



US Army Corps
of Engineers
Rock Island District



Defense Environmental Restoration Program
for
Formerly Used Defense Sites
Ordnance and Explosives

Archives Search Report

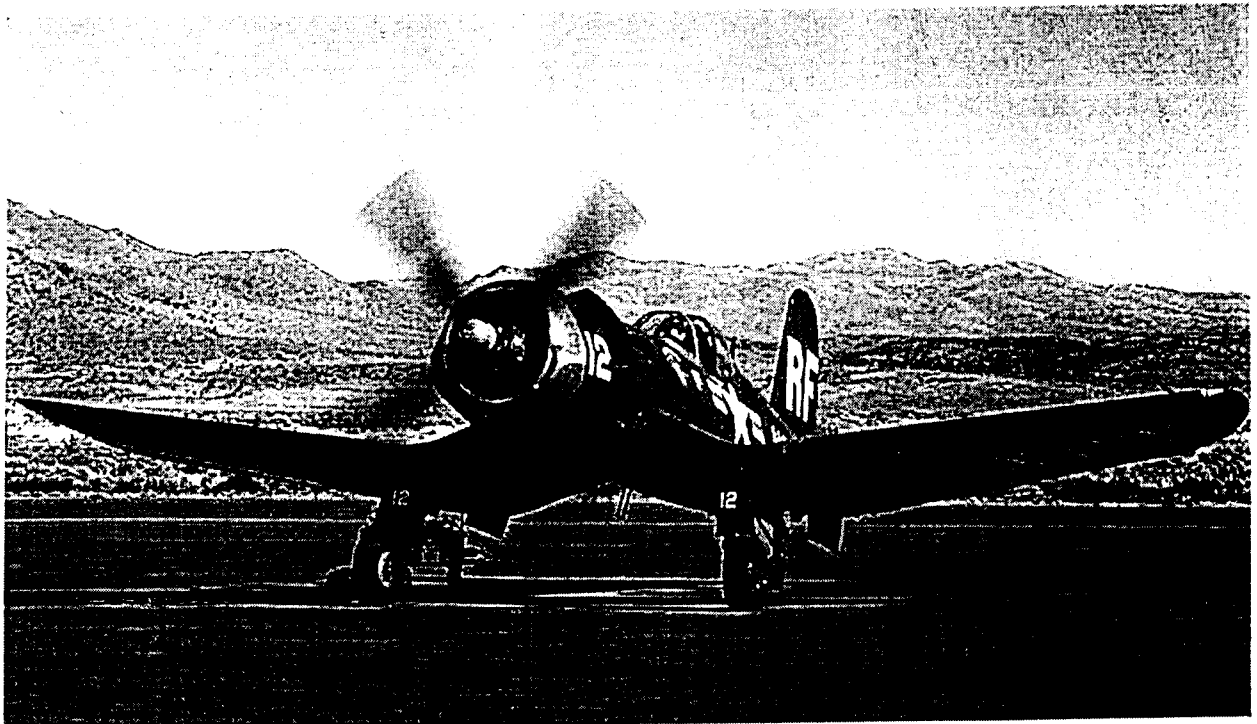
FINDINGS

for

BENSON/OCOTILLO DRY LAKE

Ocotillo Wells, California
Project Number J09CA701106

May 1997



DEFENSE ENVIRONMENTAL RESTORATION PROGRAM
for
FORMERLY USED DEFENSE SITES

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ARCHIVES SEARCH REPORT
FOR
BENSON/OCOTILLO DRY LAKE
SAN DIEGO COUNTY, CALIFORNIA
PROJECT NUMBER J09CA701106

May 1997

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ORDNANCE AND EXPLOSIVES
 ARCHIVES SEARCH REPORT
 FOR
 BENSON/OCOTILLO DRY LAKE
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ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
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FINDINGS

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**ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
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1. INTRODUCTION

a. **Subject and Purpose**

(1) This report presents the findings of an historical records search and site inspection for ordnance and explosives (OE) located at Benson/Ocotillo Dry Lake, Ocotillo Wells, California (see plate 1 for general location map). The investigation was performed under the authority of the Defense Environmental Restoration Program for Formerly Used Defense Sites (DERP FUDS).

(2) This investigation focused on 353.11 acres of land that were used as a practice bomb target and emergency landing field by the Navy from the 1940s to the 1950s.

(3) The purpose of this investigation was to characterize the site for potential OE contamination, to include conventional ammunition and chemical warfare material (CWM). This investigation was conducted by experienced ordnance experts through thorough evaluation of historical records, interviews and on-site visual inspection results.

b. **Scope**

(1) This report presents the site history, site description, real estate owner information, and confirmed ordnance presence, based on available records, interviews, site inspections and analyses. It further provides a complete evaluation of all information to assess potential ordnance presence where ordnance presence has not been confirmed.

(2) For the purposes of this report, OE presence consists of live ammunition or components, debris derived from live ammunition, CWM or explosives which have been lost, abandoned, discarded, buried, fired or thrown from demolition pits or burning pads. These items were either manufactured, purchased, stored, used and/or disposed of by

the War Department/Department of Defense. Such ammunition/components are no longer under accountable record control of any DoD organization or activity.

(3) **Expended** small arms ammunition (.50 cal or smaller), does **not** constitute an OE presence. OE further includes "explosive soil" which refers to any mixture in soil, sand, clays, etc., such that the mixture itself is explosive. Generally, 10% or more by weight of secondary explosives in a soil mixture is considered explosive soil.

2. PREVIOUS INVESTIGATIONS

a. **1995 Preliminary Assessment**

(1) A Preliminary Assessment of Benson/Ocotillo Dry Lake was conducted under the Defense Environmental Restoration Program Formerly Used Defense Sites (DERP FUDS) by the U.S. Army Corps of Engineers, Los Angeles District (see document E-1). At that time, the Findings and Determination of Eligibility, dated 17 January 1995, concluded that the 353.11 acre site located in San Diego County, California had been formerly used by the Navy.

(2) This investigation concluded that there were eligible categories of hazards under the DERP FUDS program. Table 2-1 summarizes the projects recommended in the preliminary assessment.

TABLE 2-1 DERP-FUDS PRELIMINARY ASSESSMENT PROJECTS				
Project Number	DERP Category	Present Phase	Comments	Location
--	CON/HTRW	--	None	--
--	HTRW	--	None	--
--	BD/DR	--	None	--
J09CA701106	OE	SI	OE Contamination	353.11 acres-Benson/Ocotillo Dry Lake
J09CA701101	OE	SI	OE Contamination	Borrego Maneuver Area
J09CA701102	OE	SI	OE Contamination	Camp Ensign
J09CA701104	OE	SI	OE Contamination	Borrego Hotel
NOTE: Project numbers J09CA701103 and J09CA701105 have not been assigned to any DERP FUDS project.				

b. Other Previous Investigations

No other previous investigations of Benson/Ocotillo Dry Lake were discovered during the historical records search.

3. SITE DESCRIPTION

a. Existing Land Usage

According to the INPR and FDE, Benson/Ocotillo Dry Lake consisted of approximately 353.11 acres of land in San Diego County, California (see plate 1). Currently, the site is county owned and developed into a municipal airport. Table 3-1 represents the current land usage of the site.

TABLE 3-1 LAND USAGE					
AREA	FORMER USAGE	PRESENT OWNER	PRESENT USAGE	SIZE/ ACRES*	COMMENTS
A	Bomb Target and Buffer	County of San Diego	Municipal Airport	25.96	600 ft radius circle that was a former practice bomb target and buffer around target
B	Bomb Target Safety Zone	County of San Diego	Municipal Airport	46.16	1,000 ft radius circle surrounding Area A
C	Remaining Land	County of San Diego	Municipal Airport	280.99	
				353.11	TOTAL

* Indicates approximated acreage

b. Climatic Data

(1) The Benson/Ocotillo Dry Lake site is a parcel of desert land located in the eastern portion of San Diego County near the western border of Imperial County. The project area is characterized by hot summers and mild winters. The average annual temperature is 72.6 degrees Fahrenheit (F). In the summer months (June through August), the daily average is 88.93 degrees F. The maximum high temperature recorded for the region is 120 degrees F. In the winter months (December through February), the average is 57.3 degrees F, with temperatures rarely falling below freezing.

(2) The average yearly rainfall is 6.83 inches, and occurs primarily during two seasons: winter, when Pacific frontal storms drop some moisture, and summer, when

thunderstorms develop out of moist air coming north from the Gulf of California. Winter rains are usually gentle. Summer storms can be locally heavy and cause damaging flash floods. Occasionally, a tropical Pacific cyclone, known in Mexico as a chubasco, will strike the area and dump large amounts of rain in a short period of time. On the average, summer rains attributable to tropical Pacific storms reach Southern California once every two years.

(3) Westerly winds prevail in the project region except during the summer (June through August), when easterly winds equal or surpass the westerlies. Average wind speeds are light (2-4 meters/second) most of the year. During the spring, however, average wind speeds increase to a moderate 4-6 meters/second (references B-5 and B-6).

c. Topography

(1) Benson/Ocotillo Dry Lake is located just north of the town of Ocotillo Wells, lying north of the intersection of highway 78 and Split Mountain Road. The elevation at the site is approximately 150-160 feet above sea level.

(2) The site is situated on a fairly level, broad, and arid plain, the Lower Borrego Valley just east of Borrego Mountain. Project lands appear to be generally flat desert land, falling slightly below the elevation of surrounding lands, forming a pocket for drainage waters. The vegetation of the area is extremely sparse, with solely brush and hummocks present around the outskirts of the dry lake. The drainage pattern and absence of standing water and vegetation characterize most of the project lands as a dry lake. (reference B-6 and Plate 1).

d. Geology and Soils

(1) The Anza-Borrego Desert, in which the project area lies, is part of the Colorado Desert Biogeographical Province of southeast California. The Colorado Desert is a northern extension of the Sonora Desert of Arizona and northwestern Mexico.

(2) The Geology of the Anza-Borrego is diverse, displaying sandstone and silt creations of ancient lakes in much of the area, with flat valleys, jagged mountains, and narrow canyons also predominant features, the result of millions of years of faulting, water scouring, and erosion.

(3) The Anza-Borrego Desert, in the vicinity of project lands, is bisected by two large fault zones, the San Jacinto and the Elsinore. The San Jacinto runs from the Hemet area through the Borrego Valley, sending branches to the Salton Trough. The Elsinore zone runs from the Temecula south along County Road S-2.

(4) The largest earthquake to hit Anza-Borrego in historic times occurred on the Coyote Creek Fault, a branch of the San Jacinto, on 9 April 1968. It measured 6.4 with an epicenter near the Borrego Mountain. Damage to structures in Borrego Springs and Ocotillo Wells were minor.

