

DOCKET

11-AFC-2

DATE _____

RECD. APR 30 2012



The Old Spanish National Historic Trail: A Report on Cultural and Visual Resources in the Near Vicinity of the Proposed Hidden Hills Solar Energy System Plant, Inyo County, California

Report submitted by Jack Prichett
Old Spanish Trail Association

Report submitted to the California Energy Commission as part of the application by Hidden Hills Solar, I & II, LLC. to develop the Hidden Hills Solar Electric Generating System plant in Inyo County, California (Energy Commission Docket Number: 11-AFC-2 [Application for Certification]).

The Old Spanish Trail Association is an Intervener in the Application proceedings. The data, analysis, and findings reported in this work were produced by the Trail Committee of the Tecopa (CA) chapter of the Old Spanish Trail Association, with consultation from historians both inside and outside the Association.

April, 2012

Table of Contents

Abstract	3
Introduction: Why This Report Became Necessary	4
1. The Old Spanish National Historic Trail: Legal Definition and Status	7
2. The Old Spanish Trail: 1829 to 1848	8
3. After 1848: The American period	11
4. Historical and Archival Evidence for the Mule Caravan Route	12
5. OSTA-Tecopa's Field Recording of the Mule Trace	13
5.1 The OSTA-Tecopa Trail Committee	14
5.2 Field Methodology	14
5.3 Key Findings of the Trail Survey	15
6. The NHT Route, the Salt Lake Road/Mormon Road, and the OSTA-recorded Mule Trace: The Existence of Alternative Routes	18
6.1 What IS the route of the Old Spanish Trail?	18
6.2 The National Park Service map of the Old Spanish Trail	18
6.3 The NHT Old Spanish Trail Route	20
6.4 The 1829-1848 Mule Trace Recorded by OSTA	22
6.5 Status of the Mule Trace: a Branch of the Old Spanish Trail Route	22
7. The Old Spanish Trail, Stump Spring, and HHSEGS	23
7.1 Centrality of Stump Spring	23
7.2 Stump Spring Was Part of a Network of Springs Serving the Trail	25
(continued on next page)	

8. Impacts of the Hidden Hills Solar Plant on the Old Spanish Trail	27
8.1 Project Impacts	27
8.2 Mitigation Measures	30
9. Trail's End	31
10. Figures	33
11. Bibliography	45
12. Appendices	47
A. The National Trails System Act	47
B. Historical Maps	49

Abstract

The Old Spanish Trail, a route for commerce, exploration, and population movement during the period 1829 to 1848, was made a United States National Historic Trail in 2002. This status as a national historical cultural resource was conferred under the National Trails System Act (see Appendix A).

Commerce and immigration along the Old Spanish Trail between 1829 and 1848 consisted primarily of mule caravans that traveled from Santa Fe, New Mexico, to Los Angeles, California, and return parties that herded California mules and horses back to Santa Fe. These activities took place during the period when Santa Fe, Los Angeles, and the intervening territory were part of Mexico.

The Old Spanish Trail Association's Tecopa chapter has located and recorded with GPS waypoints some 11 kilometers of the mule caravan route that led from Stump Spring, in Nevada, to Resting Springs, in California. This report documents two key findings:

- This segment of the mule caravan route is separate from, and follows a different course from the Old Spanish Trail route as depicted on the NPS's official map of the Trail.
- Portions of the mule caravan route lie within, and others lead toward, the project area of the proposed Hidden Hills Solar Energy Generation System (HHSEGS).

If the California Energy Commission approves the application by Hidden Hills Solar to build and operate the HHSEGS, the result will be strong and permanent negative impacts to the Old Spanish Trail and related historical sites in and around the project area.

Introduction: Why This Report Became Necessary

Today, it's only a faint crease in the vast face of California's Mojave Desert, but the Old Spanish National Historic Trail represents a significant physical and cultural link to the history of the southwest United States.

For 20 years the trail represented a unique trade route of more than 1,000 miles, traversed by pack-mule caravans and return parties linking the provincial Mexican pueblos of Santa Fe and Los Angeles. Immigrants—Mexican and American alike—traveled the trail to settle in California. These included families such as the Armijos and the Workmans who founded businesses and towns in California.

The trail also served as a path for explorers in the first half of the 19th century. Even before the first mule caravan in 1829, its route—south from Utah, across the Mojave, and down the Cajon Pass into southern California—was followed by mountain men, such as Jedediah Smith and perhaps Pegleg Smith (Hafen and Hafen (1993:109-129 and 136). Later, Col. John C. Fremont left California via the Old Spanish Trail in 1844. Fremont's 1845 report on his expedition of 1843-44—including his establishing the fact that the Great Basin is indeed a basin, with no outlet to the sea—brought broad, new understanding of the geography of the western U.S. "This report and the Fremont (Preuss) map which accompanied it, changed the entire picture of the West and made a lasting contribution to cartography," wrote Carl Wheat (1955 2:194).

The preceding three paragraphs provide only the briefest summary of the significance of the Old Spanish Trail. Books and publications about the trail run into the hundreds, including at least a half dozen books dealing solely with the trail. Yet almost none of this rich history and cultural documentation appears in the Cultural Resources report, dated August, 2011 and prepared by CH2MHill for

the HHSEGS applicant, Hidden Hills Solar I, LLC, and Hidden Hills Solar II, LLC.

The CH2MHill dedicates *only one long paragraph* (!) to what it calls “The Mexican Period.” The Old Spanish Trail is mentioned once. The bibliography includes no references to Fremont (1845), Hafen and Hafen (1993), Steiner (1999), Lyman (2004), Walker (1986 and 2009), Myhrer et al (1990) or many other standard reference works on the Old Spanish Trail. CH2MHill’s only attempt to contact the Old Spanish Trail Association was a letter, sent via the U.S. mail, to an incorrect address. When they received no reply, they made no further efforts, although the Old Spanish Trail Association possesses an easily found web site.

In short, CH2MHill’s treatment of the Old Spanish Trail as a cultural resource was woefully inadequate by any reasonable standard. In addition, the report was branded “Confidential,” and it required a special request by OSTA to obtain a six-page section of the report. Those six pages contained no discussion of potential impacts of the Hidden Hills Solar Plant on the Old Spanish Trail.

In light of the superficial effort made by CH2MHill to carefully document the Old Spanish Trail in the project area or to assess impact of the project on the trail, OSTA has prepared this cultural resources report, authored by Jack Prichett, president of the Tecopa, CA, chapter of the Old Spanish Trail Association. We submit it to the California Energy Commission as documentation of the Trail as found in:

- Historical documents and archival records
- Historical maps
- Field work conducted by OSTA in the project area.

The information contained in this document is intended to remedy the deficiencies of the CH2MHill cultural resources report and to serve as evidence

in the CEC's considerations of whether to grant BrightSource Energy, Inc. and Hidden Hills Solar I & II a license for the Hidden Hills solar plant.

1. The Old Spanish National Historic Trail: Legal Definition and Status

The Old Spanish National Historic Trail (**Figure 1**) is one of 19 U.S.-government-designated National Historic Trails. The trail is administered by the U.S. Department of the Interior, with the NPS (NPS) and the BLM (BLM) acting as lead agencies. In addition, National Trails are administered with assistance from chartered trail associations comprised of concerned citizen volunteers. The Old Spanish Trail Association is the designated voluntary organization providing local assistance to the NPS and the BLM.

Figure 1. Map of the Old Spanish National Historic Trail and its branches. The trail was used for trade, exploration of the southwest, and population migration.

Relevant sections of the National Trails System Act, which designates the Old Spanish Trail as a National Historic Trail, are reproduced in Appendix A. The National Trails System Act is clear: the Old Spanish Trail is the mule caravan route used during the years 1829-1848. During this time span, New Mexico, California, and the intervening territory traversed by the TRAIL were part of Mexico, and in referring to the trail, this report sometimes refers to the 19-year interval as "the Mexican Period."

Congress' 2002 designation of the Old Spanish Trail as a National Historic Trail was based on a 2001 feasibility study conducted by the NPS. The study is available online at www.nps.gov/olsp/parkmgmt/planning.htm. The feasibility study laid out the overall route of the trail across six states, as shown in Figure 1. Section 6 of this report describes in detail the feasibility study and the official NPS map of the trail.

The route included branches, including the route followed by Antonio Armijo, who led the first pack mule trade caravan from Santa Fe to Los Angeles and back in 1829-

1830. The Northern and Main routes were followed in later years, since they provided more access to water and forage and avoided the need to cross the deep gorge of the Colorado River. In California, portions of the Main Route and the Armijo Route pass through the Mojave in the region of the Hidden Hills Solar Electric Generating System plant. An interactive version of the NHT map of the Old Spanish Trail routes is available at <http://imgis.nps.gov/Geocortex/Viewer/NPS/Viewer.html?Viewer=NationalHistoricTrails>.

2. The Old Spanish Trail: 1829 to 1848

The 1829 to 1848 mule caravan trade over the TRAIL fits neatly into the brief period between Mexico's independence from Spain (1821) and the end of the Mexican-American War (1848). Pack trains of as many as 200 mules carried finished woolen goods more than 1,000 miles from Santa Fe, NM, to Los Angeles, CA. Both pueblos were then remote regional capitals in Mexico's northern territory. In southern California, the woolen goods were sold. With the proceeds, the New Mexican traders purchased California livestock, primarily horses and mules. The animals were larger than those available in New Mexico and sold at a high price at the end of the return trip to Santa Fe (Hafen and Hafen 1993; Lawrence 1932). The return parties left California with herds of as many as 4,000 horses and mules.

In general, the historical record concerning details of the mule caravan trade is scanty, particularly with respect to first-hand logs or diaries kept by those who used the route during the Mexican period. The Hafens note, "searches in Santa Fe and Albuquerque have revealed almost no accounts of these traders, even of those who show up in California with passports signed by New Mexican officials" (Hafen and Hafen 1993:174-75). They add: "Not a single diary of the regular annual merchant caravans of 1831 to 1848 has been found. The data for our story have to be pieced together from the fragments gleaned in the California records and from recollections and reports of Americans in the territory" (1993:175).

Despite the lack of first-hand accounts from Mexican travelers, there are Mexican government records about the size of some of the caravans and the goods they carried. The records show that caravans left New Mexico nearly every year for California. The size of the caravans varied from year to year. For example, in 1834, the caravan that arrived in California included “about 125...New Mexican gentlemen (Hafen and Hafen 1993: 179). The 1836-37 caravan arrived with about 30 men (Hafen and Hafen 1993: 181). Lawrence (1932: 31) reports that a trading party of 30 New Mexicans, along with some Americans made the trek in 1838. The following year saw a caravan numbering 75 men, under the command of Jose Antonio Salazar (Lawrence 1932: 31). In 1841, a party led by William Workman and John Rowland brought 30 Americans to California, as part of a large company of about 134 souls (Lawrence 1932: 34). In 1842 an immigrant party of 19 families arrived in Los Angeles (Lawrence 1932: 36). In 1843 Tomas Salazar reached Los Angeles with a party of 170.

Occasional records reveal what the mules carried from Santa Fe. For instance, papers from a taxation case in California list the wares of the 1833 caravan as “1645 serapes, 341 fresadas, 171 colchos, and 4 tirutas” (Hafen and Hafen 1993: 179). More detailed records, in Spanish, exist in the Mexican departmental records of Santa Fe and Los Angeles. These are now found in special collections, such as those of the Bancroft Library at the University of California, Berkeley, the Huntington Library (see Hafen and Hafen 1993:155-194, footnotes, *passim*; Twitchell 1981).

