National Park Service
Cultural Landscapes Inventory
2012



Bonnie Clare Road
Death Valley National Park

Bonnie Clare Road
Death Valley National Park

Death Valley National Park concurs with the findings of the CLI, including the management category and condition assessment as identified below:

MANAGEMENT CATEGORY: **B: Should be preserved and maintained**

CONDITION ASSESSMENT: **Fair**

Superintendent, Death Valley National Park — Date 6/28/12

Please return to:

Vida Germano
Cultural Landscapes Inventory Coordinator
National Park Service
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April 4, 2012 In reply refer to: NPS101101A

Sarah Craighead, Superintendent
National Park Service
Death Valley National Park
P.O. Box 579
Death Valley, CA 92328

Re: Bonnie Clare Road Consultation, Death Valley National Park, CA

Dear Ms. Craighead:

Thank you for your letter and attachments dated February 27, 2012, continuing consultation with regard to the proposed undertaking at Death Valley National Park. The primary attachment is a report entitled "Compliance with Section 106 of the National Historic Preservation Act of 1966 for Reconstruction of Bonnie Clare Road, Reconstruction of Grapevine Ranger Station Parking Lot and Sidewalks, and Resurfacing of Mesquite Spring Campground Road" ("Compliance Report") and dated January 2012. Other information has been shared through communications with the Park's Cultural Resources Manager, Blair Davenport.

The undertaking, as I understand it, consists of three portions. The first is the rehabilitation of 7.7 miles of Bonnie Clare Road from the northeastern park boundary to a point approximately 100 feet south of the Grapevine Ranger Station. Road rehabilitation will consist of the following:

- Removal of existing asphalt and replacement of a new aggregate base course and new hot asphalt concrete pavement.
- Widening of some sections beyond existing road pavement onto the existing soft shoulder.
- Realignment of some segments to straighten some curves and widen the road to allow better visibility around curves. The maximum centerline shift proposed is 20 feet.
- Creation of turnouts from some abandoned sections of the current road alignment.
- Cuts to the rock wall and slopes adjacent to the road.
- Construction of narrow, paved ditches and curbing at the road edge.
- Minimal cutting and fill to change the road's vertical grade.
- Paving and formalizing the existing parking area at the park boundary.
- Remove and reconstruct 85% of the existing fence of Scotty's Castle Historic District along the road outside the 7.0-foot safety zone required by FHWA.

The second portion of this undertaking consists of rehabilitating the Grapevine Ranger Station Parking Lot and Sidewalk. This would include:

- Demolition of existing ramp and concrete sidewalks between the parking area and the ranger station and across the island in the parking lot.
- Replacement of these features at a lesser grade to meet ADA requirements.
- Construction of ADA access ramp to the sidewalk adjacent to the accessible parking spot.
- Demolition and replacement of concrete curbs and gutters between the sidewalk and parking lot.
- Installation of new handrail around the patio.
- Removal and replacement of existing concrete curbs and gutters on outside boundary of parking lot.

- Removal of entrance station in the middle of Bonnie Clare Road.

The third portion of this undertaking involves resurfacing Mesquite Spring Campground Road. This would include rehabilitating the loop at the end of the road, installing revet mattresses and buried jersey barriers at low water crossings.

- **I concur that together these actions qualify as a federal Undertaking as defined in 36 CFR 800.16(y).**

As stated in the "Compliance Report," NPS has identified an Area of Potential Effect (APE) for direct effects for this undertaking and another for indirect effects. The report provides a detailed description and maps illustrating these APEs.

- In accordance with 36 CFR 800.4(a)(1) and 800.16(d), the Section 106 regulations call for a single APE in which the undertaking may affect historic properties directly or indirectly. Therefore, only one APE is mandated. **I recommend designating the Indirect APE indicated in the "Compliance Report" as the APE for this undertaking.**

NPS has identified a number of properties within the APE currently listed or eligible for listing in the National Register of Historic Places (NRHP) or newly evaluated as eligible for listing. These include:

- Bonnie Clare Road (new evaluation)
- Grapevine Canyon Archeological District (new evaluation)
- Scotty's Castle / Death Valley Scotty Historic District (listed in the NRHP)
    - Scotty's Castle Fence (contributor)
    - Indian Camp (contributor)
    - Scotty's Castle Entrance (contributor)
    - Cottonwood Corner (contributor)
- Grapevine Developed Area Historic District (new evaluation)
- Mesquite Spring Campground and Road (not previously evaluated; will be treated as eligible)
- CA-INY-4851H (not previously evaluated; will be treated as eligible)
- CA-INY-4822 (not previously evaluated; will be treated as eligible)
- CA-INY-4734H (not previously evaluated; will be treated as eligible)
- CA-INY-4852H (not previously evaluated; will be treated as eligible)

After reviewing this information, I offer the following comments.

- **I concur that Bonnie Clare Road is eligible for listing in the NRHP, with contributors and character defining features as defined in the "Compliance Report".**

- **I concur that Grapevine Archeological District is eligible for listing in the NRHP, with contributors and character defining features as defined in the "Compliance Report". However, there are some outstanding issues regarding this Determination of Eligibility (DOE) that will need to be addressed.**
    - **The district should also include Indian Camp as a contributor.**
    - **The DOE report should be consistent regarding the number of contributing sites. As written, it varies between 46 and 47, likely because of Indian Camp's status.**
    - **The DOE should contain clear maps that show the district boundary in relation to the other districts in the area and another set that shows the individual contributors at a scale where the relationship between contributors can be read.**
    - **The references at the end of the report should be alphabetized.**
    - **Some site numbers need to be corrected to reflect if the sites are prehistoric (xxx), historic (xxxH), or multi-component (xxx/H).**

- **I concur that the Grapevine Developed Area is eligible for listing in the NRHP.**

- **I concur with the proposal to treat Mesquite Spring Campground and Road as eligible for listing in the NRHP for the purposes of this undertaking.**

- **I concur with the proposal to treat the four archeological sites in the Mesquite Spring Campground Road APE as eligible for the purposes of this undertaking.**

The "Compliance Report" contains a detailed analysis of how each portion of the undertaking will affect historic resources, specifying which historic properties (and which character defining features) will be adversely affected and those that will not. Specifically, NPS requested my concurrence on the following:

- Bonnie Clare Road will be adversely affected by the undertaking.
- Grapevine Canyon Archeological District will be adversely affected.
- Scotty's Castle / Death Valley Scotty Historic District will be adversely affected.
- Grapevine Developed Area Historic District will NOT be adversely affected.
- Mesquite Spring Campground and Road will NOT be adversely affected.
- CA-INY-4851H, CA-INY-4822, CA-INY-4734H, and CA-INY-4852H will NOT be adversely affected.

While it is useful to specify which historic properties will be adversely affected by an undertaking and those that will not, an undertaking will have only one Assessment of Adverse Effects in accordance with 36 CFR 800.5. I can concur that the undertaking will have an adverse effect on historic properties.

NPS proposes to prepare an agreement document to resolve the adverse effects of this undertaking on historic properties. I concur that this is the appropriate method to resolve effects. The stipulations of this agreement should include a provision that the DOE will be revised in consultation with my office and then nominated for listing in the NRHP, and that an archaeological treatment plan will be prepared that incorporates the monitoring and discovery plan that was attached to the "Compliance Report."

Thank you for seeking my comments and considering historic properties as part of your project planning. I look forward to continuing consultation on this undertaking. If you have any questions or concerns, please contact Mark Beason, Project Review Unit Historian, at (916) 445-4047 or mbeason@parks.ca.gov.

Sincerely,

Susan K Stratton for

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

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Inventory Unit Summary & Site Plan

The Cultural Landscapes Inventory Overview:

Purpose and Goals of the CLI

The Cultural Landscapes Inventory (CLI), a comprehensive inventory of all cultural landscapes in the national park system, is one of the most ambitious initiatives of the National Park Service (NPS) Park Cultural Landscapes Program. The CLI is an evaluated inventory of all landscapes having historical significance that are listed on or eligible for listing on the National Register of Historic Places, or are otherwise managed as cultural resources through a public planning process and in which the NPS has or plans to acquire any legal interest. The CLI identifies and documents each landscape's location, size, physical development, condition, landscape characteristics, character-defining features, as well as other valuable information useful to park management. Cultural landscapes become approved CLIs when concurrence with the findings is obtained from the park superintendent and all required data fields are entered into a national database. In addition, for landscapes that are not currently listed on the National Register and/or do not have adequate documentation; concurrence is required from the State Historic Preservation Officer or the Keeper of the National Register.

The CLI, like the List of Classified Structures, assists the NPS in its efforts to fulfill the identification and management requirements associated with Section 110(a) of the National Historic Preservation Act, National Park Service Management Policies (2006), and Director's Order #28: Cultural Resource Management. Since launching the CLI nationwide, the NPS is required to report information that respond to NPS strategic plan accomplishments, including bringing certified cultural landscapes into good condition, and increasing the number of CLI records that have complete, accurate, and reliable information.

Scope of the CLI

The information contained within the CLI is gathered from existing secondary sources found in park libraries and archives and at NPS regional offices and centers, as well as through on-site reconnaissance of the existing landscape. The baseline information collected provides a comprehensive look at the historical development and significance of the landscape, placing it in context of the site's overall significance. Documentation and analysis of the existing landscape identifies character-defining characteristics and features, and allows for an evaluation of the landscape's overall integrity and an assessment of the landscape's overall condition. The CLI also provides an illustrative site plan that indicates major features within the inventory unit. Unlike cultural landscape reports, the CLI does not provide management recommendations or treatment guidelines for the cultural landscape.

Inventory Unit Description:

Bonnie Clare Road is located in Inyo County, California in the northeast corner of Death Valley National Park. Within the park, the road traverses Grapevine Canyon, beginning at Grapevine Junction and extending east/northeast for 7.5 miles to the park boundary. After reaching the park boundary, which is synonymous with the junction of the California and Nevada state boundaries, the road continues as Route 267 east to Highway 95 where it terminates. Between 1947 and 1951, the road was paved and reconstructed by the National Park Service under the auspices of early Mission 66 development to increase visitor access, capacity and safety along the road corridor. Functioning in the same capacity as was historically intended, today, the road provides visitor access to Scotty's Castle from Death Valley National Park as well as from locations to the east.

The historic property boundary for Bonnie Clare Road consists of the 7.5-mile segment of road located within Death Valley National Park. The boundary extends 50 feet from the centerline on both sides of the road for a 100 foot corridor, which encompasses the entire width of the road, including the paved road, unpaved shoulders, unpaved ditches, unpaved pullouts, and rock cuts. The exception to the 100-foot corridor is where the historic fence parallels the road for 2.6-miles at Scotty's Castle. At this point, the historic property boundary parallels the southern side of the fence.

Bonnie Clare Road has a long and rich history of development as a transportation corridor, representing a continuity of use extending from the prehistoric period to the present. Archaeological investigations have yielded evidence of human use and occupation dating over 11,000 years in Death Valley and over 5,000 years in Grapevine Canyon. During the historic era, the Grapevine Canyon travel corridor developed into a wagon trail used by homesteaders and miners that traveled from the Ubehebe area east to the railroad at the town of Bonnie Clare (until 1928), and also provided access to Albert Johnson's Death Valley Ranch (Scotty's Castle). Between 1929 and 1930, Johnson relocated Bonnie Clare Road from the middle of Grapevine Canyon to the south side of the canyon outside his land claims. The Civilian Conservation Corps (CCC) also performed repair work on Bonnie Clare Road in 1934 in response to damage caused by storms. By the late 1940s, the road was in need of significant repair. Work was completed by the National Park Service as part of early Mission 66 road development efforts in 1947, 1948 and 1951. Throughout the 1950s and into the early 1980s, the road corridor required repair through standard maintenance practices, including patching and shoulder grading, due to several severe flash floods. Although the road sustained damage as a result of these storm events, the road was repaired without significant modification to its alignment or overall design.

The Bonnie Clare Road corridor demonstrates both historical significance and integrity for its association with early Mission 66 road planning and development in Death Valley National Park. Bonnie Clare Road is potentially eligible for the National Register of Historic Places at a local level of significance under Criteria A and C. The period of significance for the road corridor begins in 1947 when approximately three miles of the route was resurfaced in an effort to improve visitor access and capacity. The period ends in 1951 when the rehabilitation of 4.9 miles of road from Scotty's Castle to the park boundary was completed by the National Park Service. While the 1947-1951 work predates the most intensive period of Mission 66 development in Death Valley National Park , it responded to relevant themes of the period as outlined by the January 2006 Draft National Register of Historic Places Multiple Property Documentation form for National Park Service Mission 66 Resources, which suggests that the efforts leading to the development of the Mission 66 program actually began in 1945 in response to the conditions, concerns, and design trends that precipitated after the end of World War II as a result of the lifting of travel restrictions and rationing. The period of significance for the national Mission 66 program extends to 1972, which marked yet another new era in the planning, management, and development of national

parks. In Death Valley National Park, Bonnie Clare Road was paved and reconstructed during this early period of Mission 66 development as a local response to increased visitor capacity, access and safety, while seeking to maintain the naturalistic character of Grapevine Canyon. This was achieved in part by highlighting narrow canyons, sharp corners and lush vegetation through the careful design of the road around these character-defining features.

Principle landscape characteristics of Bonnie Clare Road include natural systems and features, spatial organization, land use, topography, views and vistas, and archeological sites. Collectively, these landscape characteristics and their associated features serve as an excellent example of development within the context of early Mission 66 design and construction between 1947 and 1951 in Death Valley National Park. While the road has been repaired several times as a result of the dynamic nature of the landscape, the road retains all seven aspects of integrity, including location, design, setting, materials, workmanship, feeling and association. Today, Bonnie Clare Road retains its historic character from the 1947-1951 paving and reconstruction, reflecting early Mission 66 road development efforts in Death Valley National Park.

Site Plan



For a larger version of the existing conditions site plan, see Appendix D.

Property Level and CLI Numbers

Inventory Unit Name: Bonnie Clare Road

Property Level: Landscape

CLI Identification Number: 725112

Park Information

Park Name and Alpha Code: Death Valley National Park

Park Organization Code: 8130

CLI Hierarchy Description

The Bonnie Clare Road is a landscape with no component landscapes.

Concurrence Status

Inventory Status: Complete

Completion Status Explanatory Narrative:

This CLI will be complete when it has superintendent concurrence.

This CLI has been prepared by staff from the Pacific West Region Cultural Landscapes Program, including Vida Germano (PWR CLI Coordinator) and PWR Historical Landscape Architects Erica Owens, Cortney Gjesfjeld, and Amanda Bennett. Field work was completed in November 2010 with the support of Death Valley National Park Cultural Resources staff. This documentation consolidates existing and available historical information and provides documentation and evaluation of cultural landscape characteristics and features historically associated with the road. This work was completed to support compliance requirements for Federal Highways Project DEVA 89910-4R: Reconstruction of the 7.6 mile segment of the Bonnie Clare Road/Grapevine Canyon.

Concurrence Status:

Park Superintendent Concurrence: Yes

Park Superintendent Date of Concurrence: 06/28/2012

National Register Eligibility Concurrence Date: 04/04/2012

Geographic Information & Location Map

Inventory Unit Boundary Description:

The historic property boundary for Bonnie Clare Road starts at the Death Valley National Park boundary and extends to the junction with the Ubehebe Crater Road near Grapevine Ranger Station, for a total of 7.5 miles. The boundary width is 50 feet from the centerline of the road, for total of a 100-foot-wide corridor. This boundary width includes the paved road, unpaved shoulders, unpaved ditches, unpaved pullouts, and canyon wall cuts that were designed and constructed during the period of significance (1947-1951). Exceptions to the 100-foot-wide corridor include where the road parallels the boundary fence to Scotty's Castle. At this point, the historic property boundary runs parallel with the fence, and parallels the edge of pavement between the two entrances to Scotty's Castle where there is no fence.

The Bonnie Clare Road boundary bisects the historic property boundary for the Death Valley Scotty Historic District, as this district boundary was defined when it was listed on the National Register of Historic Places in 1978 (see site plan).

Boundary Justification

The boundary includes the length of Bonnie Clare Road that is located within Grapevine Canyon, where the design of Bonnie Clare Road was influenced by the natural springs in the canyon and the topography within the canyon. The boundary width includes those features which were incorporated into the design of the road during the period of significance (1947-1951). The pre-1947 road alignment remnants are not included in the historic property boundary because they do not convey the significance of the 1947-1951 road work. The Scotty's Castle boundary fence is not included within the road property boundary because it is associated with the development of Scotty's Castle and is already counted as a contributor to the Death Valley Scotty Historic District.

The portion of road within Nevada (Highway 267) was not included in the evaluation of Bonnie Clare Road (located in Grapevine Canyon within the boundaries of Death Valley National Park) because the historic context, design and planning efforts associated with the construction of each individual road segment differed dramatically. The 7.5-mile road segment located within the confines of Grapevine Canyon was sensitively designed by the National Park Service under the auspices of early Mission 66 design principles, while the portion of road in Nevada did not follow this design. Additionally, since the end of the period of significance in 1951, the portion of road situated within Nevada's borders has been widened and repaved, and does not reflect the same design principles that are evident in the Grapevine Canyon portion.

State and County:
State: California
County: Inyo

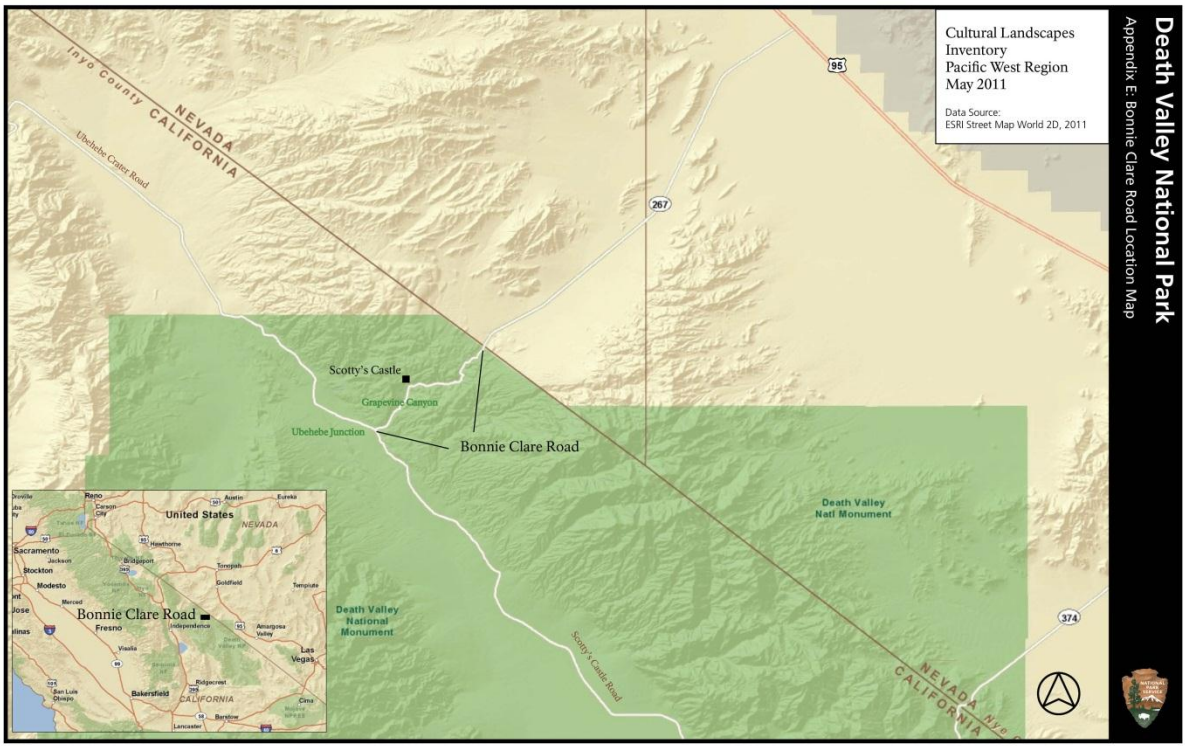
Size (Acres): 91.00

Boundary UTMS:

All points are taken from the centerline of the road.

Source	Type of Point	Zone	Easting	Northing
GPS–Differentially Corrected	Area	11N	4101623.715	47451.999
GPS–Differentially Corrected	Area	11N	4100437.828	473670.354
GPS–Differentially Corrected	Area	11N	4099215.634	473177.058
GPS–Differentially Corrected	Area	11N	4098532.346	472037.662
GPS–Differentially Corrected	Area	11N	4098513.123	470535.74
GPS–Differentially Corrected	Area	11N	4097734.045	469486.401
GPS–Differentially Corrected	Area	11N	4096424.347	468822.453
GPS–Differentially Corrected	Area	11N	4095038.492	468055.79
GPS–Differentially Corrected	Area	11N	4094765.512	467370.948

Location Map:



For a larger version of the location map, see Appendix E.

Management Information

General Management Information

Management Category: B: Should be Preserved and Maintained

Management Category Date: 06/28/2012

Management Category Explanatory Narrative:

Bonnie Clare Road meets criteria for significance under the National Register (Criteria A and C) and is compatible with the park's legislated significance (in part, for the benefit and inspiration of the people).Therefore, Bonnie Clare Road falls under Category B: Should be Preserved and Maintained.

NPS Legal Interest

Type of Interest: Fee Simple

Public Access

Type of Access: Other Restrictions

Public Access Explanatory Narrative:
The road is open to the public.

Adjacent Lands Information

Do Adjacent Lands Contribute? No

National Register Information

Existing National Register Status

National Register Landscape Documentation:

SHPO – Documented

National Register Explanatory Narrative:

Bonnie Clare Road was determined eligible for the National Register and received SHPO concurrence with this determination on April 4, 2012.

National Register Eligibility

Contributing/Individual:	Individual
National Register Classification:	District
Significance Level:	Local
Significance Criteria:	A – Associated with events significant to broad patterns of our history C – Embodied distinctive construction, work of master, or high artistic values
Period of Significance:	1947-1951
Historic Context Theme:	Expressing Cultural Values
Subtheme:	Landscape Architecture
Facet:	NPS Mission 66 – Landscape Architecture

Area of Significance:

Area of Significance Category	Landscape Architecture

Statement of Significance

The Bonnie Clare Road corridor has a long history of use and development. Documentation indicates that Grapevine Canyon was a corridor used by American Indians traveling between the floor of Death Valley and Panamint Mountains to the west and Sarcobatus Flat to the east. As Euro-Americans entered the area, the travel corridor developed into a wagon trail used by homesteaders and miners as the primary connection from the Ubehebe area east to the railroad at Bonnie Clare. The road also provided access to Albert Johnson's Death Valley Ranch (Scotty's Castle). Between 1929 and 1930, Johnson relocated Bonnie Clare Road from the middle of Grapevine Canyon to the south side of the canyon outside his land claims. Remnants of the original road are still evident within the Death Valley Ranch Historic District. As part of this effort, Johnson's construction supervisor; M. Roy Thompson, assigned an employee to

grade the road all the way to Route 5 in Nevada, well beyond the boundaries of Johnson's property. The Civilian Conservation Corps also performed repair work on Bonnie Clare Road in 1934 in response to damage caused by storms. By the late 1940s, the road was in need of considerable repair and as a result, in 1947, a three-mile section of Bonnie Clare Road extending from Ubehebe Crater Road Junction to Scotty's Castle was resurfaced. One year later, the same segment of Bonnie Clare Road was repaved and potholes were patched in order to improve the condition of the road, which had been damaged by heavy use. Under the guidance of park planners and park superintendent, T. R. Goodwin, rehabilitation efforts on the remainder of the road began in 1950 and were completed in 1951. Throughout the 1950s and into the early 1980s the road was subject to several flood events through Grapevine Canyon, causing all types of damage. In some cases, these events required considerable efforts to repair damage to the road from water, erosion, and runoff. Work often included both stabilization measures and physical repairs such as reapplying asphalt to patch washouts and holes in the roadbed and grading on the shoulders to reestablish the original road prism and drainage system. Although the road required repair as a result of these storm events, the majority of the work was performed without substantial modification to the alignment or overall design of the road.

Although Bonnie Clare Road is a separate historic property from the Death Valley Scotty Historic District, it serves as the only access road to Scotty's Castle and its physical development is closely linked to the historical development of Scotty's Castle. Maintained as a private in-holding within Death Valley for almost fifty years, the National Park Service acquired Scotty's Castle and Lower Vine Ranch from the Gospel Foundation of California in 1970. Subsequent documentation by the NPS in 1978 led to the listing of the Death Valley Scotty Historic District in the National Register of Historic Places. The period of significance for the district extends from 1922 when Albert Johnson began developing the Castle, associated outbuildings, and landscaped grounds, and ends in 1931 when all construction at the property ended. The district is significant under Criterion B at a state level for its association with Death Valley Scotty (Walter Scott). Additionally, the property is significant under Criterion C as a result of the distinctive Spanish-style architecture. The district boundary encompasses development at Scotty's Castle and Lower Vine Ranch as well as Indian Camp (CA-INY-5702H). The historic district also includes a concrete post and barbed wire perimeter fence, which serves to define the northern and/or western extent edge of Bonnie Clare Road for approximately 2.6 miles. Coupled with the restrictive and narrow canyon morphology the fence appears to have influenced construction and alignment of the road over time. Today, Scotty's Castle remains a popular tourist attraction in Death Valley National Park.

It is clear that the Grapevine Canyon corridor has a long history of use and development as a result of its association with American Indian use and occupation as well as with other themes including exploration, mining, and construction of Scotty's Castle. While these themes are an important part of the historical development of the road, historic use alone does not qualify Bonnie Clare Road for listing in the National Register of Historic Places. The historic use of the road and associations with exploration, mining activities, and construction, are better represented by other properties located within Death Valley. The association with American Indian use is covered in the evaluation entitled "Grapevine Canyon Archeological District."

Bonnie Clare Road demonstrates both historical significance and integrity for its association with early Mission 66 road planning and development in Death Valley National Park. Bonnie Clare Road appears eligible for the National Register of Historic Places at a local level of significance under Criteria A and C. According to the 2006 Draft National Register of Historic Places Multiple Property Documentation form for National Park Service Mission 66 Resources, the period of significance for the national Mission 66 program begins in 1945 and extends to 1972. Although funding for work under the Mission 66 program became available in 1956, the conditions, concerns, and design trends that precipitated and shaped the

program, actually began in 1945 with the end of World War II and the lifting of travel restrictions and rationing. The period of significance for the Bonnie Clare Road corridor reflects these trends on a local level of significance beginning in 1947 when approximately three miles of Bonnie Clare Road was resurfaced to improve capacity and visitor access to Scotty's Castle. The period of significance ends in 1951 when the rehabilitation of 4.9 miles of Bonnie Clare Road between Scotty's Castle and the park boundary was completed by the National Park Service. This period reflects road rehabilitation and paving efforts in Death Valley National Park under the auspices of early Mission 66 development. During this time, the road was formalized as a circulation corridor, which marks a distinct period of development that occurred in response to postwar needs. This work was completed in the context of several relevant themes of the larger Mission 66 era, but is representative of a localized effort to increase park visitation, enhance visitor safety and undertake road improvements while acknowledging the importance of the aesthetics through minimizing damage to the natural topography, washes, and contour along the shoulders of the canyon that characterize Grapevine Canyon. It should be noted that paving and repair work was undertaken on the Bonnie Clare Road corridor before and after the period of significance, although this work was largely limited to maintenance and stabilization and did not involve large scale work.

Criterion A

Under Criterion A, Bonnie Clare Road is locally significant as a circulation corridor that was improved and reconstructed during the early Mission 66 period of development in Death Valley National Park. To be considered eligible for listing in the National Register of Historic Places, Mission 66 property types should be considered under Criterion A as potentially significant examples of changing visions for national park planning and development during the period of significance. Bonnie Clare Road is significant for the 1947-1951 paving and rehabilitation activities, which occurred within the context of early Mission 66 era development within Death Valley National Park.

National Park Service Mission 66 Program Overview

The following information is adapted from the January 2006 Draft National Register of Historic Places Multiple Property Documentation form for National Park Service Mission 66 Resources (Section F, p. 111) and from Ethan Carr's *Mission 66: Modernism and the National Park Dilemma*.

The period of significance for National Park Service Mission 66 resources begins in 1945 and extends to 1972. The Mission 66 program was conceived and planned in 1955 by Conrad Wirth, who served as the Director of the National Park Service between 1951 and 1964, as well as many others. The program responded to severe pressures on the national park system that had already been analyzed and lamented for years. Many aspects of Mission 66, in fact, were suggested in the 1930s. But the program responded, above all, to the events, realities, and trends of the first postwar decade. Examples of modernist national park architecture first appeared in the 1940s, and many basic assumptions that became cornerstones of Mission 66 planning were elaborated during the decade. Work under the Mission 66 program began in 1956; however, the conditions, concerns, and design trends that precipitated and shaped the program, actually began in 1945. The end of World War II and the lifting of travel restrictions and rationing immediately caused what Newton Drury described as "the dilemma of our parks" as visitation soared and Congress refrained from increasing park budgets. In 1966, the Mission 66 program was scheduled to conclude however, ultimately the program ended in 1972 as a new era began in the planning, management, and development of national parks.

According to Ethan Carr's *Mission 66: Modernism and the National Park Dilemma*:

"Mission 66 was essentially an audacious budget proposal that persuaded Congress to increase national park appropriations immediately and to provide further increases over the next decade. The program responded to a generally perceived crisis that resulted from an extended period of low park funding combined with heavy public use of the park system. During the late 1940s and early 1950s, the Cold War and Korean War helped keep national park budgets near pre-World War II levels: $32 million in 1955, for example, compared to $26 million in 1939. Adjusted for inflation, budgets were lower in the 1940s and early 1950s than they had been in the 1930s. In addition, the Civilian Conservation Corps (CCC), the Public Works Administration (PWA), and the other New Deal programs abolished in 1942 were not resumed, crippling the ability of the Park Service to build and maintain roads, trails, bathrooms, or any other visitor facilities. But as soon as wartime rationing and travel restrictions ended in 1945, a flood of visitors inundated state and national parks. The numbers continued to climb to unprecedented levels. In 1955 there were 56 million visits to the national park system, compared to 17 million in 1940; yet Park Service budgets had remained at or below prewar levels despite the enormous increase….By the late 1940s a ruinous combination of low budgets and unprecedented numbers of visitors had depreciated the experience of national parks for millions. In the developed zones of parks, or "frontcountry," people found traffic jams, long lines outside bathrooms, overflowing parking lots, and no available accommodations or campgrounds….In other words, almost immediately following the end of the war in August 1945, national park managers were exposed to the overcrowding, limited budgets, understaffing, and other difficulties that have continued, to a greater or lesser degree, to the present day" (Carr 2007, 3-5).

Mission 66 in Death Valley National Park

The following information is adapted from the 2009 Furnace Creek Visitor Center National Register of Historic Places nomination form prepared by Erica Owens and Elaine Jackson-Retondo. Information from other sources is noted parenthetically in the narrative.

Between 1945 and 1972, Mission 66 played a critical role in updating and modernizing Death Valley National Park. During this period, early Mission 66 planning and development also played an important role in the maintenance and improvement of Bonnie Clare Road. In the years leading to World War II as well as during the war, very little maintenance work was completed on Bonnie Clare Road. Civilian Conservation Corps crews left the park in May 1942 and plans to improve the road were placed on hold. Throughout the war years, the substandard condition of Bonnie Clare Road remained an embarrassment to the NPS as most other park roads had already been realigned and paved or oiled. As the war wound down, the NPS began improving roads in the park, including the Trona-Wildrose Road, which diverted traffic from Beatty, Nevada through Daylight Pass instead of encouraging visitors to utilize Bonnie Clare Road through Grapevine Canyon.