(5) The predominant soil types of the project area, in descending order of prominence, are identified as follows (reference B-5):

(a) Playas: essentially barren, level, undrained, closed basins. Some contain water during periods following winter rains. Soil material is clayey or silty and is generally moderately to strongly saline.

(b) Carrizo very gravelly sand, 0 to 9% slopes: gently sloping to moderately sloping soil on flood plains and alluvial fans. Soil material is moderately alkaline and contains coarse sand and gravelly sand.

(c) Sloping gullied land: occurs on alluvial fans adjacent to mountains. The texture ranges from clay loam to gravelly, cobbly sand. Drainage for this soil is good to somewhat excessive.

(d) Rositas fine sand, hummocky, 5-9% slopes: gently rolling with hummocks to low dunes less than 6 feet in height. This soil has a slow to medium runoff and the hazard to wind erosion is high.

(e) Rositas loamy coarse sand, 2-9% slopes: gently to moderately sloping soil occurring on alluvial fans. Soil material consists of loamy coarse sand or fine sand at surface and gravelly coarse sand to loamy fine sand at depths below 5 inches.

e. Hydrology

(1) The Benson/Ocotillo Dry Lake site falls within the Borrego Valley Ground Water Basin which is an alluvium-filled valley underlain by crystalline bedrock.

(2) The valley fill is classified into three categories: upper, middle and lower aquifers. The upper aquifer ranges in thickness from 0 to 1000 feet, the middle aquifer from 0 to 700 feet, and the lower aquifer from 0 to 1,800 feet.

(3) Ground water levels vary considerably in the valley, ranging between about 18 feet and 305 feet from ground surface, depending upon elevation.

(4) Actual depth to groundwater on the subject site is expected to be from 90 feet to 175 feet, based on well depths in the vicinity.

(5) There are no permanent surface bodies of water on or near project lands. The Benson/Ocotillo Dry Lake bed, of which most of project lands lie, remains dry for most of the year. It holds water briefly following summer flash floods, three to four days maximum (reference B-6).

f. Natural Resources

(1) The subject site is in the general area of various state and federal endangered and threatened species. While not specifically identified within the site, any of these may occur (see Table 3-2).

(2) For additional species in the state of California that are considered Federal Candidate Category 1 and 2, interested parties should contact the U. S. Fish and Wildlife Service and the California Natural Heritage Division to obtain an up-to-date listing (see Appendix A).

g. Historical/Cultural Resources

Ms. Gabrielle Jamison of the San Diego State University South Coastal Information Center (SHPO) has stated that there are no known historical or archaeological sites located directly on the former project area. However, it was stated that there are eight (8) prehistoric habitation sites located within one mile of project lands. In the event of remediation on the site, it is recommended that the SHPO be contacted for a current re-evaluation of site conditions and remediation guidelines (see document F-9).

TABLE 3-2
NATURAL AND CULTURAL RESOURCES

Resource Classification	Type	Comment
Wildlife		
Bird	California Black Rail	Threatened (State)
	Light Footed Clapper Rail	Endangered (State)
	California Brown Pelican	Endangered (Fed & State)
	Western Snowy Plover	Threatened (Federal)
	California Least Tern	Endangered (Fed & State)
	Western Yellow Billed Cuckoo	Endangered (State)
	Willow Flycatcher	Endangered (State)
	Bank Swallow	Threatened (State)
	California Gnatcatcher	Threatened (Federal)
	Least Bills Vireo	Endangered (Fed & State)
	Beldings Savannah Sparrow	Endangered (State)
Fish	Desert Pupfish	Endangered (Fed & State)
	Unarmored Threespine Stickleback	Endangered (Fed & State)
	Mohave Tui Chub	Endangered (Federal)
Mammal	Pacific Pocket Mouse	Endangered (State)
	Stephens Kangaroo Rat	Threatened (State)
	Peninsular Bighorn	Proposed Endangered (Fed) Threatened (State)
Reptile	Barefoot Banded Gecko	Threatened (State)
	Flat-Tailed Horned Lizard	Proposed Threatened (Fed)
Amphibian	Arroyo Southwestern Toad	Endangered (Federal)
Crustacean	Riverside Fairy Shrimp	Endangered (Federal)
Plant	San Diego Button Celery	Endangered (Fed & State)
	Encinitis Baccharis	Proposed Endangered (Fed) Endangered (State)
	Otay Tarplant	Proposed Endangered (Fed) Endangered (State)

TABLE 3-2
NATURAL AND CULTURAL RESOURCES (Continued)

Resource Classification	Type	Comment
Plant (Continued)	Short-Leaved Dudleya	Proposed Endangered (Fed) Endangered (State)
	Mohave Tarplant	Endangered (State)
	Gambels Watercress	Endangered (Federal) Threatened (State)
	Cuyamaca Lake Downingia	Proposed Endangered (Fed) Endangered (State)
	Piersons Milk-Vetch	Proposed Endangered (Fed) Endangered (State)
	San Diego Thorn Mint	Proposed Endangered (Fed) Endangered (State)
	Willow Monardella	Proposed Endangered (Fed) Endangered (State)
	San Diego Mesa Mint	Endangered (Fed & State)
	Otay Mesa Mint	Endangered (Fed & State)
	Parish's Meadowfoam	Proposed Threatened (Fed) Endangered (State)
	Orcutt's Spineflower	Proposed Endangered (Fed) Endangered (State)
	Small Leaved Rose	Endangered (State)
	Mexican Flannelbush	Proposed Endangered (Fed)
	Dehesa Nolina	Proposed Threatened (Fed) Endangered (State)
	Thread Leaved Brodiaea	Proposed Endangered (Fed) Endangered (State)
California Orcutt Grass	Endangered (Fed & State)	
Historical		Coordinate with SHPO
Archeological		Coordinate with SHPO

4. HISTORICAL ORDNANCE USAGE

a. **Chronological Site Summary**

(1) Before 1940

(a) Prior to 1940, Benson/Ocotillo Dry Lake was a landing field for local planes. In the late 1930s, it appears the Navy used the site for landing aircraft and other purposes even though the property had not been acquired by the Navy.

(b) According to a May 1939 newspaper article, the site was being used at that time for "war maneuvers and experiments of various explosives". However, it also states that the actual target practice, dive bombing with practice bombs, occurred north of the landing field in what is now known as Military or Borrego Wash (see document F-1). Although bombers were staged at Benson/Ocotillo Dry Lake, there is no evidence that any bombing or target practice activities occurred there prior to acquisition (see documents F-1 and K-1).

(2) 1940 to 1956

(a) On 19 November 1940, 245.21 acres of the site were acquired by the Navy. The Navy acquired the remaining 107.90 acres through condemnation on 21 March 1941 (see documents E-1, and G-1).

(b) The Navy's use of all facilities in the southwest California desert, including Benson/Ocotillo Dry Lake, was directed through NAS San Diego. Benson/Ocotillo Dry Lake was originally planned to be one of the Navy's most developed sites in the area. Plans called for the site to be developed as a major auxiliary service field for horizontal and dive bombing practice, gunnery training and as a stopover facility for transcontinental ferrying of aircraft (see document F-8).

(c) Despite the grandiose plans of the Navy for Benson/Ocotillo Dry Lake, the site was never developed as originally desired. Actual construction at the site included two dirt runways, both 2500' x 400', one running east-west, the other northwest-southeast and one bomb target (see documents F-4 and F-5). The bomb target was located in the northwest corner of the site and consisted of 3 concentric circles of 50', 100' and 200' radius with a target in the center (see documents F-6, K-2 and K-3).

(d) The bomb target at Benson/Ocotillo Dry Lake was used for horizontal, glide and dive bombing by naval aircraft from NAS San Diego (see documents F-2, F-3, F-5, F-6). Practice bombs were the only type of ordnance used on the bomb target (see document F-8).

(e) When World War II ended, the landing field and bomb target at Benson/Ocotillo Dry Lake was no longer needed by the Navy. By the end of 1947, the Navy had begun to remove all personnel, planes and equipment from the site (see document I-1). On 31 October 1955, the acreage of Benson/Ocotillo Dry Lake was declared excess to the needs of the Navy (see documents G-1 and G-2). On 17 August 1956, the United States conveyed the entire 353.11 acres to the County of San Diego with the restriction that the site be maintained as a public airport. The deed also contained recapture and restoration clauses (see document G-3).

(3) 1956 to Present

The County of San Diego has continually owned the site since disposal in 1956 and maintained a municipal airport at the same. Currently, there are no facilities at the airport, only two dirt landing strips.

b. Ordnance Records Review

(1) A historical document search was conducted by the Site Inspection (SI) team to obtain ordnance related records relevant to Benson/Ocotillo Dry Lake. Research sites included, but was not limited to, National and State Archives, state, county and local libraries, historical centers and societies, local newspapers, state, county and local law enforcement agencies and current owners of Benson/Ocotillo Dry Lake (see appendix A for a complete listing of contacts). All documents obtained were thoroughly reviewed by the SI team. The following documents are important to the verification of real property use by the War Department and the presence or non-presence of ordnance contamination:

(2) A newspaper article describes military activity at Benson/Ocotillo Dry Lake in 1939, prior to formal acquisition of the site by the Navy. It tells of bombers using the site as a staging area and conducting dive bombing with practice bombs north of the site (see document F-1).

(3) Two memorandums establish that Benson/Ocotillo Dry Lake was used as a landing field and dive bomb target.

They also show that the site was used by activities operating from NAS San Diego (see documents F-2 and F-3).

(4) A U.S. Army Air Forces Airport Directory and an excerpt from a document both describe the facilities that existed during the WWII timeframe. Both show that the only improvements to the site were the bomb target and two dirt landing strips (see documents F-4 and F-5).

(5) An excerpt from a compilation of Naval bomb targets gives the exact latitude and longitude of the bomb target at Benson/Ocotillo Dry Lake. It also describes how the bomb target was constructed as well as tells that the target was used for horizontal, glide or dive bombing (see document F-6).

(6) A notice of availability from the General Services Administration dated 17 November 1955, shows that at that time, the site was considered excess to the needs of the Navy (see document F-7).

(7) An excerpt from a paper written by Mr. James D. Newland relates the history of military activity in the area including and surrounding Benson/Ocotillo Dry Lake. It describes the development of the facilities at Benson/Ocotillo Dry Lake and states that only practice bombs were used at the bombing facilities throughout the region (see document F-8).

(8) Two real estate documents show that the site was reported excess on 31 October 1955 as well as listing the original owners of the site and method of acquisition by the Navy (see documents G-1 and G-2).