From these records, we can see that Mexican caravans consisted of less than 200 persons and often only a few dozen. The number of mules, also, was less than 200 and roughly the same as the number of persons in the caravan. We also know that the mules generally followed one another single-file. Eggenhofer’s account of mule packing practices describes how the mules would fall into line behind a horse called the bell mare. “The curious affinity of mules for a mare long had been known and taken advantage of. It was somehow rather like the instinctive feeling of a child for its

mother—not so strange, after all, perhaps, a mule being the get of a jackass mated to a mare. A tinkling bell on a strap around the mare’s neck made the enchantment complete; the mules would follow her all day” (Eggenhofer 1961:17). An illustration in Eggenhofer’s book (pp. 14-15) shows mules following a bell mare along a track.

In addition, we have a good idea of the mule tack and personal inventory of items carried by Mexican muleteers. Food was simple. According to Hockaday, the main diet was a hard cake-like biscuit made from corn meal and brown sugar with a little cinnamon. Jerky could be pounded into powder and mixed with water. “Each man’s company outfit was simple: a sharp knife and a large tin cup or some other quart-sized container that could be used for mixing and drinking gruel and broth (Hockaday 2005:17).

Translating what we know of Mexican mule practices into 21st century trail survey work, we can predict some characteristics of the trace that might be left on the desert floor in the areas between Emigrant Pass and the California-Nevada state line.

- First is that the trace will generally consist of a relatively narrow, single track, worn into the soil. This is precisely what one finds where the trace crosses Emigrant Pass and in the areas recorded by the Tecopa chapter (Figures 2,3,4).

Contemporary evidence from trails used by pack mules in

California’s Sierra mountains (Figure 5) confirms that such trails are narrow and that the mules—though tethered—follow in each other’s footsteps, docilely following the leading horse, much as described by Eggenhofer.

- Second, we know that the inventory of Mexican-period artifacts liable to be found along the mule trace is limited. Most of the mules’ pack apparatus (called *aparejo* in Spanish) was made of wood, leather, and straw (Eggenhofer 1961: 20-21; Ruxton 1950:172-73). Mule shoes and blacksmithing detritus might be left behind. In Colorado, researchers have found a musket ball and

broken knife blades in association with the Old Spanish Trail, artifacts that are consistent with the Mexican period (Crawford and Krall 2011). But in general, we can expect Mexican-period artifacts to be scarce; they will most likely be found at campsites, and some of these will be near water sources.

Despite the lack of Trail-period Mexican accounts, an American-written diary from the very end of the Mexican period gives some insight into daily life on the trail. Orville C. Pratt kept a journal with daily entries of a trip he made in the fall of 1848 from Santa Fe to Los Angeles. Pratt made the journey with a party of about 17 Americans (Hafen and Hafen 1993: 343). His journal entries give an idea of conditions along the trail and describe many of the springs where the party camped. His remarks concerning Stump Springs are crucial to understanding branches of the trail near the Hidden Hills solar project. This information is considered in Section 7.

3. After 1848: The American period

The American period, which began in 1848, spurred two waves of covered wagon traffic that built upon and followed the Trail from Utah into southern California. The first wave was a surge of Gold Rush pioneers, prompted by the 1848 discovery of gold in northern California; some of these caravans of gold-seekers chose to reach the Golden State by following the trail's desert segment, rather than crossing the Sierras. The second wave consisted of Mormon wagon trains, which followed the trail to California. The first of these were in 1849; Mormon use accelerated in 1851, after the founding of San Bernardino, CA, and other newly founded Mormon outposts.

In some areas, the wagon trains followed the OST mule path; in other places, steep hills and narrow gullies forced the wagons to take alternate routes (Myhrer et al, 1990: 56-57). Over the years, the wagon trails branched and multiplied as parties discovered short cuts such as the "Kingston Cutoff," which avoided the climb over Emigrant Pass and cut miles off the mule route. The dual-track trails left by the wagons became known variously as The Salt Lake Road, the Mormon Road, and the

California Road, among other names that appear on 19th century maps. In this report, we refer to the wagon routes as “trails,” to distinguish them from mule caravan “trace” of the Mexican Period.

All maps showing the location of the Old Spanish Trail in the California Mojave date from the American period. The terminology of the maps is inconsistent, with some referring to the Old Spanish Trail and others to the Mormon Road or Great Salt Lake Road (see maps in Appendix B). Routes designated Mormon Road or Great Salt Lake Road almost certainly refer to the wagon route leading from Salt Lake to southern California. But that route in many cases overlay the earlier mule caravan trace, which would likely be obliterated. We know, however, that the later wagon trails diverged in places from the mule trace, usually due to a topographic feature (Myhrer et al 1990:56-57). In many cases when working from 19th century maps, only field survey can determine whether both mule trace and wagon trail are intact and where they lie with respect to each other (see Sections 6 and 7). This divergence of mule trace and wagon trail is critical in identifying the Old Spanish Trail in the area near the Hidden Hills solar project (Sections 7 and 8).

4. Historical and Archival Evidence for the Mule Caravan Route

Historical documents and maps provide some details about the route of the Old Spanish Trail and its use near the Nevada border. We know that the Old Spanish Trail proceeded west from Las Vegas and crossed the Spring Mountains, with a well known stop at what today is Blue Diamond, NV (Myhrer et al 1990, Steiner 1999). Many historical maps show the Old Spanish Trail (both mule trace and/or wagon trail) leading out of the Spring Mountains and to Stump Spring, near the Nevada border (see Appendix B).

Stump Spring, lying at the foot of the Spring Mountains, marked the beginning of a long traverse of the California Mojave where water sources and grazing were often scarce. The nearest major spring to the west was Resting Spring, reached by

crossing Emigrant Pass. The straight-line distance between the two springs is roughly 24 miles, and a nearly bee-line path was possible for mule caravans. The trip could be made in a one-day journey.

John C. Fremont, following the Old Spanish Trail in 1844, camped at a location near Stump Spring (Fremont 1845:265; Steiner 1999:156). Fremont's account places Stump Spring (which he referred to as Escarbada) on the Old Spanish Trail, and in so doing establishes the trace's proximity to the site of the proposed Hidden Hills solar plant. The importance of this fact will become clear in Sections 7 and 8.

The next watering spot west from Stump Spring was Resting Springs (also referred to as Archilette or Archiletta on some 19th century maps and in Fremont's accounts). It flowed continuously with abundant sweet water. From Resting Springs, the Old Spanish Trail proceeded to Willow Springs, at the site of what is today China Ranch (Johnson & Sutak 2011).

5. OSTA-Tecopa's Field Recording of the Mule Trace

OSTA's Tecopa chapter began tracking, GPS-recording, and photographing the mule trace in 2007. The goal has been to record completely the route of the trace between two known points on the Trail: Stump Spring, NV, and Resting Springs, CA (Hafen and Hafen 1993; Steiner 1999). Currently, OSTA has recorded more than 11 continuous kilometers of mule trace leading east from Emigrant Pass toward the Nevada state line (**Figure 6**).

OSTA's field survey work took as its starting point the summit of Emigrant Pass, a widely acknowledged spot on the Old Spanish Trail mule trace. This point was selected because virtually all trail scholars agree that the caravan trace is visible there (Leo Lyman 2004, Steiner 1999, Hafen and Hafen 1993, Fremont 1845, Crampton and Madsen 2007, Warren 1974 and personal communication).

In addition, numerous historical maps show the trail and the “Mormon road” crossing Emigrant Pass. Both the trace and the wagon trail are visible, as separate entities, at the summit of the pass. A concrete obelisk labeled “The Old Spanish Trail” stands next to the mule trace (see Figure 2). The wagon trail lies about 100 meters to the south of the trace and obelisk.

5.1 The OSTA-Tecopa Trail Committee. OSTA’s trail work in the HHSEGS project area is directed by the Trail committee, chaired by George Ross, who is half-Paiute and a native of the Tecopa area. Four members of the Trail committee have completed the BLM’s site stewardship training program.

Chapter president Jack Prichett is active on the committee as well. Prichett was a professional historical archeologist between 1978 and 1981 with the cultural resources firm, Archeo-Tec, Inc. During that period he co-authored several major historical cultural resources reports, detailing archeological finds from San Francisco, dating from the Gold Rush period through the 1906 earthquake and fire. These reports include the nationally recognized *Behind the Seawall* (3 volumes, produced for the city of San Francisco Wastewater Management Project) and *Yerba Buena Center* (study conducted for the San Francisco Redevelopment Agency).

5.2 Field Methodology

The Trail committee schedules all trail work. Each trail identification and recording trip employs standard equipment and records results using a standard form. GPS data are recorded using a standard format and plotted using TopoFusion and other software based on UTM coordinates (Figure 7). Trail data and other research materials are housed in OSTA’s Tecopa office.

The OSTA survey teams comprise three to five volunteers, walking in transects along and to either side of the trace. The survey teams take GPS waypoints each 25 meters and even more frequently when the trace makes sharp turns or is difficult to follow.

Artifacts found along the trace are left *in situ*, but described in field notes, photographed, and the photos tagged with a GPS waypoint.

5.3 Key Findings of the Trail Survey

As a result of this recording process OSTA has compiled an extremely detailed, fine-grained plotting of the trace. The recorded sections of the mule trace were previously identified in [Figure 6](#). Findings along the Resting Springs to China Ranch segment and in an area south of Fort Irwin confirm that the width and the condition of the trace is similar in those locations to the segment stretching between Emigrant Pass and Stump Spring.

Through its detailed recording and field observations, the team has made several key findings relating to the mule trace.

- A. The Stump Spring to Emigrant Pass segment of the trace has been subject to little modern disturbance. In 11 km, we have found fewer than a dozen modern artifacts (e.g. soda and beer bottles and cans, plastic debris, or tire tracks), except where it crosses modern roads. On the highway shoulder litter—especially bottles and cans—is prevalent. The team has found no Mexican-period artifacts, but these would be rare, since much of the packers' gear and mule tack was of cloth, leather, or wood. Rather, most artifacts we have found (primarily bottles and lead-soldered tin cans) date to the late 19th century ([Figure 8](#)). The dating of these artifacts suggests use by post-Mexican-period single riders, perhaps scouts for wagon trains or government survey parties.
- B. There is strong evidence that the trace did indeed result from a single-file procession of pack animals going from east to west. Mules in Mexican pack trains fell in line behind a “bell mare,” which led the string of animals (Eggenhofer n.d: 17). The OSTA field survey has documented that where the trace crosses arroyos on the desert floor, the U-shaped grooves cut into the lips of the gully are always smaller on the east lip and deeper and wider on the west

- lip. This is consistent with heavily loaded, westbound animals “clawing” their way up a steep bank to emerge from the arroyo.
- C. The trace follows a “bee-line” course (Figure 9) for target destinations, such as Emigrant Pass. This is consistent with findings by other trail researchers (see Myhrer et al, 1990). A “straight-line” course is also consistent with following the most efficient route, where flat terrain permits, between water sources. In the research area, mule caravans watered at springs along today’s Nevada state line, then headed west in a near straight-line course for Emigrant Pass. Once at the Pass, they descended to Resting Springs, the next water source.
- D. The eastern end of the recorded segment lies in Charleston View. This is as far as the survey team had gotten in fall of 2011 (see Point “A” in Figure 9). At this point, two key facts of topography and methodology must be considered:
1. The eastern end of the recorded trace segment lies in the Pahrump valley, where there is a distinct change in the soil, as compared with the rockier, desert pavement of the California Valley. The soil in the Pahrump Valley, south of Old Spanish Trail Highway is softer and more friable, with almost no areas of the desert pavement that is so common in the California Valley. This fact was also noted by Steiner (1999:161) who reported that “Grading for the roads [in Charleston View] has disturbed the soil, and much of the area is powdered lake bottom.” He adds that “Fragments of the Trail are very faint and can best be identified by variations in vegetation.”