In response to the end of World War II and the lifting of travel restrictions and rationing, many parks, including Death Valley, experienced a considerable increase in visitation. As a result of increased tourism trends in the area, the NPS received a number of complaints from Albert Johnson who desired Bonnie Clare Road to be improved to provide greater access to Scotty's Castle. The NPS also received complaints from the owner of Lippincott Lead Mines, who wrote that the road to Nevada was "in such bad shape that I am unable to obtain anyone to haul my ore and I am forced to use two of my own trucks….My drivers have repeatedly filled up holes in the road, etc., but it's still in bad shape" (Livingston 2009, 324). In response to the requests for road improvements, Death Valley Superintendent,

Theodore Goodwin, indicated that no NPS funds were available to fix the road, however, suggested that Johnson and the owner of Lippincott Lead Mines could grade the road themselves. Despite Goodwin's short-term suggestion for improvement, eventually Johnson received word that major improvements on the road were "high on the priority list" and it would be funded as soon as a federal moratorium on construction was lifted. According to historian and author Dewey Livingston, records showed that the NPS understood the importance of Scotty's Castle to their operation, even though the attraction was privately owned. It was clear that improved access to the Castle, as well as an additional all-weather entrance to Death Valley, would only serve to increase visitor numbers and satisfaction (Livingston, 2009, 324-325).

In April 1946, the Nevada highway department repaired the road from Highway 95 to Scotty's Castle, but did not complete work on the three miles of roadway from Scotty's Castle west to the Ubehebe Crater Road Junction. As a result, this segment of road was in very poor condition until 1947 when it was resurfaced. The superintendent's report from 1947 stated that this improvement would "prove a real boon to visitors to Scotty's Castle as well as a heavy saving in maintenance costs in the future" (Draft National Register of Historic Places Nomination for Bonnie Clare Road, January 20, 2011). In 1948, Albert Johnson died and ownership of Scotty's Castle was transferred to the Gospel Foundation of California who maintained the site and actively promoted it as a visitor destination. Subsequent repair work and base-sealing was completed in 1948 by the NPS in order to improve the condition of Bonnie Clare Road. Following post war trends, Death Valley visitation reached 212,710 people in 1949 and rose to 300,142 in 1956, a number that severely tested its resources (Rothman 2000, 51).

In July 1950, planning efforts were initiated to reconstruct a portion of Bonnie Clare Road. Several events led to the decision to reconstruct the Bonnie Clare Road. It is likely that the rehabilitation project was funded in part because the State of Nevada was planning to build a new, modern highway from U. S. Highway 95 to the park boundary. Shortly after this plan was in place, the NPS received money through an appropriation for road construction to work on the road between the park boundary and Scotty's Castle (Livingston 2005). It was common that Mission 66 projects such as this one were implemented through increases in regular appropriations (not through separate legislation or some new funding source) as many early Mission 66 projects were simply regular Park Service projects that were already planned, but may have received increased funding. In some ways, the available funding may have been the driving force for rehabilitation of the road prior to the initiation of other Mission 66 improvements such as the construction of a new visitor center in the park. Regardless of the impetus, the work satisfied a postwar need that required a safe and efficient access road to Scotty's Castle and northern Death Valley.

Work on the Bonnie Clare Road began in late October and early November, 1950. R. Neil Grunigen and a road crew from the NPS regional office in San Francisco surveyed and staked the proposed route through the canyon. On November 14, 1950, a labor force consisting of "two local miners, three regular Yellowstone Park road crew men, and two from the local road crew" began construction, which included drilling, blasting, and grading. Park superintendent, T. R. Goodwin (a skilled engineer), supervised the project. Reportedly, even before the road officially opened, Goodwin suggested a change in traffic trends as the new route allowed Nevadans to travel southwest through Grapevine Canyon and northern Death Valley and then short cut via Wildrose to Trona and points south and west (Livingston 2009, 352).

As a result of the paving work in 1947 and rehabilitation of the road in 1951, Bonnie Clare Road became a formalized circulation route that allowed visitors to move more freely throughout northern sections of the park. In concert with postwar trends, park planners tried to minimize the impact of the large numbers of visitors by making it easier for them to travel to popular destinations like Scotty's Castle and Furnace Creek by increasing the efficiency of the road (Carr 2007, 83). Additionally, park designers sought to

improve visitor safety and access by widening the road and straightening curves, while preserving the natural beauty of Grapevine Canyon through sensitive rehabilitation. Clearly, the 1947-1951 road work had a measurable effect on park circulation and visitation, providing an important and historic access route into the park. Furthermore, the timing of the project corresponded with a marked increase in auto travel around the United States and increasing popularity of National Parks.

After the improvement of Bonnie Clare Road, Death Valley National Park received additional funding to support other modernization projects in response to the increase in visitation after the war. On April 19, 1956, Death Valley staff submitted its Mission 66 prospectus (Rothman, 2000, 131). The document identified that "All but a few miles of the roads in Death Valley are very much substandard and they must be widened to about 20 feet, resurfaced, and generally improved to provide safe driving conditions for modern vehicles. It is planned to improve about three-quarters of the road mileage in the park and the remainder will be left for the more adventurous visitors who want to get to back country or out of the way places." Furthermore, the prospectus recommended that the park acquire $5,067,350 "to bring roads and trails up to the standard required for a maximum of visitor use and enjoyment and protection of the natural features" (Mission 66 for Death Valley). (During the most intense period of Mission 66 development, large portions of the National Park Service annual budget allocations were committed to road construction, which reflects the priority that road projects assumed in the overall program.) With their up-to-date planning documents, the park became an early recipient of Mission 66 funds, receiving approval of their plans by September 1956 (Rothman, 2000).

Ultimately, Mission 66 resulted in a substantial amount of development and infrastructure that is still found in Death Valley National Park. Work included the rehabilitation of Bonnie Clare Road in 1951, as well as the undertaking of four road-related projects, including a new parking lot at Ubehebe Crater in 1958. Between 1959 and 1960, the Furnace Creek Visitor Center was completed and from 1960-1965, the park completed construction of apartments at the Grapevine housing area, the Grapevine Ranger Station, and new water systems in all existing campgrounds, along with a multitude of other projects (Rothman, 2000). By 1965, the Mission 66 master plan had been completed and brought the park up to modern standards of its time.

Criterion C

Locally significant under Criterion C, Bonnie Clare Road embodies the distinguishing characteristics of early Mission 66 road design and construction in Death Valley National Park. To be considered eligible for listing in the National Register of Historic Places, Mission 66 property types should be considered under Criterion C, as potentially significant for their association with the modernist design precepts and construction techniques (Park Service Modern) practiced by Park Service architects, landscape architects, planners, and historians during the historic period. Bonnie Clare Road is significant for the 1947-1951 paving and rehabilitation activities, which occurred within the context of early Mission 66 era development within Death Valley National Park.

Mission 66 Road Design and Construction

The following information is adapted from the January 2006 Draft National Register of Historic Places Multiple Property Documentation form for National Park Service Mission 66 Resources (Section F, p. 21-22) and the Death Valley Scotty Historic District Historic Resources Study (2009, 349-352).

Between 1945 and 1972, Mission 66 park road design and construction policy remained committed to building roads that minimized visual impacts, while maximizing the automotive visitor's experience of park scenery and historic landscapes. Fully aware that road projects were the most visible, expensive, and often controversial aspects of the Mission 66 program, agency landscape architects and engineers devised landscape protection strategies, even as park roads became wider, faster, and capable of much higher capacities. But while road widening, bridge replacements, and other modernizations were undertaken, Mission 66 policy nevertheless remained committed to minimizing the visual presence of road construction.

In an effort to achieve this goal, many road projects included the construction of retaining walls that were integrated into their natural setting by reducing the height of cut-and-fill slopes and the construction of bridges and tunnels to reduce scarring in mountainous terrain. In addition, particular road surfaces, colors and materials were selected to harmonize with the general character of the landscape. Park road design standards dictated that major, two-way park roads be built with a roadway width of twenty-two feet, with three-foot paved shoulders (maximum). Minor two-way park roads, such as Bonnie Clare Road featured twenty-foot widths. One-way park roads, such as campground roads, measured twelve feet wide, with no more than two-foot shoulders. A maximum 7 percent grade was appropriate for all types of park roads, although grades as high as 10 percent were viable options for short sections. Ditches and slopes, or the immediate roadside setting, called for special protection to prevent erosion and to minimize the scars of construction. The use of vegetation to blend ditches and shoulders to the adjacent landscape was a standard policy, and cut-and-fill slopes were rounded, warped at the end for a natural transition, and seeded, fertilized and mulched to repair roadside construction scars. The cumulative effect of these efforts was an end product that appeared natural as though the road had always been there.

During Mission 66 entirely new roads and the reconstruction of old roads, including wider driving lanes and realignments to flatten grades and widen curves, were planned, designed and built in response to the higher traffic volumes and changing patterns of park visitation in the postwar era. Although most Mission 66 road building was largely focused on reconstructing existing roads, park roadway modernization under Mission 66 extended to almost every park in the system. Rebuilt roads are the most widespread and representative built feature in today's parks that reflect the transformation of the nature, frequency and increasing volumes of automotive recreational travel that occurred throughout the United States at the time.

As Mission 66 advanced toward its mid-point, critics began to assail the program's road building projects. Articles published in conservation organization magazines charged Mission 66 with making roads too wide and fast. Higher speed limits (set at a maximum of 45 mph), wider curves, flattened grades and longer tangents contributed to the perception that Mission 66 roads were built like contemporary Interstate Highways, not traditional park roads. By the end of the program, in 1966, some 1,570 miles of park roads had been reconstructed and approximately 1,197 miles of new roads had been built throughout the system. Most of the new road mileage was constructed in new units of the national park system.

Mission 66 Rehabilitation of Bonnie Clare Road

In Death Valley, the 1947 paving and 1950-1951 rehabilitation of Bonnie Clare Road was a particularly important development in Grapevine Canyon, serving to formalize a circulation corridor that had been used for thousands of years. Following early Mission 66 design principles, the road was designed to highlight the natural beauty of the canyon, while also improving capacity and providing safe and convenient access to Scotty's Castle and northern portions of the park. In many cases, road construction trends during this period were characterized by widening travel lanes and straightening curves to

encourage greater visitor safety. While the rehabilitation of Bonnie Clare Road was designed to achieve access and safety goals, park planners and engineers also consciously worked to minimize impacts of the road within the canyon by preserving the setting and natural topography of the canyon to the largest degree possible.

In April 1946, the Nevada highway department repaired Bonnie Clare Road between Highway 95 to Scotty's Castle, but did not work on the three miles of roadway from Scotty's Castle west to Ubehebe Crater Road Junction. As a result, this segment of road was in very poor condition until 1947 when it was resurfaced to support increased traffic. In 1948, approximately three miles of Bonnie Clare Road from Scotty's Castle west to Ubehebe Crater Road Junction were base-sealed by the NPS. The work was undertaken using a low type of bituminous treatment and was applied across the entire road bed which was approximately twenty feet wide. The seal coat was placed directly over the existing dirt road.

The 1950-1951 road project (PCP Proposal R-50), designed as Plan No. NM-DV-2120 and dated January 20, 1951, called for the rehabilitation of 4.9 miles of Bonnie Clare Road beginning at the entrance gates of Scotty's Castle and ending at the Nevada border. The plan called for minor realignment, mostly consisting of straightening sections into short tangents and decreasing the radius of curves, in essence "smoothing out" the existing gravel roadway. The plans also called for the road width to match the width of twenty feet in this segment and to be covered with two inches of bituminous mat or road mix with the materials processed locally (Feierabend 2006, 23).

In a memo dated February 1951, NPS Chief Engineer Frank A. Kittredge requested an exception to the alignment standards to allow a maximum curvature of 300 feet radius, noting that most park roads were traveled at a relatively high speed, making the transition to a curving canyon road dangerous. He noted the calculation of 1.5-to-1 excavation and embankment slopes and hinted that a twenty-foot roadway is "becoming a thing of the past" but conceded that it would be appropriate in this case. Park officials determined that Kittredge's request for an exception to the standard and increase radius for curves through Grapevine Canyon was not possible, noting both the expense and the physical limitations of threading a modern roadway through a narrow canyon:

> *The road alignment, of necessity, follows the wash down Grapevine Canyon and is strictly limited as to grade and alignment by the precipitous rock of the canyon walls, as well as rocky points and the fence around the property of Scotty's Castle.*
>
> *To build curves of larger radii would require many times the money available for this project and would result in many sections of the road being built in the steep canyon walls which would require bench sections in solid rock. This would seriously scar the canyon walls and detract from the natural beauty of the landscape along this entrance route.*

Officials considered that the scenic canyon setting would have "a psychological effect upon the driver as to cause him to drive slower," and that warning signs and wider pavement at the curves would make the new road safer. In spite of this, some blasting was required to accommodate the rehabilitation and by the end of December 1950 all rock cuts had been "shot out" and the eastern two miles of road was opened to traffic. On June 1, 1951, the crew completed surfacing of the entire roadway and opening ceremonies for the "Scotty's Castle Road" were held on Saturday, June 2, 1951.

Responding to postwar needs such as increased visitor capacity, safety and access, the road offered a unique opportunity for visitors within Death Valley National Park. In stark contrast to many other locations within Death Valley, the natural attributes of Grapevine Canyon, including the springs, narrow

profile, lush vegetation, and relatively steep grade required a road that was uniquely and sensitively designed to fit the landscape.

During the rehabilitation, National Park Service construction crews largely stayed within the overall footprint of the existing Bonnie Clare Road corridor, previously constructed by Albert Johnson (1930-1931) and the National Park Service using CCC labor (1934). Between 1947 and 1951, the road was minimally redesigned demonstrating the importance of the existing overall alignment within the framework and physical constraints of the natural character and canyon setting. As part of these improvements, the road was widened to twenty feet, which was the typical width of secondary two-lane roads during this period. In addition, the road was resurfaced. Sources suggest that road construction crews utilized gravel fines from the area in the asphalt mix, which would have given a lighter finish to the road surface. Today, there are several areas where the subsurface (base layer) is exposed from wear and tear. This subsurface layer has a reddish hue that would have helped the road "blend in" with the surrounding landscape, although it is unclear when this subsurface layer was originally added to the roadbed (Feierabend 2006, 23).

Also as part of the rehabilitation, the undulating road grade did not exceed 7 percent and curves were generally widened in locations that did not extensively impact existing natural and cultural resources. Where possible, the historic fence associated with the Scotty's Castle property was preserved in its original alignment. Along the western segment, the road is in its original horizontal alignment, although there is evidence that the vertical alignment may have changed due to storm damage and the movement of dirt and stone material. This is evidenced by extant fence posts that are buried by debris. Views of the Chimes Tower were also preserved, retaining the historic approach to the Castle. Also, the vertical rock faces adjacent to the road remained generally unimpaired, with the exception of a few locations where blasting during the rehabilitation are evident. This attention to detail in the design and construction of Bonnie Clare Road reflects several important Mission 66 design tenets.

Striking a delicate balance between embracing the feeling and association of a rustic park road and embracing modern design standards characteristic of Mission 66, Bonnie Clare Road was paved and reconstructed between 1947 and 1951 with the goal of creating minimal visual impacts, while maximizing the automotive visitor's experience. While it is clear that rehabilitation of Bonnie Clare Road in some ways resisted modernization by limiting the overall improvements to those which could be implemented within the existing road corridor, in many ways this particular effort illustrates some of the most important Mission 66 road construction and design tenets. In support of increasing visitation, the road was widened to twenty feet and curves were smoothed to increase capacity and visitor safety, however, the work was performed with an understanding of the qualities that made the road and its surrounding environment unique. Furthermore, local materials were utilized when possible in order to blend with the surrounding environment and no major infrastructure was added to modify the character of the road or the driving experience.

Despite the relatively simple design of the road, Bonnie Clare Road has withstood the test of time serving as a local expression of early Mission 66 development in Death Valley. Today, the road continues to follow many of the most important Mission 66 road design precedents, laying light on the land as it winds through the narrow Grapevine Canyon corridor, providing safe and convenient visitor access to Death Valley and Scotty's Castle. The location, setting, design, workmanship, materials, feeling, and association of the road continues to convey the historic character of the 1947-1951 paving and rehabilitation of Bonnie Clare Road, exhibiting a high level of integrity.

National Historic Landmark Information

National Historic Landmark Status: No

World Heritage Site Information

World Heritage Site Status: No

Chronology & Physical History

Cultural Landscape Type and Use

Cultural Landscape Type: Designed

Current and Historic Use/Function

Primary Historic Function–Major Category: Road-Related-Other

Primary Historic Function–Category: Road-Related-Other

Current and Historic Names

Current and Historic Name	Type of Name
Bonnie Clare Road	Both Current and Historic
Bonnie Claire Road	Historic
Scotty's Castle Road	Both Current and Historic
Highway 267	Current
DEVA 11	Current

Chronology

Year	Event	Annotation
3,000 BP to 1860	Established	Grapevine Canyon was used as travel and trade corridor by the Timbisha Shoshone.
1860-1890	Inhabited	Between the 1860s and 1880s, Grapevine Canyon was used by the Timbisha Shoshone for winter village sites, temporary camp sites, and resource extraction areas.
1880-1920	Altered	By the 1880s, a simple dirt wagon road was located through Grapevine Canyon by miners accessing the Ubehebe area and homesteaders in the local area.
1917	Purchased	Albert Johnson acquired the Grapevine Canyon property including the Bonnie Clare wagon road.
1929-1930	Established	Albert Johnson relocated the portion of road that was located at the middle of the canyon to the south side of the canyon, outside of the land he claimed as his property, which was delineated by a property fence line.
1930	Graded	Johnson's Death Valley Ranch construction supervisor, M. Roy Thompson, graded the road all the way to State Route 5 in Nevada.
1933	Established	Death Valley National Monument was established.
1933	Damaged	Storm damage affected the road in September of 1933.
1933	Graded	The road was bladed in November.
1933	Damaged	Storm damage affected roads within Death Valley, cutting off access to Scotty's Castle in November.
1933	Graded	A temporary road was constructed to connect the Stovepipe Wells area with Scotty's Castle by the end of December.
1934	Built	In January and February of 1934, the CCC laborers reconstructed five miles of the road by hand. The road was graded, boulders were blasted from the road bed, and sharp curves were daylighted.
1934-1936	Maintained	The road was bladed several times after being damaged by rain storms.
1945	Maintained	By February, the road's guard posts had been repainted. These guard posts were removed sometime after the end of the period of significance.
1946	Graded	In December, the road was graded again.
1947	Graded	In January, the road had been graded to repair damage.

1947	Graded	The Nevada highway department repaired the road from the town of Bonnie Clare to Scotty's Castle by blading it.
1947	Reconstructed	In May and June, a road crew began surface improvements to the road between Ubehebe Crater Road Junction and the monument boundary.
1947	Reconstructed	Work was completed on three miles of the road by October. It is unclear if this work was a part of the same construction project undertaken earlier in the year.
1948	Maintained	In March, potholes were filled and the entire road surface was covered with a seal coat and screened material.
1950-1951	Reconstructed	Road rehabilitation work began during the fall of 1950 and continued into the spring of 1951. Rock blasting occurred in November and December. Paving occurred between April and May. The road was reopened during a June 2 celebration ceremony.
1950-1951	Damaged	Indian Camp (CA-INY-5702H) was most likely damaged by the road rehabilitation efforts between 1950 and 1951. It is possible this site was previously damaged by the 1930s road work (Johnson 2006: 34-35).
1952	Maintained	The road was seal coated in June.
1953	Maintained	The subgrade was repaired and resurfaced in February. In May, the road was oiled. The 4.7 miles of road work was completed by June.
1953	Maintained	In October, potholes were patched. Narrow pavement and gravel shoulder work began and continued through spring.
1954	Maintained	At the end of May, 20 miles of road, including the road in Grapevine Canyon, was patched and the shoulders were cleared. At that same point, 6.3 miles was oiled.
1954	Graded	In September, the road was cleared and patched due to storm damage that occurred in June.
1956	Maintained	In March, the guide posts in front of Scotty's Castle were painted. These guard posts were removed sometime after this point, but there is no record of when this occurred.
1958	Graded	By the beginning of June, storm damage was repaired, including removing washed gravel from the road, patching holes, filling shoulder washouts, and grading shoulders.
1959	Graded	Storm gravel was removed from the canyon and the road surface was patched.
1960	Graded	In December, the road shoulders were graded and patched.
1966	Built	In February, both Scotty's Castle and Grapevine Ranger Station received power.

1966	Excavated	By October, a spring located under the road near Scotty's Castle (most likely the spring located at the east end of Scotty's Castle based on the project description) was uncovered, drained, and then backfilled and resurfaced. At the same time the route was stripped.
1967	Maintained	By January, five miles of road received shoulder leveling and the asphalt was sealed.
1967	Damaged	A September thunderstorm damaged the road. The road was reopened in October.
1968	Graded	Five miles of shoulders were graded in the spring. Repairs were undertaken in December following storm damage.
1976	Damaged	In September, flooding damaged 2.7 miles of road. The road was repaired in place.
1983	Damaged	Flooding caused major erosion along the road, which was repaired by grading the road.
1994	Established	Death Valley National Monument was designated a National Park.
1996	Planned	The road was evaluated and improvements were proposed but never implemented.

Physical History

Introduction

Bonnie Clare Road, as it exists today, represents a formalization of the travel corridor through Grapevine Canyon that has been used for over 5,000 years. The canyon was used as a travel corridor by the Timbisha Shoshone to access the valley bottom and Panamint Mountains to the west and Sarcobatus Flat to the east. Archeological and ethnographic evidence illustrates that there was a winter village site in the canyon during the Protohistoric and Ethnographic archeological periods. During the historic era, the travel corridor developed into a wagon trail used by homesteaders and miners as a primary connection from the Ubehebe area to the railroad in the east, and became the only access to Johnson's Death Valley Ranch (later known as Scotty's Castle) and was a primary travel route on the north side of Death Valley. Albert Johnson, the owner of Scotty's Castle, realigned Bonnie Clare Road in 1929, and tourists began flocking to Scotty's Castle, even while it was under construction. Bonnie Clare Road was, and still is, the sole access to the facility. After the national monument was created in 1933, Bonnie Clare Road became a primary travel route within the monument. One of the first CCC projects in Death Valley was the repair of Bonnie Clare Road in Grapevine Canyon, which had been damaged by a flash flood late in1933. Several repair projects were undertaken by the CCC before World War II.

The development of the road was finally formalized in the 1947 base-sealing of the western portion of the road and 1951 designed rehabilitation of the eastern portion of the road. During the 1951 roadwork, the exact alignment of the road shifted in some places in order to remove some of the more dangerous curves while also widening the road to provide for safer travel. The 1947-51 period of rehabilitation work marked the first and last major improvement to the road. Since that time, annual storm damage caused by flash floods has resulted in maintenance repairs to the unpaved shoulders and asphalt surface that erode after major storms. One section of road, the portion at Ubehebe Crater Road Junction where the canyon opens up to the west from a southwestern direction, has been washed out entirely since 1951. This segment of road does not contribute to the historic integrity of the property, although the canyon still frames the view of the valley that one sees while driving toward the west. The majority of the road maintains the same alignment and similar characteristics as the 1947-1951 road due to the lack of construction work since the end of the period of significance.

HISTORIC CONTEXT

The following narrative was adapted from the January 20, 2011 draft National Register nomination for the Bonnie Clare Road that was prepared by Kari Carmany-George of Aarcher, Inc. See this draft for complete bibliography of sources referenced in this section.

Travel Corridor

Archeological investigations in Death Valley have yielded evidence of human use and occupation of the area for over 11,000 years. Archeological evidence in Grapevine Canyon extends back over 5,000 years. There are over 25 documented archeological sites in Grapevine Canyon. These sites include rock shelters, rock circles, rock walls, and cairns or collapsed cairns, food procurement and processing sites, lithic procurement and processing sites, dumps, campsites, habitation sites, and a quarry (Bergstresser 2009, NPS 2010). The number of rock shelters within the approximately 7.5-mile canyon suggests that the canyon was a well-known and often travelled corridor. Evidence from both shelters indicates they were habitation sites as well as repeated use campsites likely used during resource procurement activities and

as way stations while traveling from the valley in the west to the desert in the east (Johnson 2006).

The Timbisha Shoshone (also referred to as the Panamint Shoshone), who are descendants of the Mahunutsi, ranged from east of the Grapevine Mountains including the Sarcobatus Flat, Beatty, Lida, and Yucca Mountain; south, including the San Bernardino Mountains and Mojave Desert; and west to the White Mountains. Residence in the area was fluid as people migrated in family groups following a seasonal collection of ripening foods in different locations—alternating winter residency among winter villages (Johnson n.d.). The people from Grapevine Canyon are in the region defined as the Northern Death Valley District. This district contained three winter villages, of which Mahunu was the largest (Steward 1938, Johnson 2006). With acquisition of property in the Death Valley area by settlers and the introduction of wage labor associated with mining and construction activities, the way of life for Native Americans changed. Those who accepted wage labor largely remained within their traditional geographic areas and they continued to travel traditional routes for ceremonies, family visitations, and hunting (Sennett 1996).

Early Expeditions

The first documented European Americans in Death Valley were mining prospectors who crossed the area in 1849 and who likely spread reports of mineral resources in the area to others. There is no known documentation of European Americans in the Grapevine Canyon and Grapevine Springs areas until the mid-1860s when prospectors D.E. Buel and Joseph Todd traveled from water source to water source along the western flank of the Grapevine Mountains. One of the springs depicted on Todd's map was Bonner Springs, which is now known as Grapevine Springs. In the 1860s, there was an escalation in interest in the Death Valley region, largely due to the 1859 development of the Comstock Lode (Livingston 2009:52, Bergstresser n.d.). Several recorded prospecting expeditions in the Death Valley area took place in the 1860s. The 1866 Blasdel Expedition was led by Nevada Governor Henry G. Blasdel to find the fastest route from Silver Peak to the Pahranagat mining district. Armed with information and a map from members of the earlier Todd party, Blasdel took a prospecting detour into Death Valley, and upon reaching Bonner Springs renamed it Mound Springs. Blasdel's party camped at the springs and recorded encounters with the local Timbishas. In 1869, prospectors led by George Miller and W.H. Rhodes also came through the area (Levy 1969:88).

Accounts documenting early use of a trail to pass through Grapevine Canyon include the 1872 excursion by Von Schmidt (Levy 1969:88), the Wheeler Survey Party in 1875 (Levy 1969:83), the 1891 U.S. Biological Survey Death Valley Expedition, and the 1905 U.S. Geological Survey (USGS) geological mapping expedition. There were likely many unrecorded excursions into the area as well that traveled the natural corridor and trail system. Lieutenant Birnie of the Wheeler Survey noted that there were only two passes through the Grapevine Mountains—Boundary Canyon and Grapevine Canyon (Johnson 2006, Levy 1969:88). During these early excursions, Native Americans were often hired as guides or were consulted for directions. The result of these encounters was the use and recordation of the trails and travel corridors used by the native population (Johnson 2006). As miners, settlers, and explorers continued to use the Native American travel routes in Death Valley, the trails in Grapevine Canyon were more heavily used.

Early European American Settlement in Grapevine Canyon

Between the 1880s and the 1920s, the one-time Native American trail through Grapevine Canyon became a wagon road as more European Americans passed through the Grapevine Mountains. Circa 1880, Jacob Steininger settled in Grapevine Canyon and started farming. He claimed both the springs in Grapevine Canyon and Grapevine Springs in Lower Vine where the Mahunutsi camps and the best sources of water

in the area were located (Feierabend 2006). After leaving Nye County, Nevada, where he was involved in violent land disputes, Jacob Steininger settled in Grapevine Canyon where he grew grapes and other fruits and vegetables. He likely sold produce to miners and travelers passing through on the wagon road that bisected his farm and connected the Ubehebe mining area with Sarcobatus Flats (Livingston 2009: 27). Steininger's friends, George Nichols and Jim Caldwell, visited him in 1886 and documented their visit in the *Daily Nevada State Journal* in 1891 where they recounted that they arrived at the ranch after following 5 miles of "miserable road, sandy, rocky and cut up by washes" (recorded in Livingston 2009: 27).

The springs in Grapevine Canyon appealed to other European American settlers. Early 20th century settlements in the nearby areas played a major part in the development and use of the road through Grapevine Canyon. The closest town to the Grapevine Canyon was Bonnie Clare, Nevada, which was located approximately 20 miles from the end of the canyon. Bonnie Clare was built in what was a late 19th century gold mining area. There was a road connecting Las Vegas with the gold mines in Tonopah to the north, which had a branch extending to the west through Sarcobatus Flats (a large, dry lake) to the top of Grapevine Canyon. Thorp's Well and Bonnie Clare, 4 miles north of Thorp's Well, were on the edge of the flats. In 1904, the Bonnie Clare mill was constructed near the Thorp stage station and the post office was built in 1905. Called the Montana Station at first, the post office name was later changed to Bonnie Clare in 1909, which was the last accepted spelling of the name (Southworth 1996). The owners of the Bullfrog Goldfield Railroad platted the town of Bonnie Clare in 1906, and in 1907 construction began on a line connecting Las Vegas and Tonopah with a depot in Bonnie Clare built the same year. The town's economic prosperity was dependent on the local Ubehebe mining district, which like most mining districts, had wild boom and bust cycles of activity (Sennett 1996). Later, the construction of Scotty's Castle from 1922 to 1931 provided the last boom for the town (Livingston 2009).

Contributing to the population of Bonnie Clare was the railroad that connected western Nevada population centers to the ore mines. The nearby railroad spurred the mines in the Ubehebe area to turn their attention and traffic east through Grapevine Canyon. Prior to the railroad in western Nevada, mines in the Ubehebe area shipped ore west to the Owens Valley rail connections (Livingston 2009:44). As the copper mines boomed, there was much talk among investors of putting in a railroad through Grapevine Canyon. The Kimball Brothers' Bullfrog Stage and Transfer Company began a weekly stagecoach route between Ubehebe City and Bonnie Clare, with a stop at Grapevine Springs. The description of the road's condition widely varied depending on who was writing about the route. When the local mining economy collapsed, plans for a railroad through the canyon were dropped, but the roadway continued to see substantial use (Livingston 2009:44).

As settlers continued to move into the area in greater numbers at the turn of the century, Jacob Steininger had difficulty keeping squatters off his Grapevine Canyon land, including Walter Scott, and between 1904 and 1907 the Steininger land began to pass through several transactions and was ultimately owned by Ben Yandell. By 1907, another couple (Mr. and Mrs. Davis) had established a residence just east of the Steininger Ranch, next to one of the springs that consisted of a tent-like home, corral, and gardens (Livingston 2009:33). There was also documentation of a camp area north of what later became Lower Vine Ranch (ibid: 35-36). Ben Yandell died in 1913 and the property again went through several transactions in 1916 and 1917, which ended when Albert Johnson acquired the land. Johnson had camped on the property with Walter Scott for nearly 10 years (ibid:38).

Walter Scott and Albert Johnson

Walter Scott was born in Kentucky in 1872 and left home at 11 to join his brothers on a ranch in northeastern Nevada. Scott was a skilled horseman and easily found work in 1884 on a horse drive to

California. He then took a job helping to survey the Nevada-California border. During the survey, Scott experienced Death Valley and jumped at the chance in 1885 to work at the nearby Harmony Borax Works. He worked on the 20-mule teams hauling borax for a few years before he took a job with the railroad. In 1890, at the age of 18, Scott joined Buffalo Bill Cody's Wild West Show as a stunt rider (Paher 2010).