(9) A quitclaim deed dated 17 August 1956 conveys the entire 353.11 acre site to the County of San Diego. The deed contains a restriction that the site must be maintained as a local airport. Also included in the deed are clauses governing recapture and restoration of the site (see document G-3).

(10) A historical photograph, circa 1939, clearly shows vintage airplanes and military personnel on Benson/Ocotillo Dry Lake prior to official acquisition by the Navy (see document K-1).

(11) Two historic aerial photos from 1944 show the bomb target in the northwest corner of the site. They also show that Benson/Ocotillo Dry Lake was relatively undeveloped by the Navy (see documents K-2 and K-3).

c. Interviews with Site Related Personnel

(1) Several area law enforcement officials and EOD units were contacted during the historical records search and site inspection.

(a) The 52nd Ordnance Group at Fort Gillem, the COMEODGRU ONE in San Diego, and the JEODU at MCAS Yuma were contacted during the historical records search only. All of them had no knowledge of any incidents involving OE at Benson/Ocotillo Dry Lake.

(b) Several individuals from the 70th EOD at the Naval Sub Base in San Diego, CA, were interviewed by the SI Team. Their records dated back to 1994. There were two incidents involving OE in the area, but neither of them occurred at Benson/Ocotillo Dry Lake. None of interviewed parties were aware of any incidents occurring at the site, nor were they aware of any CWM training or activities occurring in the area (see document I-3).

(c) Three members of the San Diego County Sheriff's Department, SGT Conrad Grayson of the Arson/Bomb Squad and Deputies Charles Hahn and Jim McKenna were interviewed during the site inspection. SGT Grayson has been with the Arson/Bomb Squad for 20 years, while Deputies Hahn and McKenna have been stationed at Borrego Springs for 6 and 17 years, respectively. SGT Grayson was aware of an OE presence throughout the eastern region of San Diego County, but had no knowledge of any incidents at Benson/Ocotillo Dry Lake. Deputies Hahn and McKenna also were aware of an ordnance presence at areas other than the site, primarily the Carrizo impact area, but had no knowledge of any incidents occurring at the site. Neither of the three had any knowledge of CWM training or activities occurring in the area (see documents I-2, I-5 and I-10).

(d) Investigator Steve Sawyer of the Borrego Springs Fire Department Arson/Bomb Unit was extremely knowledgeable of incidents involving OE throughout the region, particularly in the Carrizo impact area, Clark's Dry Lake and at Military Wash (all are currently being addressed by Los Angeles District), but none of them were related to activities at Benson/Ocotillo Dry Lake. Investigator Sawyer stated that in his 14 years with the Arson/Bomb Unit, one 25 lb practice bomb was discovered in the southeastern corner of the site. However, the bomb had been removed from another impact area and brought to the site. He also stated

that had no knowledge of any CWM training or activities occurring in the area (see document I-4).

(2) Other interested parties were also interviewed during the site inspection.

(a) The airport manager for the Ocotillo Wells Municipal Airport, Ms. Noreen Crane stated that she was not aware of any OE presence at Benson/Ocotillo Dry Lake. In her 15 years as airport manager, no incidents involving OE at the site have ever been brought to her attention. She also stated that the landing strips at the airport undergo frequent grading to keep them smooth and level (see document I-7).

(b) Mr. Fred Jee and Mr. Mark Jorgensen of the Anza-Borrego Desert State Park, which surrounds the site, were both knowledgeable of OE presence at several locations within park boundaries, such as Military Wash and Clark's Dry Lake. However, neither were aware of any OE presence at Benson/Ocotillo Dry Lake nor of any CWM training or activities occurring in the area. Both have worked for the Anza-Borrego Desert State Park for over 20 years (see documents I-6 and I-8).

(c) Mr. Al McLeary has been a ranger at the Ocotillo State Off Road Park for 20 years. The park is adjacent to Benson/Ocotillo Dry Lake and the park headquarters is located just west of the site. Mr. McLeary stated he was familiar with OE being found in areas of the Anza-Borrego Desert State Park (Military Wash), but was not aware of any OE at Benson/Ocotillo Dry Lake. Mr. McLeary also had no knowledge of any CWM training or activities occurring in the area (see document I-9).

5. SITE ELIGIBILITY

a. **Confirmed Formerly Used Defense Sites**

(1) Former land usage and/or ownership of Benson/Ocotillo Dry Lake by the War Department has been confirmed and summarized in the COE Findings and Determination of Eligibility dated 17 January 1995 (see document E-1). According to the FDE, the site consisted of 353.11 acres used by the Navy as a practice bomb target and emergency landing field.

(2) The 353.11 acres comprising Benson/Ocotillo Dry Lake were acquired by the Navy by deed and declaration of taking between November 1940 and March 1941. The site was

used by the Navy, specifically Naval Air Station (NAS) San Diego and NAS El Centro as a practice bomb target and emergency landing field until the late 1940's.

(3) Benson/Ocotillo Dry Lake was relinquished to the County of San Diego with no improvements on 17 August 1956. The disposal deed contains restrictions and recapture and restoration clauses. Today, the site remains the property of the County of San Diego and is used as a municipal airport.

b. Potential Formerly Used Defense Sites

No potential formerly used defense sites associated with Benson/Ocotillo Dry Lake were discovered during the site inspection.

6. VISUAL SITE INSPECTION

a. General Procedures and Safety

(1) During the period 21-31 January 1997, members of the SI team traveled to the site of Benson/Ocotillo Dry Lake, Ocotillo Wells, California. This travel was in support of and in accordance with references B-1 through B-4. The primary task of the SI team was to assess OE presence and potential. The site inspection was limited to non-intrusive methods, i.e., subsurface sampling was not authorized or performed.

(2) Real Estate rights-of-entry were not obtained by the SI team due to the willingness of the current owners to grant access to the site.

(3) A site safety plan was developed and used by the SI team to assure an injury-free site inspection. A briefing was conducted prior to the SI stressing that OE should be handled only by military EOD personnel.

(4) Prior to the site visit, a thorough review of available reports, historical documents, texts and maps gathered during the historical records search was performed.

b. Area A: Bomb Target and Buffer

(1) Area A consists of 25.96 acres and is the entire 200 ft radius bomb target as it existed in the 1940s plus an additional 400 ft buffer (see plate 3). According to historical documentation, this area was an impact area

for horizontal, glide or dive bombing utilizing practice bombs and conducted by pilots from NAS San Diego.

(2) Except for the western edge of the area, Area A is completely devoid of vegetation, as it lies on a dry lake that is used as a municipal airport (see photo J-14 and plate 5). Additionally, Area A is subject to frequent grading to maintain a flat and level surface for the dirt landing strips.

(3) Several pieces of OE residue were discovered by the SI Team during the site inspection. All OE was on the surface and was within 600 ft of the target center. Included in the findings were M38A2 100 lb practice bomb debris, M1A1 spotting charge debris, Mk 5 and Mk 23 3 lb practice bomb debris and one .50 cal projectile (see photos J-1 through J-6 and J-8 through J-12 and plates 4 and 5). There was no evidence of use of high explosive ordnance in the area, and no intact rounds of any type were discovered. OE was concentrated slightly higher along the western edge of the dry lake, where a berm has been created from grading the landing strips.

c. Area B: Bomb Target Safety Zone

(1) Area B, 46.16 acres in size, surrounds Area A to a distance of 400 ft beyond the border of Area A (see plate 3). Area B was not part of the actual bomb target at Benson/Ocotillo Dry Lake, but any bombs that were off center target by 600 to 1,000 ft would have impacted within the area. The additional 400 ft distance was arbitrarily set based on the judgment that since the target was used mainly for dive bombing, it is unlikely that the practice bombs would have missed the target by more than 1,000 feet.

(2) As with Area A, most of this area is devoid of vegetation, and most of the area is also subject to frequent grading (see photo J-7 and plate 5). The only exception to this is the western third and extreme northeastern edge of Area B that lies outside of the dry lake/landing strip. In the western third, the land gradually inclines to the west and has sparse vegetation. In the northeastern edge, the area has rolling hills and the remains of a possible observation post (see photos J-13 and J-14 and plate 5).

(3) No OE or evidence of past activities involving ordnance was discovered by the SI Team during the site inspection.

d. **Area C: Remaining Land**

(1) Area C consists of 280.99 acres and is all remaining land within site boundaries outside of Areas A and B (see plate 3). Historical documentation indicates that no activities involving ordnance occurred in this area; only landing and staging of planes.

(2) Within the boundaries of the dry lake, Area C is flat, barren and devoid of vegetation. Once outside the dry lake, there are rolling hills on the east side of the site and a gentle incline on the west side of the site (see photos J-15 through J-18 and plate 5).

(3) No OE or evidence of past activities involving ordnance was discovered by the SI Team during the site inspection.

7. EVALUATION OF ORDNANCE HAZARDS

a. **General Procedures**

(1) Each area was evaluated to determine confirmed, potential or uncontaminated ordnance presence. Confirmed ordnance and explosives (OE) presence is based on verifiable historical evidence or direct witness of OE (with explosive components and/or inert debris/fragments) since site closure. Additional field data is not required to identify a confirmed site. Verifiable historical records evidence is based on OE items actually seen on site since site closure and authenticated by: historical records (Archive Records, Preliminary Assessment Reports, Site Investigation Reports), local fire departments and law enforcement agencies/bomb squads, military Explosive Ordnance Disposal (EOD) units, newspaper articles, photographs or maps. Direct witness of OE items consists of the site inspection team(s) and other credible witnesses as determined by the ASR Research Team Leader (landowners, workers on-site, soldiers who served there, etc,) verifying that they have seen OE presence on the surface or subsurface since site closure.

(2) Potential ordnance and explosives (OE) presence is based on a lack of confirmed OE ordnance. Potential OE presence is inferred from records, present day site features, non-verifiable direct witness or indirect witness. Additional field data is needed to confirm potential OE sites. Inference from historical records is based on no OE items actually seen on site since site closure and would include documentation (records, aerial photographs, maps)

indicating possible OE presence derived from common practice in production, storage, use, or disposal at that time and from records indicating known OE usage. Inference from present day site features would be the indication of possible OE presence from such obvious features as target circles, depressions, mounds/backstops, open burn/open detonation (OB/OD) areas/pits, etc. Indirect witness would be people who have stated that they have heard of OE presence on-site (hear-say evidence).