To the north of Old Spanish Trail Highway, the graded area continues and the soil becomes progressively softer and siltier as the terrain descends into the dry lake bed south of Pahrump. This basin still forms a shallow lake in extremely rainy years, as during the heavy storms of spring, 2005. The effects of wind and water erosion on the playa have effaced whatever trail branches may have crossed this area.

2. In the area near Point A on **Figure 9**, at least two branches appear to converge. One branch comes from the north (**see Figure 13**). OSTA has recorded segments of this trace north of the Old Spanish Trail Highway. This branch of the trace would appear to be coming from the large playa, which is the bed of the intermittent lake that forms during rainy years south of Pahrump.

Another branch would have come from the east, the result of mule caravans heading slightly northwestward after leaving Stump Spring. This segment of trace will be difficult to document because development in Charleston View has greatly impacted the area. As the map shows, this area was graded to create an extensive street grid. In addition, houses have been built and the area subject to heavy use by local inhabitants and off-road vehicles. From approximately the state line eastward to Stump Spring, there is a well worn jeep trail. This dirt road leads from the spring to the graded, developed area of Charleston View. It is likely that this road followed the original mule trace (and perhaps a variant wagon route) leading westward from Stump Spring.

This branch of the trace would have merged with the branch, or branches, coming from the north at about the point at which the OSTA survey has left off. The reason for the apparent existence of a branch(es) from the north and a branch coming directly from Stump Spring is the subject of Section 7.

The mule trace (1829-1848) and the wagon trail (post-1848) diverge after leaving Stump Spring, near the HHSEGS Project. ***This is undoubtedly the single most important finding of the OSTA trail survey work.*** It is so crucial, in fact, that the following section of this report is devoted to an analysis that delineates the separate routes of the Old Spanish Trail and the Mormon Road in the survey area.

6. The NHT route, the Salt Lake Road/Mormon Road, and the OSTA-recorded Mule Trace: Description of the route, the NHT map, and Incorporation of New Trail Features

6.1 What IS the route of the Old Spanish Trail? Congress' 2002 addition of the Old Spanish Trail to the roster of National Historic Trails under the National Trails System Act was based on the recommendations of a 2001 feasibility study conducted by the NPS (National Park Service 2001).

The feasibility study produced an end-to-end map of the trail, delineating three principal routes, which were adopted in Congress' 2002 action (the NHT Route and NHT Map). The three routes were the Armijo Route, the Main Route, and the North Branch [of the Main Route]. The authors of the feasibility study noted explicitly in the section on Consultation and Coordination (page 90), "This study is not an exhaustive analysis of all routes and activities on the trail. Rather, it is designed to determine the trail's feasibility as a National Historic Trail. If designation occurs [it did in 2002] then **further research may identify additional routes and activities**"(emphasis added). The line of the NHT map representing the trail is a conceptual route alignment, commemorating activities along a route of travel, and "route" is a general term, distinct from the physical manifestation of the ground.

6.2 The National Historic Trails (NHT) map of the Old Spanish Trail. The NHT official map of the Old Spanish National Historical Trail (**Figure 1**), adopted as part of Congress' 2002 designation of the Old Spanish National Historic Trail, was based upon then existing historical and archaeological knowledge of the three main routes in the six states traversed by the trail. The alignment shown by the NHT map, based upon the research underlying the feasibility study, was intended as a best-present-

knowledge indicator, to be refined in the light of new, more complete research—archival and on-the-ground. It represents an acknowledgement of the difficulty—clearly expressed in the feasibility study—of defining, on a large scale, a trail with some parts missing or destroyed and places where branches and alternate routes diverge and interweave. In fact, both documentation and physical evidence of the trail are nonexistent for many lengths of the Old Spanish Trail. This is particularly true in heavily urbanized areas, such as the suburban communities around Los Angeles or in many parts of Las Vegas.

Therefore, the NHT map should be interpreted in light of the admonishment in the Summary section of the feasibility study: “a dearth of data exists concerning many aspects of the alignments and use of the Old Spanish Trail” (National Park Service 2001: i). Many factors, including terrain, water sources, availability of forage, and shifting alliances between trail travelers and diverse American Indian bands, determined trail alignments and use in specific locations and at different times. The study anticipated that research would bring to light new knowledge about the trail route(s). The NPS recommended that if the trail attained National Historic Trail status “a multidisciplinary cultural resource management program that includes historical, archeological and ethnographic investigations should be a vital component of trail administration” (page i).

The comprehensive management plan for the trail will govern administration of the trail by Federal agencies. However, management of the trail on the ground will remain the responsibility of offices with the requisite authority. For federally owned lands in the Tecopa area, for example, the managing agency for the trail is the Barstow office of the BLM. It is unlikely that the completion and adoption of the plan will produce many changes from current administration and management practices, since Federal agencies (NPS, BLM, and the Forest Service) have been operating for 10 years as administrators and managers of the trail. In general, then, the management plan will

have little impact on compliance issues, with the exception of identifying high-potential sites and segments.

OSTA has assumed the role of trail steward in the case of the Hidden Hills solar plant, and is working with the California Energy Commission in the HHSEGS application proceedings.

6.3 The NHT Old Spanish Trail Route. The NHT route in the California and Nevada Mojave, as elaborated in Section 6.2, is best considered as a conceptual alignment that can include many different route possibilities. Any realignment of the NHT route or definition of previously unreported on-the-ground segments must be justified based on clear documentation and collaborated by ground-truthing, where possible. This is precisely the process taking place with the ongoing efforts of OSTA-Tecopa to record and research the mule trace between Stump Spring and Emigrant Pass. The OSTA data will be submitted to the NPS and BLM for assessment and validation.

The NHT map of the Old Spanish National Historical Trail ([Figure YY](#)) shows the Congressionally designated route passing near Stump Spring, proceeding southwest, then taking a slight turn to the northwest until just before the CA-NV state line, where it turns sharply to take a southwesterly course for several miles. It passes to the south of a set of low hills, then proceeds on a westerly course. Eventually it crosses the present-day Old Spanish Trail Highway, then proceeds upward to the summit of Emigrant Pass, where it crosses the Nopah Range before descending to Resting Springs. The NHT map shows the OST going to the site of present-day Tecopa, although Johnson and Sutak (2011) have argued convincingly that the trail went from Resting Springs to Willow Creek wash and China Ranch, bypassing Tecopa altogether.

This mapping clearly accords with the route followed by wagon trains in the post-1848 American period. The Wheeler map of 1872-1873 ([see Appendix B, Map 1](#)), for

example, shows the “Old California Road” leading into Las Vegas from Utah, then across the Spring Mountains to Stump Spring. From Stump Spring, it follows the southwesterly path marked on the NHT map and then turns west to cross the California Valley and ascend Emigrant Pass.

Likewise, Chandler’s earlier 1855 map—though less detailed—seems to show the same route as the Wheeler map (see [Appendix B, Map 2](#)). The Chandler map shows one fork of the wagon route proceeding southwest from Stump Springs. The other fork, which heads south, represents the Kingston cut-off.

The wagon trails are still visible in the California Valley. Looking eastward from Emigrant Pass, the two-track wagon trail can be seen for miles as it approaches Mormon Rocks, then ascends to Emigrant Pass. At the pass, and below, where it crosses the modern Old Spanish Trail Highway, the wagon trail is clearly defined and cuts deeply into the gravelly soil.

This much is clear: the NHT trail route is derived from accounts of, and follows the path of, the wagon route between Stump Spring and Emigrant Pass. OSTA has not yet had the chance to follow the NHT route or inspect the wagon road segment for remnants of an earlier mule trace.

Note that the Congressionally designated NHT route map shows the trail passing south of Stump Spring ([Figure 10](#)). This is clearly an error, contradicted by numerous traveler’s accounts, including Fremont’s, and historical maps. The discrepancy may be the result of base maps at different scales, used in compilation of the NHT route. This is the sort of discrepancy that must be reconciled through consultation of the trail’s managing agencies.

The American-period wagon route may likely have followed an earlier branch of the Old Spanish Trail mule trace that led out of Stump Spring. If so, small sections of the original mule trace may remain to be recorded. It is much more likely, however, that the many hooves and heavier traffic of wagon trains have likely effaced the remains of any earlier mule trace along this route. This would accord with the findings of Myhrer et al (1990:56-57) in their archeological survey of Old Spanish Trail segments between Las Vegas and Stump Spring.

6.4 The 1829-1848 Mule Trace Recorded by OSTA. Despite the possible existence of a Mexican-period mule trace, now obscured or destroyed by the later wagon trail, along the NHT route, OSTA's survey work has clearly documented the existence of a previously undescribed feature of the 1829-1848 mule caravan route. This 11 km segment of continuous trace (described in Section 5 and shown in red in [Figure 10](#)) follows a very direct path between Stump Springs and Emigrant Pass and distinct from the wagon trail.

OSTA fully anticipates that the mule trace data we have compiled and presented in this document will be considered by the NPS and BLM and added as a new feature of the Old Spanish Trail in the area between Stump Spring and Emigrant Pass.

6.5 Status of the Mule Trace: a Branch of the Old Spanish Trail Route. In light of Sections 6.1, 6.2, 6.3, and 6.4, it is clear that the segments of mule trace located and documented by OSTA-Tecopa should be considered as a new feature of the Old Spanish Trail. This position is consistent with the language of the feasibility study and the National Trails System Act, which both anticipate that trail routes will be refined and new features added to include findings based on local conditions and new research data. This newly recorded and reported portion of intact mule trace constitutes a bona fide historical archaeological resource that will expand the archival and ground-truthed data available for the Old Spanish National Historic Trail.

7. The Old Spanish Trail, Stump Spring, and HHSEGS

7.1 Centrality of Stump Spring. Stump Spring, slightly east of Charleston View and within three miles of the southern boundary of the proposed HHSEGS plant, was among the best known stops on the Old Spanish Trail. While we have no clear references to Stump Spring from Mexican trail users, there is abundant evidence that the mule caravans used the spring. Fremont, on the Trail in 1844, referred to Stump by the Spanish term “Escarbada,” clearly a pre-existing name bestowed by caravaners. The term means “dug out” in Spanish, referring to the fact that in years when Stump was dry, water could be obtained by digging into the soil of the stream channel. Myhrer et al’s (1990) delineation of the Old Spanish Trail determined that the American Period wagon trail and the earlier mule trace caravan both followed the same route from Las Vegas to Stump Spring, diverging here and there due to local topography.

Maps from the 1850s, only shortly after the Mexican period, document abundantly the centrality of Stump Spring to the Salt Lake/Mormon Road, which generally followed the Old Spanish Trail route (see Appendix B: [Maps 1,3,4](#)). In fact, a description from the diary of William Lorton, who arrived at the spring in 1849, makes clear what an established part of the trail it was:

Find plenty of wagons on the ground which we burn to cook with. Every thing laying a round from 2 chisels to a rifle. Post office on tree, stating that Dallas [and] 7[th] division, were at the next spring [Resting Spring], & Capt Hunt ahead. [Also an] a/c of “cut off” packers arriving [and] stating that Capt Smith train were in a starving condition. With difficulty I got Mazeppa [Lorton’s horse] in camp & I fear [he] will go no farther having been 72 hours without food. Lay up next day to recruit. Left 3 or 4 animals behind.