Walter Scott traveled the world with the Wild West Show. After getting married in 1900 in New York, Ella Josephine Milium ("Jack") and Scott moved to Colorado where he tried gold mining. After failing, Scott attempted to return to the Wild West Show but Buffalo Bill Cody ended Scott's career with the show in 1901 after an argument. Scott then borrowed two gold nuggets and, using his natural showmanship, convinced investor Julian Gerard the gold nuggets had come from his mine in Death Valley. Gerard agreed to provide Scott with a "grubstake" (an advance to pay for the mining operation) in his gold mine in Death Valley. Scott returned to California where he sent Gerard news of the mine's success but never any gold. In 1904, Scott supposedly was bringing Gerard $12,000 in gold dust to Philadelphia when he was robbed on the way (Paher 2010).

A whole series of publicity stunts followed including Scott's setting the fastest time by train from Los Angles to Chicago. This stunt earned him the name "Death Valley Croesus" from the press, but when he allegedly signed a hotel register "Scott, Death Valley" he was redubbed "Death Valley Scotty," a name that stuck for life. Scott's fame and natural exuberance attracted other investors seeking a grubstake in his mines, including Albert Johnson, a wealthy insurance executive from Chicago. Other exploits that brought Scott fame included a car wreck, a month-long disappearance in Death Valley, and a mysterious gunshot wound to the upper thigh while riding alone in Death Valley (Paher 2010).

Born in 1872 to a wealthy Ohio industrialist, Albert Johnson obtained an engineering degree in mining and married Bessie Penniman in 1896. In 1899, Johnson and his father were in a train accident in Colorado that killed his father and left Johnson seriously injured with a broken back. Unable to continue in the mining industry, Johnson and another investor bought the National Life Insurance Company in Chicago in 1902. However, in 1906, after having provided grubstake funds to Walter Scott for two years and beginning to worry about his investment and Gerard's role as a competing investor, Albert Johnson set out on an expedition with Scott to see the mine. The trip turned out to be another Scott publicity stunt. Scott hired people to go ahead of the group and "attack" them. In the confusion, Scott's own brother was shot. After the incident, the media turned on Scott as a fake and Scott's own brother brought charges against him. The charges were later dismissed and Scott was somehow able to keep the myth of his gold mine alive (Paher 2010).

In 1909, Johnson went back to Death Valley, spending a month in the area with Scott. Johnson realized there was no mine but enjoyed Scott's company and the benefits of the desert environment on his frail health. When he was sued in 1912, Scott was compelled to admit in court that he never had a gold mine and he was discredited. After that, he spent his time in his cabin in Lower Grapevine Canyon entertaining Johnson who visited on a regular basis and who provided Scott with a small monthly stipend of $30 (Paher 2010). By all accounts, Johnson was a religiously devout, quiet, private person, the exact opposite of the loud and rowdy Scott. Stories about Scott include accounts by local people who said Scott would go to Hollywood on three week drinking binges (McCracken 1988:23-25) and who said they had seen him sitting in the middle of the road to Scotty's Castle too drunk to stand with his Franklin off in the ditch (McCracken 1987a:19). Other local accounts recognized he was a "flim-flam artist" and "bull-shooter" but also as someone who brought Death Valley its notoriety (McCracken 1987b:50).

Regardless, Johnson enjoyed Scott's stories and companionship. A letter written by Johnson's construction supervisor may shed some light on the sincerity of Scott's true nature toward Johnson. In

1930, as Johnson was facing a financial downturn and had to start laying-off local Timbisha laborers from ranch construction, Scott instructed the construction supervisor to say that it was he who was running out of money and not Johnson (NPS File No. MSS7).

Scotty's Castle

Initially after Albert Johnson purchased the former Steininger property in 1917, he and Walter Scott (and sometimes Johnson's wife Bessie) camped in wood-sided tents where the Jacob Steininger Ranch was located. In order to accommodate Bessie, Johnson ordered the construction of permanent quarters in 1922. The first three structures were rather plain, box-like buildings. The house was a two-story, 32 ft. by 96 ft. structure with stucco exterior; however, the interior featured the most innovative technology of the day including a personal ice-maker/freezer, indoor plumbing, and a gas stove. Other early structures were the cookhouse and the garage. As the structures took shape, talk of Scott and his gold mine once again surfaced. Johnson preferred to be thought of as Scott's banker and took a back seat allowing Scott to thrive in the media attention (Paher 2010). This ultimately resulted in people referring to the ranch as Scott's property and it became known as Scotty's Castle.

In 1925, Johnson began a more impressive building program that lasted until 1931 when his insurance business failed as a result of the stock market crash and subsequent economic depression. Johnson's building program included a major renovation of the first three buildings and construction of additional buildings and structures at the officially named Death Valley Ranch. Charles Alexander MacNeilledge was hired to design the Spanish Provincial style complex and Matt Roy Thompson was hired to oversee the construction of the lavish ranch house (Shalley and Bolton 2000, Paher 2010).

Johnson's generosity to Scott continued when in 1930 he constructed a separate ranch, at Lower Grapevine Springs for Scott, complete with house, indoor plumbing, garage, grain shed, corral, and blacksmith shop. Scott lived at the Lower Vine Ranch until 1952 when he moved to the Death Valley Ranch where he lived until his death in 1954 (Paher 2010).

The unskilled construction labor force at the ranch mostly included the local Timbisha Shoshone and some Southern Paiutes who stayed at Indian Camp to the east of the construction area. These workers were generally employed year-round with the exception of August when construction paused during the hottest time of the year (Sennett 1996). Skilled laborers were generally white and were less consistent in their employment at the ranch. This may have been because skilled labor was not required on a consistent basis (Sennett 1996) or because the isolation of the area created a high turnover rate (Paher 2010).

Much of the material used to construct Death Valley Ranch, minus the aggregate for the concrete, had to be shipped to the area via railroad. Until early 1928, supplies were sent by rail to Bonnie Clare, located approximately 25 miles east of the ranch, and then brought to the construction site via the dirt road through Grapevine Canyon connecting Death Valley Ranch with Bonnie Clare. Rail service to Bonnie Clare was terminated in 1928 and in anticipation of the closure, Johnson ordered tons of materials to be stocked on the loading docks at the rail station until they could be delivered to the ranch (Shalley and Bolton 2000; Paher 2010). After the rail line to Bonnie Clare was closed, materials were shipped to Beatty, Nevada, where they were carried by truck to the ranch via the road through Grapevine Canyon. Johnson purchased 70 miles of railroad ties from the closed rail line, which he then collected on the ranch and used for fuel (NPS DEVA File No. MSS7). Later, Thompson informed Johnson in a construction update dated October 16, 1930, that he was dragging the former railroad grade at a rate of 3 miles a day to make a better road to Goldfield (NPS DEVA

File No. MSS7).

As Johnson was constructing his vacation retreat, others were investing in tourism-related endeavors in the region as American automobile use increased throughout the nation. The U.S. Borax Company established the Furnace Creek Inn in 1927, and built roads in the area to provide easy access to the valley. Herman Eichbaum built a toll road from Darwin into Death Valley affording access to the area from Los Angles. He then built the Stovepipe Wells Hotel and extended the toll road from Stovepipe Wells to Furnace Creek and Beatty, Nevada. Eichbaum realized that places like Ubehebe Crater and Scotty's Castle were also desirable tourist destinations and built a toll road from Stovepipe Wells to Grapevine Canyon in 1929. In 1930, Nevada built State Road 5 (today known as Highway 95) connecting Beatty with Tonopah, Nevada. Thompson used a caterpillar to grade Bonnie Clare Road all the way to the newly constructed State Road 5, which became a travel and trade corridor connecting California and Nevada. These new and improved roads and new accommodations, combined with the outlandish reputation of "Death Valley Scotty" and his claims to riches, stories about desert thieves, and claims that he owned the luxurious complex attracted tourists to Death Valley Ranch (Livingston 2009:143). By 1930, the ranch had become a tourist destination; free informal tours were given by the Johnsons when they were in residence until 1931.

By 1931, Johnson had remodeled the three original buildings; constructed a grand entrance gate; built an innovative solar heating system; manufactured and installed some 14,000 concrete fence posts around both Death Valley Ranch and Lower Vine Ranch; produced and installed concrete drainage pipes; placed underground tunnels through the complex and put a basement under the main house; added an annex to the main house; installed a theater-sized pipe organ; constructed a guest house, service station, power house, swimming pool, chimes tower, bunkhouse, and stables; rerouted the road from the center of the canyon to the south side of the canyon in the vicinity of the ranch; and implemented a landscape design that included water courses and large boulders with petroglyphs (Livingston 2009, Paher 2010, Shalley and Bolton 2000). Some of these projects were left unfinished including the swimming pool, the basement, the entrance gate, and the chimes tower (Paher 2010, Shalley and Bolton 2000). Construction on Death Valley Ranch ceased in 1931 after Johnson's insurance business in Chicago started to fail and his rayon mill, a costly $2 million adventure, never opened. The ranch was closed to tourists in 1931 when construction was halted.

Death Valley National Monument was created in 1933, and that same year Johnson began using his political connections to retain ownership of his ranch. Before this time, when the federal government had surveyed the Death Valley region in anticipation of creating a national monument in the area, Johnson realized that because of a 1890s surveying error, the land he actually owned was approximately a mile away from the location where he built his vacation home. In 1935, a bill passed in Congress that allowed Johnson and Scott to purchase the 1,500 acres on which Death Valley Ranch and Grapevine Springs/Lower Vine Ranch were built for $1.25 per acre. When the castle reopened in 1936 guided tours cost $1. During the 1936-37 tourist season as many as 130 tourists a day paid to visit the facility (Shalley and Bolton 2000, Paher 2010). The land transaction was completed in 1937 after a survey of the property was completed and Johnson made the purchase (Paher 2010).

After Albert Johnson lost his insurance company due to the economic depression, he sold his home in Chicago and relocated to Hollywood. However, he and Bessie spent much of their time at their vacation home in Death Valley. As tourism at the ranch increased, the Johnson's began renting rooms at what was by then referred to as Scotty's Castle. In 1943, tragedy struck when Bessie Johnson was killed in an automobile accident. Always a religiously devout man, Johnson founded the Gospel Foundation of California in 1946 for the purpose of running the ranch. Johnson died in 1948 and the Gospel

Foundation continued to maintain the ranch and offer tours of the home. Scott continued to live at Lower Vine Ranch until 1952, when his health required that he move into the Castle. Scott died in 1954 on his way to Las Vegas for medical care (Phaer 2010, Shalley and Bolton 2000).

The Gospel Foundation continued to allow overnight accommodations until the 1960s when it began negotiations with the monument to sell the ranch. The 1965 Land and Water Conservation Act provided funds for the purchase of the facility in 1970 at a cost of $850,000—the price Johnson had offered the National Park Service in 1944. The Gospel Foundation donated the furnishings to the monument allowing the facility to look today as it did when the Johnsons were in residence (Paher 2010).

PHYSICAL HISTORY

The following narrative was adapted from the January 20, 2011 draft National Register nomination for the Bonnie Clare Road that was prepared by Kari Carmany-George of Aarcher, Inc.:

1860s to 1929

Initial European American excursions into the Grapevine Canyon area often employed Native American guides, who utilized the trails they had traveled traditionally. Maps of the area were published as a result of these early expeditions, which were then used by the miners, settlers, and explorers that came in the latter part of the 19th century. A wagon road emerged in Grapevine Canyon, along which Jacob Steininger established a farm in the 1880s at what is the current location of Scotty's Castle. Although early maps depict a road through Grapevine Canyon, it is not possible to determine the road's exact alignment. By the 1920s, the road through Grapevine Canyon took a north-of-center route through the Jacob Steininger farm (figure 1).

At the turn of the twentieth century, as demand for electrical technology increased, the price of copper began to climb and the Ubehebe mining region to the west of Grapevine Canyon experienced a renewed boom. The wagon road from Bonnie Clare to the Ubehebe mining district was improved to accommodate automobiles by Jack Salsberry (who was associated with Ubehebe Copper Mines and Smelter Company of Chicago) in 1906; however, there is no information regarding what, if any, work was done on the portion of the road that passed through Grapevine Canyon. Initial plans were made for a railroad spur from Bonnie Clare to the Ubehebe mines through the canyon, but those plans were waylaid by another economic slump. The Kimball Brothers' Bullfrog Stage and Transfer Company used the road on its weekly route from Bonnie Clare to Ubehebe City. There are conflicting reports regarding the quality of the road through the canyon from "very bad" to "good." These varying descriptions are likely due to the time of year the traveler experienced the route and the degree to which the road had experienced washouts (Livingston 2009). The varying descriptions may also be a reflection of the biases of the recorders' expectations. A 1906 map in National Geographic magazine showed the road's general alignment (figure 2). A 1913 topographic map of the area showed the road, but as with the 1906 map, it is not to sufficient scale to relay the exact alignment. Both early maps show the road largely following the curving canyon floor, and the road alignment likely shifted through time due to rock slides, washouts, and other naturally occurring changes to the canyon.

During this early historic period of Bonnie Clare Road, it was a heavily used travel corridor that linked the mining areas to the west with the railroad to the east of Grapevine Canyon. After a 1913 boom, mining in the Ubehebe area slowed down and the next flurry of economic activity in the area after Albert

Johnson's purchased property in Grapevine Canyon in 1917. Albert Johnson's construction of Death Valley Ranch in Grapevine Canyon began in 1922 and lasted until 1931, with the most intense activity occurring from 1926 to 1931. Until it was closed in 1928, Johnson shipped all required building materials to Bonnie Clare for transport overland via Bonnie Clare Road to his ranch (Paher 2010, Shalley and Bolton 2000). The late 1920s also saw an increase in tourism in the area with the Stovepipe Wells Hotel and Eichbaum's toll road extending up to Grapevine Canyon attracting more people. As a result, Bonnie Clare Road became more heavily used as an access to the attractions in Death Valley, including Scotty's Castle and Ubehebe Crater. Bonnie Clare Road through Grapevine Canyon was a native dirt road in the 1920s. As with most dirt roads through remote areas, the intent of the early road alignment was to find the path of least resistance through the canyon. A close examination of the early photographs (Appendix A) shows a narrow "two-track" dirt road threading through the upper portion of the canyon, winding around large obstacles, and avoiding the canyon wash that follows roughly the same alignment as the present day road.

1929 to 1933

In 1929, as the federal government began to explore the development of a national monument in the area, Albert Johnson decided to reroute Bonnie Clare Road away from his property. The public road was relocated using a power shovel from the middle of Johnson's property immediately in front of his house to outside the boundary fence of his private property. It is likely this decision was prompted by several factors. This realignment ensured that Johnson's property boundary encompassed the entire level acreage of the canyon floor as well as the spring at the southern part of his boundary (Cottonwood Corner). The new road alignment ensured that the public road, which would be heavily used by visitors in the future, did not cut into Johnson's private property (Livingston 2005:19). Johnson's letters to his construction supervisor, Matt Roy Thompson, demonstrate that Johnson was very conscious of the importance of claims to water and water use rights. He laid claim to the water resources at Death Valley Ranch by harnessing the springs to produce electric energy for his home (NPS DEVA File No. MSS7).

Figure 3 illustrates the approximate location of Bonnie Clare Road as it passed through the canyon at Death Valley Ranch prior to 1929. There are no plans or detailed maps of the road realignment from this time period. However, information on the realignment may be deduced from historic photographs of the area and NPS administrative reports. According to historic photographs (Appendix A), the new road was of dirt construction and appears to follow a similar alignment as the wagon road that existed in the canyon when Johnson began construction on his property. The one major construction effort required to realign the road outside of Johnson's property was located along the canyon wall at the new entrance to his property. This section of road realignment required digging into the canyon hillside opposite the new entrance gate. The material cut from the canyon wall was used to raise the roadbed for the new Bonnie Clare Road at the approach to the new entrance. In 1930, the crews focused on the portion of the road west of the gate, using a power shovel to remove hillsides and for the heavy grading work (Livingston 2009:257, DEVA MM7). Figures 4, 5, and 6 clearly show the road before and after it was raised in the area's approaching the entrance gate.

At the west end of the ranch, the road was purposefully designed to dam a spring at what is now called Cottonwood Corner (Johnson and Thompson referred to it as S corner). When building the road in this area, the construction crews encountered another spring in the new road alignment. In order to fix the problem, the water was piped through 50 feet of 6-inch tile buried 3 feet deep to the east, inside the fenceline on the Johnson property (NPS DEVA File No. MM7). Although road construction activities under Johnson's direction appear to have involved the greatest degree of cut and fill to have occurred along the road up to that time, the majority of the new road alignment was dictated by natural features

within the canyon, including the springs and natural waterways and the canyon walls and slopes. The remaining road beyond Johnson's property boundary followed the existing wagon road alignment.

There is little information regarding the extent of the work performed by Johnson's work crews along the road outside the length of his property boundary beyond the few sparse notes by Thompson in his progress reports. Thompson reported in 1930 that the road was graded from Scotty's Castle to the newly constructed State Route 5 (Livingston 2005:19). The Johnson era of construction of Bonnie Clare Road was finished in 1930 just before Death Valley Ranch was closed to visitors in 1931.

1933 to 1947

Death Valley National Monument was established in 1933 by President Herbert Hoover. Colonel John White, the superintendent of Sequoia and General Grant national parks, was given oversight of the new property. Since the monument was established during the Great Depression, general improvements in the monument were undertaken by federal works employees. Shortly after the monument was established, President Franklin D. Roosevelt took office and created the Civilian Conservation Corps in March 1933. The Depression-era program provided thousands of unemployed men with work on federally funded projects. Initially, two CCC camps were established within Death Valley National Monument, both located at Cow Creek. The laborers were assigned construction tasks by T.R. Goodwin, the engineer in charge at the monument (Livingston 2009: 322). The infrastructure improvement and construction activities, including road improvements and construction that occurred in the monument until 1942, were undertaken by CCC crews (NPS DEVA File No. 30227). When the CCC was disbanded in 1942 because of the United States' involvement in World War II, few major improvements were made to the monument until after the war ended.

Monthly reports by Death Valley Monument superintendents beginning in 1933 regularly documented heavy tourist visitation at Scotty's Castle and the ongoing battle to keep the road in good condition to accommodate those visitors to the monument and those who were also visiting Ubehebe Crater and Stovepipe Wells. Two early CCC projects in the monument included realignment and reconstruction of the road leading from Stovepipe Wells to Scotty's Castle and Lower Vine Ranch, and the improvement of the road from Scotty's Castle to the monument boundary. One of the first CCC projects in the monument was the repair of the road in Grapevine Canyon after a late summer cloudburst washed out a portion of the road in September 1933. The road project in Grapevine Canyon began in December 1933 and was completed in February 1934.

Letters exchanged between John White, T. R. Goodwin, and F. A. Kittredge (the chief engineer under Colonel White) provided the underlying philosophy regarding development of roads within the monument. Goodwin was in favor of road alignments that were the least intrusive on the visual landscape and that followed the natural contours of the land rather than long straight lines. In a letter to White on February 21, 1934, Goodwin explained:

> *"He (Mr. Kittredge) also is quite in accord with our ideas in holding construction close to present natural ground, with rolling grades and fitting the country, rather than slashing through long tangents and heavy cuts and fills, which the Bureau would demand of a major project"* (NPS DEVA File No. 30565).

Goodwin went on to write:

> *"General road construction is extremely simple and as it is the policy of the Superintendent and the Chief Engineer to fit roadways closely to the natural terrain and*

> *use a moderate rolling grade throughout, practically all the major highways can be constructed by grader and bulldozer equipment with Park forces, very inexpensively and rapidly as the need requires. Most of this material is self-surfacing and requires only removal of oversize to make splendid oil cake. Banks of graded material are everywhere available for surfacing areas of clay or fine sand where encountered…*" (NPS DEVA File No. 30468).

This philosophy was demonstrated through a five-mile portion of the road through Grapevine Canyon. Minimal construction was undertaken by CCC crews on Bonnie Clare Road, as was the case for the majority of park roads at this time. Figure 7 depicts a caterpillar and grader being used during road construction at the monument. Although it is never specifically stated in the reports, it can be assumed from Goodwin's statements, the type of equipment discussed in the reports, and the short duration of time the CCC crew initially spent working on Bonnie Clare Road that it remained a minimally improved dirt surfaced road. Plans for the 1933 to 1934 CCC repair of Bonnie Clare Road were not found. However, Goodwin noted in his monthly memo to White in February 1934 that the "road has been graded, boulders blasted from the road bed, curves daylighted, mills made, and road work completed" (DEVA 30438). This description of work indicated that moderate earth work was undertaken to reconstruct the road. Since the work along Bonnie Clare Road in 1933 and 1934 was completed in two or three months, it is unlikely that significant change was made to the road alignment or to the canyon walls, rock faces, and slopes along the road. It is likely that Indian Camp, which is bisected by Bonnie Clare Road, was damaged by this road work (Johnson, 2006:34-35).

After the Bonnie Clare Road reconstruction work was completed, there were heavy spring rains in March 1934, which washed out portions of the road. Cloudbursts and washouts were a continuous problem at the monument, as there were four separate storm events recorded in the superintendent reports that noted damage to the road. In the 1930s, storm damage to the road was recorded in the superintendent's reports for December 2, 1933, March 4, 1934, and August 4, 1936 (NPS DEVA Files at Cow Creek). Heavy rains and heavy traffic to Scotty's Castle resulted in the need for continuous maintenance of Bonnie Clare Road, which usually involved grading the road surface to allow all types of traffic to use the road. The road repairs were done with relative speed indicating there was no major road reconstruction work at that time. The repairs to Bonnie Clare Road were a priority for the park because, as Goodwin noted in 1936, "[Bonnie Clare Road] is heavily travelled, as Scotty's is the goal of nearly all visitors to Death Valley" (NPS DEVA File No. 30565).

In addition to road maintenance concerns, letters regarding the establishment of the Johnson property boundary in Grapevine Canyon revealed that as early as 1937 there were concerns about the tight, narrow curves along Bonnie Clare Road. As the property boundary for Death Valley Ranch was being negotiated and surveyed, NPS Regional Director Kittredge agreed to use Bonnie Clare Road as the southern boundary as long as the boundary was, "so described that curves of reasonable radius may be secured" (NPS DEVA File No. 30599). At the same time, Goodwin, now the superintendent of Death Valley National Monument, began arguing that the continuous road maintenance and damage to Bonnie Clare Road caused by heavy traffic and storms may be relieved if the road were oiled as a preventative. No funds were allotted to oil Bonnie Clare Road in 1937 (Livingston 2009:324). An oiled surface treatment became the major impetus for designing a completely paved route that utilized the current alignment of Bonnie Clare Road to link Ubehebe Crater Road Junction to the Nevada state line (NPS DEVA File No. 30227).

There were no funds during the 1930s to implement paving of Bonnie Clare Road or many other roads in the monument. During the United States' involvement in World War II, little work was completed on the roads in the monument because the majority of federal government resources went toward the war effort.

The CCC was eliminated and left the park in May 1942. Goodwin proposed that the owners of Scotty's Castle maintain Bonnie Clare Road themselves since the park did not have funding for clearing debris from the road after each storm. This was a stopgap measure until park staff could undertake major improvements on the road, which were slated to take place as soon as a federal moratorium on construction, which developed due to World War II, ended (Livingston 2005:22).

After World War II, road improvements were made as funding became available. The only road repair to be noted immediately after the war was the repainting of the guard posts in 1945 (NPS DEVA File No. 30226). The superintendent's report in April 1946 noted that the Nevada highway department repaired Bonnie Clare Road from Highway 95 to Scotty's Castle, but the 3 miles of roadway from Scotty's Castle west to Ubehebe Crater Road Junction were in poor condition because, "it requires 100 miles of dead heading of a grader to spend a day's work necessary to regrade this short stretch. It was bladed once during the month, but the heavy traffic would require daily working to keep smooth, and we have neither men, equipment, nor funds to tie up" (NPS DEVA File No. 30225). The following month's report noted the road had been "regraded as thoroughly as possible without major reconstruction" (NPS DEVA File No. 30225) indicating that the road was in very poor condition. A storm damaged Bonnie Clare Road in August 8, 1946. This was the last major storm before rehabilitation efforts took place along the entire length of the road.

1947-1951

Incremental repair work and grading of Bonnie Clare Road had been undertaken during the 1930s and the majority of the 1940s. The monument began planning for the rehabilitation work of Bonnie Clare Road in the late 1940s, as funds were once again allocated for park infrastructure. Work was undertaken in two sections, starting with the western half of Bonnie Clare Road from Ubehebe Crater Road Junction to Scotty's Castle, which was followed by the rehabilitation of the road from Scotty's Castle to the monument boundary to the east. With both segments of work, planners utilized the existing alignment as much as possible to have a light footprint on the canyon setting.

The first major work to occur on Bonnie Clare Road focused on the segment of road between Ubehebe Crater Road Junction and Scotty's Castle. This section of road was the most traveled as visitors from the park most often arrived at Scotty's Castle from the valley floor rather than crossing the Nevada state line into the monument from the east. This work was followed by a design by monument staff to reconstruct the segment of road between Scotty's Castle and the Nevada state line. This segment of road took careful consideration because of the narrowness of the canyon at this point of the road. The combination of the two construction projects completely improved the road so that visitors could have another access point to the park, while also being designed to allow the traveling public to experience the scenic uniqueness of the canyon.

The impetus for rehabilitation of the road began with work done by the State of Nevada. General repairs were made to the Bonnie Clare Road from the monument boundary to Scotty's Castle in February of 1947 by the Nevada State Highway Department. By June of that year a monument work crew began surface improvements to the entire length of road. The first segment of Bonnie Clare Road to be improved was described superintendent's reports from September to November 1947, indicating that a 3-mile section of Bonnie Clare Road between Ubehebe Crater Road Junction and Scotty's Castle received surface improvements that were described as being "…a real boon to visitors to Scotty's Castle as well as a heavy saving in maintenance costs in the future" (NPS DEVA File No. 30225).

Additional rehabilitation work was described in a December 9, 1948 superintendent's report, which noted,

"Work was completed on the road from Ubehebe Crater Road Junction to Scotty's Castle by a covered seal coat with screened material. This road had been badly broken up under last winter's traffic and was a succession of dangerous holes. Repairs to the old surface were made before sealing. Patching was also carried on all over the road system" (NPS DEVA File No. 30225). It was likely the "seal coat with screened material" applied in 1948 resulted in the "base-sealed road" that was labeled on a 1949 map of the monument. According to a 1951 map of the road system at Death Valley National Monument the portion of Bonnie Clare Road west of Scotty's Castle to Ubehebe Crater Road Junction was labeled as "paved" with a low type bituminous treatment.

Most rural road paving during this era consisted of macadam paving which was composed of a crushed gravel base with a tar mixture sprayed over the gravel base as a way to bind the gravel in place, rather than using modern day techniques of asphalt which mixes the aggregate and binder together before being rolled in place over the road base. Based on Goodwin's 1934 description of dirt roads over the native gravel, the seal coat was likely placed directly over the existing graveled dirt road. Interestingly, the 1951 proposed drawings for the section of Bonnie Clare Road from Scotty's Castle to the Nevada state line label the existing road as a dirt road, which seems to indicate that the paving that occurred in 1948 did indeed stop at Scotty's Castle.

There are no plans for the 1948 work on Bonnie Clare Road, which suggests that the paving work was largely based on the existing alignment of the road. Since the canyon is quite wide between Ubehebe Crater Road Junction and Scotty's Castle the alignment of the road did not curve around the canyon walls as was necessary in the eastern portion of the canyon beyond Scotty's Castle. This open topography in the western end of the canyon made it is rather straightforward process in 1948 to pave the road without having to design around existing tight curves. The one tight curve that did exist was at Cottonwood Corner, but there is no mention of this curve in any of the 1948 descriptions of paving work.

In contrast to the paving work that used the existing alignment at the western end of the canyon, plans for the 1951 rehabilitation of an approximate 4.9-mile section of Bonnie Clare Road from Scotty's Castle to the monument boundary called for realignment of some sections of road in order to create safer curves. This project was funded in 1950 in part because the State of Nevada proposed to pave the highway to the monument boundary, while NPS received money through an appropriation for construction from the monument boundary to Scotty's Castle (Livingston 2005:23). The 1951 work was to be completed by NPS crews based on a set of designs produced by the Department of the Interior (Appendix B). As-built drawings for the 1951 road rehabilitation project were not discovered. The typical cross-section (figure 8) included in the proposed plan set called for the road to be covered with 2 inches of bituminous mat or road mix with the materials being locally crushed and for some realignment of the road to reduce the number of sharp curves and to widen the road paved surface to 20 feet, with three foot unpaved shoulders and a two foot wide unpaved drainage ditch on the cut side of the road bench. The typical cross section also show a 1.5 to 1.0 embankment slope, which does not exist along much of the road. As-built drawings for the 1951 road rehabilitation project were not discovered.

The alignment of this eastern segment of Bonnie Clare Road was debated among park personnel. Kittredge was in favor of eliminating the sharp curves in the dirt road citing that people traveling faster on the new surface would need 300-foot radius turns. He believed a better alignment was preferred, even if more grading was required to accomplish the goal and he called for a 1.5 to 1.0 embankment slope (NPS DEVA File No. 30600). Mr. Sanford Hill, assistant regional director for Region Four, pointed out that, "The road alignment, of necessity, follows the wash down Grapevine Canyon and is strictly limited as to grade and alignment by the precipitous rock of the canyon walls, as well as rocky points and the fence around the property of Scotty's Castle. To build curves of longer radii would require…the road being built

in the steep canyon walls which would require bench sections in solid rock. This would seriously scar the canyon walls and detract from the natural beauty of the landscape along this entrance route" (NPS DEVA File No. 30600). Park staff believed that the scenic canyon setting would cause visitors to slow down as they viewed the scenery (Livingston, 2005). Hill's assessment clearly reflected the philosophy of NPS design ethic that began with park rustic design of the 1930s, which was the philosophy adopted during Mission 66, as park planners and designers looked for ways to minimize the visual presence of road corridors.

The proposed road design called for minor realignment to smooth out the existing curves in the roadway and increasing the width of the road. The purchase requests for the work included powder, exploders, and drill bits (NPS DEVA File No. 30600) and the proposed plans show both the existing dirt road and the new proposed road, which indicated that several sections of the road were proposed for realignment that required removal of some small sections of canyon walls. Work on this section of road started on November 14, 1950 and included drilling, blasting, and grading (Livingston 2005:23). By December of 1950 the canyon walls had been cut and the eastern two miles of the road segment under construction was open to the public. It is likely that Indian Camp was disturbed by this work since the road bisects this site (Johnson, 2006:34-35). By February of 1951 the grading and blasting work was completed and paving followed in April through June. Some abandoned sections of dirt road became informal turnouts where visitors parked cars to take pictures and explore the canyon adjacent to the road (Feierabend 2006). The road work was completed on June 1, 1951 (Livingston, 2005:24).

When compared to contemporary photographs, photos taken in the 1920s and 1930s along some portions of the road clearly show that some small sections of the canyon walls were blasted and removed to accommodate the road as it is today (Appendix A). Based on all of the information examined, the only evidence for the blasting and reshaping of rock faces and canyon walls was from the 1951 construction activity. However, the alterations of canyon walls to accommodate larger turning radii for the new road alignment were relatively minor resulting in shifts of road alignment in a few places of up to 120 feet.

When the road opened for traffic in June 1951, the July superintendent's report claimed a jump in attendance of 33.3% over the same month in 1950. Goodwin attributed the jump to the improved road to Scotty's Castle from the east. The completion of the road improved park circulation allowing people to enter from the northeast and travel south and west through the park. The 1947-1951 improvements to Bonnie Clare Road allowed visitors' easier access to Scotty's Castle and another viable way to access the park from the east.