(3) Uncontaminated ordnance areas are based on a lack of confirmed or potential ordnance and explosives (OE) presence. All historical records and present day site inspections do not indicate confirmed or potential ordnance presence. There is no reasonable evidence, either direct or inferred, to suggest present day OE presence. Additional field data is not needed to assess uncontaminated ordnance areas.

b. Area A: Bomb Target

Area A is considered to have **confirmed** ordnance presence because OE was discovered within the area by the SI team during the site inspection. OE items that were discovered included M38A2 100 lb practice bomb debris, M1A1 spotting charge debris, Mk 5 and Mk 23 3 lb practice bomb debris, and one .50 cal projectile. Other than the one SAA item, all the OE found was debris or fragments from practice bombs only. No complete and intact OE items of any type were discovered.

c. Area B: Bomb Target Safety Zone

Even though no OE was observed in Area B by the SI team during the site inspection, Area B is considered to have **potential** ordnance presence. Subsurface practice bomb debris that missed the target by 600 to 1,000 feet could still possibly exist in the area. Also, frequent grading of the runways could have moved OE from Area A into Area B.

d. Area C: Remaining Land

Area C is considered **uncontaminated** because there is no historical or present day evidence of OE presence in the area. Historical documentation indicates Area C was used as a landing strip and for airplane staging. Although a 25 lb practice bomb was discovered in Area C in the past, there is no historical evidence of activities involving ordnance in the area. It is believed the 25 lb practice bomb was removed from another site and left in the area. No OE or

evidence of past ordnance related activities were discovered by the SI team during the site inspection.

8. SITE ORDNANCE TECHNICAL DATA

a. **End Item Technical Data**

(1) Table 8-1, a listing of ammunition and explosive fillers potentially used at Benson/Ocotillo Dry Lake and Table 8-2, a summary of site ordnance fillers, have been developed. These tables are based on a review of historical documentation with specifications stated at Appendix D. Exact models/types have been included as documentation has permitted. Inclusion in this table does not insinuate any OE presence at Benson/Ocotillo Dry Lake.

TABLE 8-1 AMMUNITION USED AND EXPLOSIVE/CHEMICAL FILLER			
ITEM	MODEL/TYPE	FILLER/WEIGHT	FUZE/TYPE
Cartridge, .50 Cal	M2 Ball	Propellant - 235 gr WC 860 Bullet - 400 gr Steel slug with 235 gr copper alloy jacket	N/A
	M1 Tracer	Propellant - 240 gr IMR 5010 Bullet - 207 gr lead/antimony slug with 398 gr copper alloy jacket Filler - tracer composition	N/A
Bomb, practice, 3 lb	AN-Mk 5	Body - chromium plated steel	N/A
	AN-Mk 23	Body - cast iron	N/A
Bomb, practice, 4.5 lb	AN-Mk 43	Body - lead	N/A
Signal, bomb, practice, miniature	AN-Mk 4	Filler - .028 lbs black Powder and red phosphorus	N/A
Bomb, practice, 100 lb	Mk 15	Body - sheet metal Filler - sand or water	Mk 247 (inert)
	M38A2	Body - sheet metal Filler - sand	Mk 247 (inert)

TABLE 8-1 AMMUNITION USED AND EXPLOSIVE/CHEMICAL FILLER (Continued)			
ITEM	MODEL/TYPE	FILLER/WEIGHT	FUZE/TYPE
Charge, spotting	M1A1 or M3	Filler - 3 lbs black powder	N/A
	Mk 6	Filler - 2 lbs black powder	N/A
	Mk 7	Filler - 1 lb black powder	N/A

b. Chemical Data of Ordnance Fillers

Table 8-2 has been developed to provide information on the explosive/chemical compounds used in the ordnance cited in Table 8-1.

TABLE 8-2 CHEMICAL DATA OF ORDNANCE FILLERS		
FILLER	SYNONYM(S)	CHEMICAL FORMULA
Black Powder	Saltpeter, Niter	
75% Potassium Nitrate		KNO_3
10% Sulfur		S
15% Charcoal		C
Red Phosphorus		P
Tracer Composition		
16% Polyvinyl Chloride		
26% Magnesium Powder		Mg
52% Strontium Nitrate		$Sr(NO_3)_2$

9. EVALUATION OF OTHER ENVIRONMENTAL HAZARDS

a. Hazardous, Toxic and Radiological Waste

No activities involving hazardous materials or containerized hazardous materials occurred at the site. Therefore, no HTRW or CON HTRW hazards are apparent at the site.

b. Building Demolition/Debris Removal

No BD/DR hazards are apparent at Benson/Ocotillo Dry Lake.

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APPENDIX A

REFERENCE SOURCES

**APPENDIX A
REFERENCE SOURCES**

The following organizations and personnel are acknowledged for their support.

Organization	Name	Telephone	Nature of Support
GOVERNMENT AGENCIES			
FEDERAL			
Department of Defense			
Headquarters			
Pentagon Library Pentagon Rm 1A518 Washington, DC 20310-6080	DLOD Computer	(703) 697-4658	CD-ROM computer search No information obtained
Defense Technical Information Center (DTIC) 8725 John J. Kingman Road Suite 0944 Fort Belvoir, VA 22060-6218	DTIC Computer	(703) 427-8274	On-line computer search No information obtained
Historical Accident Data Base USATCES, SIOAC-ESM Savanna, IL 61074-9639	DDESB Computer	(815) 273-8730	On-line computer search No information obtained
Department of Army			
52 nd Ordnance Group Fort Gillem, GA 30050-5000		(404) 363-5978	No site specific information
70 th EOD Naval Sub Base, P.O. Box 6376 San Diego, CA 92166-0376	SGT Thompson CPT Fiske	(619) 553-8500	Interview I-3
U.S. Army Corps of Engineers Office of History 7701 Telegraph Road Alexandria, VA 22310-3865	Contractor	(703) 355-3558	See Appendix B, Section II
Defense Logistics Studies Information Exchange (DLSIE) U.S. Army Logistics Management College Fort Lee, VA 23801-6043	DLSIE Computer	(804) 765-4007	On-line computer search No information obtained

APPENDIX A**REFERENCE SOURCES** Continued

The following organizations and personnel are acknowledged for their support.

Organization	Name	Telephone	Nature of Support
GOVERNMENT AGENCIES			
FEDERAL (Continued)			
Department of Defense (Continued)			
Department of Army (Continued)			
U.S. Army Engineer District Los Angeles ATTN: CESPL-XX 911 Wilshire Boulevard Los Angeles, CA 90017-3401	Ms. Delores Henderson (RE) Ms. Deborah Castens (ED) Ms. Trudy Knutson (ED) Mr. Greg Boghossian (ED-MI)	(213)452-3164 (213)452-3719 (213)452-3990 (213)452-3722	Real estate files FUDS/INPR files FUDS program manger for SPL Site escort
U.S. Army Corps of Engineers San Diego Area Project Office 10845 Rancho Bernardo Road Suite 204 Rancho Bernardo, CA 92127	Mr. James Walker	(619)674-6769	Site escort
U.S. Army Center for Military History ATTN: DAMH-RAS 1099 14th Street, NW Franklin Court Building Washington, DC 20005-3402	Contractor	(202)761-5416	See Appendix, Section II
U.S. Army Technical Center for Explosives Safety Library ATTN: SIOAC-ESM Savanna, IL 61074	Staff	(815)273-8722	Reference sources
Rock Island Arsenal Museum ATTN: SMCRI-PCA-M BLDG 60 Rock Island, IL 61299	Mr. Chris Leinicke	(309)794-3518	Technical manuals

APPENDIX A**REFERENCE SOURCES** Continued

The following organizations and personnel are acknowledged for their support.

Organization	Name	Telephone	Nature of Support
GOVERNMENT AGENCIES			
FEDERAL (Continued)			
Department of Defense (Continued)			
Department of Army (Continued)			
IOC Historical Office ATTN: AMSIO-EAH BLDG 390 Rock Island Arsenal Rock Island, IL 61299	Mr. Tom Slattery	(309)782-1450	No information obtained
U.S. Army Military History Institute Carlisle Barracks, Bldg 22 Carlisle, PA 17013	Mr. John Slonaker (Library - Bldg 22) Mr. Richard Sommers (Archives Branch) Mr. Mike Whiney (Photo Archives)	(717)245-3611 (717)245-3601 (717)245-3434	No information obtained No information obtained No information obtained
U.S. Army Chemical and Biological Defense Command Aberdeen Proving Ground, MD 21010-5423	Ms. Kathleen Ciolfo	(410)679-4430	No information obtained
U.S. Army Chemical School Fisher Library BLDG 1081 Fort McClellan, AL 36205	Mr. Richard Pastorett	(205)848-4414	Chemical publications available
U.S. Army Ordnance Museum ATTN: ATSL-DOS-M BLDG 2601 Aberdeen PG, MD 21005-5201	Mr. Roger Godin	(410)278-3602	Old ordnance and Navy publications
DMACSC, Philadelphia Depot 5801 Tabor Avenue Philadelphia, PA 19120-5095	Staff	(800)826-0342	Aeronautical charts

APPENDIX A**REFERENCE SOURCES** Continued

The following organizations and personnel are acknowledged for their support.

Organization	Name	Telephone	Nature of Support
GOVERNMENT AGENCIES			
FEDERAL (Continued)			
Department of Defense (Continued)			
Department of Air Force			
Air Force Historical Research Agency 600 Chennault Drive Maxwell AFB, AL 36112-6424	IRIS Computer	(205)953-6884	No information obtained
USAF Environmental Technical Applications Center 151 Patton Avenue, Room 120 Asheville, NC 28801	Ms. Janet Wall	(704)271-4404	Climatological data
Department of Navy			
Navy Historical Center Building 57 Washington Naval Yard Washington, D.C. 20374	CEHO-SR Contractor	(202)433-3171	See Appendix B, Section II
Navy Historical Center Technical Library Washington Naval Yard Washington, DC 20374	Mr. Mark Wertheiner	(202)433-3607	Old Navy publications
Naval Construction Battalion Center Civil Engineering Support Center - Code 1581B 1000 23 rd Avenue, Bldg 20 Port Hueneme, CA 93043-4301	Mr. Robert Brickey Mr. Cliff Ledderer	(805)982-5593	Site drawings
Naval Construction Battalion Center ATTN: Code 10H-NAVFAC Historian 621 Pleasant Valley Road Port Hueneme, CA 93043	Dr. Vincent Transano Ms. Carol Marsh	(805)982-5913	General information

APPENDIX A**REFERENCE SOURCES** Continued

The following organizations and personnel are acknowledged for their support.