December 8th [10th] near night. Dr [Caleb N.] Ormsby arrives stating that a portion of the train was close [to] here. He stated that all the oxen were yet standing [and] that they had been going all night. Several teams had been left & part of a division were yet in the mounts. Several were frozen in the feet & disabled. A great many wagons [were] left & whole teams unable to proceed. The destruction of property great. The rest arrives 12 at night. Fatigued I tell you.

[December 11th] 9th. I cannot proceed with our packer[s] as Mazeppa can go no farther & my lame ankle will not admit of a push. I stay with the train. The boys go

on. All in a sad state of mind. Oxen “versus” horses & mules. Feed due south 2 miles. At night my horse falls down & cannot be drove. Give him up. On a/c of scarcity of water animals have to be rationed the same as at [Dead] horse springs.[2] Watering all night.[3] I sleep with Captain Avis.

[December 12th] 10th. Mend my breeches & cut grass to carry along. Also water, by orders of Holton who I got in with. We have pritty good living. Kill a poor steer & cut it up. Cook up a lot [of meat] for the next 20 miles. Great difficulty getting water for both teams. The Buckskins start out to night. The water here is sulphrey. My Mazeppa would not get up. Suffice it to say he starved to death. I shot him & cut out a steak, for every boddy said white horses eat best. This spring I named Mazeppa spring & valley [Stump Spring and Pahrump Valley, Nevada] in memory of the death of him. Leave my Spanish saddle & knapsack on the ground. A great many articles of value left: 2 vol of ShakeSpear worth \$10, first rate saddles & several wagons (Lorton 1849—see notes in Bibliography).

Clearly, Stump Spring was well known to travelers. It represents a major cultural and historical site associated with the Old Spanish Trail caravan route, then later with the American period wagon trail. Historical accounts left by some travelers, however, make it clear that the mule caravans and, after 1848, wagon trains, almost certainly relied on more than one spring in the area of Stump Spring. ***These accounts are critical, because they reveal that caravans visited other springs in the area northwest of Stump Spring. Moreover, this north-south-trending series of springs is situated adjacent to the HHSEGS plant (Figures 11, 12).***

7.2 Stump Spring Was Part of a Network of Springs Serving the Trail. Some years, Stump Spring was dry or provided inadequate forage for pack animals or oxen (Crampton & Madsen 2007:95; Steiner 1999:156). Chandler’s 1855 map (see [Appendix B, Map 2](#)) seems to indicate this, as well, by the handwritten notation near Mountain Springs that reads “Here send forward to clear out the Spring.” This probably referred to Stump Spring, which often required digging in the bottom of the wash to allow water to pool. The OSTA team found the spring dry in 2009 but was able to dig to moisture in the sand.

On such occasions—when Stump Spring was dry, or provided inadequate water—mule caravans or wagon trains would proceed northwest to find water and grass at Hidden Hills spring, at “Le rocher qui pleu” (roughly translated as “rock that weeps”), at Brown’s Spring, or at Mound Springs. These nearby springs lie in a line along an escarpment at the foot of the Spring Mountains, just inside the Nevada state line. (Figure 11).

For example, Orville Pratt, who traveled over the Old Spanish Trail from Santa Fe in 1848 received a log with the following instructions from Ben Choteau, a trapper who had just returned from California. Choteau told Pratt that, traveling eastward, he had stopped at Archiletta Spring [Resting Spring]. He wrote, “Road bad to Archiletta Spring, large bagus grain grass. Water good, but warm. From this one comes to Escarbada [Stump Spring]. If water is not found at the “Parage” about 5 m. N.W. of it [probably Hidden Spring], we will find it at Le Rocher qui pleu [spelling is Choteau’s]” (Hafen and Hafen 1993:367).

Similarly, Steiner cites the diary of Henry Bigler, a mule packer who traveled with Hunt’s wagon train from Utah to California in 1849. On Nov. 25, the party camped at Mountain Springs in the Spring Mountains. The next day, according to Bigler the party went 27 miles downhill, “whare we struck the first water (Stump Spring), 3 or 4 clusters of willow trees growing nearby. we thought of Camping here but what little feed there had been was eat off. We turned to the right [i.e., northwest] about 4 m. and found plenty of bunch [grass] in a deep bed of a Creek, but no water, and campted.” The next day the party found water “about a mile and a half down the creek” [Hidden Spring? Rocher que pleu?] (quoted in Steiner 1999:159).

Pratt’s and Bigler’s accounts provide evidence of a widely used and commonsense trail practice. Mule caravans and wagon trains required both watering spots and sufficient forage for their animals. When a spring or stream was dry, or its banks too heavily grazed, the practice was to move to the nearest known source of water and

grass. Trail lore and the reports of scouts or previous travelers, such as Choteau, indicated where the alternative spots were to be found. In the second half of the 19th century, the U.S. government had geologists formally record such trail data (see, for example, Gannett 1877, cited in Chenowith 2009:12-13).

Further evidence of Stump Spring as the center point of an expandable circle used to find water and forage comes from John C. Fremont. In April 1844, Fremont was following the Old Spanish Trail eastward, with the goal of reaching Salt Lake City. On April 29 the party was at Resting Springs. The next day the party set out. Fremont's journal for April 30 records that, "After a march of 24 miles, we reached at evening the bed of a stream we increased by digging; and about a mile above, the stream not yet entirely sunk, was spread out over the sand, affording a little water for the animals. The stream came out of the mountains to the left [the Spring Mountains] and grass was nearly as scarce as water (Fremont 1845:265).

This passage points up the fact that water and forage were often short at Stump Spring and that parties roamed the vicinity to find enough of each. Fremont's log for May 1 recorded latitude for the May campsite as 36 degrees, 58', 19". No longitude is given. However, the latitude establishes that the campsite was right on, or very near to, the present-day Old Spanish Trail Highway. **Fremont's precisely recorded location places his party's camp, and the Old Spanish Trail which he was following, virtually on the southern boundary of the HHSEGS project site.**

Taken together, then, historical maps and archival documents make clear that the Old Spanish Trail and later wagon trails stopped at Stump Spring and other springs near today's state line. This area surrounding this complex of springs is precisely the area in which mule trace and wagon trails approach and intersect the project site for the Hidden Hills solar power plant (see [Figure 13](#)). From these watering spots, the trail proceeded westward, crossed over Emigrant Pass, and descended to Resting Springs.

8. Impacts of the Hidden Hills Solar Plant on the Old Spanish Trail

8.1 Project impacts. This section sets out the justification for the Old Spanish Trail Association's decision to become an intervener in the CEC's application certification process for the Hidden Hills solar plant. It provides statutory justification for our interests in impacts to the trail and a framework for evaluating those concerns.

(A) *OSTA possesses the status to intervene and to assess impacts.* The Old Spanish Trail Association asserts its right to submit as evidence this report and to intercede on behalf of the Old Spanish Trail as a cultural resource. OSTA takes this authority directly from the language of the National Trails System Act.

Section 11 of that Act [16USC1250] states that Federal agencies administering Federal lands are authorized to encourage volunteers and volunteer organizations to plan, develop, maintain, and manage, where appropriate, trails throughout the Nation. OSTA, a 501(C)(3) corporation, operates under a standing agreement with the NPS and the BLM. Segments of the Old Spanish Trail in and around Stump Spring are on BLM land. Therefore, the concern of OSTA for impacts to those segments of the mule trace flows directly from OSTA's charter under the Act to "maintain and manage" the Old Spanish National Historic Trail.

(B) *The mule trace and the associated springs in Nevada are eligible for consideration under the National Trails System Act.* Section 12 (2) of the Act [16USC1251] defines "high potential route segments" as those parts of a trail "which would afford high quality recreation experience in a portion of the route having greater than average scenic values or affording an opportunity to vicariously share the experience of the original users of a historic route."

These provisions of the Act clearly apply to the segments of the Old Spanish

Trail which lie beneath the pavement of, or just to the south of, the Old Spanish Trail Highway (called Tecopa Road in NV) and that lead to and from Stump Spring.

The Act also describes the criteria for “high potential historic sites” associated with Trails. Such high potential sites are “related to the route or [are] in close proximity thereto, which provide opportunity to interpret the historic significance of the trails during the period of its major use. Criteria for consideration as high potential sites include historic significance, presence of visible historic remnants, scenic quality, and relative freedom from intrusion.” Stump Spring and le Rocher qui pleu both qualify as high potential sites under the criteria of “historic significance,” of “scenic quality,” and “relative freedom from intrusion.”

Thus, it is important to distinguish two separate types of historical culture resources related to the Old Spanish Trail in the immediate area of the HHSEGS plant. These are: (1) High Potential Route Segments, and (2) High Potential Historic Sites, associated with the Trail. In the area surrounding the HHSEGS site, the springs where mule caravans stopped for water and forage comprise such High Potential Historic Sites.

(C) *The HHSEGS project will affect the Old Spanish Trail and related historical cultural resources within the project site and in nearby areas beyond the project site.* In our assessment of impacts, OSTA distinguishes between two distinct geographic areas. These are (1) the Project Site, as defined by Hidden Hills Solar and depicted in its site maps, and (2) a larger Area of Influence, in which impacts may occur indirectly, due to construction and then, later, operation of the HHSEGS plant and any potential expansions of the site.

(D) *HHSEGS will result in adverse impacts to the Old Spanish Trail and High Potential Historic Sites related to the Trail.* Despite the project applicant's

respect for historical cultural resources and the best attempts to minimize adverse impacts to the Trail, construction of the HHSEGS plant will result in unavoidable losses of important archaeological, historical, and humanistic qualities of the Trail. These adverse impacts are of two types:

- Indirect impacts (for example, vandalism, fire, off-road vehicle damage) in the Area of Influence. These impacts will result from increased population and work force levels attracted to the Charleston View area by HHSEGS. These indirect impacts will occur during the construction and operation phases of the solar plant.
- Direct impacts from massive construction-related disturbance of the existing land surface in the project area. Grading, construction of the solar towers, and installation of the reflectors will destroy what portions of the Trail have been recorded on the project site and also others that have not yet been inventoried.

The impacts of the HHSEGS plant to the Old Spanish Trail and its associated high potential historic sites are summed up in **Table 1**.

RESOURCE	AREA AFFECTED	IMPACT TYPE	IMPACTS DESCRIPTION	IMPACT RATING (1 to 5; 5 = massive; 1 = low)
High Potential Route Segments (mule trace)	Project Site	Direct	All remnants of trace will be destroyed through grading and construction	5 (total destruction)
		Indirect	Visual impacts, especially of towers, will be massive to scenic values and hamper opportunity of site visitors to vicariously share the experience of the original users of a historic route	5 (towers will dominate the landscape)
	Area of Influence	Direct	N/A	N/A
		Indirect	Increased population and work force may result in spill-over effects on trail segments closest to the project	1 to 2
High Potential Historic Sites (springs/ campsites)	Project Site	Direct	N/A	N/A
		Indirect	Increased population and work force may result in spill-over effects on trail-related historic sites closest to the project Visual impacts, especially of towers, will be massive to scenic values and hamper opportunity of site visitors to vicariously share the experience of the original users of a historic route	1 to 2 5 (towers will dominate the landscape)
	Area of Influence	Direct	Increased population and work force may result in spill-over effects on trail-related historic sites such as Stump Spring and Rocher qui pleu	3
		Indirect	Visual impacts, especially of towers, will be massive to scenic values and hamper opportunity of site visitors to vicariously share the experience of the original users of a historic route	5 (towers will dominate the landscape)

Table 1. Summary of impacts to Old Spanish Trail historical cultural resources

(E) As a result of these impacts, the Old Spanish Trail Association opposes approval of the HHESEGS plant at the proposed location.