1952 to Present

The work on Bonnie Clare Road that occurred after the 1947 to 1951 rehabilitation mainly consisted of repairing storm damage to the road and performing typical road maintenance work. The superintendent's reports from 1952 until 1969 documented road work within the monument. While there were many instances of storm damage along Bonnie Clare Road, an analysis of historic aerial photographs from 1952, 1965, 1979, and 1982 (Appendix C) indicate that the road alignment has stayed the same as the end of rehabilitation efforts in 1951. Additionally, analysis of historic photos from the 1940s (the last era available that depicts the road) shows that vertical alignment of the road has stayed largely the same despite the instances of storm debris washing into the road. These key characteristics of the road were maintained throughout storm damage repair due to park maintenance crews removing the debris from the site and patching the road surface to maintain the travel way. The one section of road that has changed since 1951 is the section between Ubehebe Crater Road Junction and Cottonwood Corner. In this section the storm debris has washed out the road and the horizontal alignment of the road changed. In addition, the storm debris has built up along the side of the traveled way, obscuring the vertical alignment of the

road. Despite this change along the western end of Bonnie Clare Road, the road remains much as it was reconstructed between 1947 and1951.

The first post-construction maintenance seal coating of Bonnie Clare Road took place in June 1952, and was repeated in June 1953. There were many reports of patching and oiling on the "Highway to Scotty's Castle" and on "Scotty's Castle Road;" however, given the description of work, many of these repairs were likely made to the section of road from Stovepipe Wells to Ubehebe Crater Road Junction and not along the road within Grapevine Canyon. There were several times during the mid to late 1950s when portions of "Scotty's Castle Road" sustained storm damage and removal of gravels and/or patching was required. The October 7, 1954, administrative report described repair work was done to "clear up damage" from a July 25 storm (NPS DEVA File No. 30214). The June 9, 1958, report stated that "a motor grader was employed three days repairing storm damage" (NPS DEVA File No. 30212). The March 10, 1959, report indicated that "storm washed gravel was removed from…Grapevine Canyon," and the next month's report said a "patching crew worked on the worst sections of the Castle road (in Grapevine Canyon)" (NPS DEVA File No. 30212).

Besides maintenance repair work to the road surface and shoulders, there were a few designs developed to improve safety on the road, although these plans were not implemented. A 1957 project proposal included widening two curves along Bonnie Clare Road along the segment between Ubehebe Crater Road Junction and Scotty's Castle. A right of way requirement plan proposal was prepared in order to estimate the amount of property that would be needed in order to implement a design for curve realignment. However, the project was not implemented because the additional right of way for the curve realignment would have required privately owned land held by the Gospel Foundation (Feierabend 2006, aerial photographs 1979, 1982).

Throughout the 1960s, maintenance work was conducted along Bonnie Clare Road. In February of 1966, powerlines were installed to connect to Scotty's Castle and Grapevine Ranger Station. In October 1966, the spring adjacent to the eastern end of Scotty's Castle, which was located under the roadbed, was dug out, drained, the road bed was filled and the surface was patched. That same month, the road was striped (NPS DEVA File No. 30318). Additional maintenance work occurred in January 1967, as the superintendent's report documented, "Shoulders were leveled on five miles of the Grapevine road and inverted penetration was applied" and the center was striped (NPS DEVA File No. 30138). By September 1967 two storms had caused the closure of Bonnie Clare Road for a month until storm damage could be repaired. In the spring of 1968, the shoulders were graded on five miles of Bonnie Clare Road in Grapevine Canyon, followed by a summer storm that required removal of "alluvial cover" along the section of road between Scotty's Castle and Highway 190 (NPS DEVA File No. 30137). Unspecified maintenance repair work began on December 2, 1968 (NPS DEVA File No. 30134). The park's superintendent reports end on January 7, 1969 so repair work details are not available after this point in time. However, it appears all of this storm damage repair work was fairly minor because two proposals were later developed in 1968 and 1970 to reconstruct large portions of the road in order to improve the drainage, widen the roadbed, and repair the entire length of road to improve traveling conditions. Based on aerial photography from 1979 and 1982, it appears that the 1968 and 1970 proposals were either never constructed or were so minor as to not affect the historic alignment of the road in any significant way.

Plans to improve Bonnie Clare Road were revisited after the 1970 NPS acquisition of Scotty's Castle. As in 1957, the park studied the potential realignment of the road's curve at Cottonwood Corner. In 1971, three miles of road between the castle and Ubehebe Crater Road Junction was surveyed for potential rehabilitation work (Livingston 2005:25). It appears this road work was not undertaken, or if

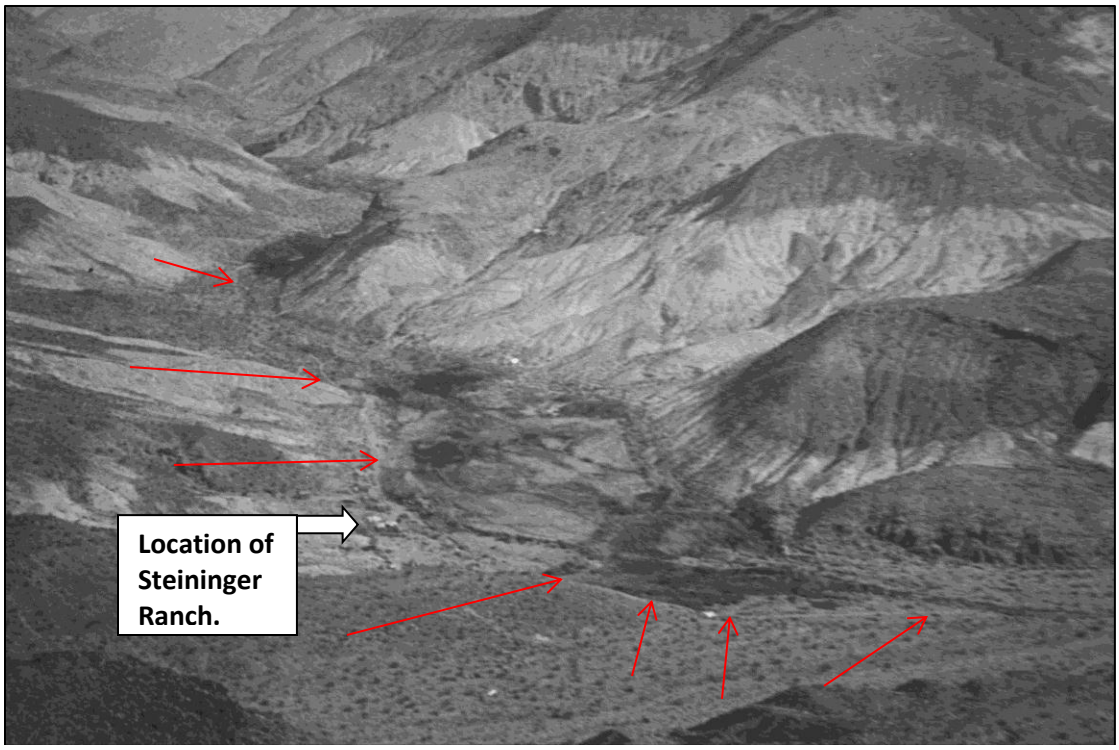
modifications were made, they were minor adjustments to the existing alignment of the road. At the time of the 1970 proposal, Donald Carney, the Grapevine District Ranger, expressed concern that the road should maintain its current character because:

> "Ever since I've been here there has been periodic talk of straightening the reverse curve at Cottonwood Point Spring in the lower canyon….It has never washed out and we've never lost any pavement there. What little local charm the valley has can be found along this road and it is the only place on a main road in Death Valley where visitors can drive under a tree. It provides a welcome change of pace for most travelers after having come up from Highway 190."

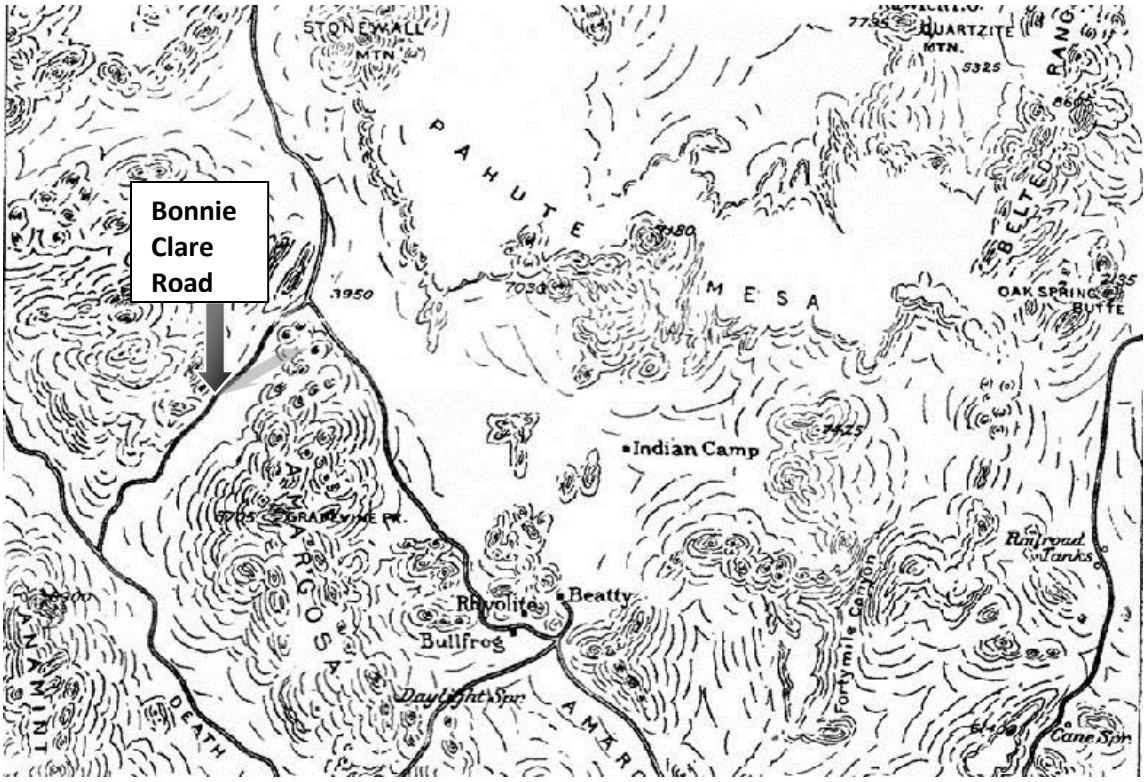
Carney recommended that the road be repaved and widened slightly after the fence was removed from the curve (Carney 1971; Feierabend 2006). Historic aerial photographs taken in 1952, 1965, 1979, and 1982 show the same reverse curve that is present today, indicating that the concerns that Carney expressed were met with no major modifications to Cottonwood Corner. It should be noted that it is possible that some slight modifications were made to the curve at Cottonwood Corner based on the fact that a section of the Scotty's Castle fence is missing in this location. It is unclear when this section of fence was removed, but it could have been around this time.

Additional maintenance work was undertaken in the 1970s and 1980s as storm damage repairs were required along the road. Storm damage occurred in September 1976 along two and one half miles of road, which damaged the asphalt paving and shoulders of the road along with leaving loose debris along the road. There is no indication in park records of the type of repair work that was undertaken after this storm, but there are no records of major repair or reconstruction work. A 1979 aerial photograph shows places of pavement that were washed out toward the western end of Bonnie Clare Road. It appears that the road was repaired in place along its historic alignment, except for the portion of road along the western end as the road curves through the end of the wash and connects with Ubehebe Crater Road Junction. It was during the 1970s that Indian Camp was bulldozed and burned by NPS in an effort to clean up the area adjacent to the road and Scotty's Castle (Johnson, 2006: 34-35). In 1983, a storm damaged the shoulders of Bonnie Clare Road. No records of any major repair work have been located, but more than likely the shoulders were repaired by clearing loose debris and shaping the shoulders back as they existed before the storm. Current aerial photographs show the alignment of Bonnie Clare Road in 1982 (which depicts Scotty's Castle to Cottonwood Corner) matches the current alignment, so it appears that repair work in 1983 followed the existing alignment.

Death Valley National Monument was designated as a National Park on October 31, 1994. As part of the change in status, the park's infrastructure was evaluated. A 1996 road system evaluation was conducted over all roads within the park, and recommended, in part, improvements between Cottonwood Corner and the Nevada state line including curve correction and pavement widening (Livingston 2009:423). These recommendations have not yet been implemented. Currently, there are, on average, two rain events per year that require the park road maintenance crew to remove debris from the road. As was done historically, when storm damage occurs the park uses a grader to remove the debris and loads it in a truck to be hauled and stockpiled. Currently, the debris is stockpiled at the Grapevine mixing table (staging area). This maintenance requires traffic control during cleanup. Additionally, boulders that are undercut during storm events sometimes damage the road. The biggest challenge for maintenance is removing the rocks from the road without damaging the fence. The road was last sealed in 2004 and its current maintenance is minimal (Ainsley Holeso, pers. comm., October 2010).



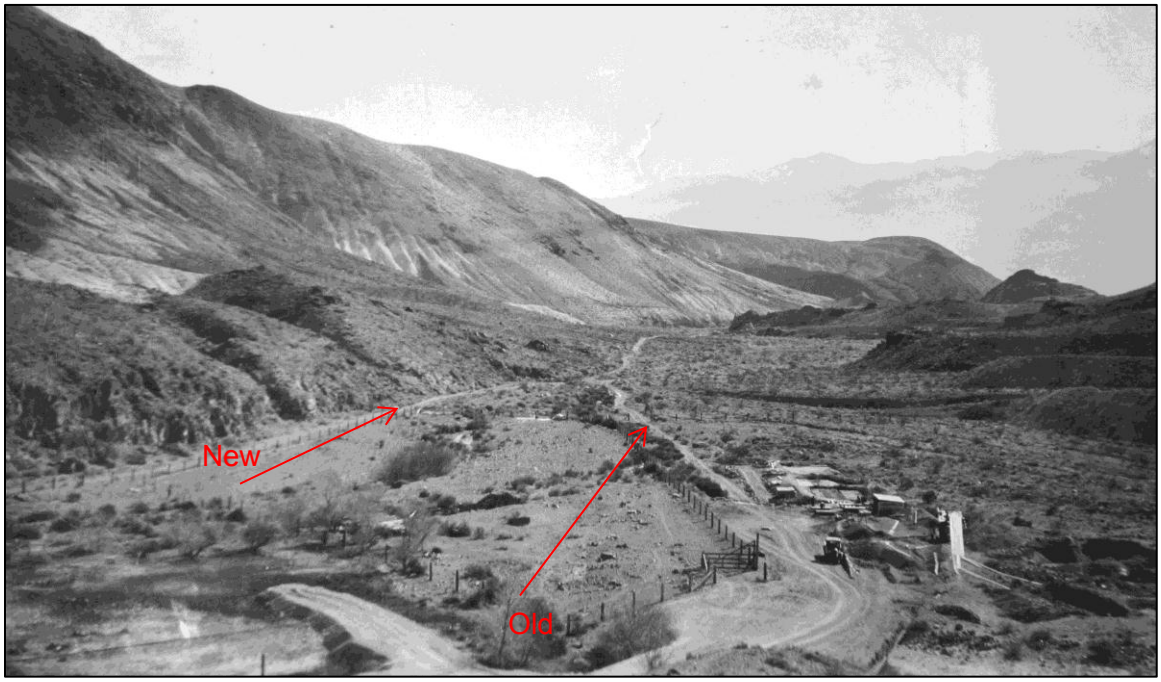
Physical History #1. Aerial of old road, ca. 1920, looking east (DEVA 41494).



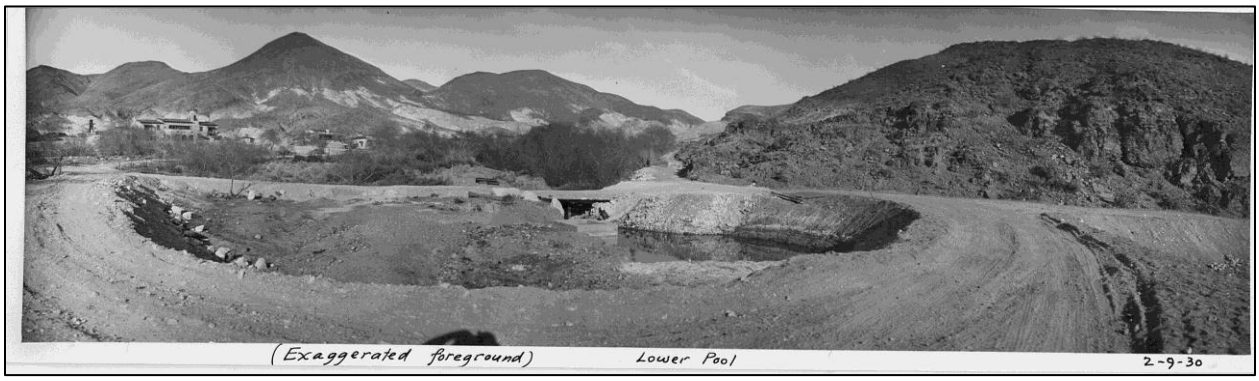
Physical History #2. 1906 map of Bonnie Clare Road (Chapman, 1906).



Physical History #3. Map of the approximate location of Bonnie Clare Road in 1928, overlaid on a 2009 aerial (Carmany-George, 2011).



Physical History #4. View from the Chimes Tower facing south, February 25, 1929. Note the new road and fence on the left and the old road in center (DEVA 40735).



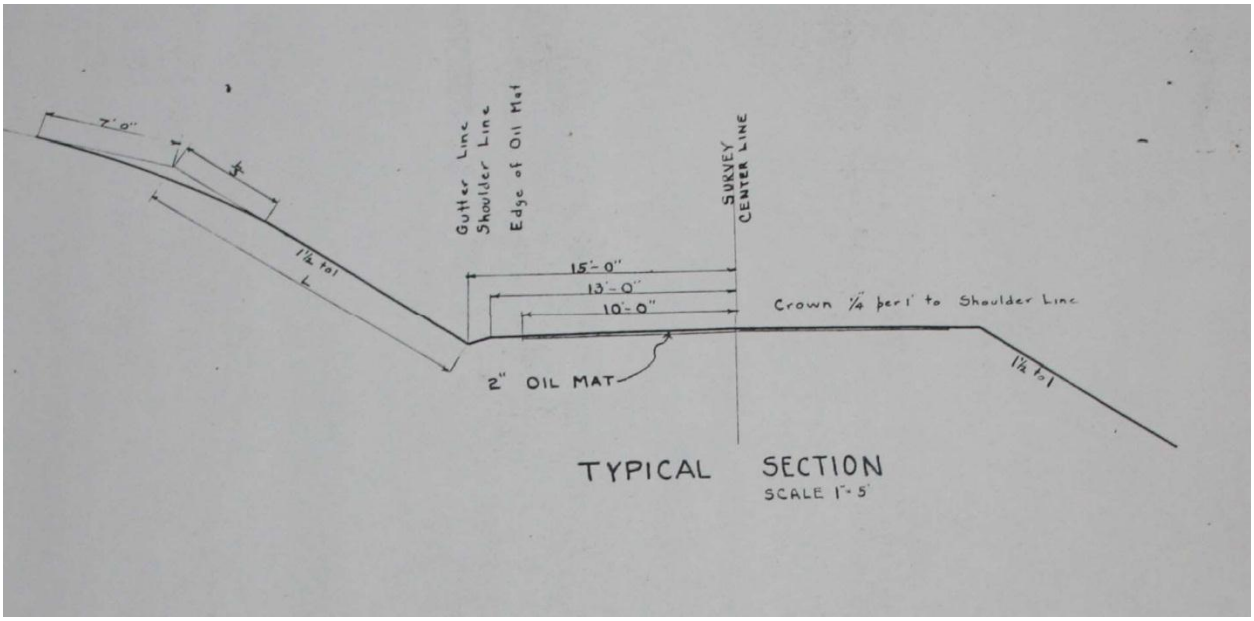
Physical History #5. Entrance construction and new road in Grapevine Canyon (background), February 9, 1930 (DEVA 60031).



Physical History #6. Facing west, Indian Camp and new road in center, February 6, 1931. Note old road alignment visible on right (DEVA 15997).



Physical History #7. February 1934 photo of typical road grading within the monument during the CCC-era (unknown photographer) (NPS DEVA File No. 30512).



Physical History #8. Proposed 1951 typical cross section (NPS DEVA Flat Files).

Analysis & Evaluation of Integrity

Analysis and Evaluation of Integrity Narrative Summary:

The historic segment of Bonnie Clare Road totals 7.5-miles of the 27-mile road that runs between Ubehebe Crater Road Junction in Death Valley National Park and a junction with Highway 95 in Nevada. The 7.5-mile section of the Bonnie Clare Road begins in the park's northwestern corner at the state border between Nevada and California. From the border (MP 0, Station 0+00), this section of the road passes through Grapevine Canyon in a southwesterly direction, past Death Valley Scotty Historic District (Scotty's Castle) (MP 4.5, Station 241+00) and ends at the Ubehebe Crater Road intersection near Grapevine Ranger Station (MP 7.5, Station 135+00). Important landscape characteristics that help to convey the historic character of the road corridor include: Natural Systems and Features, Spatial Organization, Topography, Land Use, Views and Vistas, and Archeological Sites.

Bonnie Clare Road is located in the northern part of the Amargosa Range within Grapevine Canyon with elevations ranging from about 2,300 feet above sea level at the intersection with the Ubehebe Crater Road to 3,900 feet at the California-Nevada state border. The road generally follows the path of least resistance through the geologically diverse Grapevine Canyon, as it follows the natural contours of the land, but required some rock cuts to accommodate the road. Although Death Valley is one of the hottest and driest locations in North America, with an average annual rainfall of just under two inches over the past 98 years of record keeping, precipitation is greater in winter and summer, with heavy rains causing erosion to the mountains and hillsides. Sediment carried through Grapevine Canyon has caused several washouts along the road over the years that have been repaired by park maintenance crews. With little precipitation, water sources were key to settlement in the canyon. Several springs and wetlands are found within close proximity to the road. Cottonwood Corner is the location of one prominent spring that is marked by vegetation more verdant than that of the rest of the dry canyon floor. The road's alignment around the springs was a result of the development of these water sources for the adjacent Scotty's Castle property.

Important aspects of the Bonnie Clare Road's spatial organization include the road's alignment, grade, and width and its response to the changing conditions of canyon's slopes, the canyon floor width, and vegetation patterns of Grapevine Canyon. Along its route, the road passes developed areas and historic features such as Scotty's Castle, the associated historic fenceline, and Cottonwood Corner, which create a distinct setting for the road. Based on a comparison of the 1951 road plans and a 1952 aerial photograph to current aerial photography, the road appears to have followed the same alignment during the period of significance as it does today. The spatial organization of the road was heavily influenced by the topography of the canyon. The majority of the manipulation of topography within the historic district is associated with the construction of Scotty's Castle and Bonnie Clare Road. Important aspects of the road's topography include grade, vertical rock cuts, vertical profile of the road that contours to the existing topography as much as possible, unpaved ditches and the fill used on the approach to Scotty's Castle heading east. The road utilizes the bottom of Grapevine Canyon in the Grapevine wash for the majority of the road alignment in order to minimize the amount of cut and fill necessary to construct the road along the slope of the canyon hillside. However, throughout the length of the road, selective cuts and fill were incorporated into the design of the road in order to accommodate safe passage through the canyon.

Beyond the natural beauty of the topography of the canyon walls and natural rock formations, Bonnie Clare Road has historically important views and vistas along its route. Some of these were planned and designed, while others were the fortunate result of routing a road through a canyon with impressive

natural landscape features. Important views that contribute to the feeling and association of this rural road include those of the Scotty's Castle Chimes Tower, Scotty's Castle Entrance Gate, Tin Mountain, Cottonwood Corner, and Cathedral Rock.

Use of Grapevine Canyon has a long and rich history as a transportation corridor, representing a continuity of use extending from the prehistoric period to the present. Archeological evidence suggests that the canyon corridor was part of an extensive trail system used by early inhabitants of the area for thousands of years. In the mid-1800s and early 1900s, the canyon was used by explorers, miners and homesteaders and in the 1920s, became the main access road for Scotty's Castle. In the 1930s, with the establishment of the Death Valley National Monument, the road became a park access road and was upgraded during the Mission 66 era of park development. Today, the Bonnie Clare Road corridor continues to serve as an important circulation route, providing access to Death Valley National Park and Scotty's Castle, while maintaining the rural character of the road as it was designed during the period of significance.

Archeological sites associated with the road include features within and adjacent to the Bonnie Clare Road right-of-way. One of the most notable residential or domestic sites within the Bonnie Clare Road corridor is Indian Camp, located on the south side of the road and associated with construction activities at Scotty's Castle. Between 1922 and 1931, Timbisha Shoshone work crews and their families occupied the camp while building Scotty's Castle, which included realignment of the road Bonnie Clare Road outside of Albert Johnson's private property. The camp was abandoned in 1931 when construction activities came to an end and employment was no longer available. In addition, remnants of old road alignments are found in the canyon in areas where the road alignment was modified during the 1947-1951 rehabilitation work. As the new alignment modified the curves associated with the previous 1930s-era road, it is likely the abandoned curves became pullouts or shoulders.

Integrity

Bonnie Clare Road retains integrity as an intact circulation route designed by planners and engineers and constructed by the National Park Service during the years 1947 to 1951. The historic character of the 7.5-mile road segment within Grapevine Canyon has changed very little since 1951. Functioning in the same capacity as the period of significance, the road retains its historic alignment and location, providing visitor access to Scotty's Castle from Death Valley National Park as well as from locations to the east. Because the views, topography, and natural features that inspired the design and subsequent development of the road still remain, these characteristics contribute to the setting, feeling and association of the road. Additionally, aspects of the road's design and spatial organization including, its alignment, grade, width, cuts, and fill also remain as the road designers intended. As the road responds to the changing conditions of slopes, widths, and vegetation patterns of Grapevine Canyon, the road retains integrity of design, workmanship, and materials, which demonstrate the original construction, vertical profile, and horizontal alignment of the road. Together, these features help convey the design intent and aesthetic character of the road.

Bonnie Clare Road has undergone some subtle changes throughout the years due to storm damage repairs, which have had only a minor effect on the integrity of the road. These changes are attributed to the steep topography, highly erodible soils, and seasonal precipitation, which have an ongoing effect on Bonnie Clare Road. Since the 1930s and perhaps even earlier, seasonal storms that produce heavy rains have repeatedly damaged the road. Subsequent repair has been undertaken by the NPS in an effort to maintain the condition of the road. The section of road that has experienced the most damage is located between

Cottonwood Corner and Ubehebe Crater Road Junction; however, this portion still follows its historic alignment, and is of compatible design, materials, and workmanship. Throughout the length of the historic road segment, repair work was generally performed as part of road maintenance in a manner that was compatible with its historic character.

The material integrity of the road includes the asphalt paving and unpaved-dirt shoulders on a native-soil fill prism that were constructed during the period of significance, 1947-1951. Throughout the years, the asphalt pavement has undoubtedly been repaired in many places and has undergone oil and seal treatments as part of routine maintenance. While the asphalt itself may not date to the period of significance, the continued use of asphalt as a paving material contributes to the historic character of Bonnie Clare Road. Additionally, the unpaved-dirt shoulders remain intact in many places; however, some gravel has built up along the shoulders of the road. Finally, since the alignment of the road has not been significantly modified since construction efforts ended in 1951, the native soil prism remains largely intact, with the exception of areas that have experienced large-scale erosion as a result of seasonal precipitation and associated storm events. The location, design, materials, and workmanship of the road have been maintained through compatible repairs to the historic form, width, and alignment. No features have been added or removed since the period of significance. The road maintains its simple characteristics of narrow, paved travel ways, no curbing, and vertical rock cuts that are close to the edge of the unpaved shoulders.

Bonnie Clare Road maintains all aspects of integrity, including the location, workmanship, design, materials, setting, feeling and association, and continues to convey the historic character of the 1947-1951 paving and rehabilitation of Bonnie Clare Road.

Natural Systems and Features

Natural systems and features are natural aspects that have influenced the development and physical form of the landscape. The development of Bonnie Clare Road has been influenced by geomorphology, geology, hydrology, climate, and native vegetation of Grapevine Canyon. These systems and features created a rich environment that became a primary travel corridor connecting northeastern Death Valley to Scotty's Castle and southwestern Nevada.

Geomorphology

Bonnie Clare Road is located in the northern part of the Amargosa Range within Grapevine Canyon, bisecting the Grapevine Mountains from east to west. Grapevine Canyon floor elevations range from about 2,300 feet above sea level at the intersection with the Ubehebe Crater Road to 3,900 feet at the California-Nevada state border. The mountains to the north and south of the canyon reach their highest peaks just east of Scotty's Castle, with elevations up to 4,500 feet above sea level. In general, the mountains are steep and heavily dissected with little vegetation.

Settlements, such as Scotty's Castle and nearby Timbisha Shoshone habitation area, *Mahunu*, occur in the level canyon bottom in areas adjacent to springs, the only permanent water sources in the area. Bonnie Clare Road is located in the level canyon floor and was routed around these water sources. The alignment of Bonnie Clare Road was designed to follow the path of least resistance from the intersection with the road to Ubehebe Crater up the naturally gentle grade of Grapevine Canyon to the park and state border with Nevada. The road is located along the southern toe of the canyon wall rising and falling over drainages of the canyon's slopes and is above the canyon flood plain, making it less susceptible to washouts. The alignment of Bonnie Clare Road is a response to the natural contours of the canyon landform. These contours change over time as heavy rains and flash floods move great quantities of rock and soil down the canyon drainages and through the canyon bottom.

Geology

Death Valley is a geologically diverse region, with rugged topography defined by millions of years of change. Valleys and mountain ranges were created as land blocks slid past one another along faults, pulling the earth's plates apart. Primarily oriented north-south, Death Valley is bordered by the Amargosa Range to the east and the Panamint Range to the west. Today, the massive valley floor continues to subside, contributing to the slow erosion caused by rocks, gravel and silt being carried to the valley floor by water flowing down from the surrounding hills and mountains.

The mountains bounding the northernmost basin of Death Valley are the Last Chance Range and Grapevine Mountains of the Amargosa Range. The Grapevine Mountains, composed mostly of tertiary volcanic and sedimentary rock, lie directly east of the Northern Death Valley Fault Zone, with north-south trending faults of 4 to 5 feet displacement. Fault movement over time resulted in the folding of the tectonic plates forming the mountains and causing the westward tilt of the basalt below Scotty's Castle. A 2002 report on the geology and tectonics of this area describes a "series of silicic and basic volcanic rocks in the vicinity of Scotty's Castle" informally called the Scotty's Castle Sequence. While the exact age of the sequence is unknown, preliminary evidence suggests"…the Scotty's Castle Sequence is assumed to be middle to late Pliocene in age" (Niemi, 2002,175). These rock formations that are the result of geological processes have become key natural features of the road and add to the scenic experience of traveling

through the narrow canyon. Cathedral Rock is one of the defining geological formations that the traveler sees on the way to Scotty's Castle.

The mineral value of the rock surrounding Bonnie Clare Road is unknown, but presumed to be low, given the lacking amount of historic extraction activity within the canyon. Albert Johnson, the original owner of Scotty's Castle, made use of locally available stone in the construction of some building and structural components—principally foundations, retaining walls and fence posts in the Death Valley Scotty Historic District. In an area otherwise devoid of building materials, stone is abundant. The rock that was blasted and cut away to create the Bonnie Clare Road alignment became waste material that was hauled off site or dumped in the wash.