Organization	Name	Telephone	Nature of Support
GOVERNMENT AGENCIES			
FEDERAL (Continued)			
Department of Defense (Continued)			
Department of Navy (Continued)			
Naval Construction Battalion Center	Ms. Josephine Walsh	(805)982-5593	NAS El Centro information
Naval Facilities Engineering Service Center Code 72, Technical Info Ctr 1100 1023 Avenue Port Hueneme, CA 93043-4370			
COMEODGRU One Coronado Island San Diego, CA 92155	LTCDR Peterson	(619)437-0715	No responses to any UXO incidents
NAS Miramar ATTN: RH187 45249 Miramar Way San Diego, CA 92145-5005	Mr. Roger Hillhouse	(619)537-1102	No information obtained
NAS North Island Natural Resources Office San Diego, CA 92135	Mr. Andy Yatsko	(619)545-1131	No information obtained
NAS North Island Staff Civil Engineer Office San Diego, CA 92135	Mr. Dave Brown	(619)545-1111	No information obtained
NAS North Island Library P.O. Box 357081 San Diego, CA 92135-7081	Ms. Sharon Nelson	(619)545-8230	No information obtained
Naval Facility Engineering Command Southwest Division 1220 Pacific Hwy San Diego, CA 92132	Mr. Lowell Martin Mr. Mike Gonzales Mr. Tom Phelps Mr. Mike Stroud Mr. Bill Fisher	(619)532-2991 (619)532-3178 (619)532-1169 (619)532-2319 (619)532-1488	Referral No information obtained No information obtained Referrals Endangered species information

APPENDIX A**REFERENCE SOURCES** Continued

The following organizations and personnel are acknowledged for their support.

Organization	Name	Telephone	Nature of Support
GOVERNMENT AGENCIES			
FEDERAL (Continued)			
Department of Defense (Continued)			
Department of Navy (Continued)			
NAVEODTECHDIV Technical Library 2008 Stump Neck Road Indian Head, MD 20640-5070	Ms. Betty Arbogast Ms. Dawn Risko	(301)743-6834	Old Navy publications
Naval Facilities Engineering Command Code 14B, Room 10N59 200 Stovall Street Alexandria, VA 22332-2300	Mr. Charlie Cox Mr. Jack Kane	(703)325-7342	No information obtained
U.S. Navy Directive and Records Code CNO N09B35 BLDG 166 Washington Navy Yard Washington, DC 20374	LT Gilbert	(202)433-4194	Contact for Navy records at Federal Records Centers
Marine Corps Historical Center BLDG 58 Washington Navy Yard Washington, DC 20373	CEHO-SR Contractor	(202)433-3483	See Appendix B, Section II
Command Museum MCAS, El Toro Santa Ana, CA	Mr. Fabian Jiroux	(714)726-4380	No information obtained
JEODU MCAS, Yuma Yuma, AZ 85639	CPT Peterlick	(520)341-2788	No information obtained

APPENDIX A**REFERENCE SOURCES** Continued

The following organizations and personnel are acknowledged for their support.

Organization	Name	Telephone	Nature of Support
GOVERNMENT AGENCIES			
FEDERAL (Continued)			
Department of Defense (Continued)			
Department of Navy (Continued)			
MCRD Museum Building 26 San Diego, CA 92140	MAJ Bruce Norton (Ret)	(619)524-6719	No information obtained
Department of Agriculture			
USDA Aerial Photography Field Office P.O. Box 30010 Salt Lake City, UT 84130-0010	Ms. Sherrie Holyoak	(801)975-3503	Historic aerial photos available
Consolidated Farm Service Agency 45-691 Monroe, Suite 4 Indio, CA 92201	Mr. Remu Khinani Ms. Teja Salman	(619)347-3675	Aerial photos available
Natural Resource Conservation Service 332 South Juniper, Suite 110 Escondido, CA 92025	Ms. Becky Watts Mr. Jason Jackson	(619)745-2061	Soil survey for San Diego County; aerial photos available
Department of Interior			
Bureau of Land Management California Desert District 6221 Box Springs Boulevard Riverside, CA 92507-0714	Ms. Manuela Johnson Mr. John Key	(909)697-5220 (909)697-5383	No information obtained Referrals
Bureau of Land Management El Centro Resource Area 1661 South 4 th Street El Centro, CA 92243	Mr. Keith Shone Mr. Larry Cafey	(619)337-4400 (619)337-4425	No information obtained

APPENDIX A**REFERENCE SOURCES** Continued

The following organizations and personnel are acknowledged for their support.

Organization	Name	Telephone	Nature of Support
GOVERNMENT AGENCIES			
FEDERAL (Continued)			
Department of Interior (Continued)			
Bureau of Land Management Palm Springs Resource Center 63500 Garnet Avenue North Palm Springs, CA 92258-2000	Mr. Mike Mitchell	(619)251-4800	Archeological information
USGS Denver Federal Center P.O. Box 25286 Denver, CO 80225	Staff	(303)203-4700	Topographic maps
USGS EROS Data Center Sioux Falls, SD 57198	Staff	(605)594-6151	Aerial photos
USGS Reston, VA 22092	Mr. Dave Keys	(703)648-5956	Source of aerial photos
U.S. Fish and Wildlife Service 2730 Loker Avenue West Carlsbad, CA 92008	Mr. John Hanlon	(619)431-9440	Threatened/endangered species listing
USGS Earth Science Information Center Box 25046, Bdlg 810 Denver Federal Center Denver, CO 80225	Ms. Paula Erickson Mr. Steve Reiter	(303)202-4200	Source of aerial photos and orthophotoquads
Department of Commerce			
National Oceanic and Atmospheric Administration National Climatic Data Center Federal Building Asheville, NC 28801	Mr. Sam McCowen Ms. Yolanda Goosch	(704)271-4272	Climatological data

APPENDIX A**REFERENCE SOURCES** Continued

The following organizations and personnel are acknowledged for their support.

Organization	Name	Telephone	Nature of Support
GOVERNMENT AGENCIES			
FEDERAL (Continued)			
Department of Commerce (Continued)			
NGS, Information Services N/NGS 12, SSMC#, Station 9244 1315 E-W Highway Silver spring, MD 20920-3282	Ms. Joan Rikon	(301)443-8601	Source of old and new coastal aerial photographs
National Archives and Records Administration			
Federal Records Center - San Francisco 1000 Commodore Drive San Bruno, CA 94066	Ms. Barbara Bepler	(415)876-9001	See Appendix B, Section III
Federal Records Center - Los Angeles 24000 Avila Road Laguna Niguel, CA 92656	Mr. Greg Pearman	(714)360-2626	See Appendix B, Section III
Pacific Sierra Region 1000 Commodore Drive San Bruno, CA 94006	Ms. Lisa Miller	(415)876-9009	See Appendix B, Section III
Pacific Southwest Region 24000 Avila Road Laguna Niguel, CA 92656	Ms. Suzanne Dewberry	(714)360-2641	See Appendix B, Section III
Archives I Modern Military Pennsylvania and 7th Washington, DC 20408	CEHO-SR Contractor	(202)501-5385	See Appendix B, Section II
Archives I Navy Pennsylvania and 7 th Washington, DC 20408	CEHO-SR Contractor	(202)501-5671	See Appendix B, Section II

APPENDIX A**REFERENCE SOURCES** Continued

The following organizations and personnel are acknowledged for their support.

Organization	Name	Telephone	Nature of Support
GOVERNMENT AGENCIES			
FEDERAL (Continued)			
National Archives and Records Administration (Continued)			
Archives I Old Military Pennsylvania and 7 th Washington, DC 20408	CEHO-SR Contractor	(202)501-5390	See Appendix B, Section II
Archives II Cartographic & Architectural Branch 8601 Adelphi Rd. College Park, MD 20740-6001	CEHO-SR Contractor	(301)713-7040	See Appendix B, Section II
Archives II Still Picture Branch 8601 Adelphi Rd. College Park, MD 20740-6001	CEHO-SR Contractor	(301)713-6660	See Appendix B, Section II
Archives II Motion Picture, Sound and Video Branch 8601 Adelphi Rd. College Park, MD 20740-6001	CEHO-SR Contractor	(301)713-7060	See Appendix B, Section II
Archives II Civil Reference Branch 8601 Adelphi Rd. College Park, MD 20740-6001	CEHO-SR Contractor	(301)713-7250	See Appendix B, Section II
Archives II Textual Branch 8601 Adelphi Rd. College Park, MD 20740-6001	CEHO-SR Contractor	(301)713-7250	See Appendix B, Section II
Suitland Reference Branch 4205 Suitland Parkway Washington, DC 20409	CEHO-SR Contractor	(301)457-7190	See Appendix B, Section II

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The following organizations and personnel are acknowledged for their support.

Organization	Name	Telephone	Nature of Support
GOVERNMENT AGENCIES			
FEDERAL (Continued)			
National Archives and Records Administration (Continued)			
National Personnel Records Center 9700 Page Ave. St. Louis, MO 63132	Mr. Bill Siebert	(314)538-4085	See Appendix B, Section II
Smithsonian Institute Smithsonian Institute Historical Research Division Washington, DC 20560	CEHO-SR Contractor	(202)357-3133	See Appendix B, Section II
Congress Library of Congress Geography and Map Division Washington, DC 20536	CEHO-SR Contractor	(202)707-5522	See Appendix B, Section II
Department of Environmental Protection			
EPA - Boston Library JFK Federal Building Boston, MA 02203	Staff	(617)565-3300	No information obtained
EPA - Superfund 90 Canal Street Boston, MA 02114	Mr. Bob Thys	(617)573-5729	No information obtained
STATE			
Anza-Borrego Desert State Park 200 Palm Canyon Drive Borrego Springs, CA 92004	Mr. Fred Jee Ms. Lydia Jee Mr. Manfred Knack Mr. Mark Jorgenson Mr. Jim Meiers	(619)767-5311	Interviews I-6 and I-8
California State Archives 1020 O Street Sacramento, CA 95814	Mr. Tony Hoffman	(916)653-2246	No information obtained

APPENDIX A**REFERENCE SOURCES** Continued

The following organizations and personnel are acknowledged for their support.

Organization	Name	Telephone	Nature of Support
GOVERNMENT AGENCIES			
STATE (Continued)			
California State Library 914 Capital Mall Library and Courts Building Sacramento, CA 94237-0001	Mr. John Gonzales	(916)654-0176	No information obtained
San Diego State University Special Collections 5300 Campanile Drive San Diego, CA 92182-0511	Mr. Bill Payne	(619)594-6791	No information obtained
San Diego State University Government Documents/Maps Section 5300 Campanile Drive San Diego, CA 92182-0511	Mr. Bruce Harley	(619)594-5832	No information obtained
San Diego State University Reference Branch 5300 Campanile Drive San Diego, CA 92182-0511	Ms. Karen Sharp	(619)594-6724	Newspaper articles
South Coastal Info Center (SHPO) Social Sciences Research Lab San Diego State University San Diego, CA 92182-0511	Ms. Jan Culbert	(619)594-5682	Archaeological and historical information
University of California P.O. Box 19557 Irvine, CA 92110	Staff	(714)824-6836	No information obtained
University of California Government Documents Department P.O. Box 19557 Irvine, CA 92110	Mr. Jeff Schneidewind Ms. Kay Collins	(714)824-7234	No information obtained

APPENDIX A**REFERENCE SOURCES** Continued

The following organizations and personnel are acknowledged for their support.