8.2 Mitigation measures. If the Applicant is granted permit to build and operate the HHESEGS plant, OSTA will submit before that time a request to the California Energy

Commission for substantial actions to mitigate the adverse impacts outlined in Table 1. The nature and scope of the mitigating measures will be outlined in a separate submission to the Energy Commission. That submission will probably occur in the summer of 2012.

9. Trail's End

In this report, the Old Spanish Trail Association has brought together much of the existing information about the Old Spanish Trail in the immediate area of the proposed HHSEGS plant. We have presented a historical review, analysis of cartographic data, and a description of the extensive field surveys conducted by OSTA's Tecopa chapter.

The cumulative import of our research may be summed up as follows.

- The Old Spanish National Historic Trail in the area between Stump Spring, NV, and Emigrant Pass, CA, is a significant historical cultural resource. Its use is well documented by old maps, documentary evidence, and field observations.
- The trail and its associated historic sites—the complex of springs that includes Stump, Hidden Hills, le Rocher qui pleu, and Mound Springs—lie closely adjacent to partially within the HHSEGS project site.
- The project will produce adverse impacts to the trail and the associated historical sites. Those impacts will be both direct and indirect, as specified in **Table 1**. In addition, they will involve both physical and visual impacts.

*** *** ***

The Old Spanish Trail's contributions to American history are major. As Fremont traveled the trail in 1844 on his ground-breaking exploratory and cartographic expedition, he camped less than five miles from the HHSEGS project site. The faint trace of the mule caravan route is a last remaining physical embodiment of New Mexico-California trade during the Mexican period.

The human imprint is more enduring. Lisa Valdez-Bonney and Martin Valdez are 5th and 6th—generation descendants of Santiago Chacon. Chacon and his companion Hernandez were slain in 1844 by Paiute Indians at Resting Springs. The story had been passed down from generation to generation of the Chacon and Hernandez families, nursed as a personal tragedy. It was only in 2010, when Lisa Valdez-Bonney and Martin Valdez contacted the Old Spanish Trail Association that they learned that the attack on Hernandez at the “Agua de Tomaso” was an important incident in the history of the Mojave (Liz Warren, personal communication; Valdez-Bonney and Valdez, Martin 2010). They learned that event had been chronicled in Fremont’s 1845 report, and later repeated in many historical accounts of the Old Spanish Trail. Their visit that year to Resting Springs enabled them for the first time to assign a location to the events of nearly 170 years before and to understand their family’s tragedy in the broader picture of trade and immigration represented by the Old Spanish Trail.

With the passage of time, the mule trade and the events that took place along the Old Spanish Trail are fading—both from memory and the landscape. They should not be erased so long as we can preserve them. This report and its conclusions are an attempt to protect the historical and human legacy of the Old Spanish Trail.

10. Figures



Figure 1. Congressionally-designated map of the Old Spanish National Historic Trail and its branches. The trail was used for trade, migration, and exploration of the southwest.



Figure 2. Mule trace of the Old Spanish Trail at the summit of Emigrant Pass. The obelisk marking the trail was placed here in 1964. Virtually all writers on the trail agree that the trace here is a segment of the mule caravan route. OSTA took this spot as its starting point for following and recording the route of the trace eastward toward Stump Spring and the Nevada border.



Figure 3. A section of the mule trace as it starts across the bajada to the east of Emigrant Pass. Even after more than 170 years, long sections of the trace are clear and distinct on the desert floor.



Figure 4. The trace is generally 18 to 24 inches wide and sometimes 2 to 3 inches deep. Larger rocks have been kicked to the side.

Figure 5. A small pack train of mules, led by a horse-mounted hostler.

McGee Creek Pack Station, which is the sole licensee to operate pack animals on this trail, report that a total of 61 horses and mules packed in and out again on this trail in 2011, when the photo was taken. In past years, the count of animals ranged from 60 to 200 in a season. This pack trail has been in use since the 1920s.

Note the narrow trace (about 15 inches). This trace is deeply cut, because of the soft soil in the meadow.



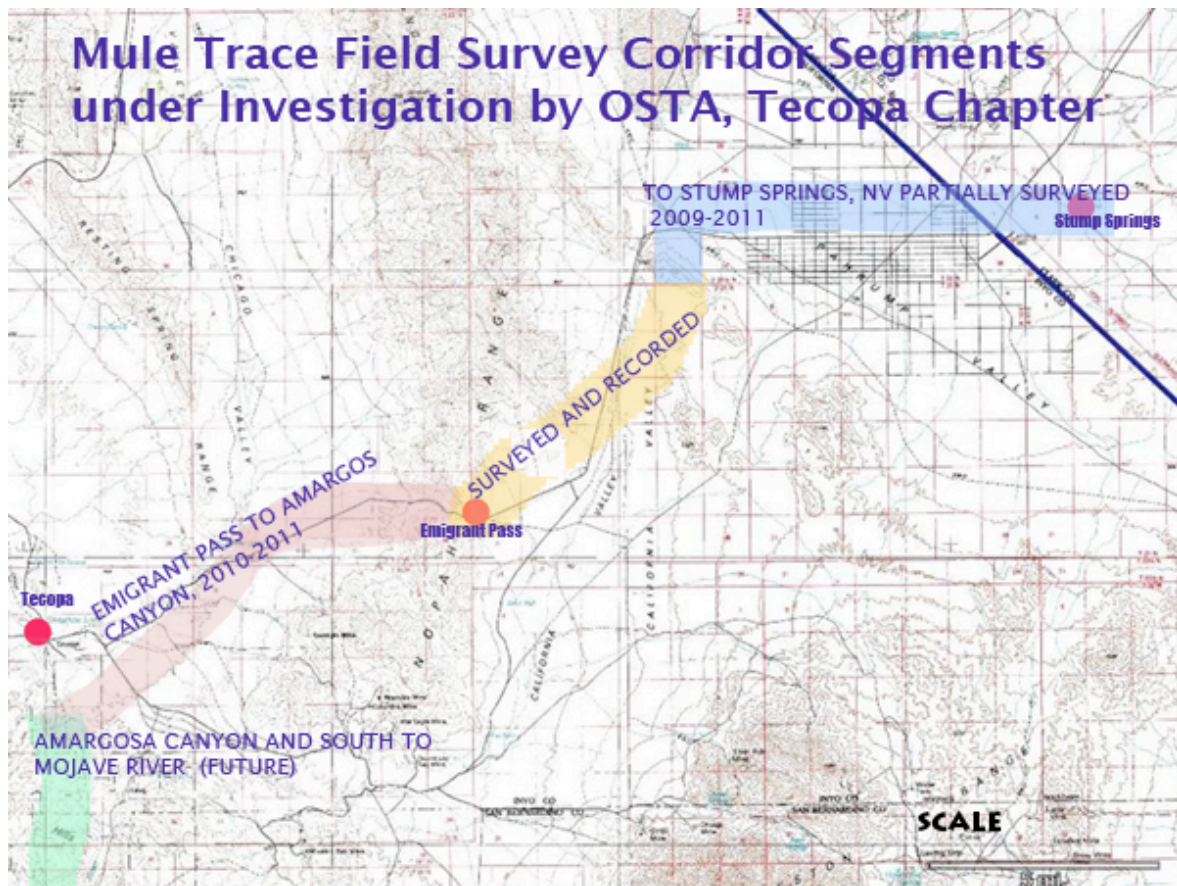


Figure 6. OSTA's field survey work proceeded eastward from the summit of Emigrant Pass. The field teams had recorded the trace to edge of the Charleston View area by mid-2011. Shortly after this, Hidden Hills Solar filed an application to build its Hidden Hills solar plant in the Pahrump Valley, just north and east of the Old Spanish Trail Highway. OSTA has also recorded segments of the mule trace in the Emigrant Pass to China Ranch leg of the trail.



Figure 7. Scott Smith plots GPS data recorded during a field session on the mule trace. Waypoints, photographs, and other trail data are analyzed in OSTA's Tecopa office.

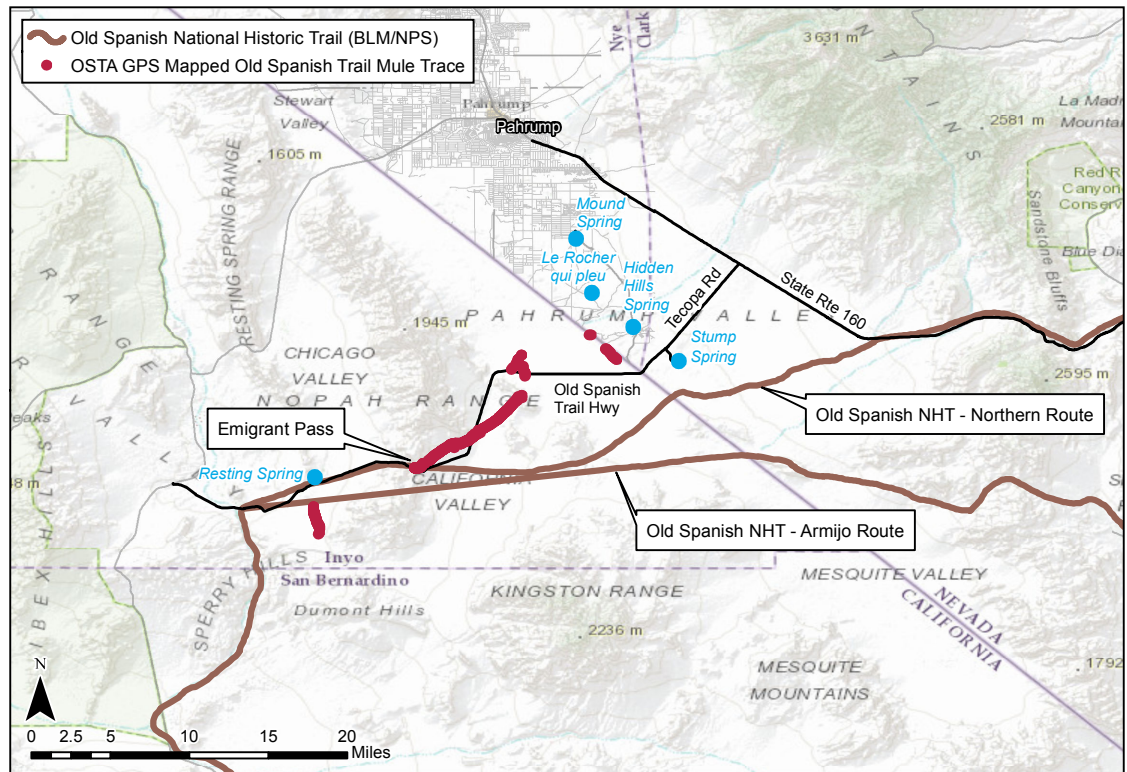


Figure 8. Lead-soldered tin can found adjacent to the edge of the trace in the California Valley. Such cans date from approximately 1860 to 1900. Along stretches of the mule trace, such as this one, which are remote from modern roads, modern artifacts (beer bottles and cans, tire tracks, plastic) are totally absent. The absence of modern artifacts suggests that the trace has been little used or abused since the late 1800s. The trace dates to even earlier.



