE DRILLED 2/12/15 BORING DIAMETER 8" HS BORING NO. 2

Depth (feet)	Sample No. and Type	Symbol	Soil Description	Unified Soil Classification	SPT "N" Value	Plasticity Index	Dry Density (pcf)	Moisture % of Dry Wt.	Misc. Lab Results
1	2-1 L		Light olive brown (2.5Y 5/4) Silty SAND resulting from weathered and fractured siltstone, very fine grained sand, angular shaped clasts up to 1 inch in diameter, bedded, friable, damp, stiff	SM					27% Passing #200 Sieve
2					11			38.7	
3	2-2 T		Color change to olive brown (2.5Y 5/4) and brownish yellow (10YR 6/8), increase in fines content, sample is bedded and more weathered and friable than the pevious sample, trace patches of very dark grayish brown (10YR 3/2) CLAY embedded with clasts, damp, very stiff						41% Passing #200 Sieve
4					18			31.8	
5	2-3 L		Damp, very stiff						36% Passing #200 Sieve
6					24		72.8	32.2	
7									
8									
9									
10	2-4 L		Sampled through siltstone cobbles from 10 to 11 feet, trace rootlets scattered throughout the sample from 11 to 11 ½ feet, damp, very stiff						
11					16			27.0	
12									
13									
14									
15	2-5 T		No Sample Recovery		50/2.5"				
16									
17									
18									
19									
20	2-6 T		Olive brown and brownish yellow SILT more weathered and friable than the previous samples, lack of rootlets, bedded, portions of the sample are in the process of weathering to clay, damp to moist, hard	SM					
21					34			38.5	
22									
23									
24									

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Log of Test Borings
Mission Woods Drainage Study
Scotts Valley, California

Figure No. 21
Project No. 14112
Date: 5/1/15

Mission Woods

LOGGED BY CLA DATE DRILLED 2/12/15 BORING DIAMETER 8" HS BORING NO. 2

Depth (feet)	Sample No. and Type	Symbol	Soil Description	Unified Soil Classification	SPT "N" Value	Plasticity Index	Dry Density (pcf)	Moisture % of Dry Wt.	Misc. Lab Results
25	2-7 L		Very dark Gray (2.5Y 3/1) Fat CLAY with Gravel, high plasticity, gravels consist of angular to sub-angular shaped siltstone and mudstone clasts, up to 1 ½ inches in diameter, moist, stiff (pedagenic soil)	CH					
26					10		84.5	35.2	
27	2-8 T		Color change to mottled very dark gray and brown (7.5 YR 4/4), slight decrease in size of the gravels/clasts, moist, firm						
28					5			29.9	
29			Boring terminated at 28 feet. No groundwater encountered.						
30									
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									
41									
42									
43									
44									
45									
46									
47									
48									

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Log of Test Borings
Mission Woods Landslide Study
Scotts Valley, California

Figure No. 22
Project No. 14112
Date: 5/1/15

Mission Woods

LOGGED BY CLA DATE DRILLED 2/12/15 BORING DIAMETER 8" HS BORING NO. 3

Depth (feet)	Sample No. and Type	Symbol	Soil Description	Unified Soil Classification	SPT "N" Value	Plasticity Index	Dry Density (pcf)	Moisture % of Dry Wt.	Misc. Lab Results
1	3-1 L		Yellowish brown (10YR 5/6) and black (2.5Y 2.5/1) Gravelly CLAY, intermediate plasticity, siltstone clasts up to 2 inches in diameter, gravels are yellowish brown, clay is black, micaceous, damp, stiff	CI			75.7	39.2	46% Passing #200 Sieve
2					15		79.2	37.9	
3	3-2 T		Slight decrease in gravel content, gravels are more weathered and friable than the previous sample, clasts are bedded (light olive brown [2.5Y 5/4] and brownish yellow [10YR 6/8]), damp, firm		8			38.1	40% Passing #200 Sieve
4									
5	3-3 L		Slight decrease in gravel size and content, clasts up to ¾ inch in diameter, sample grades to CLAY with Gravel, intermediate plasticity, redwood rootlets scattered throughout the sample, damp, firm	CI					
6					7			37.3	59% Passing #200 Sieve
7									
8									
9									
10	3-4 T		Bedded light grayish brown (2.5Y 6/2) and brownish yellow (10YR 6/8) Sandy SILT resulting from weathered and fractured siltstone, very fine grained sand, friable, angular to sub-angular shaped siltstone clasts up to 1 ½ inches in diameter scattered throughout the sample, damp, stiff	ML					
11					9			37.0	
12									
13									
14	3-5 L		Siltstone is slightly more competent than the previous sample, siltstone is still highly weathered, fractured, and friable, damp, stiff		11			38.5	
15			Boring terminated at 15 feet. No groundwater encountered.						
16									
17									
18									
19									
20									
21									
22									
23			Turned into a perc hole. Inserted 2-inch diameter schedule 40 PVC pipe. Slotted pipe from 10-15 feet bgs						
24									

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Log of Test Borings
Mission Woods Landslide Study
Scotts Valley, California

Figure No. 23
Project No. 14112
Date: 5/1/15

Attachment 18

Santa Cruz County GIS, Distance From Frontier Ranch to Surrounding Residences, February 2019

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