The width of the canyon floor is variable; reaching widths from 75 feet to over 400 feet west of the castle and 30 feet to over 400 feet east of the castle. Generally, however, the upper portion of the canyon is much narrower due to the higher, steeper mountains on either side. The width of the canyon floor is slowly expanding, particularly the lower portion, as the result of both the detrital wash coming down from the mountains and upper elevations as well as the continuous growth of alluvial fans filling in the sides of the canyon. The growth of the small enclosed valleys on either side of the canyon can be attributed to "the union across a valley of opposed alluvial fans" (Ball 1907, 17). The growth of the alluvial fans has affected the road after major storms because the debris washes into the road. As a result, the road has had continual maintenance each year to move the debris off of the road bed. The road is located in a dynamic landscape that requires human manipulation of the debris deposited after heavy rains in order to maintain the travel corridor.

The geologic diversity of the canyon is easily seen from Bonnie Clare Road, from the tall mountains that extend up from the canyon on either side, to the cuts that have been made in order to accommodate the road, exposing the layers of rock that have folded and settled over time. The relationship of the road with the exposed rock and vertical cuts allows visitors to experience the geology and colorful landscape as they travel through the canyon. In cases where there is a vertical element close to the edge of the road, the road feels narrower and provides a more intimate experience with the canyon's geology. Additionally, expansive views of Death Valley and the Nevada desert are framed by the canyon as it opens up to the east and west. The relationship of the road to the geology of the canyon is continually modified by the hydrology of the canyon.

Hydrology

Along with climate, hydrology represents a limiting factor in terms of living and working in Death Valley. Although Bonnie Clare Road is situated in a canyon of the Grapevine Mountains, water flows through the area only sporadically. Five cold springs and eight wetlands have been identified within Grapevine Canyon in close proximity to Bonnie Clare Road (see site plan for locations). With so little precipitation in Death Valley, water sources such as the springs played a major factor in the location of settlement within the area. In Grapevine Canyon, settlement was concentrated at the location of the springs. Some of these springs were manipulated by Albert Johnson through damming and pooling for use at Scotty's Castle. Important to understanding the alignment of the road is the fact that Johnson rerouted the road to the south of these springs in order to ensure the springs fell within his property boundary. A seasonal stream runs in a narrow channel from the highest elevation spring, through Scotty's Castle, to just below Cottonwood Corner where it likely disperses in the wide valley, no longer following a single channel. The stream bed is marked by vegetation more verdant than that of the rest of the dry canyon floor. Water can be heard running through the channel from various points along the road.

"Cold springs and seeps are situated either at the contact of alluvial deposits and the mountain bed rock or in the gravels of mountain canyons. In the latter case the surface waters appear to seep through the valley gravel and to rise where the bed rock forms a bar across the channel" (Ball 1907, 20). The five springs within the vicinity of the road, are located between Cottonwood Corner and the water supply system at the east end of the Scotty's Castle property. The eight wetlands identified in the 2005 Wetlands Delineations report for Bonnie Clare Road are also located along the same stretch of road as the springs. Some wetlands are directly associated with springs. The lowest spring and wetland (Wetland #8 in the report) at Cottonwood Corner are easily viewed from the road as the vegetation is more lush and taller than anything around it. According to page 7 of the report, "highway condition and wet soil conditions below the highway (inside the curve) suggests subsurface movement of water", as evidenced by the settling of the road pavement on the north side of the curve. The second spring, located just east of Scotty's Castle, is not part of a delineated wetland, but is associated with dense vegetation planted as part of the eastern border of the developed building core. The stream runs directly through this area. Another spring and wetland (Wetland #3) are located a half mile east of the castle parking lot entrance. This wetland is significant, like the lowest wetland, for being located within three feet of the road edge. Cattails (*Typha sp*.) are growing within a foot of the pavement edge and Native grape (*Vitis californica*) has begun overtaking the pavement. The soil immediately adjacent to the paved edge is saturated, as observed in the 2005 report as well as more recently in November, 2010. In addition, the proposed plans for the Bonnie Clare Road indicate that the spring is located 16 inches below the roadway (Federal Highway Administration 2010). This is evidenced by the extreme warping of the pavement adjacent to the wetland. The two upper springs are located near the water tank complex east of the castle. One spring is within the complex and the other is one-tenth of a mile east with an associated wetland (Wetland #1). This spring is likely the source for the stream that flows nearly year-round. The flow, however, can be subject to seasonal changes during August and September when many springs are dry or greatly diminished. However, storm events also contribute water from higher elevations that flow from further east in the canyon. The remaining smaller wetlands are located between the more prominent ones and are all associated directly with the stream channel.

Precipitation at the Death Valley mountain ranges is greater in winter and summer, and without forested areas to retard the run-off, the flow of water through the canyon can be significant during these seasons. Heavy rains can cause erosion to the mountains and hillsides, and also increase the size of alluvial fans and amount of sediment carried through the canyon. The combination of heavy water flow mixed with sediment has, on numerous occasions, covered and eroded sections of Bonnie Clare Road. Today, the results of these flood events can be seen in the raised road bed extending from Scotty's Castle to Cottonwood Corner, where, previous to the 1947-1951 road work, the low-elevation road may have been more prone to washouts. Additionally, the portion of the road located from Cottonwood Corner to Ubehebe Crater Road Junction is elevated from the original grade on a fill prism or is flanked by large berms of soil and rock debris. The hydrology of the canyon has caused several washouts along the road over the years, which have been repaired by maintenance crews. The road is located in a dynamic landscape that is continuously modified to varying degrees by the hydrology of the area.

Climate

The lack of rainfall in Death Valley is attributed to the rain shadow effect caused by four major mountain ranges that block storms moving in from the Pacific. As storms move east from the ocean they drop their precipitation on the west slopes of the four ranges, each time diminishing the amount of available moisture as the storms move eastward. The highest elevations in the park might receive up to 15 inches of

rainfall a year. Also, the region experiences periodic downpours, which can drop between 2 and 5 inches of rain in a very short period. Runoff from these periods of heavy precipitation may cause catastrophic erosion events especially in areas like Grapevine Canyon, with little or no vegetation to hold runoff. Massive alluvial fans at the valley margins, and gully cutting attest to these infrequent events. The starting point for Bonnie Clare Road, at the intersection with the road to Ubehebe Crater, is one massive alluvial fan created from a continuous cycle of precipitation flowing downhill through Grapevine Canyon and spilling out into the valley below.

Rainfall in Death Valley, while enough to cause flash floods, is not frequent. Death Valley is acknowledged as being one of the hottest and driest locations in North America, with an average annual rainfall of just under two inches over the past 98 years of record keeping. Average monthly temperatures on the valley floor range from 65 degrees Fahrenheit in January to 115 degrees Fahrenheit in July. The extreme heat is attributed to the depth and shape of the valley, which at some points is nearly 300 feet below sea level and surrounded by high mountain ranges. Temperatures decrease with elevation between 3 and 5 degrees with every thousand feet of vertical rise. Grapevine Canyon, lying at elevations between 2,300 and 3,900 feet above sea level, might be expected to be 10 to 20 degrees cooler than the valley floor. These extreme temperatures make water sources and vegetation cover a key factor in locations of settlement within Death Valley.

Native Vegetation

In Death Valley native vegetation varies according to elevation and the amount of available moisture. In Grapevine Canyon, the Creosote Bush Mixed Shrub system dominates the plant communities on the lower mountain slopes, alluvial fans, and the canyon floor south of the road. The canyon floor north of the road is comprised primarily of plants in the Low and Mid Desert Wash System communities resulting from the increased availability of water from the springs and wetlands as well as intermittent flooding from the upper elevations and surrounding mountains. Species in all of these plant communities are heat and drought tolerant, but none contain plants valued from an economic or development standpoint.

Community and associated species listed below are derived from the Central Mojave Vegetation Map GIS data by the USGS in 2002:

Species commonly found in the Creosote Bush Mixed Shrub system can include: creosote (*Larrea tridentata*), burrowed (*Ambrosia dumosa*), and brittlebush (*Encelia farinosa*), Parish goldeneye (*Viguiera parishii*), desert tea (*Ephedra californica*), white burrobush (*hymenoclea salsola*), Virgin River brittlebush (*Encelia virginensis*), Cahmisa (*Ericameria nauseosa*), California buckwheat (*eriogonum fasciculatum*), and California broomsage (*Lepidospartum squamatum*).

The Mid Elevation Wash System community covers the park boundary to Scotty's Castle, and covers the entire valley floor on both sides of Bonnie Clare Road. The upper portion begins beyond the park boundary and continues for almost two miles. The lower section extends for about three quarters of a mile to where the canyon narrows in close to the road edge to the Scotty's Castle eastern fence line. Species commonly found in the Mid Elevation Wash system, where flooding occurs intermittently, can include catclaw mesquite (*Acacia greggii*), honey mesquite (*Prosopis glandulosa*), desert willow (*Chilopsis linearis*), Mojave rabbitbrush (*Ericameria paniculata*), Parish goldeneye (*Viguiera parishii*), desert tea (*Ephedra californica*), white burrobush *(hymenoclea salsola*), bladder sage (*Salazaria mexicana*), Virgin River brittlebush (*Encelia virginensis*), Cahmisa (*Ericameria nauseosa*), California buckwheat (*eriogonum fasciculatum*), and California broomsage (*Lepidospartum squamatum*). Vegetation located at

each of the springs in this Mid Elevation Wash System has spread a few hundred feet throughout the drainage since the end of the road's period of significance in 1951, as compared to a 1952 aerial photograph. This spread in vegetation is slight, and does not affect the road's integrity of setting.

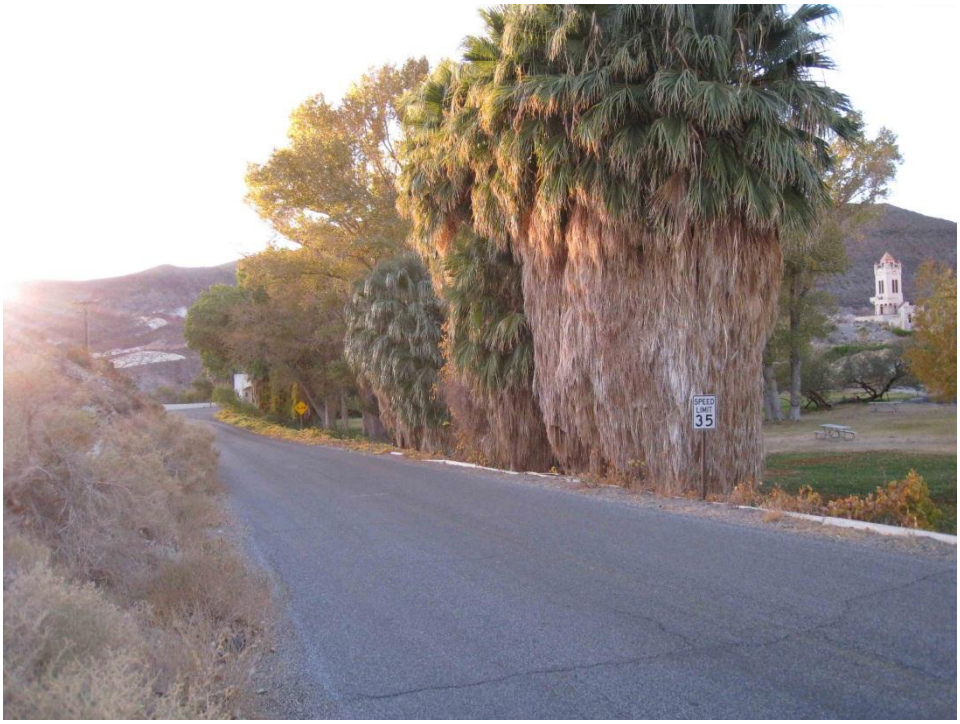
Between the Mid and Low Elevation Wash Systems are wetlands where Scotty's Castle is located. According to page 1 of the 2005 Wetlands Delineations report for Bonnie Clare Road, the Grapevine Canyon wetlands are "characterized by persistent shrubs and woody vegetation". The riparian wetland vegetation observed for the report included cattails (*Typha sp.*), rushes (*Juncus sp.*), willows (*Salix sp.*), Cottonwoods (*Populous fremontii*), common reed (*Phragmites australis*), Washington palm (*Washingtonia filifera*), native grape (*Vitis californica*), and baccharis (*Baccharis sp.*). The cottonwoods and palms are not native plants and were in most cases planted, or volunteers from those planted, by Johnson at Cottonwood Corner and Scotty's Castle. Today, all of these species are still present within the wetland locations and are growing immediately adjacent to the road or over the road in the case of the native grape. The Bonnie Clare Road alignment was sited around these wetlands and provides a distinct lush vegetation character that contributes to the setting of the road. A comparison of historic and contemporary photographs and aerial photographs indicates that the vegetation has spread throughout these wetlands since the end of the road's period of significance in 1951. This spread in vegetation is located within the Scotty's Castle grounds, and, while visible from the road, does not affect the road's integrity of setting.

The Low Elevation Wash System community of plants can be found filling the entire width of the valley floor north of Bonnie Clare Road from the eastern fence line of Scotty's Castle, through the developed area of the castle, past Tie Canyon west of Scotty's Castle, and to the intersection with the road to Ubehebe Crater. Species commonly found in the Low Elevation Wash system, where flooding occurs intermittently, can include catclaw mesquite (*Acacia greggii*), honey mesquite (*Prosopis glandulosa*), desert willow (*Chilopsis linearis*), desert baccharis (*Baccharis sergiloides*), Parish goldeneye (*Viguiera parishii*), desert tea (*Ephedra californica*), white burrobush (*Hymenoclea salsola*), bladder sage (*Salazaria mexicana*), Virgin River brittlebush (*Encelia virginensis*), Cahmisa (*Ericameria nauseosa*), California buckwheat (*eriogonum fasciculatum*), and California broomsage (*Lepidospartum squamatum*). Based on analysis of historic aerial photographs, the vegetation in this area is very similar to the coverage in 1951, at the end of the road's period of significance. No change in the area of vegetation cover at Cottonwood Corner was observed in the 1952 historic aerial photograph.

In summary, the natural systems and features associated with the development of Bonnie Clare Road continue to characterize the setting, feeling and association of travelling through a geologically diverse, narrow canyon in a mid-elevation desert environment just as it has during the period of significance from 1947-1951.



Natural Systems and Features #1. View of Bonnie Clare Road as it enters the narrow eastern end of Grapevine Canyon. Note the rock cut canyon wall to the right of the road (Germano, 2010).



Natural Systems and Features #2. View looking west at the vegetation in the Scotty's Castle grounds (Germano 2010).



Natural Systems and Features #3. Looking southwest at Bonnie Clare Road. A typical rock cut is located left of the road. A cottonwood tree can be seen at Cottonwood Corner located in the middle ground. Death Valley can be seen in the background in the distance (Germano, 2010).



Natural Systems and Features #4. Looking northeast at Cottonwood Corner. The natural spring and vegetation plays a key role in the alignment of the road at this location (Germano 2010).



Natural Systems and Features #5. Looking southwest toward Death Valley from a berm of alluvial debris that has been cleared and piled between the wash and the road (Germano, 2010).

Spatial Organization

Spatial organization is defined as the three-dimensional organization of physical forms and visual associations in the landscape. Bonnie Clare Road is a 7.5-mile segment of road that extends from Ubehebe Crater Road Junction to the Death Valley National Park boundary. This 7.5-miles segment is part of the 27-mile road that runs between Stovepipe Wells in Death Valley National Park and Highway 95 in Nevada. The road's spatial organization is divided into the following segments, based on the unique character of each segment: from the border (MP 0, Station 0+00), this section of the road passes through Grapevine Canyon in a southwesterly direction, past Death Valley Scotty Historic District (Scotty's Castle) (MP 4.5, Station 241+00) and ends at the Ubehebe Crater Road Junction near Grapevine Ranger Station (MP 7.5, Station 400+00).

Important aspects of the road's spatial organization include the road's alignment, grade, and width and its response to the changing conditions of slopes, widths, and vegetation patterns of Grapevine Canyon. Along its route, the road passes developed areas and historic features that create a distinct setting for the road, such as Scotty's Castle, the associated historic fenceline, and Cottonwood Corner, as well as, the rock cuts that are described in more detail in the Topography section. Since 1951, the road appears to have followed the same alignment as it does today, based on comparative analysis of historic and contemporary aerial photographs, and retains its historic character from the period of significance.

General Road Character

Although Grapevine Canyon has been used as a travel corridor for thousands of years, the road that is in use today was initially aligned during the early 1930s to provide access to Scotty's Castle. Between 1947 and1951, Bonnie Clare Road was formalized, realigned, and surfaced, resulting in much of the road character that is present today. In that period, the road alignment was altered to straighten curves wherever possible, and the roadbed was widened and paved. However, in extremely narrow portions of the canyon and along the historic fenceline established by Albert Johnson, the road retains its earlier narrow and curvy character. The road was constructed as a 20-foot-wide travel way, which was standard width for minor park roads during the Mission 66 era. Additionally, the road was aligned to take advantage of the natural topography as much as possible, in keeping with the road design tenants of the Mission 66 era that focused on providing safe, reliable access to parks while blending the parks into the natural landscape.

Over the years, the road has endured several storms and washouts that have caused damage to some portions of the road, especially the in lower section of road below Cottonwood Corner. However, these repairs resulted in little modification to the alignment, profile, and character of the road. The location, design, materials, workmanship of the road have been maintained since the end of the period of significance.

The alignment of the Bonnie Clare Road is intricately tied to the natural topography of Grapevine Canyon, weaving around tight corners characteristic of the upper canyon and hugging the toe of the southern and eastern slopes in the middle of the canyon, and cutting though the middle of the canyon near the lower portion of the canyon, below Cottonwood Corner. The road has several tight curves as it passes through the more narrow portions of the canyon in the upper section, but has straight stretches where the canyon widens and has more room for the road bed. One of the tightest curves is the S-curve found at Cottonwood Corner where the road winds around a spring, wetland and grove of trees.

In addition to topography, the road's alignment was also determined by views of Scotty's Castle. Historic letters and documents related to Albert Johnson's work on the road in the late 1920s and early1930s indicate the importance of views from the road of Scotty's Castle upon arrival from the south. These same views are still experienced as planned in the 1930s and are discussed in Views and Vistas.

Beyond alignment, other aspects of the road remain such materials and design of the road bench, travel lanes, shoulders, and pullouts. During the period of significance, 1947 to 1951, the previously gravel road was surfaced and the road was straightened and widened to 20 feet wide with a 3-foot unpaved shoulder where possible. Today, the width of the asphalt pavement averages 21 feet wide throughout the length of the road which accommodates two travel lanes and, where feasible, a narrow shoulder. At the park boundary, the paved roadbed measures 24 feet, but quickly narrows to an average of 21 feet. The road's width ranges between 20-22 feet northeast of Scotty's Castle, narrows to 18-20 feet as it passes the Scotty's Castle entrance, and widens back to 20.5-22.5 feet as it continues southwest. While the road has been repaved over time as a result of routine maintenance, the asphalt paving is of a material and width that is compatible with the paving used during the period of significance.

Beyond the paved travel lanes and occasional paved shoulders, the road has soft shoulders where topography allows. Shoulders are surfaced with gravel, and depending on the topography range from 1-12 feet wide. They appear to have accumulated material from maintenance following storm events, sometimes resulting in gravel berms that may help to divert running water. At the Nevada-California border, the shoulders are widest, approximately 10-12 feet wide. Once the road enters the narrow portion of the canyon, shoulders are significantly reduced to 1-2 feet and are often not present. According to the 1951 design plans, the shoulders were unpaved and measured 3-feet wide. Some of the existing shoulders and pullouts were most likely the result of changes in alignment during the 1951 construction, during which tight curves were realigned to create wider turns. The former road bed is often still visible and is now used as a shoulder or pullout. These older alignments were most likely utilized as wider unpaved shoulders or unpaved pullouts immediately after the 1947-1951 work, since there is no historic documentation or physical evidence to suggest the abandoned road segments were obliterated so that they would not be used by travelers. Additionally, there are no curbs or gutters used along the edge of the road. According to the typical cross-sections of the 1951 design, no curbs were installed, but unpaved 3-foot-wide ditches were utilized at the edge of the shoulder. The shoulders and pullouts remain unpaved as they were during the period of significance.

Road Segment Descriptions

Below, are descriptions for six distinct segments of the road with unique aspects of spatial organization associated with each one:

Nevada-California Border into Grapevine Canyon (Station 0+00 to 100+00)
At the Nevada-California border is the road's widest point. Here, the paved portion of the road measures 24 feet wide. During the period of significance, the road was 20 feet wide and it is unknown when it was widened further. A large, gravel pullout or parking area is located on the northwestern side of the road, measuring approximately 60 feet at the widest point. A National Park Service sign marks the entrance into the park. Vegetation is low-growing and the character is dominated by a rocky, dry landscape with views into the canyon.

From the border, the road enters the upper portion of Grapevine Canyon. The landscape is characterized by steep slopes and rock outcroppings on either side, but the canyon is fairly wide at this point allowing

for gentle curves and longer straight sections. The road prism tends to be flat. Shoulders are wide, measuring about 10-12 feet wide, and surfaced with gravel. There are some unpaved ditches, which are similar in width to the unpaved ditches depicted on the typical cross section for the 1951 road design. The ditches were not paved, in order to blend these features into the surrounding landscape, as was typical of Mission 66 road design. Today, there are also gravel berms along the shoulders of this road segment, but they do not follow historic cross-section drawings and are likely the result of clearing debris off the road after storm events.

Narrow Section of Grapevine Canyon (Station 100+00 to 145+00)
At Station 100+00, the road transitions into an extremely narrow portion of the canyon. The tight curve between Stations 100+00 and 105+00 has a sloped road prism to the inside of the curve, and an approximately 8-foot-wide shoulder on the inside of the curve. A berm and ditch are on the outside of the curve at the base of steep rock cuts. This portion of the canyon is characterized by steep walls that rise up on both sides and a narrow canyon floor. The road has sharper, tighter curves as it navigates through the canyon and around rock outcroppings. The 1951 alignment maintained many of these rock outcroppings rather than blasting or cutting a straight alignment. Gravel pull-outs exist wherever there is a setback in the canyon wall. Many of the existing pullouts are remnants of the old 1930s alignment where the curvature of the road was improved and straightened in 1951. Shoulders are typically narrow (about 1 foot) and there are no ditches.

Straight Section above Scotty's Castle (Station 145+00 to 185+00)
At this point, the canyon opens up with a wider canyon floor between the canyon walls. The road is straighter and views down the canyon open up. The road has shoulders and ditches on either side and most reflects historic cross-sections designed for the 1951 road project. The road measures approximately 21 feet wide, has a slightly crowned road prism, and soft shoulders and unpaved ditches are found along both sides of the road along most of road in this section. Shoulders measure approximately 8 feet wide.

Upper Scotty's Castle Historic District (Station 185+00 to 255+00)
In this section, the road moves to the base of the southern slope and becomes curvy again. The steep canyon wall defines one side of the road, while the other side is defined by the historic fence associated with Scotty's Castle (described in detail below). Beyond the fenceline, the canyon floor is vegetated with thicker and greener vegetation associated with wetlands. Shoulders are covered with vegetation. There are occasional pullouts, 16-18 feet wide, located wherever the canyon wall recedes back away from the road. Heading southwest, the Scotty's Castle structures come into view in this section. The road passes south of Scotty's Castle, past a non-historic main entrance to the parking lot, a row of historic trees at the edge of a grassy picnic area, and the historic entrance gate. As the road passes the main building complex of Scotty's Castle, the road is the narrowest, ranging from 18 feet to 20 feet wide. The narrow road width and the alignment on the approach to the historic entrance to Scotty's Castle was not modified during the 1947-1951 road work, as this section of road was constructed on fill and a cut bench by Albert Johnson as part of his construction of Scotty's Castle.

Lower Scotty's Castle Historic District (Station 255+00 to 312+00)
At the historic entrance to Scotty's Castle, the road makes a sharp turn and the canyon widens again, vegetation opens up, providing views southwest toward Death Valley. The road continues to hug the canyon slopes on the eastern side and is edged by the historic fenceline (described in detail below) on the west. The valley floor west of the fence is much more expansive than upper portions of the canyon.

Gravel shoulders on both sides of the road generally vary from 2-4 feet wide. The road is straighter in this section, but has some curves, the most distinctive one at Cottonwood Corner (Station 310+00). At this corner the road makes an S-curve to navigate around thick vegetation growing near a spring and wetland. The cottonwood trees are large and provide a moment of shade in an otherwise open and exposed landscape.

This section of the road is also unique as its profile undulates up and down more than other sections. A similar character also appears in historic photos from the 1930s. It is clear from historic photographs showing the fence posts that have become partially buried that this is an area that has been impacted by flooding and buildup of rock and sediment over time. It is unclear how much the vertical alignment has been modified by these natural events, but the general undulating character of this section of the road is compatible and consistent with the historic condition of the road.

Cottonwood Corner to the Ubehebe Crater Road Junction (Station 312+00 to 395+00)
After rounding the tight curve around Cottonwood Corner, the road pulls away from the toe of the canyon slope and takes a more direct route through the canyon floor. The roadbed is raised on a fill prism. Gravel shoulders average 5-8 feet wide on both sides of the road, but are typically filled with vegetation. Beyond the shoulders are gravel berms measuring about 1-4 feet high. At Station 395+00, the road rounds its last curve as it approaches the junction with Ubehebe Crater Road. A wide pullout here provides an opportunity for visitors to enjoy the views into Death Valley and the ridges in the distance. This section of the road has experienced repeated flooding and washouts since the period of significance that has required repair and clean-up, however, the road's alignment still reflects its 1951 appearance.

Summary

Historic characteristics of the road:

- Alignment:
    - Tight curves in the narrow, upper canyon (east of Scotty's Castle),
    - Straight stretches in wider portions of the canyon (both above and below Scotty's Castle),
    - Curves following the toe of the southern and eastern slopes of the canyon as it passes Scotty's Castle and the historic fenceline
    - Major bend in road at historic entrance gate to Scotty's Castle
    - Alignment between Cottonwood Corner and Scotty's Castle, which was carefully planned for views of the castle and sense of arrival
    - S-curve at Cottonwood Corner
- Undulating grade of the lower section between Cottonwood Corner and Scotty's Castle,
- General width of the road, 20-22 feet wide average
- Soft shoulders and pullouts, often using old 1930s alignments
- Historic fenceline defines the northern and eastern edges of the road as it passes the Death Valley Scotty Historic District

Historic Fenceline

Constructed in the late 1920s, a concrete post and barbed wire fence parallels Bonnie Clare Road for approximately 2.6 miles. Serving a multitude of purposes, the fenceline defines the historic Scotty's Castle property line and the road's edge, while also serving as a visual and rhythmic delineator in the landscape.

Between 1926 and 1931, Albert Johnson coordinated the construction of a fence containing more than 3,100 fence posts to enclose his 1,500-acre Death Valley Ranch. Today, the fenceline is listed on the National Register of Historic Places as a contributing feature of the Death Valley Scotty Historic District (1978) and is also included within the boundaries of the Scotty's Castle Cultural Landscape Inventory (2005). Because the fence is listed as part of the Death Valley Scotty Historic District it cannot be listed as a contributing structure in the Bonnie Clare Road corridor; however the fence does contribute to the spatial organization and setting of the road.

A portion of the fence system established by Albert Johnson parallels Bonnie Clare Road for approximately 2.6 miles, dictating the northern and/or western extent of the road corridor. Coupled with the restrictive and often narrow canyon topography characteristic of this locale, the robust nature of the concrete fence posts and Johnson's property boundary, the alignment of the fence has remained largely unchanged, although small segments may have been modified during road work. In particular, during the 1950-1951 Bonnie Clare Road reconstruction, a few sections of the upper fenceline may have been moved in order to support curve widening and road straightening efforts (Feierabend 2006), although this was not confirmed in the field. The lower fence may have also undergone a few changes in the early 1970s (after the National Park Service acquired Scotty's Castle) when plans were drawn up to straighten the curve at Cottonwood Corner. At the time, Donald Carney, then a Grapevine District Ranger, strongly objected to the proposal. As an alternative, Carney recommended that the road be repaved and slightly widened after the fence was removed from the curve (Feierabend 2006). Ultimately, it is unclear if Carney's proposal was implemented, however; today, there is no fence extant at Cottonwood Corner.

Between 2008 and 2010, the fenceline was documented by the National Park Service staff as two separate components, although the fence is considered one system or structure. The first component includes the *upper fence*, which extends from Scotty's Castle east to Station 183+97, while the second component, the *lower fence*, traverses south/southwest from Scotty's Castle to just beyond Cottonwood Corner where it terminates.

Upper Fence (Station 183+97 to Scotty's Castle)

Along this segment of Bonnie Clare Road the route winds through Grapevine Canyon toward Scotty's Castle. The historic fenceline parallels the road on its northern border, generally remaining within five to ten feet of the paved road edge. In areas where the canyon begins to narrow and natural rock features are in close proximity, the fence is situated as close as four or five feet from the edge of pavement. In contrast, fence post locations just east of Scotty's Castle, measure thirty feet or more from the paved road edge, which is a somewhat unusual characteristic of the historic fenceline.

Lower Fence (Scotty's Castle to Cottonwood Corner)

Along this segment of Bonnie Clare Road, the route winds from Scotty's Castle west through Grapevine Canyon toward Cottonwood Corner. The historic fenceline parallels the road on its northern and western extent, generally remaining within five feet of the paved road edge, although in some areas the fence is situated as close as three feet.



Spatial Organization #1: Nevada-California border into Grapevine Canyon (Station 0+00 to 100+00), looking south (Owens 2010).



Spatial Organization #2: Narrow section of Grapevine Canyon (Station 100+00 to 145+00), looking southwest (Owens 2010).



Spatial Organization #3: Straight section (Station 145+00 to 185+00) of road, looking northeast (Owens 2010).



Spatial Organization #4: Looking west from the eastern end of Scotty's Castle boundary fence (approximately at Station 200+00), looking southwest (Germano 2010).



Spatial Organization #5: Looking west from the eastern end of Scotty's Castle boundary fence (Station 185+00 to 255+00), looking southwest (Owens 2010).



Spatial Organization #6: Looking west from the eastern end of Scotty's Castle boundary fence (approximately at Station 278+00), looking southwest (Owens 2010).



Spatial Organization #7: Lower Scotty's Castle Historic District, with Scotty's Castle fence to left of road (Station 255+00 to 312+00), looking northeast (Owens 2010).



Spatial Organization #8: Cottonwood Corner to the junction with Ubehebe Crater Road (Station 312+00 to 400+00), looking southwest (Owens 2010).

Topography

Topography described in this section includes topography that has been manipulated by human activity; natural topography is described in the Natural Systems and Features section. Bonnie Clare Road is a 7.5-mile segment of road that extends from Ubehebe Crater Road Junction to the Death Valley National Park boundary. This segment is part of the 27-mile road that runs between Stovepipe Wells in Death Valley National Park and Highway 95 in Nevada.

Important aspects of the road's topography include grade, vertical rock cuts, vertical profile of the road that contours to the existing topography as much as possible, unpaved ditches and the fill used on the approach to Scotty's Castle heading east.

The road utilizes the bottom of Grapevine Canyon in the Grapevine wash in order to minimize the amount of cut and fill necessary to construct the road along the slope of the canyon hillside. This location on the canyon floor has made the road prone to damage from annual flash floods that sweep loose soil and rocky material through the wash and out to Death Valley. The wash between the north and south slopes of Grapevine Canyon is narrow at the east end and noticeably widens at Scotty's Castle, where a smaller wash located to the north empties into Grapevine Canyon. The west end of the wash is a wide alluvial fan that has a deep layer of loose rock and soil deposited from the higher eastern elevation of the wash. Since the canyon narrows heading east from Scotty's Castle, rock cuts were utilized to open up the canyon floor wide enough to accommodate a 30-foot road bed. As with many historic roads throughout Death Valley National Park, Bonnie Clare Road utilized, as much as possible, the natural topography, with the exception being the section of road along the entrance to Scotty's Castle where the road is elevated on fill to reach a higher elevation where a road bench was constructed of cut and fill into the hillside. The cut and fill is parallel to, and follows just to the south of, the Scotty's Castle historic property line. Throughout the length of the road, selective cuts and fill were incorporated into the design of the road in order to accommodate safe passage through the canyon.