Organization	Name	Telephone	Nature of Support
GOVERNMENT AGENCIES			
STATE (Continued)			
University of California Archives P.O. Box 19557 Irvine, CA 92110	Ms. Mary Ellen Goddard	(714)824-7193	Referrals
Ocotillo State Off Road Park 5172 Highway 78 Ocotillo Wells, CA 92004	Mr. Al McLeary	(619)767-5391	Interview I-9
COUNTY/TOWNSHIP			
San Diego County Assessor 1600 Pacific Highway, Room 203 San Diego, CA 92101	Mr. Steve Berggren	(619)531-6468	Plat maps, real estate information
San Diego County Library Borrego Springs Branch 652 Palm Canyon Drive Borrego Springs, CA 92004-0297	Ms. Kathy Raske	(619)767-5761	No information obtained
San Diego County Planning and Land Use Department 5201 Ruffin Road, Suite D San Diego, CA 92101	Mr. Gary Stockton	(619)694-3871	Aerial photos/historic maps
San Diego County Recorder and Clerk 1600 Pacific Highway, Room 260 San Diego, CA 92101	Staff	(619)237-0502	Deeds
San Diego County Sheriff's Department Criminal Investigation Unit Arson and Bomb Squad 5255 Mt. Etna Drive San Diego, CA 92117	SGT Conrad Grayson	(619)467-4579	Interview I-2

APPENDIX A**REFERENCE SOURCES** Continued

The following organizations and personnel are acknowledged for their support.

Organization	Name	Telephone	Nature of Support
GOVERNMENT AGENCIES			
CITY/TOWNSHIP (Continued)			
San Diego County Sheriff's Department Rural Enforcement Division 610 Palm Canyon Drive Borrego Springs, CA 92004	Deputy Charles Hahn Deputy Jim McKenna	(619)767-5656	Interviews I-5 and I-10
Borrego Springs Fire Department 2324 Stirrup Road Borrego Springs, CA 92004	Investigator Steve Sawyer	(619)767-5436	Interview I-4 Site guide
Gilespie Field Gilespie, CA	Ms. Norren Crane	(619)596-3900	Interview I-7
San Diego Public Library California Room 820 East Street San Diego, CA 92101-6478	Ms. Blair Odinis	(619)236-5834	Newspaper articles
San Diego Public Library 820 East Street San Diego, CA 92101-6478	Librarian	(619)236-5820	Referrals
University of San Diego Helen K. And James Copley Library Alcala Park San Diego, CA 94040	Librarian	(619)260-4799	No information obtained
NON GOVERNMENT AGENCIES			
NATIONAL Scientific & Technical Information Library System 689 Discovery Drive Huntsville, AL 35806	Computer (STILAS)	(205)922-9820	On-line computer search No information obtained

APPENDIX A**REFERENCE SOURCES** Continued

The following organizations and personnel are acknowledged for their support.

Organization	Name	Telephone	Nature of Support
NON GOVERNMENT AGENCIES			
NATIONAL (Continued)			
Online Computer Library Center 6565 Frantz Rd. Dublin, OH 43017-3395	Computer (OCLC)	(800)848-5878	On-line computer search Environmental impact report
Northern Illinois Library System 4034 East State Street Rockford, IL 61108	Computer (NILS)	(815)229-0330	On-line computer search No information obtained
Knight-Ridder Information, Inc 2440 El Camino Real Mountain View, CA 94040	Computer (DIALOG)	(800)334-2564	On-line computer search No information obtained
Council on America's Past 518 Why Worry Lane Phoenix, AZ 85021	Publication	(800)396-4693	No information obtained
STATE (None)			
LOCAL			
Borrego Springs Chamber of Commerce Borrego Springs, CA	Staff	(619)767-5555	Lodging information
Imperial Valley Historical Society Pioneers Museum 323 East Aten Road Imperial, CA 92251	Ms. Lynn Bogdan	(619)352-1165	No information obtained
San Diego Historical Society Archives 1649 El Prado - Balboa Park San Diego, CA 92138	Ms. Sally West	(619)232-6203	Transcribed interview (I-1)

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APPENDIX B

REFERENCES AND ABSTRACTS

APPENDIX B
REFERENCES AND ABSTRACTS

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SECTION I

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- B-2 Mandatory Plan for Ordnance and Explosive Waste (OEW) Mandatory Center of Expertise (MCX) and Design Center, CEHND 1105-3-9, U.S. Army Corps of Engineers, Huntsville Division, 10 August 1992
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- B-7 Ammunition Inspection Guide, TM 9-1904, War Department, 23 May 1944 (D-1)
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B-17 Memorandum, NAS San Diego to Eleventh Naval District, Subject: Danger Areas - San Diego Area, 24 January 1942, NARA, Pacific Southwest Region, RG 181, Box 435 (F-3)

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- B-33 San Diego County Assessor's Map, Book 253, Page 04, circa 1975, updated 1992 (L-3)
- B-34 San Diego County Assessor's Map, Book 253, Page 09, Sheet 1, circa 1975, updated circa 1992 (L-4)
- B-35 San Diego County Assessor's Map, Book 253, Page 11, Sheet 1, circa 1971, updated 1990 (L-5)

SECTION II
NATIONAL CAPITAL REGION ARCHIVES FINDINGS
PART A
POSITIVE FINDINGS

BENSON DRY LAKE, CA
A/K/A
OCOTILLA DRY LAKE, CA

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COLLEGE PARK, MD***

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Entry 294: Air Adjutant General's Security Classified Decimal File, October
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Box 111

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Fields, Benson Dry Lake, 30 June 1939

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Correspondence, Reports, and Maps Relative to Real Estate Acquisition,
Benson Dry Lake, 1941

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Box 114

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Lake, 27 February 1942 - 1 January 1943

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Box 114

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Seven Aerial Views, Ocotilla, CA Outlying Field, Looking Northwest, North, West, South, and East, 5 December 1944

SECTION II
NATIONAL CAPITAL REGION ARCHIVES FINDINGS
PART B
NEGATIVE FINDINGS

BENSON DRY LAKE, CA
A/K/A
OCOTILLA DRY LAKE, CA

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WASHINGTON, DC***

Pertinent Collections

***LIBRARY OF CONGRESS - STILL PHOTOS DIVISION
WASHINGTON, DC***

Pertinent Collections

***MARINE CORPS HISTORICAL CENTER
WASHINGTON, DC***

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- RG 38 (Records of the Chief of Naval Operations)
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- RG 48 (Records of the Office of the Secretary of the Interior)
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- RG 52 (Records of the Bureau of Medicine and Surgery)
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- RG 57 (Records of US Geological Survey)
Entry 27: Correspondence and Related Records, 1906 - 1948
- RG 72 (Records of the Bureau of Aeronautics)
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BRANCH
COLLEGE PARK, MD***

Pertinent Record Groups

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WASHINGTON, DC***

Pertinent Collections

***NAVAL HISTORICAL YARDS - NAVAL AVIATION HISTORY
OFFICE
WASHINGTON, DC***

Pertinent Collections

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WASHINGTON, DC***

Pertinent Collections

***NAVAL HISTORICAL YARDS - OPERATIONAL ARCHIVES
WASHINGTON, DC***

Pertinent Collections

***SMITHSONIAN NATIONAL AIR AND SPACE MUSEUM
WASHINGTON, DC***

Pertinent Collections

SECTION III
REGIONAL NATIONAL ARCHIVES FINDINGS
PART A
POSITIVE FINDINGS

BENSON DRY LAKE
AKA
OCOTILLO DRY LAKE
TARGET #66

NARA, PACIFIC SIERRA REGION
SAN BRUNO, CA

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Memo, Re: Excess Real Property, November 17, 1955

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LAGUNA NIGUEL, CA

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Box #200

Paper, Listing of Bombing Targets

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Map, Blackburns Map of San Diego County

Map Drawer 101-3

Map, Army, Navy, and Military Facilities Southern California
Area

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1950

Box #420

Map, Aviation Shore Facilities United States Navy, March 15,
1943

Box #435

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Field - Acquisition of Additional Property, Jan 11 1942,
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SECTION III
REGIONAL NATIONAL ARCHIVES FINDINGS
PART B
NEGATIVE FINDINGS

BENSON DRY LAKE
AKA
OCOTILLO DRY LAKE
TARGET #66

***NARA, FEDERAL RECORDS CENTER
LAGUNA NIGUEL, CA***

RG 77, Records of the Office the Chief of Engineers
All Entries
Nothing Found

***NARA, PACIFIC SOUTHWEST REGION
LAGUNA NIGUEL, CA***

RG 30, Records of the Bureau of Public Roads
All Entries
Nothing Found

RG 49, Records of the Bureau of Land Management
All Entries
Nothing Found

RG 71, Records of the Bureau of Yards and Docks
All Entries
Nothing Found

RG 77, Records of the Office the Chief of Engineers
All Entries
Nothing Found

RG 92, Records of the Quartermaster General
All Entries
Nothing Found

RG 156, Records of the Chief of Ordnance
All Entries
Nothing Found

RG 219, Records of the Office of Defense Transportation
All Entries
Nothing Found

RG 269, General Records of the General Services Administration
All Entries
Nothing Found

RG 270, Records of the War Assets Administration
All Entries
Nothing Found

RG 336, Records of the Office of the Chief of Transportation
All Entries
Nothing Found

***NARA, NATIONAL PERSONNEL RECORDS CENTER
ST LOUIS, MO***

All Accessions
Nothing Found

***NARA, FEDERAL RECORDS CENTER
SAN BRUNO, CA***

RG 77, Records of the Office the Chief of Engineers
Accession #077-76L1483
Boxes #115-130,132-134,136-148
Nothing of Value to This ASR Found

RG 121, Records of the Public Building Service
Accession #121-77-0003
Boxes #1,3-8,10-17,1a-5a
Nothing Of Value to This ASR Found

RG 269, General Records of the General Services Administration
All Entries
Nothing Found

RG 291, Records of the Federal Property Resources Service
All Entries
Nothing Found

NARA, PACIFIC SIERRA REGION
SAN BRUNO, CA

RG 30, Records of the Bureau of Public Roads
All Entries
Nothing Found

RG 49, Records of the Bureau of Land Management
All Entries
Nothing Found

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Nothing of Value to This ASR Found