Figure 9. A plot of the OSTA-recorded mule trace shows the nearly straight-line course it follows between Emigrant Pass and the street grid in Charleston View. The grid and houses in Charleston View impede the location of the trace to the east of Point A.

Old Spanish National Historic Trail Resources

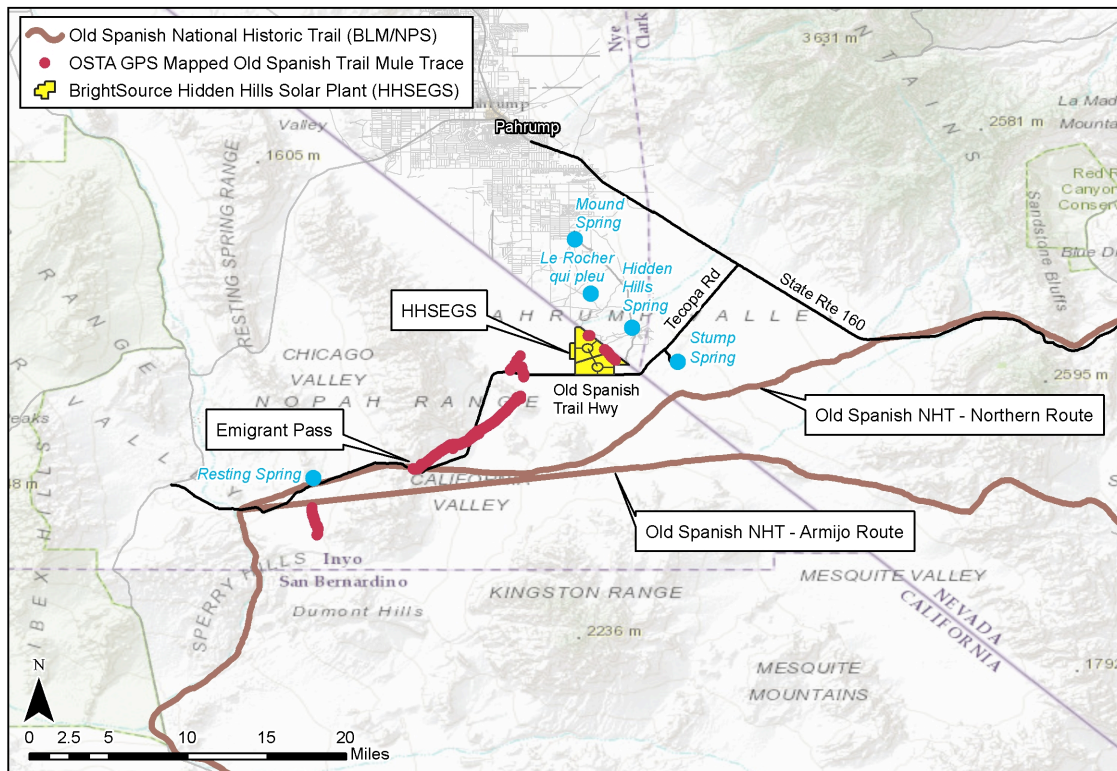


Data Sources: OSTA, ESRI, BLM/NPS

Date Prepared: 4/11/2012

Figure 10. This map shows the Congressionally designated Old Spanish NHT route in brown. Two branches of the trail—the Northern Route and the Armijo Route—converge at Emigrant Pass. The OSTA-recorded trace is shown in red. The Tecopa chapter has recorded more than 7 continuous miles (~11 km) of the trace.

Old Spanish National Historic Trail Resources

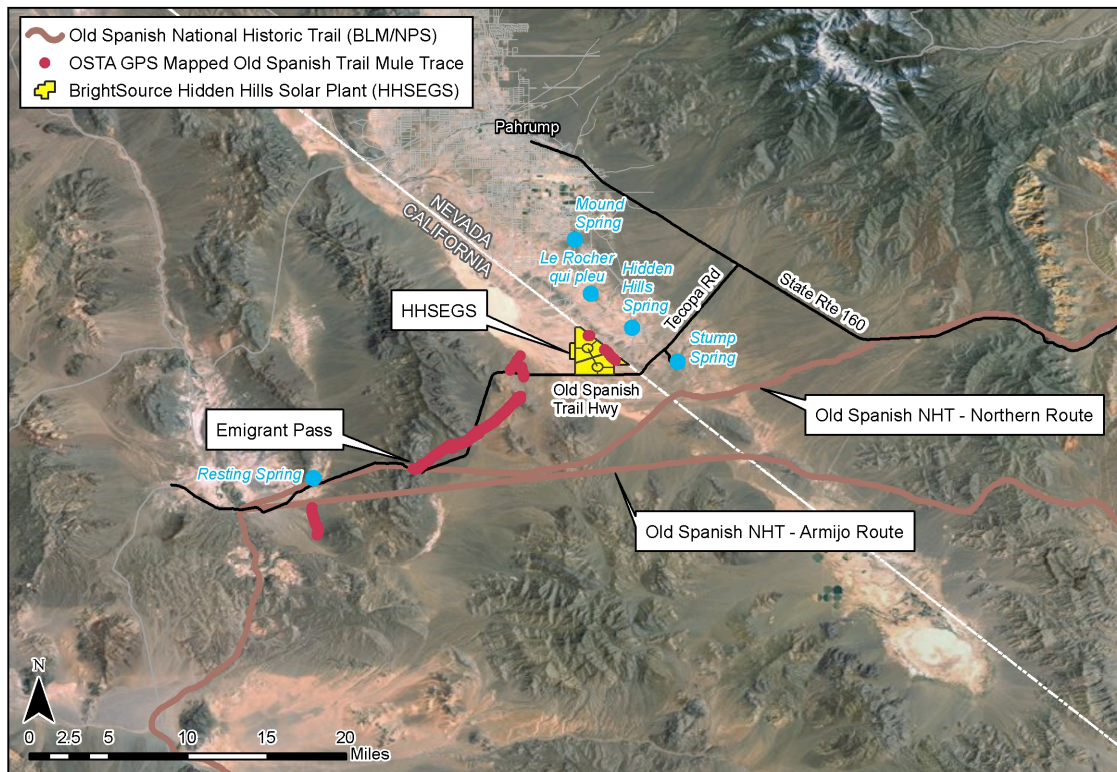


Data Sources: BrightSource Energy Inc., OSTA, ESRI, BLM/NPS

Date Prepared: 4/11/2012

Figure 11. Topo map shows the location of the Congressionally-designated Old Spanish National Historic Trail route, the OSTA-recorded mule trace, and the HHSEGS project site. Archival evidence indicates that travelers on the Old Spanish Trail used Stump Spring, as well as the springs to the north of it. Parts of the recorded mule trace indicate that some branches of the trace crossed the project site, linking the springs with the recorded sections of trace to the southwest. Hidden Spring and Stump Spring, historic sites associated with the Old Spanish Trail lie within three miles of the southern boundary of the project. In 1844, Col. John C. Fremont camped near the spot where Old Spanish Trail Highway crosses the Nevada/California state line.

Old Spanish National Historic Trail Resources



Data Sources: BrightSource Energy Inc., OSTA, ESRI, BLM/NPS

Date Prepared: 4/11/2012

Figure 12. Satellite imagery of the same area shown in Figure 11. The line of springs shows clearly. They follow an escarpment at the base of the Spring Mountains, which are clearly visible in the top right of the picture. The playa, which sometimes fills to a shallow lake in rainy years, is visible to the northwest of the HHSEGS project site.

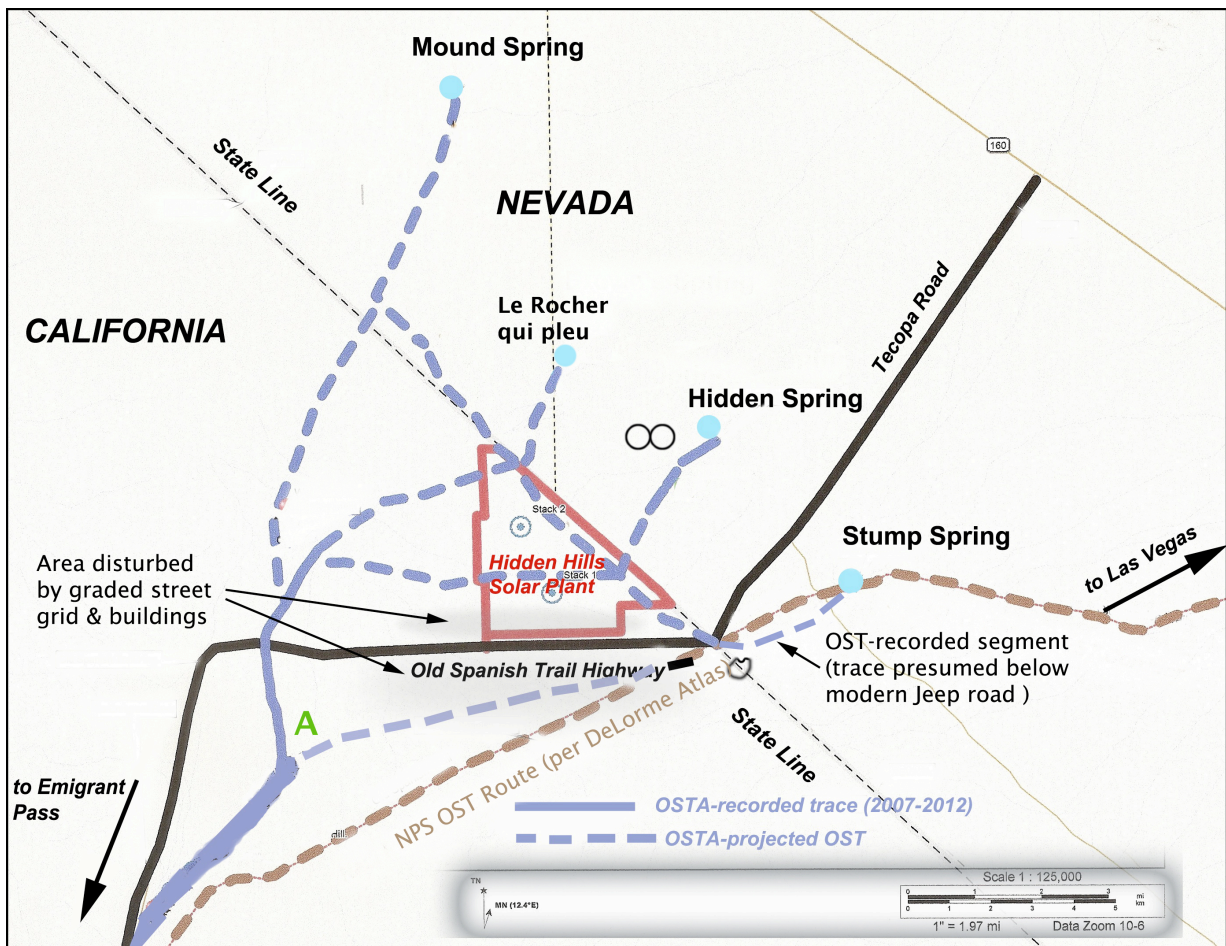


Figure 13. The HHSEGS plant lies amidst a network of Old Spanish Trail routes linking a series of springs to the north and west of Stump Spring. Stump Spring appears on many maps and in many accounts, such as Fremont's 1845 report, of the Old Spanish Trail. When Stump Spring was dry, parties using the Old Spanish Trail would go to the neighboring springs to the northwest. These include Hidden Spring (which was the water source for Hidden Springs Ranch and orchards in the 1950s and 60s; Le Rocher qui pleu, which is an active seep, with ferns and year-round moisture; and Mound Spring.