Grading

As Bonnie Clare Road enters the mouth of Grapevine Canyon from the west end, the topography is roughly 2,300 feet in elevation. The elevation reaches approximately 3,000 feet at the entrance to Scotty's Castle. By the time the road exits Grapevine Canyon at the California/Nevada state line, the elevation is approximately 3,900 feet. This climb in elevation is reached with minimal modification to the existing topography because the road follows the natural low points through the canyon by using the wash as the alignment for the road for the majority of its length through the canyon. Switchbacks and other extensive grading was not required to traverse this mountain range. The 1951 plans for rehabilitation of the eastern half of the road called for a grade of 0 to6 percent, with most grading around 3 to4 percent. These grades fit within the maximum 7 percent grade called for in Mission 66 road design. It is unclear what the western half of the road was historically graded at, but historic photos and superintendent's reports of road work before 1969 indicate minimal grading was required to maintain the current grade.

Cross Sections

Since the road traverses the Grapevine Canyon wash, typical cross sections include a road bench that is sometimes near original grade, and at a few points include a road bench that is constructed on a fill prism, or a bench at a cut slope. Most of the road bed has been eroded so that that the road no longer has a

crown. Similarly, most sections no longer have cross sections that promote drainage either through cross sheeting or flow directed into unpaved ditches paralleling the shoulders.

In a few places to the east of Scotty's Castle, there are unlined ditches adjacent to the shoulders of the road, although most of the ditches are not well defined due to heavy erosion along the entire length of the road. The road that parallels the Scotty's Castle boundary fence is constructed along a bench from cut and fill of the canyon slope, which is a typical cross section that is not heavily utilized to the east and west of the property fence. In some locations, particularly to the west of Cottonwood Corner, the road is paralleled by gravel and dirt berms adjacent to the unpaved shoulders as a result of storm material being cleared from the road and piled along the shoulders. Similarly, a portion of the road to the west of Cottonwood Corner is constructed on a fill prism that is not a design used elsewhere in the canyon.

Cuts

As a result of utilizing the wash, the majority of the road is at original grade and curved around the toe of slope for much of the southern hills. Wider curves were constructed in the 1934 and in 1950-51 to increase sight distance and travel speed, resulting in selected hills being cut at the toe of slope to provide for greater straight-aways. In general, there are two types of cuts along the length of Bonnie Clare Road; cuts made through mostly soil slopes and cuts made through rocky slopes. Minimal cuts were made through soil slopes, and many of these soil slopes have slumped into the road, eroded heavily during major storms (as evidenced by historic aerials), and/or have been modified during road cleanup and repair after storm damage. These minimal cuts designed and implemented during the period of significance were in keeping with Mission 66 road design principles that placed an emphasis on reducing the height of cuts to minimize the visual intrusion on the surrounding landscape. The rocky slopes have held up better over time, with most of the rock slopes being cut at steep angles. Rock cuts are of varying heights of nearly vertical rough-cut workmanship. Although some rock has eroded over time, the major rock slopes that are present in historic photographs are very similar in appearance today (see historic comparative photo analysis in Appendix C).

From the park boundary to Scotty's Castle, heading west, the cuts are mostly through soil slopes, although there are a few rock-face cuts. All cuts in this section are fairly minimal so that cuts were made only to short sections of the toe of slope for the few slopes that extended into the center of the bottom of the canyon. Cuts are especially prevalent at the points of slopes as the canyon narrows significantly on the approach to Scotty's Castle from the east. Some cuts may date to the 1930s CCC work, while most appear to correspond to the work done to make curve realignments to the road as depicted in the 1951 plans. At Scotty's Castle, the road bench is cut into the southern hillside between the historic and contemporary entrances to Scotty's Castle.

From Scotty's Castle to Cottonwood Corner, cuts alternate between soil and rock. Cuts were made where area was needed to allow for larger curves or straightaway sections of road to allow for increased sight distance and safety, while keeping the road on the south side of the Scotty's Castle historic property fenceline and up above the wash. Cuts usually were minimal to decrease the surface of exposed cut that would be visible from the road bench. The rock cuts at the descent from Scotty's Castle heading west are steep, vertical cuts that are cut close the edge of pavement and have retained their definition despite heavy rains. In contrast, many soil cuts in the section heading west from Scotty's Castle toward Cottonwood Corner are slumping. It appears that many of these cuts have eroded during heavy rains and the material from these cuts and the adjacent hills has followed drainages and washes that run perpendicular to Bonnie Clare Road. This has resulted in sand and gravel soil building up the road bench, so much so in some

places that the fence posts that define the Scotty's Castle historic property boundary have been buried or dislodged from their original locations.

The existing road between Cottonwood Corner and Ubehebe Junction does not include major cuts since the roadbed alternates between being located at grade or on a fill prism, both of which are aligned toward the center of the wash away from the toe of the slope that define the canyon's south edge. At the junction with Ubehebe Crater Road, the original alignment of the road is evident to the south of the existing road because the rock cuts that were made to the southern hills are still clearly visible.

Fill

Since Bonnie Clare Road was constructed using the least amount of earthwork possible, there are few fill sections that were constructed during the period of significance. Ditches that were used throughout the road fill during the period of significance were unpaved in order to allow these features to blend into the surrounding landscape, which was a key design principle of Mission 66 road design. From the park boundary to Scotty's Castle, the main area of fill that is currently evidenced as differing from the period of significance is located in the straightaway sections within the canyon in order to develop a roadbed with a crown and drainage ditch. It is assumed from a review of the 1951 typical cross section that fill was used throughout this section for the road crown and drainage system. Since the period of significance, flood debris has raised the level of the road bench at the eastern end of Scotty's Castle, as evidenced by the low height of the fence posts, which are currently partially buried along the fill slope, at the edge of the wash.

The majority of fill at the section of road at Scotty's Castle was constructed before the period of significance and integrated into the 1947-1951 design. When Albert Johnson realigned Bonnie Clare Road outside of his property between 1929 and 1930, a large amount of fill was utilized along the southern canyon walls in order to move the road outside of the level land that he claimed as his private property. The main section of fill that was utilized to create the realigned road bench is located just west of the original entrance gate, where fill was constructed with the use of a railroad-tie cribbing (Scotty's Castle CLI, 104). The 1947-1951 road work was designed to use the existing alignment in this section of road, so there was no need for additional fill during the rehabilitation effort.

To the west of Scotty's Castle, the road is located on fill. Since the period of significance, soil and rock from the surrounding hillsides has washed into the roadbed during storm events, resulting in several places to the west of Scotty's Castle where the road was once at grade with the wash and has been built up over time on fill, which may have raised the profile of the road, but has not changed the undulating historic character of the road profile. The most dramatic addition of fill has occurred to the west of Scotty's Castle through to Cottonwood Corner. Historic photographs indicate the portion of the road between Cottonwood Corner and Scotty's Castle was historically nearly at grade with the wash. The current fill and road bench that exists within this section of road appears to have been created over time as soil and rock washed down from the hills from the south into this section of road, which was then leveled in place by road crews that labored to clear annual storm damage that occurred in this section. This has resulted in a much more level and elevated road profile with fewer changes to the height of the vertical profile of the road, compared to the road profile depicted in historic photographs before the period of significance that indicate the road traversed the rolling topography of the canyon along the toe of slope. The largest quantities of fill in this section are located at the once low spots in the road where drainages from the southern hills cross perpendicular to the road and deposit large amounts of debris during major storm events. This debris has also buried the adjacent fence posts in some places, from Scotty's Castle to Cottonwood Corner.

From Cottonwood Corner to the Ubehebe Junction, the road has been built up on fill, most noticeably where the road alignment pulls away from the toe of the slope and moves into the wash before cutting back in toward the southern edge of the canyon. Analysis of aerial photographs suggests that this road alignment in the middle of the wash has been maintained since the end of the period of significance. However, the segment of the road at the bend heading west to Ubehebe Crater Road Junction has been built on a large fill prism that most likely was not constructed during the period of significance since the road utilized the existing topography as much as possible. The flood deposits at this end of the wash have created an extensive alluvial fan that has added a large quantity of fill at the west end of the canyon. Despite a short section of the road being constructed on a fill prism, the overall character of the road fill in this section is compatible with the historic character of the 1947-1951 work that called for fill to create a crowned road bed and a drainage ditch system.

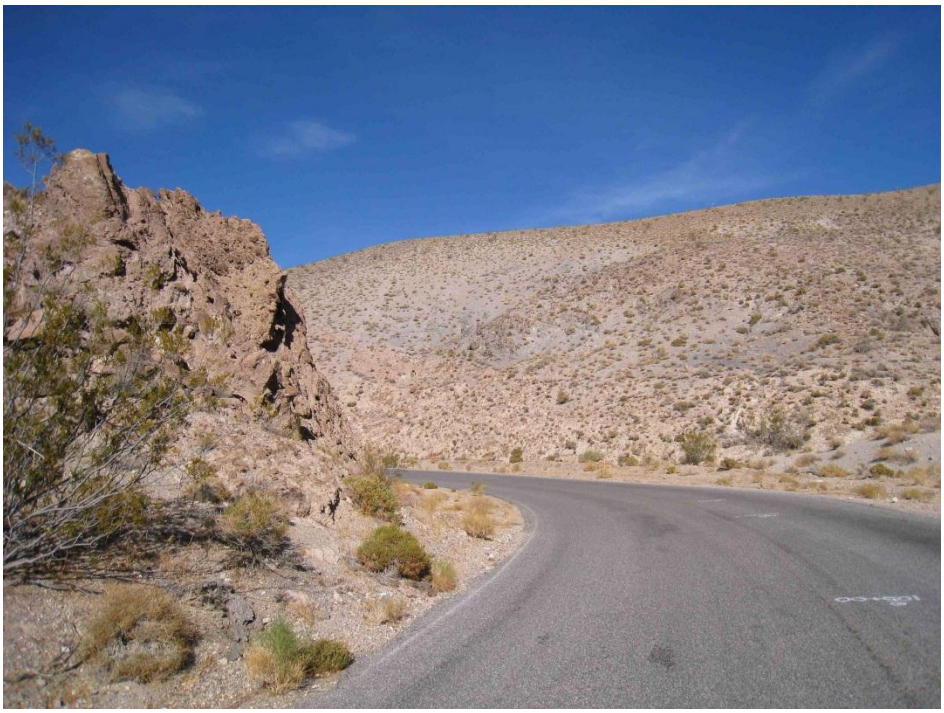
Summary

Historic characteristics of the road:

- Grade of less than seven percent.
- Cross section composed of a 30-foot wide bench, 1/4 inch to 1 foot crown, 10-foot-wide paved travel lanes, three foot unpaved shoulders, and 2-foot-wide unpaved ditch at cut slope.
- Vertical rock cuts, and slightly angled (1:1 ½) soil cuts throughout canyon.
- Fill used on east and west approach to Scotty's Castle.



Topography #1. The east end of Bonnie Clare Road at the park boundary line, looking west (Germano, 2010).



Topography #2. Typical rock cut at the east end of Grapevine Canyon, looking east, near Station 105+00 (Germano, 2010).



Topography #3. Typical rock cuts in the canyon between the park boundary and Scotty's Castle, looking west at Station 133+00 (Germano, 2010).



Topography #4. Fill for road bench at the east end of Scotty's Castle property boundary, looking east, near Station 189 (Germano, 2010).



Topography #5. Cut slope and road bench at the east end of Scotty's Castle, looking west, near Station 235 (Germano, 2010).



Topography #6. Rock cut and fill at the approach to the historic entrance of Scotty's Castle, looking east, near Station 246 (Germano, 2010).



Topography #7. Typical rock cut west of Scotty's Castle, looking west, near Station 251 (Germano, 2010).



Topography #8. Typical storm debris that has built up along the edge of the road between Scotty's Castle and Cottonwood Corner, looking west, near Station 277 (Germano, 2010).



Topography #9. Typical soil slope cut and erosion that occurs along the south side of the road between Scotty's Castle and Cottonwood Corner, looking east, near Station 295 (Germano, 2010).



Topography #10. Fill that has raised the level of the roadbed since the period of significance, looking south from the wash, near Station 303 (Germano, 2010).



Topography #11. Typical rock cut and fill at Cottonwood Corner, looking southwest, near Station 309 (Germano, 2010).



Topography #12. View looking west of the road with storm debris berms on each side of the road shoulders at Station 332+00 (Germano, 2010).



Topography #13. Typical fill prism for the relocated section of road near Ubehebe Junction, looking east, near Station 380 (Germano, 2010).

Land Use

Land use is defined as the principal activities in the landscape that have formed, shaped, or organized the landscape as a result of human activity.

Prehistoric Land Use

Information for this subsection was adapted from numerous secondary sources, including the Draft National Register of Historic Places Nomination Form for Bonnie Clare Road (January 20, 2011) and Johnson's Ethnographic Report: Rehabilitate Bonnie Claire/Ubehebe Roads (April 2006).

Bonnie Clare Road has a long and rich history of development as a transportation corridor, representing a continuity of use extending from the prehistoric period to the present. Archaeological investigations have yielded evidence of human use and occupation dating over 11,000 years in Death Valley and over 5,000 years in Grapevine Canyon. Evidence suggests that the canyon corridor was part of an extensive trail system that may have served as a trade route (Johnson 2006). In addition to its use as a circulation corridor, prehistoric habitation sites, rock shelters and associated use areas have been documented in Grapevine Canyon.

The most recent prehistoric occupants of northern Death Valley were part of a wide-ranging group called the Western Shoshone, commonly referred to as the Timbisha Shoshone. One of the most important habitation areas, *Mahunu,* was a Shoshone village located near the springs in Grapevine Canyon. It was the most populous and important village in the Northern Death Valley District. The Timbisha relied on what nature provided for their survival, and moved seasonally between Death Valley and the east toward Sarcobatus Flats to harvest available food resources. Ultimately, their dependence on these resources played a fundamentally important role in land use and subsequent circulation patterns through Grapevine Canyon during the prehistoric period.

As a result of Death Valley's isolation and unattractiveness to settlers, Shoshone culture continued into the early 20th century; however, it was disrupted by land ownership and development beginning in the late 1800s. Eventually, these settlement activities modified the Shoshone culture in Death Valley as indigenous populations worked as paid laborers, including working at Scotty's Castle, which decreased the need for traditional subsistence practices.

Early Exploration and Survey

In 1866, the Blasdel Expedition provided the first documented Euro-American encounter with the Timbisha Shoshone in Death Valley. Subsequent explorations included the Wheeler Survey in 1875, the U.S. Biological Survey in 1891 and the 1905 USGS geological mapping expedition. In addition to these recorded explorations, it is likely that there were many other unrecorded Euro-American trips into the area.

As explorers, miners and homesteaders moved through the area in the latter half of the nineteenth century, an unpaved and undefined road emerged in Grapevine Canyon, which likely utilized Shoshone trails within the canyon. In 1880, the first permanent settlement in Grapevine Canyon was established by Jacob Steininger. As a result of continued exploration and development in the area, an unpaved wagon road was established in the canyon by 1907 to transport ore and supplies from mine operations in the Ubehebe

Mining District to the railroad lines at Bonnie Clare, Nevada. At this time, the Grapevine Canyon route was selected because it provided the most direct link between the mines and mills to the railroad lines at Bonnie Clare, which was located 25 miles to the east of the area that became Scotty's Castle.

Albert Johnson and the Development of Scotty's Castle

Albert Johnson was introduced to the Grapevine Canyon area by Walter Scott, also known as Death Valley Scotty, as early as 1906. After several visits to the locale, Johnson acquired the old Steininger property in Grapevine Canyon in 1917. Early construction commenced in 1922 with the development of several buildings and structures on site. Construction activities intensified between 1925 and 1931 when building construction and large-scale grading work, which included the construction and alignment of circulation systems, was completed. Planning for the relocation of the existing public road that passed through Johnson's property began as early as 1925 and was completed in 1930. In 1931, construction efforts at Scotty's Castle were terminated and the castle was closed to visitors.

In 1933, Death Valley National Monument was created and as a result, local and federal governments started to maintain Bonnie Clare Road. The following year, in 1934, CCC road crews worked simultaneously on the lower Bonnie Clare Road near Grapevine Ranger Station and the section from the Castle to the Monument's boundary. Within a period of just over two months, Bonnie Clare Road had been reconstructed to the standards approved for a dirt/gravel road within the national monument. During this period, the road served as a connector route facilitating the transport of materials and equipment east to the town of Bonnie Clare, Nevada and also provided access to Scotty's Castle. When the castle reopened to visitors in 1936, the site quickly became an established tourist destination drawing as many as 130 visitors per day.

Early Mission 66 Development of Bonnie Clare Road

Despite the important role of Bonnie Clare Road in Death Valley's circulation system, the route was in poor condition throughout the 1930s and 1940s due to storm damage. In response to the end of World War II and the lifting of travel restrictions and rationing, many parks, including Death Valley, experienced a significant increase in visitation. Immediately prior to and during the war, very little maintenance work was completed on Bonnie Clare Road. The CCC crews left the park in May 1942 and plans to improve the road were placed on hold. In April 1946, the Nevada highway department repaired the road from Highway 95 to Scotty's Castle, but did not work on the three miles of roadway from Scotty's Castle west to Ubehebe Crater Road Junction. As a result, this segment of road was in very poor condition until 1947 when it was resurfaced to support increased visitor access and capacity, which was compatible with early Mission 66 development in Death Valley. Subsequent repair work and base-sealing was completed in 1948 by the NPS in order to improve the condition of the road. In 1950, the popularity of Scotty's Castle prompted both the State of Nevada and the National Park Service to fund rehabilitation of Bonnie Clare Road from Scotty's Castle east to US 95. Bonnie Clare Road construction efforts were completed in June 1951, which served to modify the existing narrow gravel road into a paved, 20-foot-wide park road. The road served as a vital connection that provided visitors with a scenic drive through the canyon to Scotty's Castle.

Throughout the 1950s and into the late 1960s the road corridor underwent some damage as a result of washouts, but was repaired through standard maintenance practices, including patching and shoulder grading. In the decades that followed, the road sustained considerable storm damage, although the road

was repaired without significant modifications to its alignment, width, or profile. In 1970, the National Park Service acquired Albert Johnson's land holdings and associated buildings and structures from the Gospel Foundation of California. After the National Park Service obtained the property, several proposals were made to widen the road and straighten the curves, although these modifications were never implemented.

Road-oriented park planning efforts increased during the 1990s after Death Valley National Monument became a National Park under the 1994 Desert Protection Act. By 1999, Bonnie Clare Road had been redesignated Route 11 (Scotty's Castle Road) in a Road Inventory Program prepared by the Federal Highway Administration. The inventory found the Grapevine Canyon segment of Route 11 to be in fair to poor condition.

Despite the changes throughout the years, today, the Bonnie Clare Road corridor continues to serve as an important circulation system, providing access to Death Valley National Park and Scotty's Castle. Currently, the road functions as an important vehicle connection point between the canyon floor and the uplands via Grapevine Canyon. Furthermore, the road also provides the only vehicular access to Scotty's Castle, a popular visitor attraction in Death Valley National Park.



Land Use #1. Bonnie Clare Road is used by park visitors as the only vehicle access to Scotty's Castle as well as for scenic drives through Death Valley National Park (Germano, 2010).

Views and Vistas

Views and Vistas include important, character defining views (expansive and/or panoramic prospects which may be naturally occurring or deliberately contrived) and vistas (deliberate, controlled prospects of a specific, linear view). Beyond the natural beauty of the canyon walls and natural rock formations, the Bonnie Clare Road design incorporates key views and vistas along its route. The views within Grapevine Canyon are important to the Timbisha Shoshone, as described in detail in the ethnographic report for Grapevine Canyon. Some of these were planned and designed, while others were the fortunate result of routing a road through a canyon with impressive natural landscape features.

Chimes Tower and Entrance Gate
As Albert Johnson realigned the Bonnie Clare Road between 1929 and 1930, one of his goals was to create a striking approach to his property, which was known as Death Valley Ranch or Scotty's Castle. Correspondence from 1929 reflects Johnson's desire for the alignment of the Bonnie Clare Road and entrance to the complex to be an "impressive approach to the buildings" (Feierabend 2006). As a result, the road was aligned so that the Chimes Tower was the first building visitors would catch a glimpse of as they traveled north/northeast along the undulating road. This view, combined with the fenceline along the western edge of the road, increased anticipation of reaching Scotty's Castle. Johnson located his main entrance at a point along a sharp curve of the road that is highly visible to visitors coming from either direction, which also creates a strong sense of arrival. Today, the road is still situated in its historic alignment providing visitors similar views, despite the encroachment of vegetation near the entrance.

Tin Mountain
Traveling south from the Scotty's Castle towards the valley, a notable panoramic view is revealed toward Tin Mountain. The peaks of the mountain rise quickly from the floor of Death Valley creating a dramatic landscape. According to historic documents, both Albert Johnson and Scotty acknowledged the importance of this view (Feierabend 2006). Tin Mountain was also held in high regard by prehistoric inhabitants (Feierabend 2006). This view continues to impress today's park visitors.

Cottonwood Corner and Cathedral Rock
Cottonwood Corner and Cathedral Rock are notable landmarks along the road and are located in close proximity to one another. Cottonwood Corner is a lush, vegetated area near a spring, which contrasts sharply with the surrounding desert landscape. It is a unique location where park visitors drive under trees as they slow to round a tight corner. Cathedral Rock is a natural landform located close to Cottonwood Corner. The rock formation, with its distinct texture and color from the surrounding slope serves as an interesting feature while driving along the Bonnie Clare Road.



Views and Vistas #1: View of Chimes Tower from Bonnie Clare Road, looking north (Germano 2010).



Views and Vistas #2. View of Tin Mountain, looking south (Germano 2010).



Views and Vistas #3. View of Cathedral Rock, looking northwest (Owens 2010).



Views and Vistas #4. View of Cottonwood Corner and Cathedral Rock, looking north (Germano 2010).

Archeology

Archeological sites identified in the CLI include the location of ruins, traces, or deposited artifacts in the landscape that are associated with the historic resources that date to the period of significance and are evidenced by the presence of either surface or subsurface features. The CLI takes every precaution not to disclose the location of sensitive archeological sites to preserve the resources.

Archeological Overview

The following overview of archaeological resources in Grapevine Canyon is based on the Draft National Register of Historic Places Nomination Form for Bonnie Clare Road prepared by AArcher, Inc. (January 20, 2011). See draft nomination for reference information.

For thousands of years, Grapevine Canyon was utilized by the direct ancestors of the present-day Timbisha Shoshone and related Western Shoshone peoples. The corridor is rich in archeological resources and as a result many cultural properties have been identified within and adjacent to the Bonnie Clare Road right-of-way. These properties testify to its past use and provide important insights into prehistoric life in and around Death Valley (Johnson 2006). Since the 1950s, numerous archaeological investigations have been completed in Grapevine Canyon. While these investigations have provided a plethora of information, an archeological inventory has not been completed for Grapevine Canyon or its tributary canyons in their entirety; however, sufficient work has been completed to aid in the development of the historic context for Grapevine Canyon and Bonnie Clare Road.

As a result of several archeological field investigations, eleven rock shelter sites were documented throughout the 7.5-mile Grapevine Canyon corridor. Many of these sites include multiple rock shelters, while others include rock circles, rock walls, and cairns. Evidence from several shelters suggests that they were habitation sites as well as repeated use camp sites that were likely used during resource procurement activities and as way stations while traveling from the valley in the west to the desert in the east. Many of these shelters also contain diagnostic artifacts as well as faunal and floral materials dating from 5450 B.P. to the historic era.

Other archaeological sites recorded in Grapevine Canyon include seven lithic scatters, a bedrock milling site, a hunting blind, two petroglyph sites, a quarry, three residential or domestic campsites, and a historic dump site. In addition, there is also a multi-component, multi-use site containing a prehistoric bedrock milling feature as well as other ground and chipped lithics, an abandoned road segment, a historic trash scatter, a collapsed cairn, and a quarry (Bergerstressor 2009; NPS 2010). Indian Camp, which is one of the three residential or domestic camp sites, is located within the Bonnie Clare Road corridor.

Ultimately, the narrow canyon corridor, combined with the number, diversity of type, and range of occupation dates of documented archaeological sites allows archeologists to conclude that Grapevine Canyon, and in some locations the current alignment of the road within the canyon, was an often used corridor for prehistoric travel and use. However, it should be noted that Johnson (2006) has suggested that little work has been done to record and document the trail network in Grapevine Canyon. The most recent archaeological studies in the area recorded some trail segments as they were associated with archaeological sites (Bergstressorn.d.; NPS 2010); however, this lack of field investigation does not negate the importance of the canyon as a travel corridor.

Indian Camp (CA-INY-5702H)

Information associated with Indian Camp was adapted from numerous secondary sources, including the Draft Bonnie Claire Road-Historic Road Characterization Study prepared by Carey Feierabend (2006) and Draft National Register of Historic Places Nomination Form for Bonnie Clare Road prepared by AArcher, Inc. (January 20, 2011).

One of the most notable residential or domestic sites within the Bonnie Clare Road corridor is Indian Camp (CA-INY-5702H) located on the south side of the road east of the current entrance to Scotty's Castle. The site encompasses approximately 11.89 acres (Pearson 2003) and is associated with construction activities at Scotty's Castle. Between 1922 and 1931, Timbisha Shoshone work crews and their families occupied the camp while building Scotty's Castle. The camp was abandoned in 1931 when construction activities came to an end and employment was no longer available. Since circa 1931 the site has been significantly disturbed as a result of Bonnie Clare Road construction activities that bisected the site. Significant modifications likely occurred as a result of CCC work in 1934 and rehabilitation efforts between 1950 and 1951. Possible bulldozing and debris removal in the 1970s and subsequent vegetation removal and grading on the north side of the road for a development of a parking lot may have also disturbed the site (Johnson 2006). In 2000, Indian Camp was recorded as an at risk location by Brewer et al. (2000) due to the proximity of the road and its high visitor use.

Information derived from small-scale archaeological excavations at Indian Camp suggests that the site contains several different components, including a terminal prehistoric, protohistoric, and historic component. These investigations also yielded evidence that suggests that as a result of disturbances in the area in the second half of the twentieth century, surface artifact density does not directly correlate to subsurface density or the likelihood for intact or partially intact features (Johnson 2006). There is some evidence that the exact location of Indian Camp varied from year to year, which may explain why portions of the camp only yields evidence of twentieth century use and occupation (Pearson 2003).

In 1978, Indian Camp was listed on the National Register of Historic Places as a contributing component of the Death Valley Scotty Historic District. As a result, Indian Camp contributes to the significance of the existing National Register district, rather than to the Bonnie Clare Road. Despite the changes and associated disturbances that may have impacted its integrity, the site remains significant as a result of its intrinsic value to the Timbisha Shoshone Tribe. The Timbisha Shoshone have a connection to that area as a seasonal camp, which spanned several centuries (Pearson 2003). Today, there is still one living tribal member who lived at Indian Camp.

Road Remnants

Archeological evidence of road remnants are visible along the Bonnie Clare Road corridor. In most cases, old road alignments are found in areas where the road was modified during the 1951 rehabilitation. As the new alignment was laid on top of the existing 1930s era road, it is likely the abandoned curves became pullouts or shoulders (Feierabend 2006). Today, an abundance of pullouts are found east of Scotty's Castle as Grapevine Canyon narrows as well as in other locations where slight road realignments and curve widening may have been incorporated into the design. Many of these pullouts are no longer functional because they are overgrown by vegetation, although some continue to remain as informal locations where vehicles can pull off the road. In addition to the unpaved pullouts, other potential features that correspond to earlier circulation systems in Grapevine Canyon may be extant; however, they were not individually identified because they were not explicitly incorporated into the final 1951 design

of the road. These remnants, however, have likely been used as informal shoulders and pullouts since 1951.



Archeology #1. View of Bonnie Clare Road at Station 156+50 looking east. An unpaved pullout is located on both sides of the road (Germano 2010).

Condition

Condition Assessment and Impacts

Condition Assessment: Fair

Assessment Date: 11/11/2010

Condition Assessment Explanatory Narrative:

Overall, the road is in fair condition, demonstrating clear evidence of minor disturbances and deterioration by natural forces. The pavement is raveling and deteriorating in places, and there are drainage issues associated with heavy rains. Erosion needs to be addressed in order to maintain the existing historic character of the road. Some degree of corrective action is needed within three to five years to prevent further harm to its cultural and/or natural values. If left to continue without the appropriate corrective action, the cumulative effect of the deterioration of many of the landscape characteristics will cause the inventory unit to degrade to a poor condition.

Stabilization Measures:

No stabilization measures were identified. The Bonnie Clare Road construction project will address erosion for the entire length of the road.

Impacts

Type of Impact: Erosion

Impact Description: The intermittent and seasonal flow of water in drainages and washes has led to the erosion of segments of some of the road's shoulders.

Treatment

Approved Treatment: Preservation

Approved Treatment Document: General Management Plan

Approved Treatment Document Explanatory Narrative:

Although the Bonnie Clare Road is not specifically mentioned in the General Management Plan, preservation of cultural and historic resources, including roads and highways, at Death Valley National Park is addressed. One of the Park's three specifically stated purposes is to "preserve the cultural resources of the California desert associated with prehistoric, historic and contemporary Native American culture, patterns of western exploration, settlement and mining endeavors." The road was a used by Native Americans and settlers in the area before it became a designated park road. Additionally, the GMP notes that one of the Park's management objectives is the "Maintain, preserve, interpret, and perpetuate the aesthetic setting, and the natural and cultural resources, of Death Valley National Park…." The road is a cultural resource that falls under this management objective.

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Supplemental Information

Title: Appendix A

Description: Photographic comparisons of historic road to current road

Appendix A

Photographic comparisons of historic road to current road

A.



Historic: View of road in Grapevine Canyon, April 17, 1928 (DEVA15989b).



Contemporary: November 2010 (Pacific West Regional Office).

B.



Historic: View of road in Grapevine Canyon, n.d. (DEVA 42727).

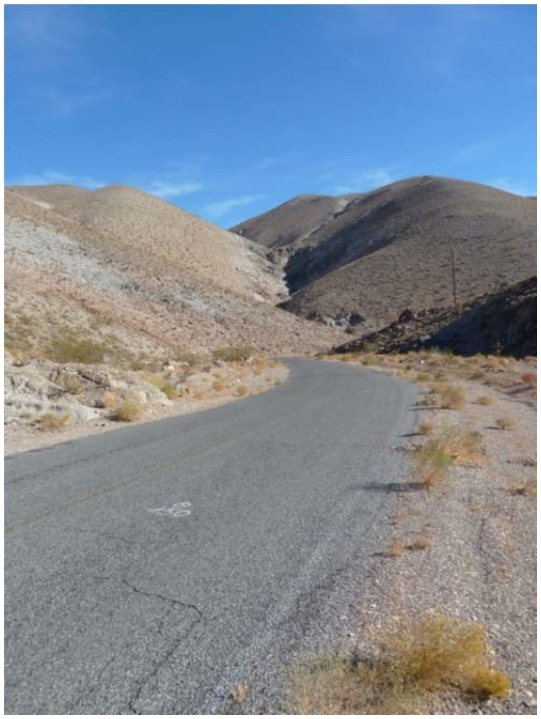


Contemporary: November 2010 (Pacific West Regional Office).

C.