RG 92, Records of the Office of the Quartermaster General
All Entries
Nothing Found

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Accession #9NSS-121-85-007
Box #18
Nothing of Value to This ASR Found

Accession #9NSS-121-85-008
Box #1
Nothing of Value to This ASR Found

RG 127, Records of the U.S. Marine Corps
All Entries
Nothing Found

RG 156, Records of the Office of the Chief of Ordnance
All Entries
Nothing Found

RG 175, Records of the Chemical Warfare Service
Box #1
Nothing of Value to This ASR Found

RG 181, Records of the Naval Districts and Shore Establishments
All Entries
Nothing Found

RG 211, Records of the War Manpower Commission
All Entries
Nothing Found

RG 219, Records of the Office of Defense Transportation
All Entries
Nothing Found

RG 269, General Records of the General Services Administration
All Entries
Nothing Found

RG 270, Records of the War Assets Administration
All Entries
Nothing Found

RG 291, Records of the Federal Property Resources Service
All Entries
Nothing Found

RG 313, Records of the Naval Operating Forces
All Entries
Nothing Found

RG 406, Records of the Federal Highway Administration
Accession #72A1388
Boxes #7,10-12,14,17
Nothing of Value to This ASR Found

Ordnance and Explosives
Archives Search Report
for
Benson/Ocotillo Dry Lake
San Diego County, California
Project Number J09CA701106

APPENDIX C

GLOSSARY

APPENDIX C

GLOSSARY

AN	Army-Navy
BD/DR	Building Demolition/Debris Removal
CEHNC	U.S. Army Engineering and Support Center, Huntsville
CEMVD	U.S. Army Corps of Engineers, Mississippi Valley Division
CEMVR	U.S. Army Corps of Engineers, Rock Island District
CENCD	U.S. Army Corps of Engineers, North Central Division
CESPL	U.S. Army Corps of Engineers, Los Angeles District
COE	Corps of Engineers
CON HTRW	Containerized Hazardous Toxic and Radiological Waste
CWM	Chemical Warfare Material
DA	Department of Army
DERP	Defense Environmental Restoration Program
DOD	Department of Defense
EE/CA	Engineering Evaluation/Cost Analysis
EOD	Explosive Ordnance Disposal
F	Fahrenheit
FDE	Findings and Determination of Eligibility
FUDS	Formerly Used Defense Sites
HTRW	Hazardous, Toxic and Radiological Waste
INPR	Inventory Project Report
IRA	Interim Removal Action
lb	Pound
Mk	Mark

NAS	Naval Air Station
NOFA	No Further Action
OB/OD	Open Burn/Open Detonation
OE	Ordnance and Explosives
PA	Preliminary Assessment
POC	Point of Contact
SHPO	State Historical Preservation Officer
QASAS	Quality Assurance Specialist Ammunition Surveillance
RAC	Risk Assessment Code
SAA	Small Arms Ammunition
SI	Site Investigation or Site Inspection
SIOAC	Defense Ammunition Center
USGS	U.S. Geological Survey
UXO	Unexploded Ordnance
WD	War Department

Ordnance and Explosives
Archives Search Report
for
Benson/Ocotillo Dry Lake
San Diego County, California
Project Number J09CA701106

APPENDIX D

TEXTS/MANUALS

APPENDIX D
TEXTS/MANUALS

Table of Contents

- D-1 Cartridge, .50 cal (B-7, B-8)
- D-2 3 and 4.5 lb practice bombs (B-9, B-10, B-11, B-12)
- D-3 100 lb practice bombs (B-10, B-11, B-12, B-13)

SMALL ARMS AND TRENCH WARFARE

Components. The cartridge consists of the cartridge case, primer, propelling charge, and bullet. The complete assembly weighs approximately 327 grains.

The bullet is the same as that in the CARTRIDGE, ball, M1911.

AMMUNITION, CAL. .50.

General. The ammunition described in this discussion is designed for use in all cal. .50 machine guns. It includes cartridges of the following types: ball, armor-piercing, tracer, incendiary, blank, dummy, and high-pressure test.

CARTRIDGE, Ball, Cal. .50, M2.

General. This cartridge is a standard cartridge for all cal. .50 machine guns.

Visual identification. This cartridge does not have any identification markings and the tip of the bullet is not painted.

Components. The cartridge consists of a cartridge case, primer, propelling charge, and bullet. The complete assembly weighs 1,800 grains.

The bullet consists of three parts: a gilding metal jacket, a soft steel core, and a point filler of lead hardened with antimony. The over-all length of the bullet is 2.29 inches. The base has a 9-degree taper, beginning at a point 0.386 inch from the base. The mouth of the case is crimped into the cannelure at assembly and a minimum pull of 100 pounds is required to extract the bullet from the case. Exterior ballistics, maximum range (approx.) 7,200 yd
Velocity:

At 78 ft. 2,900 ft per sec
At muzzle 2,935 ft per sec
Maximum pressure 52,000 lb per sq in.

Accuracy. At the time of acceptance, this ammunition will group within mean radii not greater than 8.0 inches at 500 yards, or 9.0 inches at 600 yards, when fired from an accuracy rifle held in a V-block.

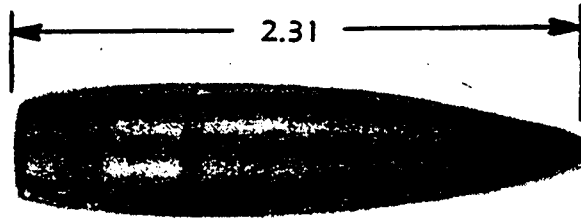
CARTRIDGE, Armor-piercing, Cal. .50, M2.

General. This cartridge is a current standard item of issue for all cal. .50 machine guns. It is designed for use against armored aircraft, armored vehicles, concrete shelters, and similar bullet-resisting targets.

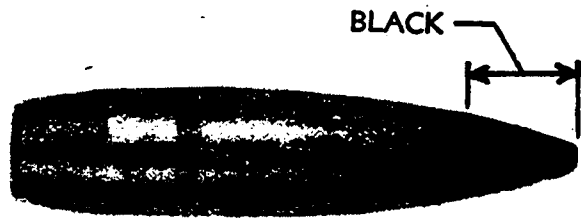
Visual identification. This cartridge may be identified by the blackened tip of the bullet.

Components. The cartridge consists of a cartridge case, primer, propelling charge, and bullet. The complete assembly weighs approximately 1,800 grains.

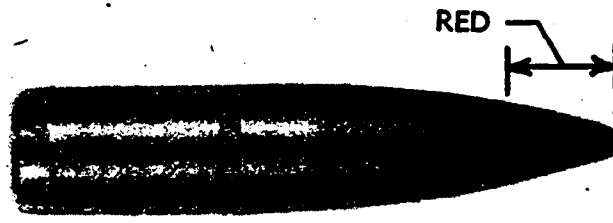
AMMUNITION INSPECTION GUIDE



BULLET, BALL, CAL. .50, M2



BULLET, ARMOR-PIERCING, CAL. .50, M2



BULLET, TRACER, CAL. .50, M1

RA PD 4526

Figure 82a — Bullets, Cal. .50

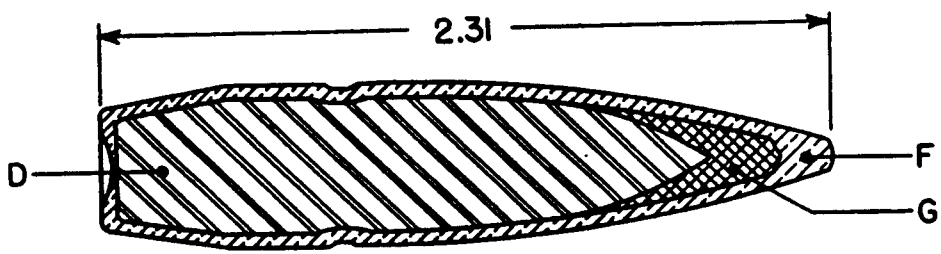
The bullet consists of three parts: a gilding metal jacket; a tungsten-chrome steel core; and a point filler of lead hardened with antimony. The over-all length of the bullet is 2.29 inches and the point is blackened for approximately $\frac{9}{16}$ inch. The base has a 9-degree taper beginning 0.386 inch from the base. The mouth of the case is crimped into the cannelure at assembly, and a minimum pull of 100 pounds is required to extract the bullet from the case.

Exterior ballistics, maximum range (approx.) 7,200 yd
 Maximum pressure 52,000 lb per sq in.

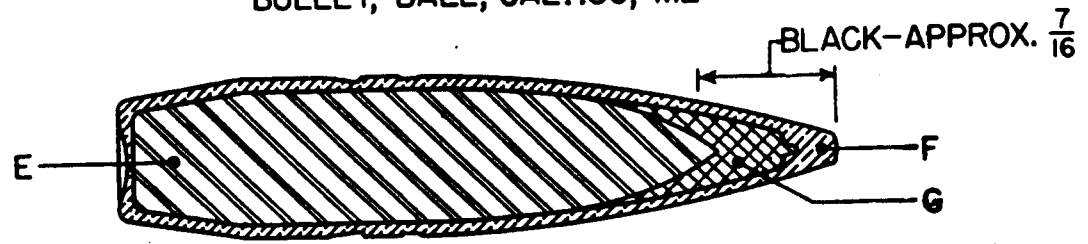
Velocity:
 At 78 ft. 2,900 ft per sec
 At muzzle 2,935 ft per sec

SMALL ARMS AND TRENCH WARFARE

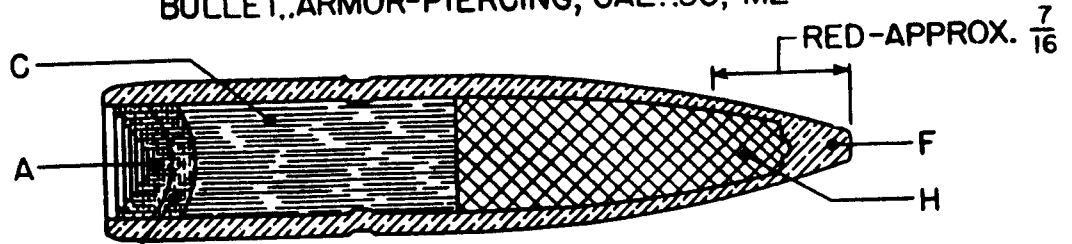
- A-COMPOSITION, IGNITER
- B-COMPOSITION, SUB-IGNITER
- C-COMPOSITION, TRACER
- D-CORE-STEEL
- E-CORE-TUNGSTEN CHROME STEEL
- F-JACKET-GILDING METAL
- G-POINT FILLER-LEAD WITH ANTIMONY
- H-SLUG-LEAD WITH ANTIMONY