11. Bibliography

Chenoweth, William L., ed., 2009. Description of the Salt Lake Wagon road: Ouray, Colorado, to the Green River, Utah. *Spanish Traces*, journal of the Old Spanish Trail Association, vol. 15, no. 1:10-11. [Contains an annotated extract from Henry Gannett's 1877 "Geography and topography, Grand River Division. U.S. Geol. And Geog. Survey of the Territories, 9th annual report: 335-350. Washington, D.C.]

Crampton, C. Gregory and Madsen, Steven K., 2007. *In search of the Spanish Trail: Santa Fe to Los Angeles 1829-1848*. Layton, Utah: Gibbs Smith, Publisher.

Crawford, Lorrie and Krall, Angie, 2011. *The Old Spanish Trail—Tracking down a trail: Part 1*. The Crestone (CO) Eagle, Wednesday, May 11, 2011.

Eggenhofer, Nick 1961. *Wagons, mules, and men: how the frontier moved west*. New York, NY: Hasting House Publishers.

Fremont, John C. 1845. *Report of the exploring expedition to the Rocky Mountains in the year 1843 and to Oregon and North California in the years 1843-44*. Printed by order of the House of Representatives. Washington: Blair and Rives, Printers.

Hafen, Leroy and Hafen, Ann 1993. *The Old Spanish Trail*. Lincoln, NE, and London: University of Nebraska Bison Books (orig. 1954 by A.H. Clark Co., Glendale, CA, as part of the "Far West and the Rockies historical series.")

Hockaday, John, 2005. Mule technology and the Old Spanish Trail. *Spanish Traces*, Winter 2005: 16-19. JP HAS A COPY

Johnson, Leroy and Sutak, Tom, 2011. *Jargon: Historians' Nemesis*. *Spanish Traces* Vol. 17, No. 2. Autumn 2011. [Abstracted version of presentation made at 2011 OSTA conference in Pomona, CA, June 2011.]

Lawrence, Eleanor, 1932. Mexican Trade between Santa Fe and Los Angeles, 1830-1848. *California Historical Society Quarterly* 10: 27-39. [JP HAS PRINT COPY]

Lorton, William B. 1849. *Journal*. Unpublished ms. The Bancroft Library, Univ. of California, Berkeley, Calif. [Notes: Lorton was traveling with the San Joaquin Company (often called the Jefferson Hunt Wagon Train). The dates note in brackets are from Lorton's journal; he lost track of the calendar, then later realized, and corrected, his dates; LeRoy Johnson, who is editing the journal has corrected dates of the Stump Spring entries).

Lyman, Edward Leo, 2004. *The overland journey from Utah to California: Wagon travel from the City of Saints to the City of Angels*. Reno & Las Vegas: University of Nevada Press.

Myhrer, Keith, White, William G., and Rolf, Stanton D., 1990. Archaeology of the Old Spanish Trail/Mormon Road from Las Vegas, Nevada to the California border. U.S. Department of the Interior, BLM Contributions to the Study of Cultural Resources: Technical Report 17.

NPS, U.S. Department of the Interior, 2001. National historic trail feasibility study and environmental assessment [for the] Old Spanish Trail (New Mexico, Colorado, Utah, Arizona, Nevada, California). Available on line at <http://parkplanning.nps.gov/document.cfm?parkID=454&projectID=12591&documentID=38207> .

Pastron, Allen G., Prichett, Jack, and Marilyn Ziebarth, editors, 1981. Behind the seawall: historical archaeology along the San Francisco waterfront, 3 volumes. San Francisco, Calif.: prepared by Archeo-Tec Inc. for the San Francisco Clean Water Program.

Olmsted, Roger R., Olmsted, Nancy L., Pastron, Allen, Prichett, Jack, 1979. The Yerba Buena Center: report on historical cultural resources. San Francisco, Calif: prepared for the San Francisco Redevelopment Agency
Ruxton, George F.A., 1950. Ruxton of the Rockies. Norman, OK: University of Oklahoma Press.

Steiner, Harold Austin, 1999. The Old Spanish Trail across the Mojave Desert. Las Vegas, NV: the Haldor Company.

Twitchell, Ralph E., editor, 1981. The Spanish archives of New Mexico, Series I. Santa Fe: New Mexico State Records Center and Archives.

Valdez-Bonney, Lisa and Valdez, Martin, 2010. Great Great Grandpa Chacon's Last Journey. Spanish Traces Vol.16, No. 1 23-25.

Walker, Clifford J.

1986 Back door to California: the story of the Mojave River trail. Barstow, CA: Mojave River Valley Museum Association.

2009. Gone the way of the earth: Indian slave trade in the Old Southwest. Barstow, CA: Mojave River Valley Museum Association.

Warren, Elizabeth von Till, 1999. Armijo's trace revisited. Spanish Traces, Spring 1999: 9-12. [excerpted from the author's unpublished M.A. thesis, University of Nevada, Las Vegas, 1974] [JP HAS A COPY]

Wheat, Carl I., 1955. Mapping the Transmississippi West, 1540-1861, 2 vols. San Francisco: Institute of Historical Cartography.

12. Appendices

Appendix A: The National Trails System Act

The Old Spanish National Historic Trail is designated in the National Trails System Act (P.L. 90-543, as amended through P.L. 111-11, March 30, 2009) (also found in *United States Code*, Volume 16, Sections 1241-1251).

Section 5 (23) of the Trails System Act describes the trail as follows:

(23) Old Spanish National Historic Trail --

(A) IN GENERAL - The Old Spanish National Historic Trail, an approximately 2,700 mile long trail extending from Santa Fe, New Mexico, to Los Angeles, California, that served as a major trade route between 1829 and 1848, as generally depicted on the maps numbered 1 through 9, as contained in the report entitled 'Old Spanish Trail National Historic Trail Feasibility Study,' dated July 2001, including the Armijo Route, Northern Route, North Branch, and Mojave Road.

(B) MAP - A map generally depicting the trail shall be on file and available for public inspection in the appropriate offices of the Department of the Interior.

(C) ADMINISTRATION - The trail shall be administered by the Secretary of the Interior (referred to in this paragraph as the 'Secretary').

(D) LAND ACQUISITION - The United States shall not acquire for the trail any land or interest in land outside the exterior boundary of any federally-managed area without the consent of the owner of the land or interest in land.

(E) CONSULTATION - The Secretary shall consult with other Federal , State, local, and tribal agencies in the administration of the trail.

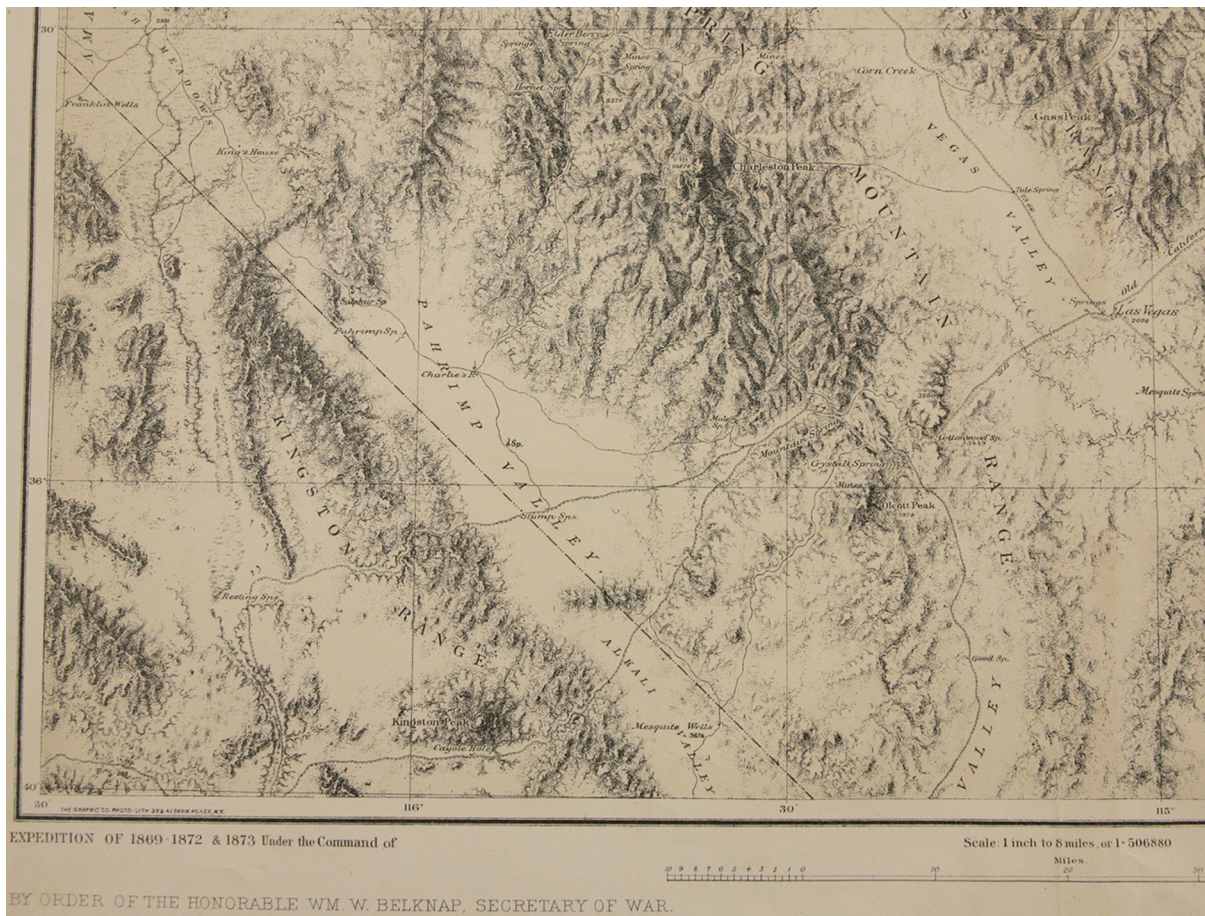
(F) ADDITIONAL ROUTES - The Secretary may designate additional routes to the trail if --

(i) the additional routes were included in the Old Spanish Trail National Historic Trail Feasibility Study, but were not recommended for designation as a national historic trail; and

(ii) the Secretary determines that the additional routes were used for trade and commerce between 1829 and 1848.