Historic: View of road in Grapevine Canyon, n.d. (DEVA 43250).



Contemporary: November 2010 (Pacific West Regional Office).

D.

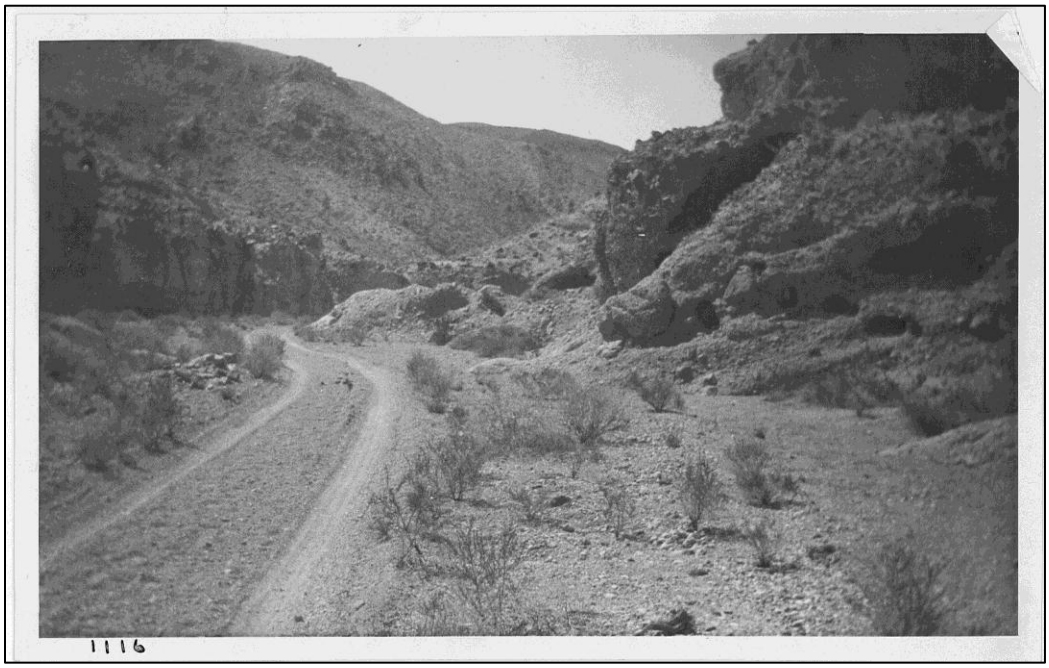


Historic: Road near milepost 2.0, April 29, 1928 (DEVA 40774).



Contemporary: November 2010 (Pacific West Regional Office).

E.



Historic: Road traversing Grapevine Canyon (DEVA 42730).



Contemporary: November 2010 (Pacific West Regional Office).

F.



Historic: Road at milepost 2.2, April 17, 1928 (DEVA 20F).



Contemporary: November 17, 2004, road at milepost 2.2 (Livingston 2004).

G.



Historic: Road at milepost 3.5, April 17, 1928 (DEVA 40698).



Contemporary: November 17, 2004, road at milepost 3.5 (Livingston 2004).

H.



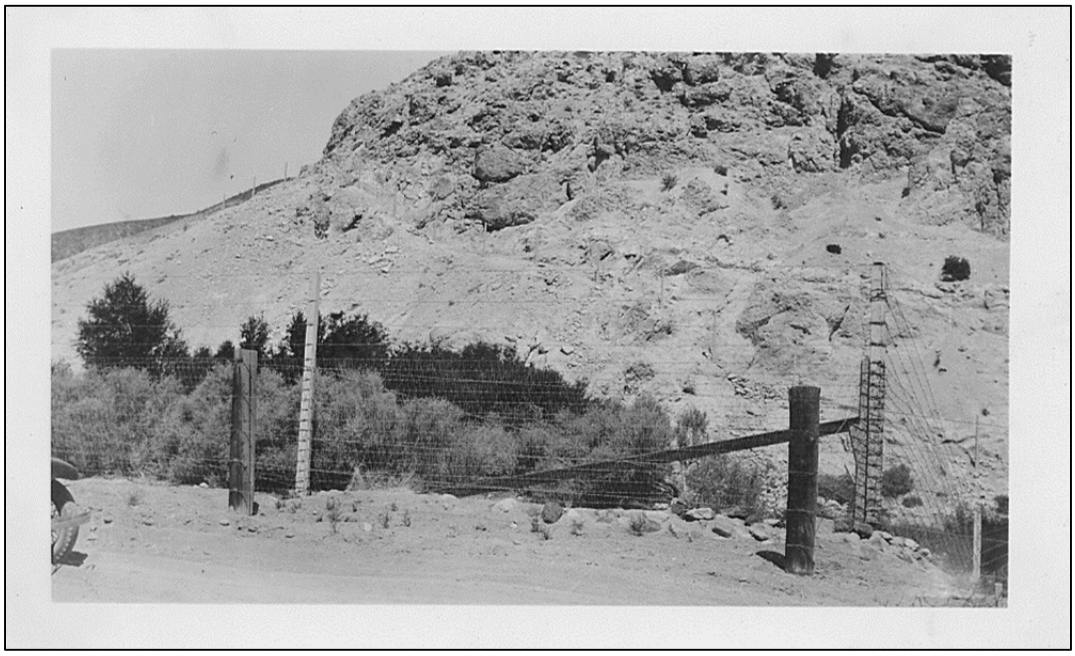
Historic: Road near park boundary, April 17, 1928 (DEVA Records at Scotty's Castle, from Livingston's Collection).



Contemporary: November 2010 (Pacific West Regional Office).

Appendix A

I.



Historic: Historic “S/J” fence characterized by reinforced concrete posts and barbed wire in background. Note wood fence posts strung with mesh wire in foreground, n.d. (DEVA 40389).



Contemporary: November 2010 (Pacific West Regional Office).

J.

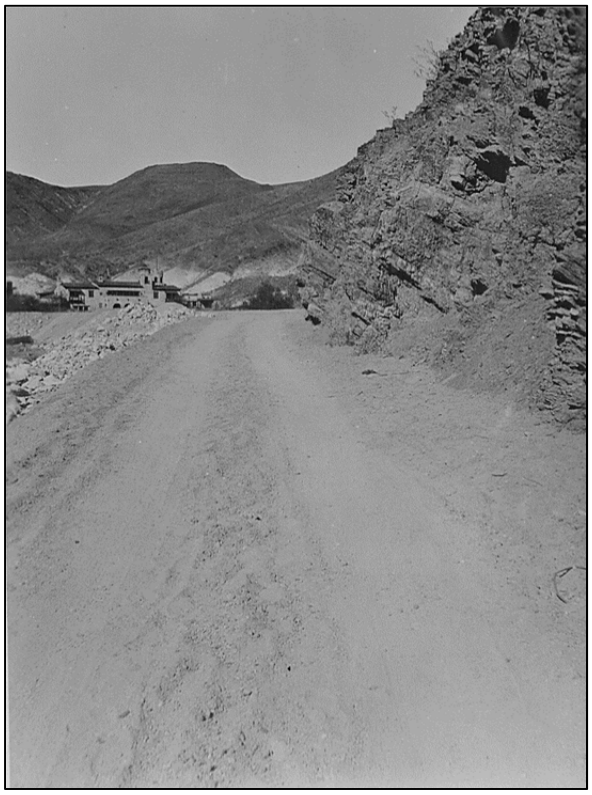


Historic: Indian Camp looking east, April 3, 1927. Note wooden fence posts (DEVA 40455).



Contemporary: Similar view, November 17, 2004, road at milepost 4.4 (Livingston 2004).

K.

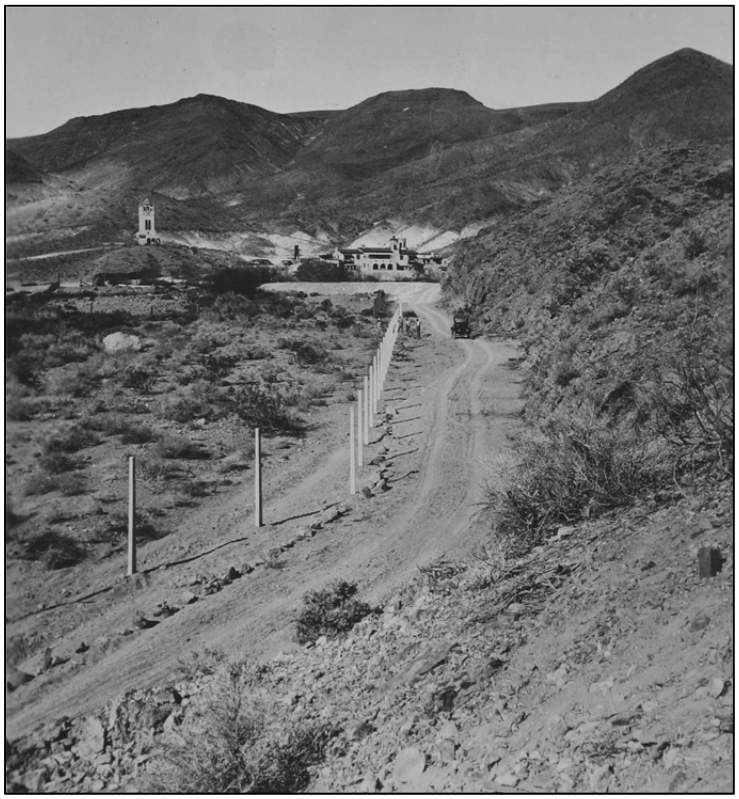


Historic: View of new road facing north circa 1929 (DEVA ACC 2278 01 322).



Contemporary: December 2004 (unknown photographer).

L.



Historic: New roadway south of castle facing north, February 15, 1930 (DEVA 18449).



Contemporary: November 17, 2004, road at milepost 5.0. (Livingston 2004).

M.



Historic: View of road and fence facing north toward Scotty's Castle, circa 1940s. Note height of fence post in relation to the figure in the background of photograph (DEVA 18605).



Contemporary: November 2010 (Pacific West Regional Office).

N.



Historic: View of fence and road looking north toward Scotty's Castle, circa 1940s (DEVA 18706).



Contemporary: November 2010 (Pacific West Regional Office).

O.



Historic: View of road at Cathedral Rock, January 31, 1930 (DEVA 40820).



Contemporary: November 17, 2004, road at milepost 5.9 (Livingston 2004).

P.



Historic: Bottom of road towards Ubehebe Junction and Tin Mountain, circa 1931(DEVA SC75-15937).



Contemporary: November 17, 2004, road at milepost 7.4 (Livingston 2004).

Title: Appendix B

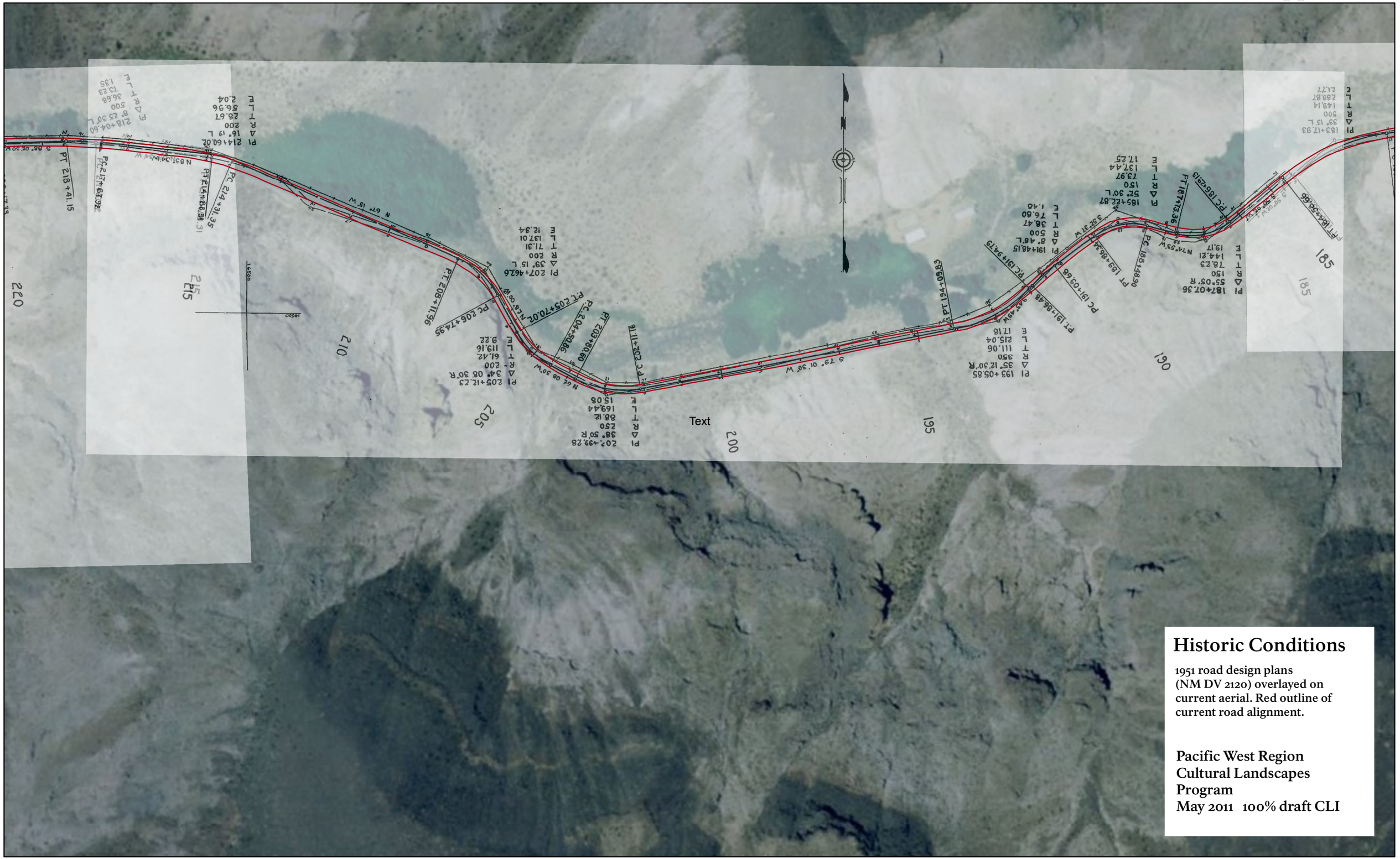
Description: Historic Conditions Map: 1951 Plan Overlay



Historic Conditions

1951 road design plans (NM DV 2120) overlayed on current aerial. Red outline of current road alignment.

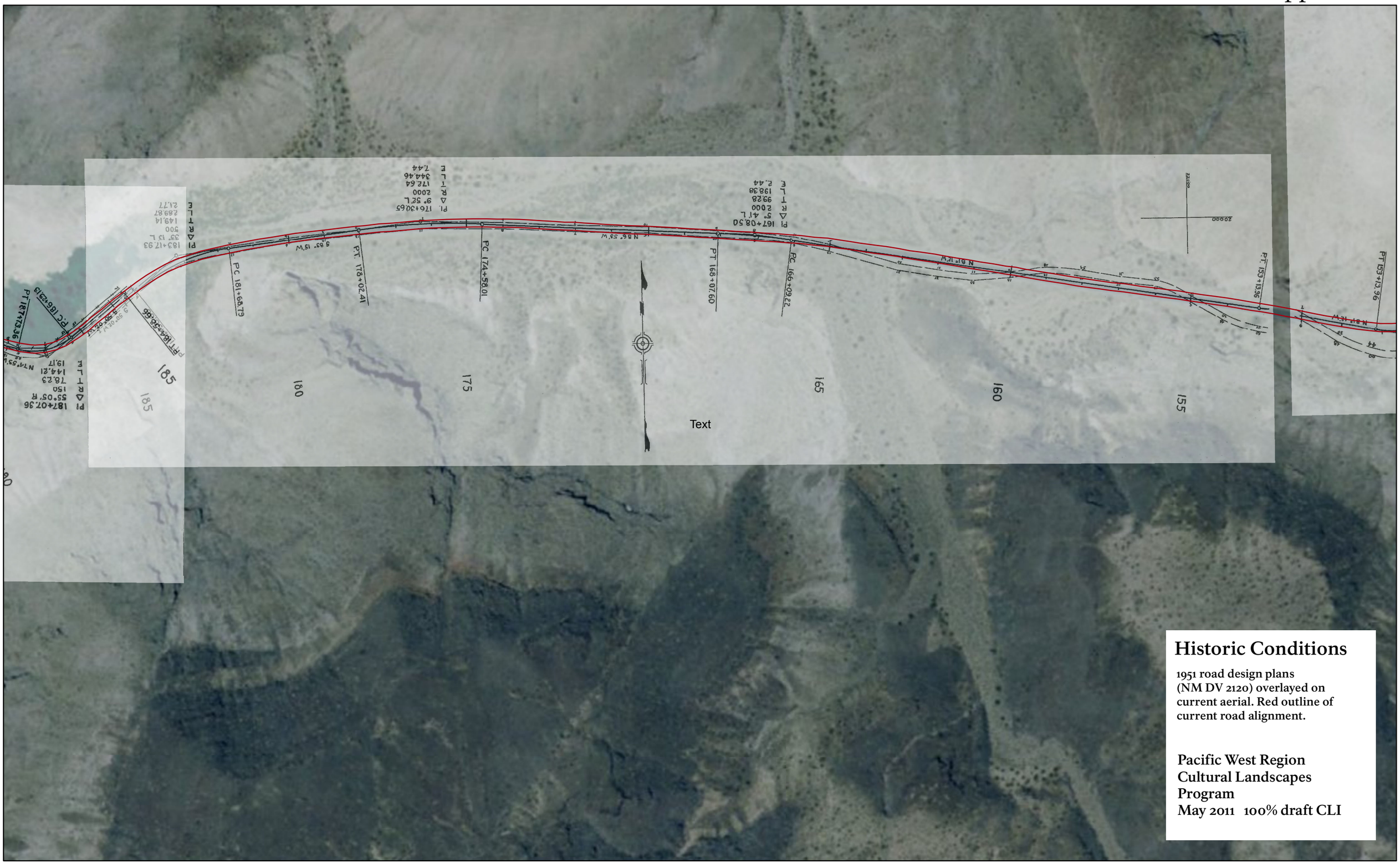
Pacific West Region
Cultural Landscapes Program
May 2011 100% draft CLI



Historic Conditions

1951 road design plans (NM DV 2120) overlayed on current aerial. Red outline of current road alignment.

Pacific West Region
Cultural Landscapes Program
May 2011 100% draft CLI



Historic Conditions

1951 road design plans (NM DV 2120) overlayed on current aerial. Red outline of current road alignment.

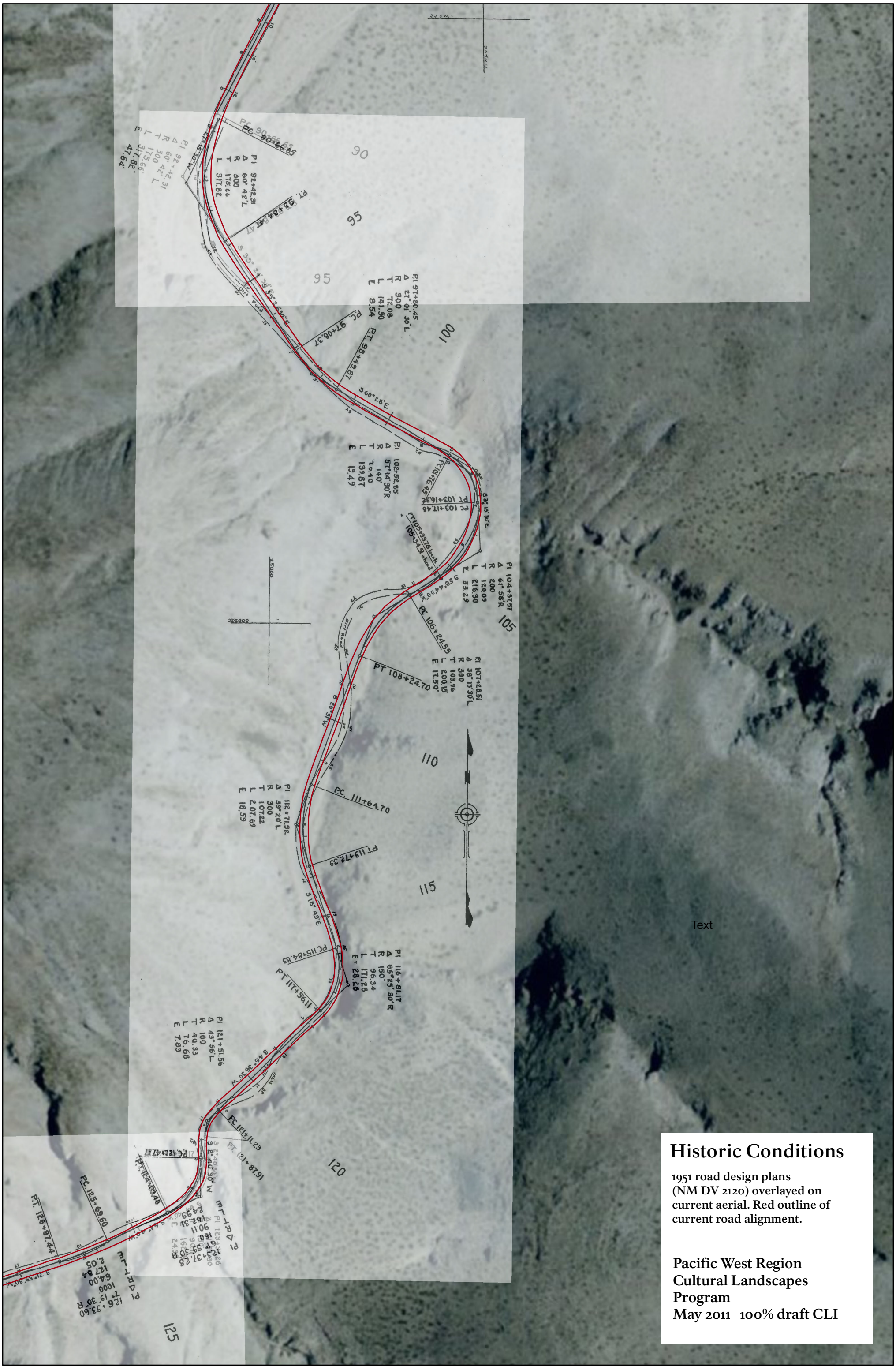
Pacific West Region
Cultural Landscapes Program
May 2011 100% draft CLI



Historic Conditions

1951 road design plans (NM DV 2120) overlayed on current aerial. Red outline of current road alignment.

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Historic Conditions

1951 road design plans (NM DV 2120) overlayed on current aerial. Red outline of current road alignment.

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May 2011 100% draft CLI



Historic Conditions

1951 road design plans (NM DV 2120) overlayed on current aerial. Red outline of current road alignment.

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May 2011 100% draft CLI



Historic Conditions

1951 road design plans (NM DV 2120) overlayed on current aerial. Red outline of current road alignment.

Pacific West Region
Cultural Landscapes Program
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Historic Conditions

1951 road design plans (NM DV 2120) overlayed on current aerial. Red outline of current road alignment.

Pacific West Region
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Title: Appendix C

Description: Historic Aerial Photographs

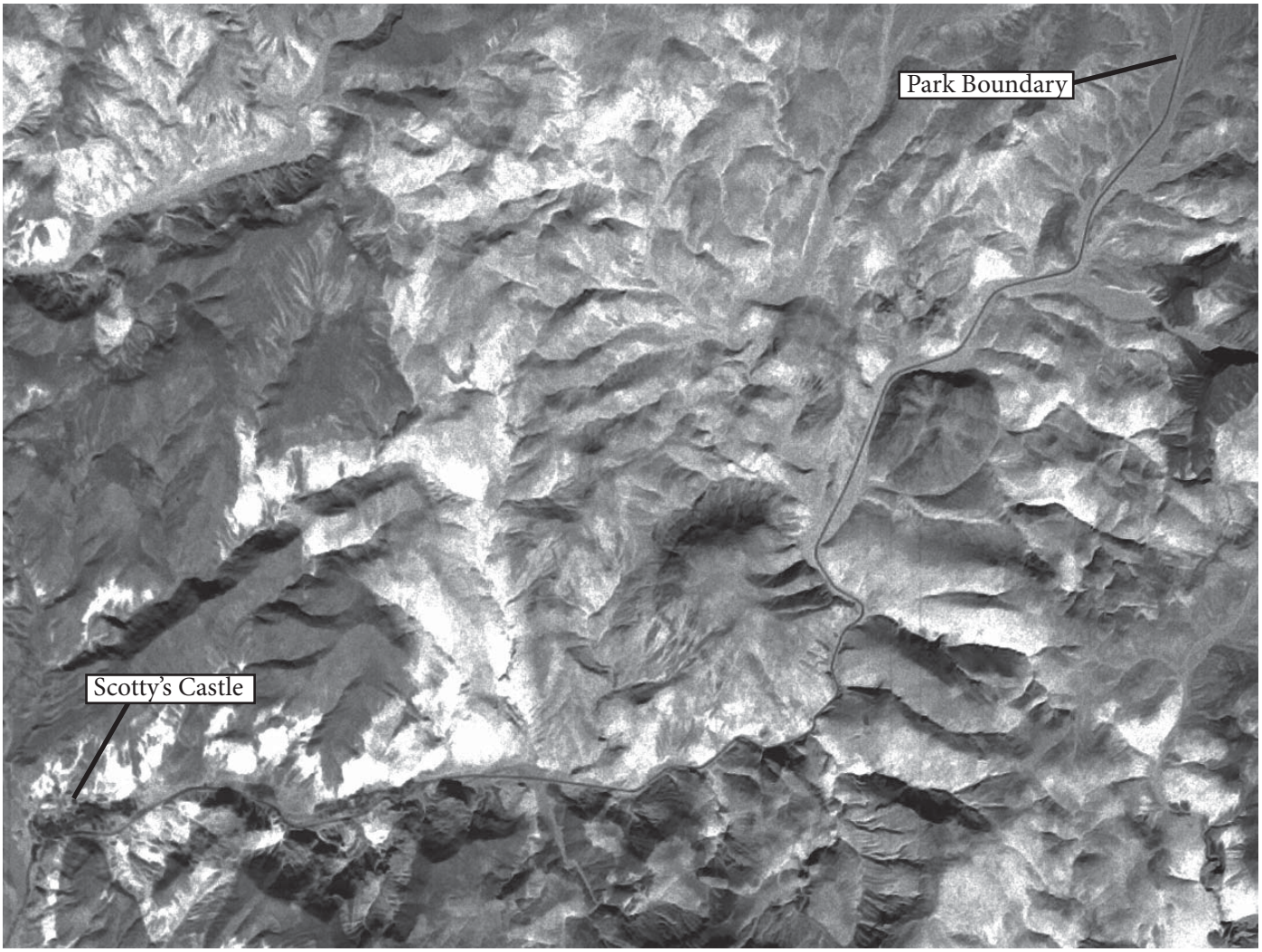


Figure 1. Historic aerial photograph dated August 9, 1952 showing the eastern portion of the Bonnie Clare Road from Scotty's Castle to the Death Valley National Park boundary.

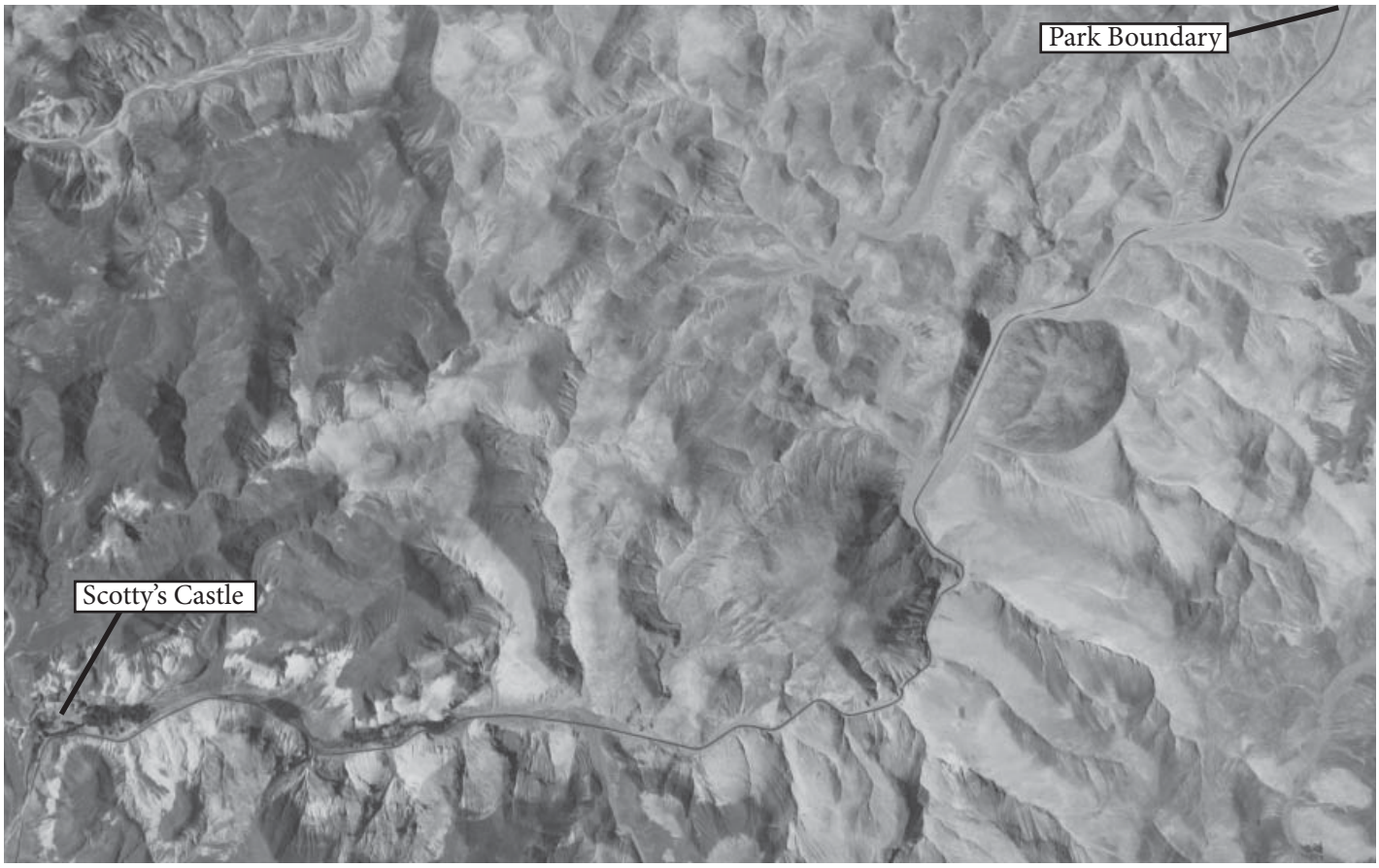


Figure 2. Historic aerial photograph dated August 3, 1965 showing the eastern portion of the Bonnie Clare Road from Scotty's Castle to the Death Valley National Park boundary.