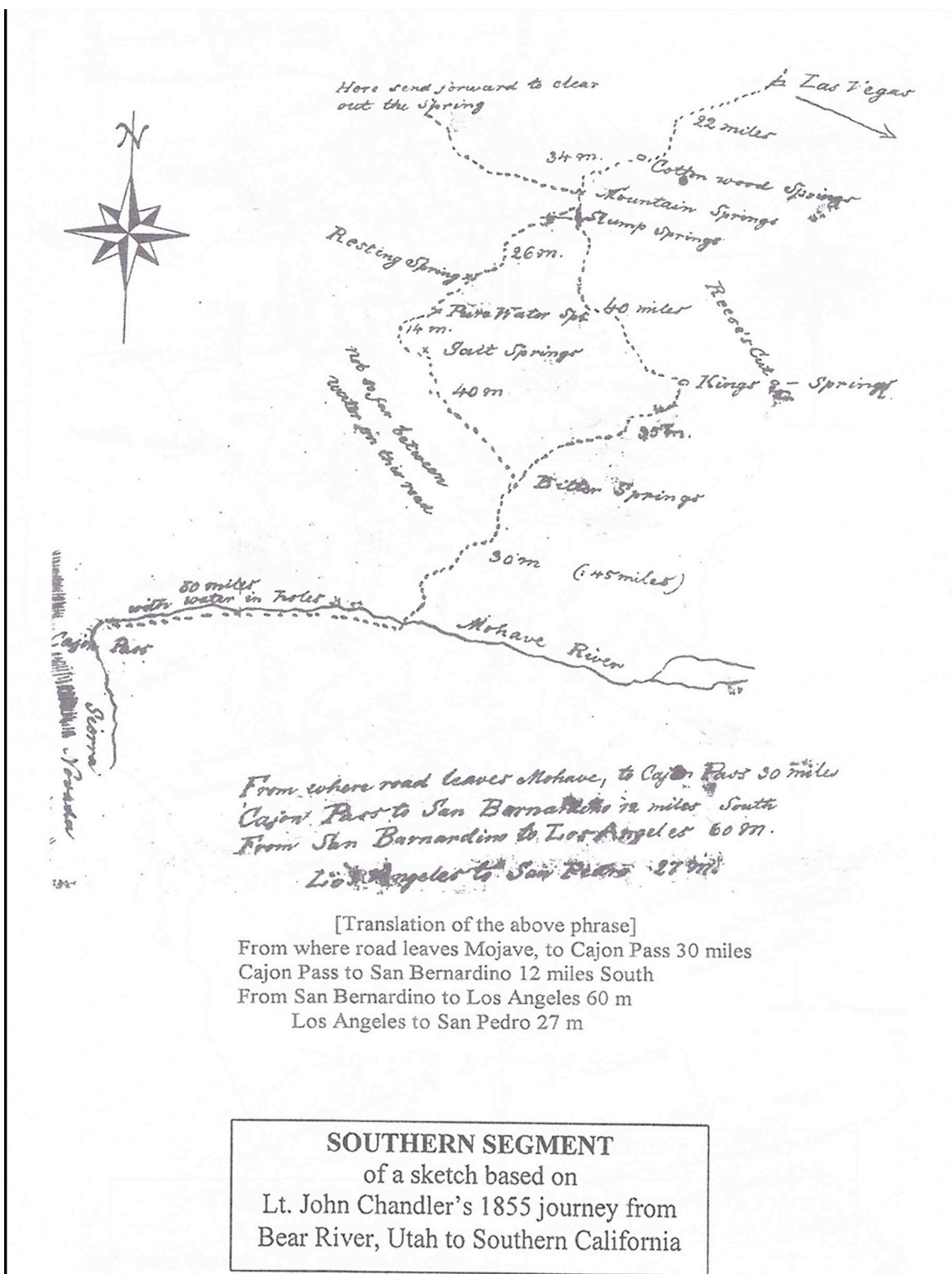
Appendix B: Historical Maps

Map 1: Wheeler Map, 1872-73



The Wheeler map shows the Old Spanish Trail/Mormon Road diverging at Mountain Springs. The southern branch is the Kingston Cut-off; the northern track goes to Stump Spring.

Map 2: The 1855 Chandler Map

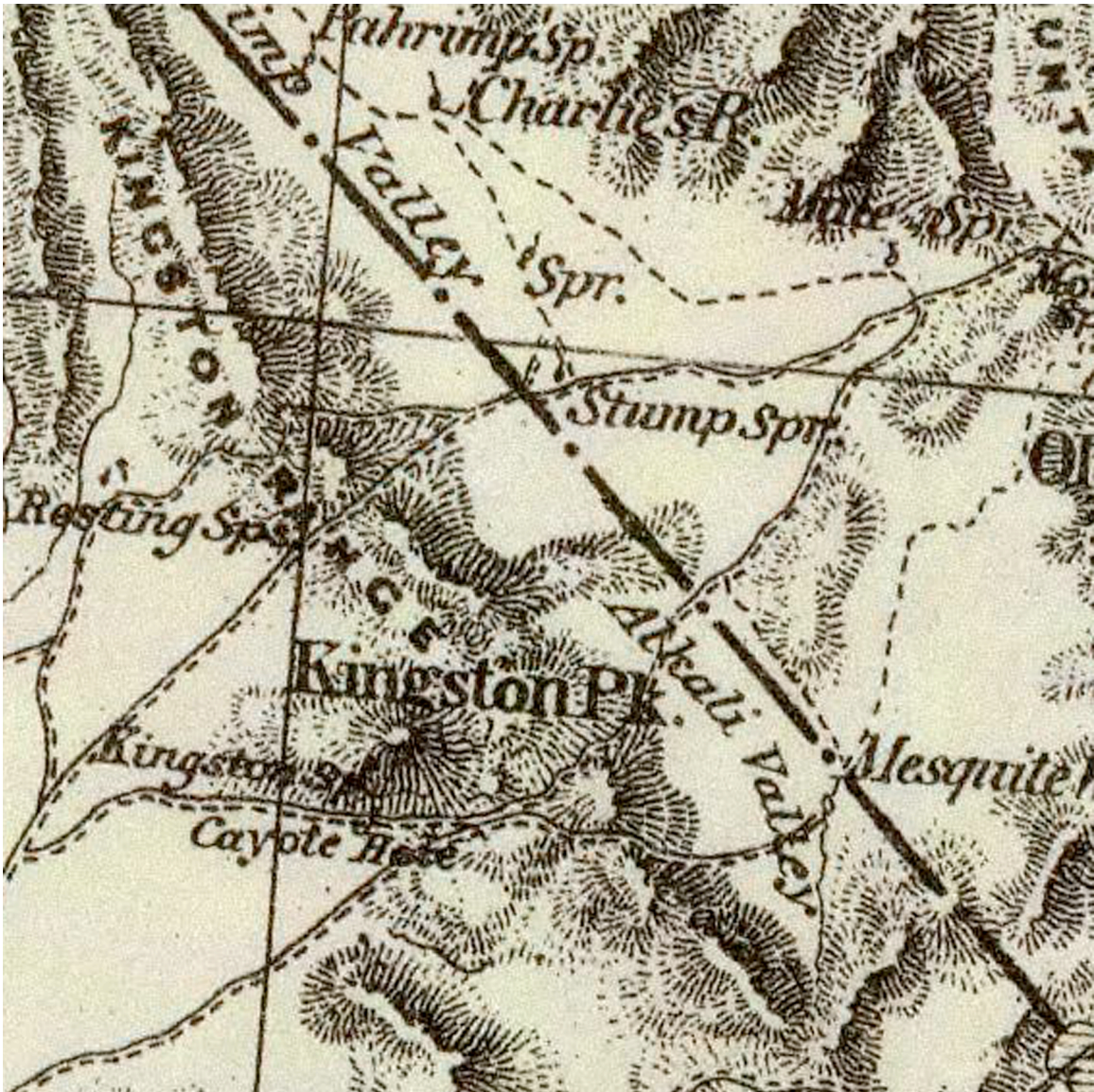


Map 3 Bancroft map, 1868



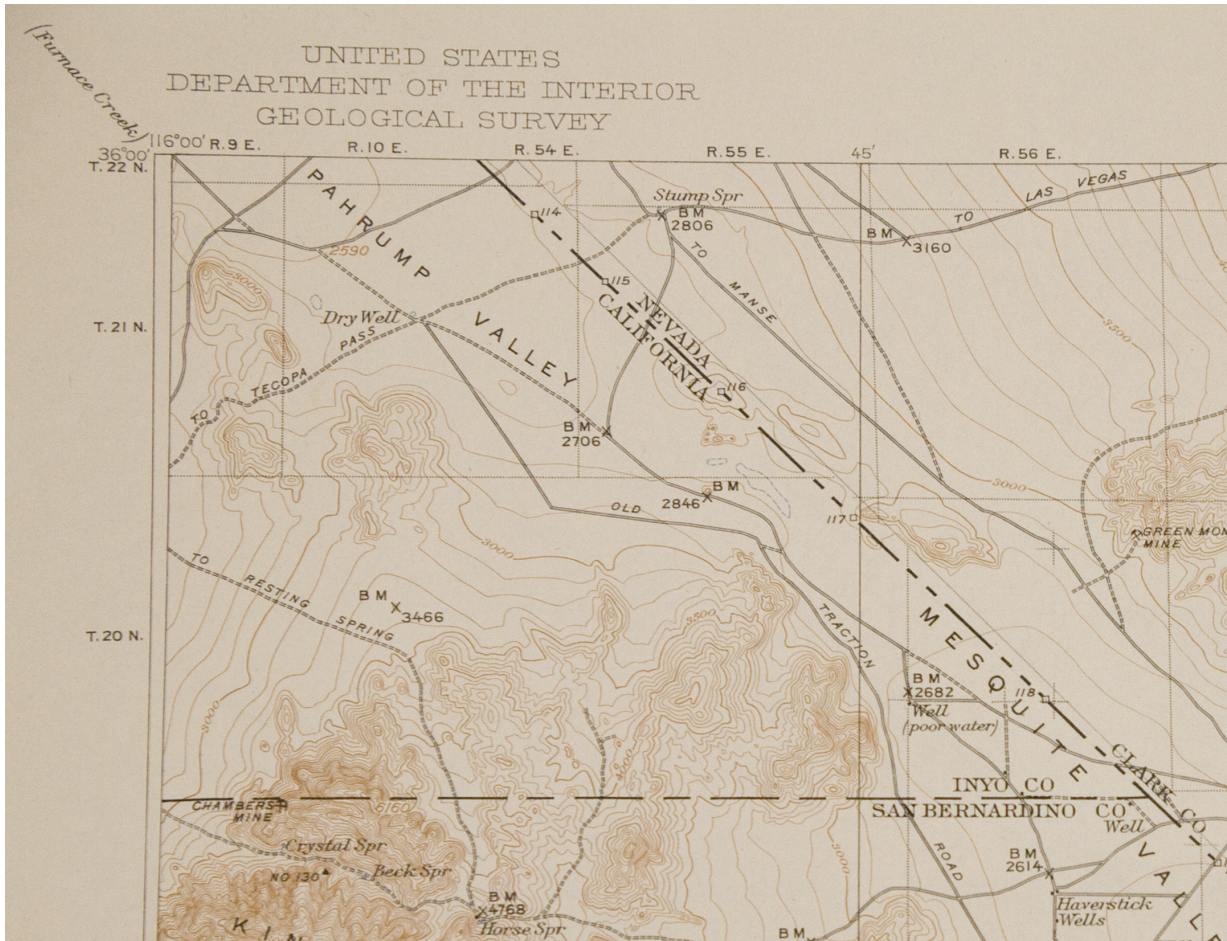
Detail from Bancroft's 1868 map of California and Nevada. Bancroft shows the Old Salt Lake Wagon Road following the Kingston cut-off. Stump Spring appears to the north of the wagon road, but there is no indication of the Old Spanish Trail or the wagon route leading to it.

Map 4 U.S. War Department map, 1879



Detail from War Dep't map shows Stump Spring, with one route leading west to Resting Springs, and another route (the Mormon Road?) proceeding more southerly. The Kingston cut-off, starting below Mountain Springs in the Spring Mountains is clearly indicated, as well.

Map 5 1912 U.S.G.S. topo map, Ivanpah quadrant



This 1912 U.S.G.S. topo shows Stump Spring with a road, formerly the Mormon Road wagon trail, leading to it from the east. Likewise a well developed road leads north from Stump Spring toward Hidden Spring. Today that road still exists.