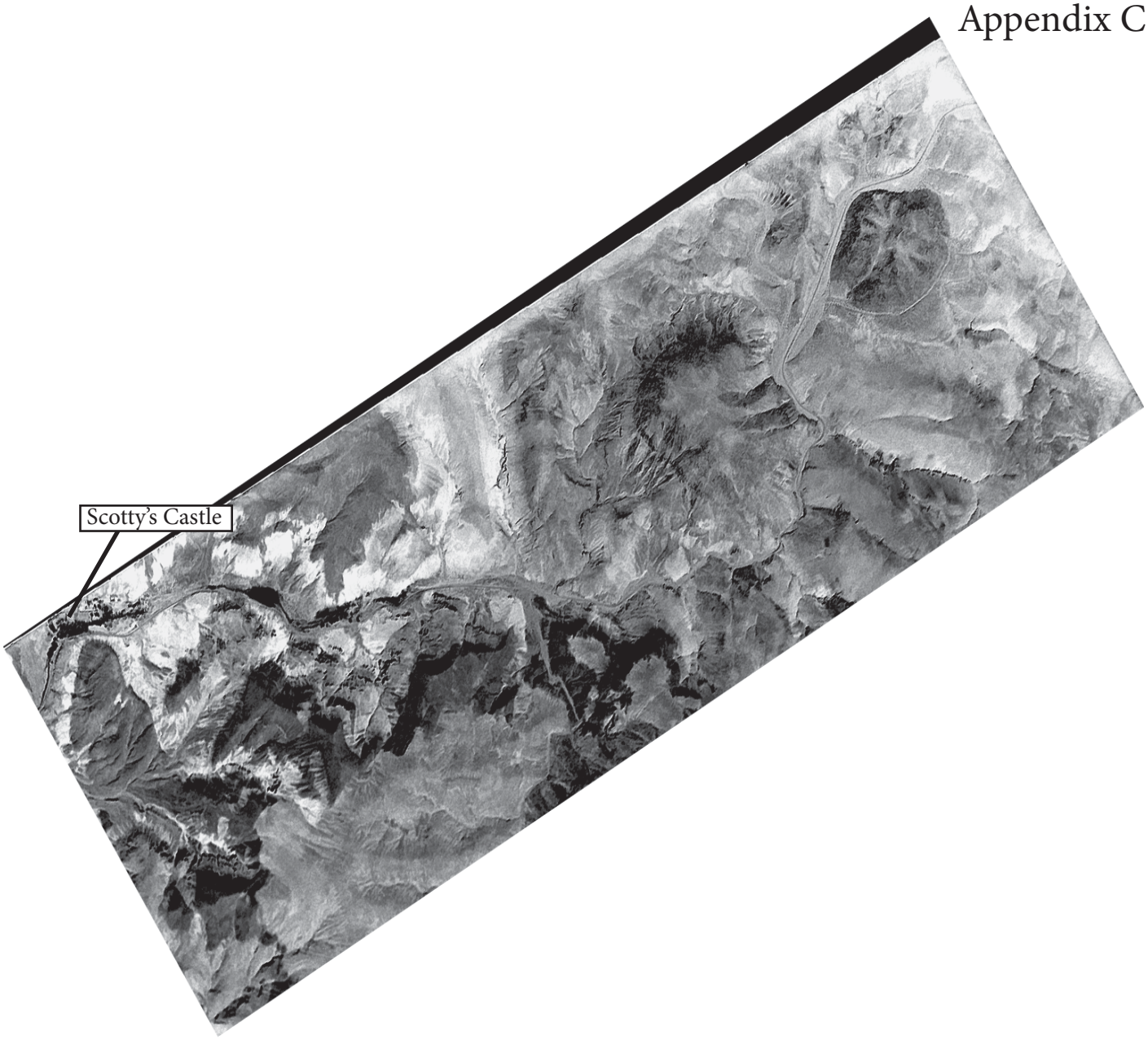


Figure 3. Historic aerial photograph dated 1979 showing the eastern portion of the Bonnie Clare Road from Scotty's Castle to the Death Valley National Park boundary.

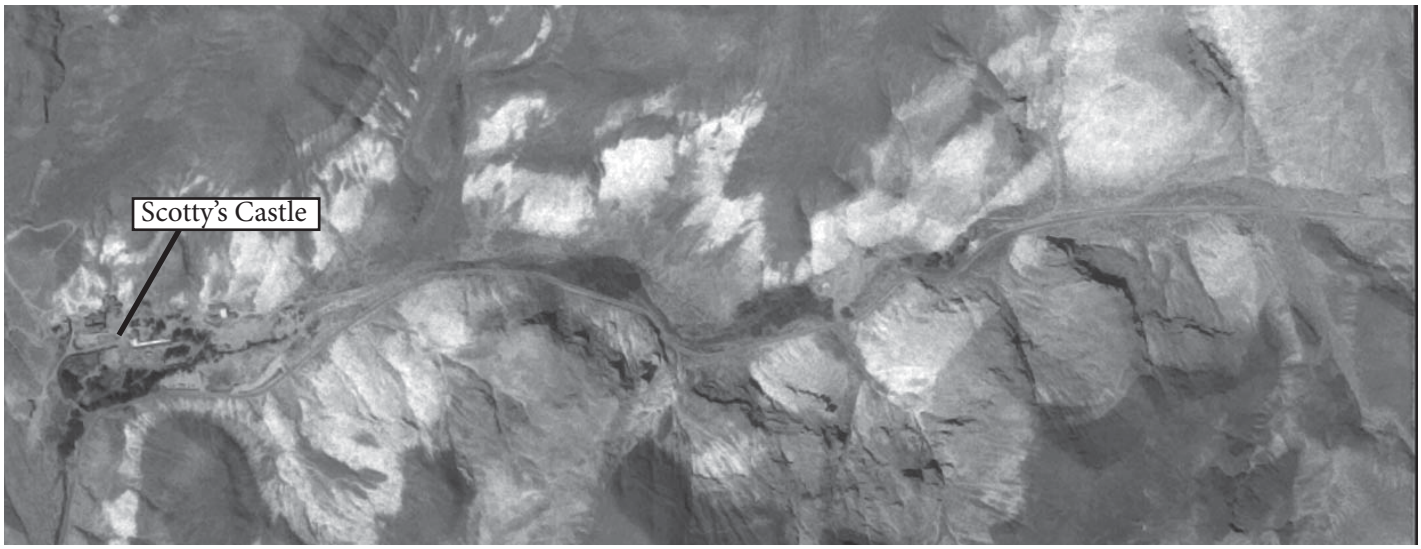


Figure 4. Historic aerial photograph dated 1982 showing a eastern portion of the Bonnie Clare Road from Scotty's Castle toward the Death Valley National Park boundary.

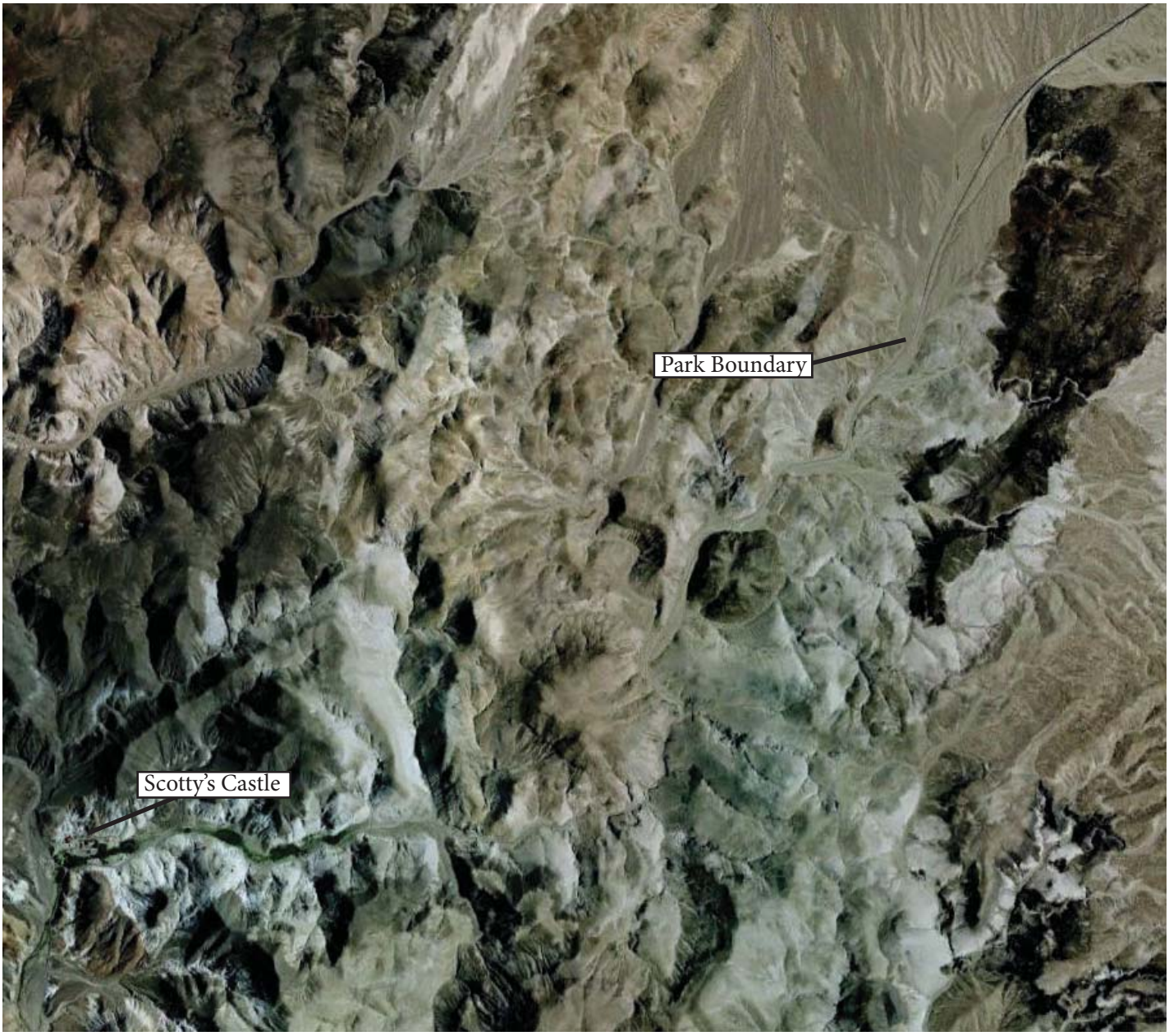


Figure 5. Current aerial photograph dated 2011 showing a eastern portion of the Bonnie Clare Road from Scotty's Castle toward the Death Valley National Park boundary (Google Earth).

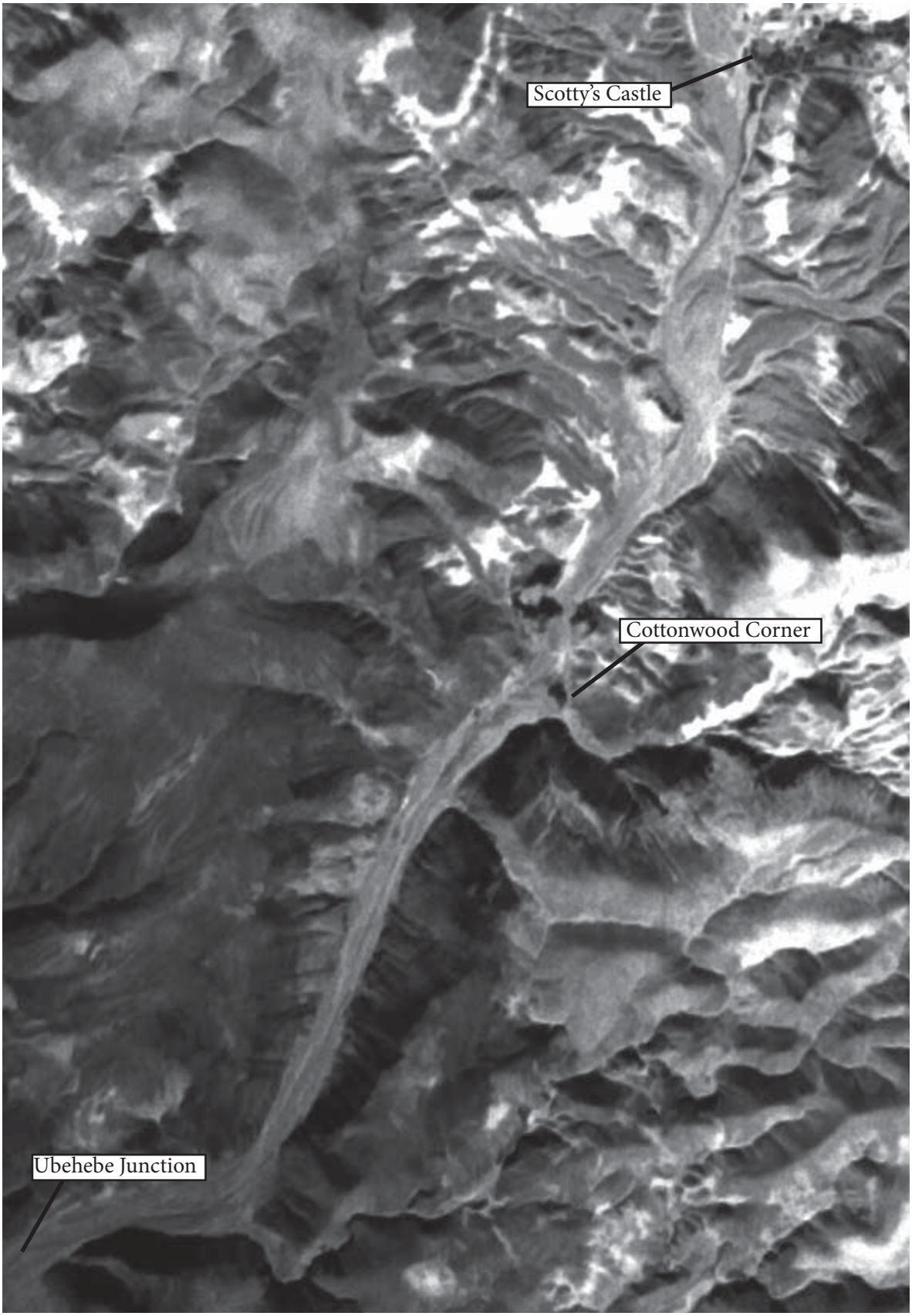


Figure 6. Historic aerial photograph dated August 9, 1952 showing the western portion of the Bonnie Clare Road from Scotty's Castle to Grapevine Junction.

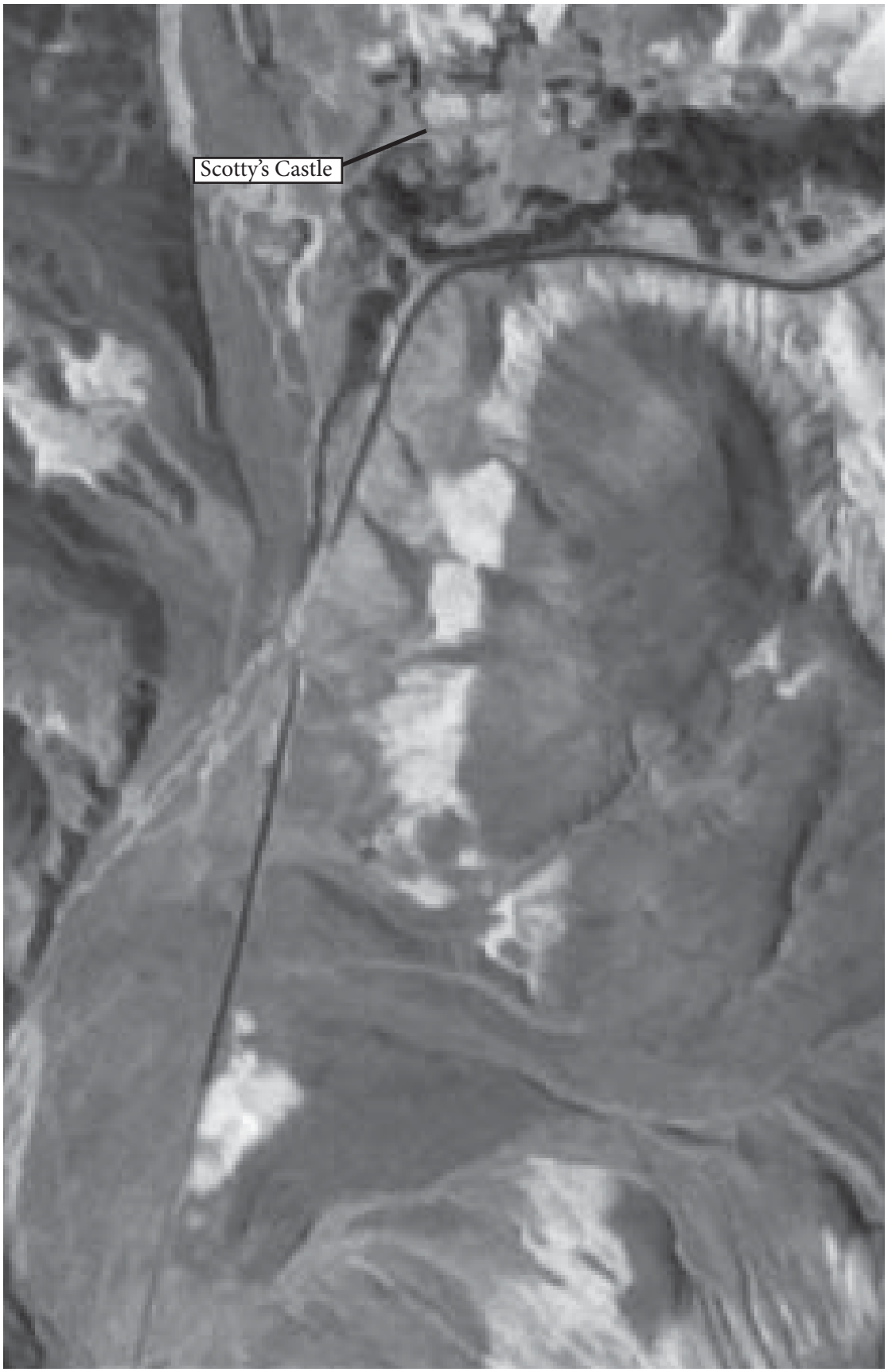


Figure 7. Historic aerial photograph dated August 3, 1965 showing the western portion of the Bonnie Clare Road from Scotty's Castle to Grapevine Junction.

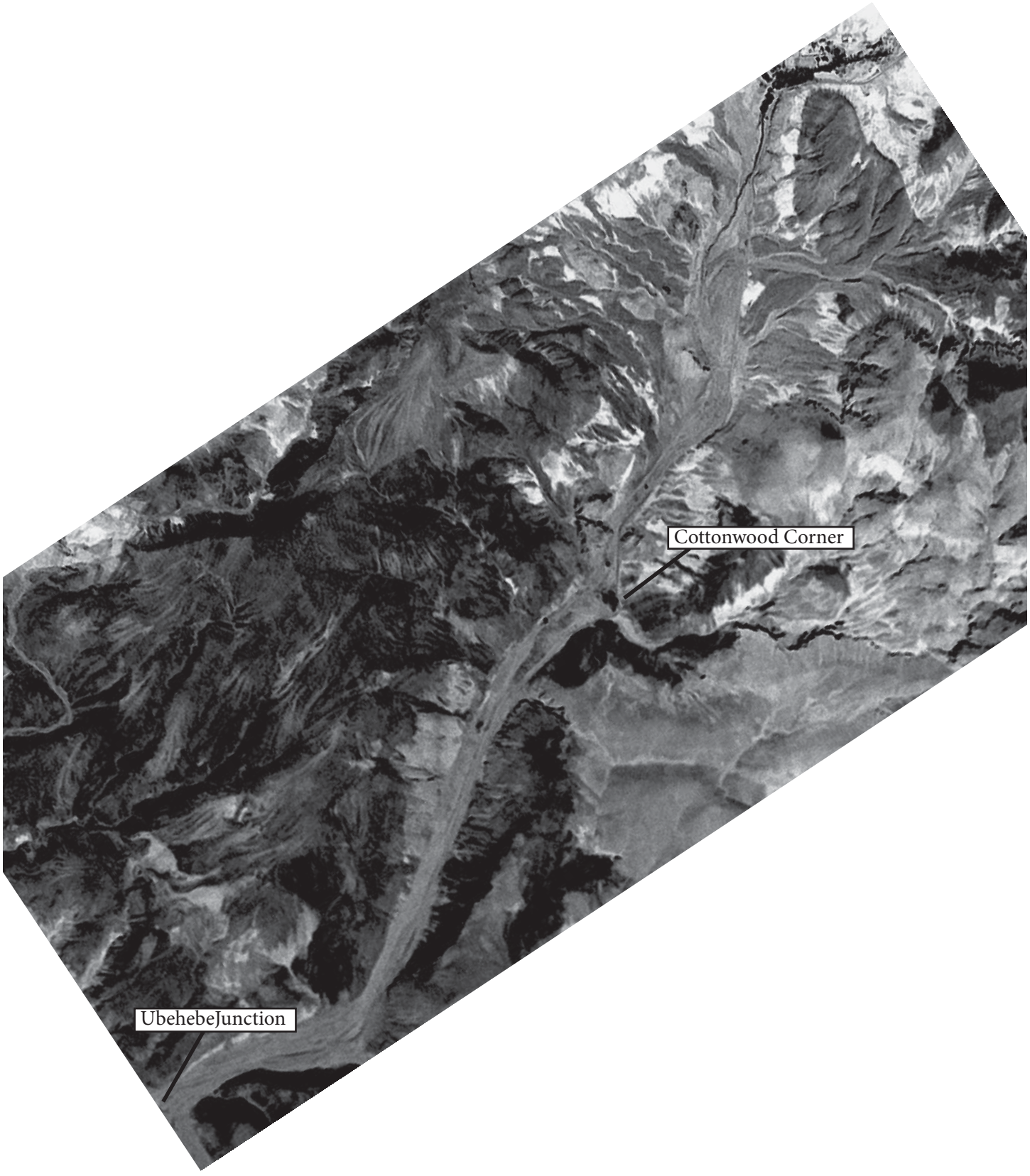


Figure 8. Historic aerial photograph dated 1979 showing the western portion of the Bonnie Clare Road from Scotty's Castle to Grapevine Junction.

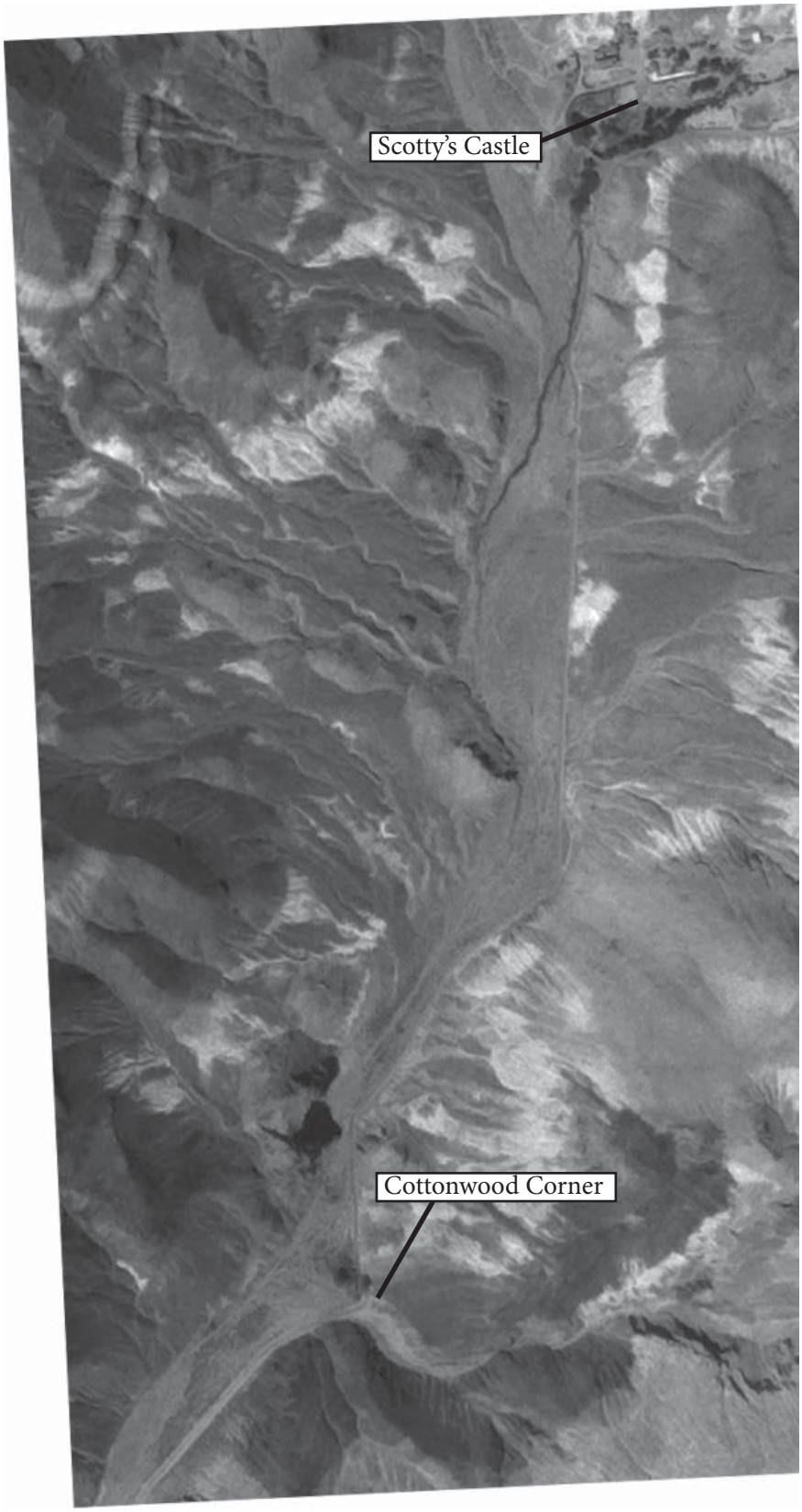


Figure 9. Historic aerial photograph dated 1982 showing the western portion of the Bonnie Clare Road from Scotty's Castle to Grapevine Junction.



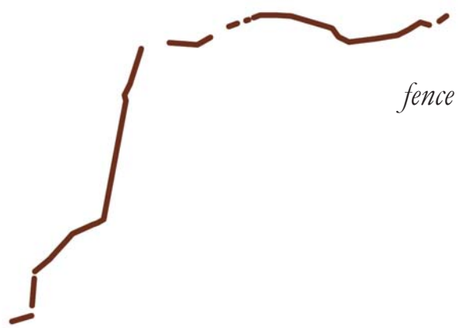
Figure 10. Current aerial photograph dated 2011 showing the western portion of the Bonnie Clare Road from Scotty's Castle to Grapevine Junction (Source: Google Earth).

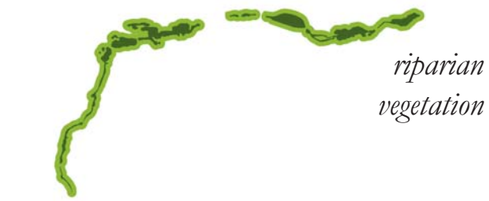
Title: Appendix D

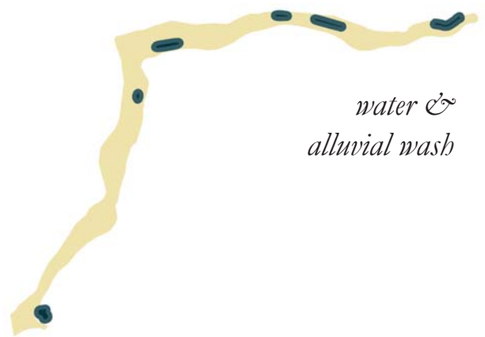
Description: Existing Conditions Site Plan

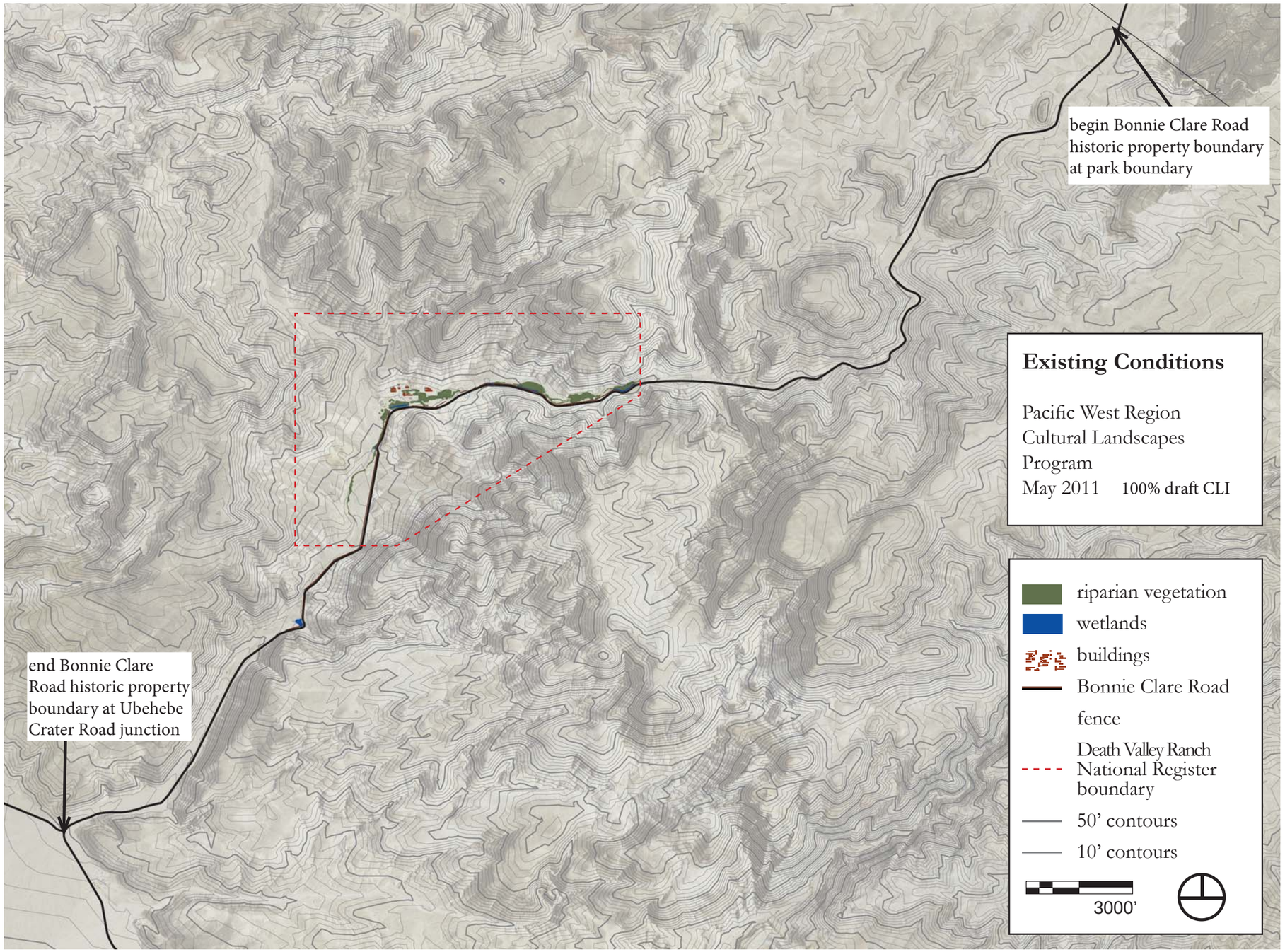
Death Valley National Park

Bonnie Clare Road Cultural Landscapes Inventory
Appendix D: Existing Conditions Site Plan









Title: Appendix E

Description: Location Map

Death Valley National Park

Appendix E: Bonnie Clare Road Location Map

Cultural Landscapes Inventory
Pacific West Region
May 2011

Data Source:
ESRI Street Map World 2D, 2011

Inyo County
CALIFORNIA
NEVADA
Ubehebe Crater Road
95
267
Scotty's Castle
Grapevine Canyon
Ubehebe Junction
Bonnie Clare Road
Death Valley
Natl Monument
Death Valley
National
Monument
Scotty's Castle Road
NEVADA
CALIFORNIA
Nye
374