BULLET, BALL, CAL..50, M2



BULLET, ARMOR-PIERCING, CAL..50, M2

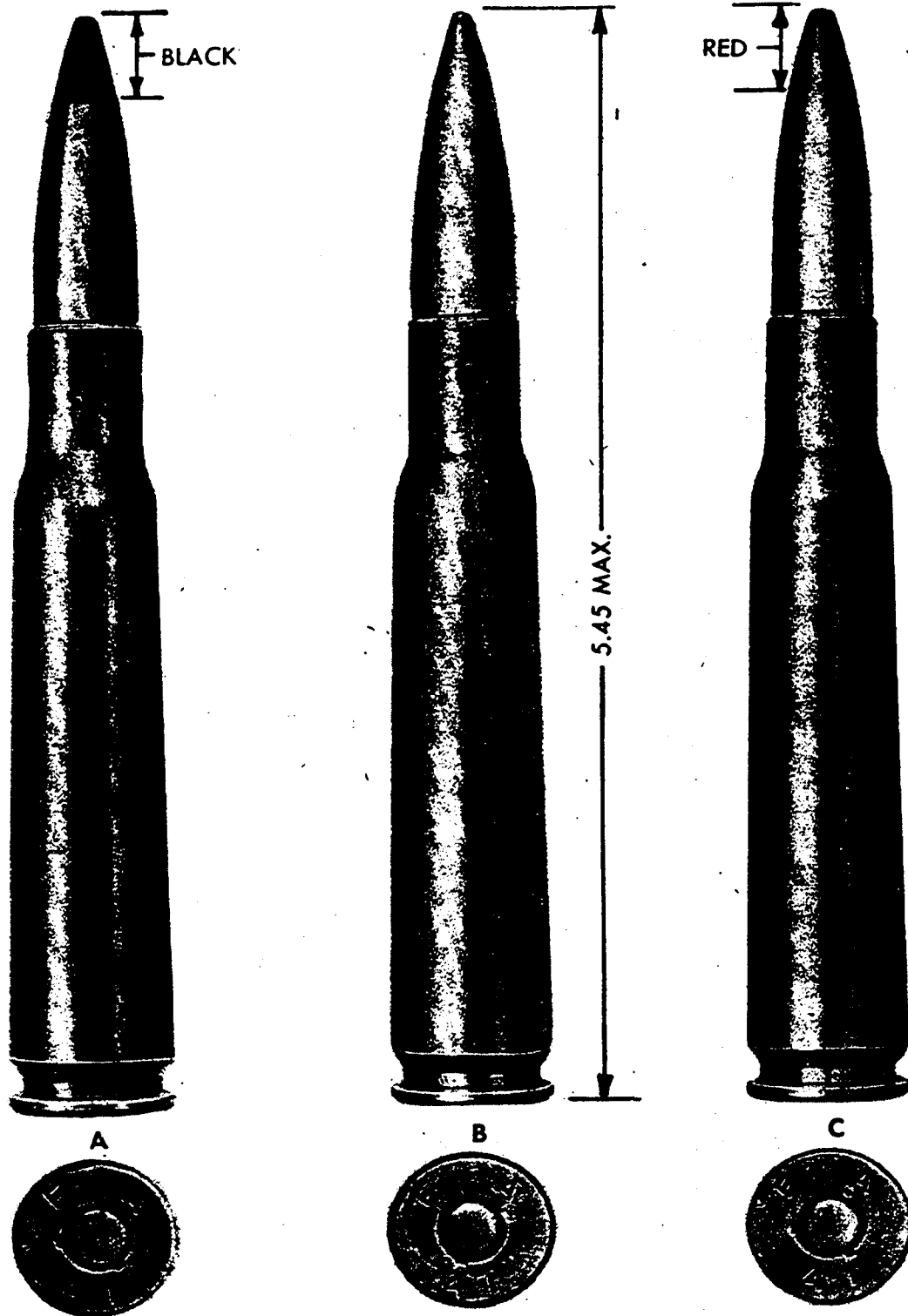


BULLET, TRACER, CAL..50, M1

RA PD 4512

Figure 82b — Bullets, Cal. .50 — Sectioned

AMMUNITION INSPECTION GUIDE



- A — CARTRIDGE, ARMOR-PIERCING CAL. .50, M2
- B — CARTRIDGE, BALL, CAL. .50, M2
- C — CARTRIDGE, TRACER, CAL. .50, M1

RA PD 2117

Figure 83 — Cartridges, Cal. .50

LINE NO.	PLCP CLASSIFICATION	MIL. ABBREVIATION OR UICM NO.	CARTRIDGE DESCRIPTION	CARTRIDGE DRG. NO.	SPEC. NO.	IDENTIFICATION	TYPE & MODEL OF WEAPON	CARTRIDGE WEIGHT (GRAMS)	MILIT			20MM			CORE OR BLD		POINT FILLED			BASIC FILLER OR CLUSTER			CARTRIDGE CASE			PRIMER			PROPERTY		PERFORMANCE	PACKING		
									DRG. NO.	TYPE	WEIGHT (GRAMS)	DRG. NO.	MATERIAL	WEIGHT (GRAMS)	DRG. NO.	MATERIAL	WEIGHT (GRAMS)	DRG. NO.	MATERIAL	WEIGHT (GRAMS)	DRG. NO.	MATERIAL	WEIGHT (GRAMS)	DRG. NO.	MATERIAL	WEIGHT (GRAMS)	DRG. NO.	MATERIAL	WEIGHT (GRAMS)	DRG. NO.			MATERIAL	WEIGHT (GRAMS)
1	USE	1170000	M1	D044942	MIL-C-40643	Red Tip	Mk 308, M2 (Tracer Type), Mk 308, M2 (Flexible) & Mk 308, M2	174.0 -46.0 174.0 -46.0	C020000 or C104200	Tracer	412.0 -15.0 or 412.0 -15.0	C402000 or C404200	Copper Alloy or G3CS	324.0 -18.0 or 324.0 -18.0	8520000 or 81004200	8612000	PSB	307.0 -1.0	--	--	AT04610	Copper Alloy	1.0	C000000	Brass	8520000 (3 Drg.) or 81004200 (3 Drg.)	412.0 -46.0	0704000	--	NR 500	245.0	11,000 Max Avg	270 x 40 x 70.0	0700000 F000000 0700000
1	STD	3001	M1 (APF)	C000000	MIL-C-40643	Normal Match Case	For Proof Training Except M2, Sporting M2C	302.0 -45.0	C000000	Ball	399.0 -11.0	C000000	Copper Alloy	293.0 -9.0	8700100	8000010 (Tracer) & 8000015 (R 10)	PSB	270.0 -2.0 411.0 -3.0	--	--	--	--	C000000	Brass	8000010 (3 Drg.) or 81004200 (3 Drg.)	412.0 -46.0	0704000	--	NR 500	245.0	11,000 Max Avg	--	F000000	
2	USE	1170000	M2 (Match)	D057942	MIL-C-1210	Blue Tip	Mk 308, M2 (Tracer Type), Mk 308, M2 (Flexible) & Mk 308, M2	174.0 -46.0	C010000	Secondary	421.0 -26.0	8612000	Copper Alloy	325.0 -18.0	8700100	A000020	PSB	321.0 -1.0	--	--	--	--	C000000	Brass	8520000 (3 Drg.) or 81004200 (3 Drg.)	412.0 -46.0	0704000	--	NR 500	245.0	11,000 Max Avg	270 x 40 x 70.0	0700000	
4	E STD	3001 0200000	M1 (Match) M1A1 (Match)	C103200 0200000	MIL-C-414 MIL-C-44622	30 Ballist	Mk 308, M2 (Flexible) M2 & M2C 17	174.0 -46.0	RD A750000	--	--	--	--	--	--	--	--	--	--	--	--	C100000	Brass	8000010 or 81004200	412.0 -46.0	0704000	--	NR 500 or NR 500	245.0	--	--	0700000		
5	USE	1170000	M2 (APF)	D057930	MIL-C-40643	Black Tip	Mk 308, M2 (Tracer Type), Mk 308, M2 (Flexible) & Mk 308, M2	174.0 -46.0	C010000	AP	412.0 -12.0	8612000	Copper Alloy	325.0 -18.0	8700100	8612000	Steel	300.0 -10.0	8612000	PSB	363.0 -8.0	--	--	C000000	Brass	8520000 (3 Drg.) or 81004200 (3 Drg.)	412.0 -46.0	0704000	--	NR 500 or NR 500	245.0	270 x 40 x 70.0	0700000 0700000	
4	STD	3001	M2 (Dummy)	C000000	MIL-C-3000	3 Holes in Case	All Cal. M2 Weapons, Except M2C, Sporting M2C for Training	1215.0 -48.0 & 1215.0 -48.0	B000000	Ball	--	C1001000 or M020000	G3CS or Copper Alloy	365.0 -18.0 or 365.0 -18.0	81004200 or 81004200	--	--	--	--	--	--	--	C000000	Brass	8520000	412.0 -46.0	--	--	--	--	--	0700000 0700000		
7	STD	3001	M2	D057940	MIL-C-1210	Blue Tip	Mk 308, M2 (Tracer Type), Mk 308, M2 (Flexible) & Mk 308, M2	174.0 -46.0	C010000	Ball	399.0 -12.0	8612000	Copper Alloy	325.0 -18.0	8700100	8612000	Steel	300.0 -10.0	8612000	PSB	363.0 -8.0	--	--	C000000	Brass	8520000 (3 Drg.) or 81004200 (3 Drg.)	412.0 -46.0	0704000	--	NR 500	245.0	270 x 40 x 70.0	0700000	
1	STD	OTCM 3001	M2 (APF) M2 (APF) Steel Case	C103200 C103200	MIL-C-3000	Silver Tip	Mk 308, M2 (Tracer Type), Mk 308, M2 (Flexible) & Mk 308, M2	174.0 -46.0 174.0 -46.0	C000000	APF	412.0 -12.0 or 412.0 -12.0	8612000	Copper Alloy	325.0 -18.0	8700100	8612000	Steel	300.0 -10.0	--	--	A717000	PSB	1.0	C000000	Brass	8520000 (3 Drg.) or 81004200 (3 Drg.) or 81004200	412.0 -46.0 412.0 -46.0	0704000	--	NR 500 or NR 500	245.0	270 x 40 x 70.0	0700000 0700000 0700000	
8	USE	1170000	M1A	C103200	--	Orange Tip	Mk 308, M2 (Tracer Type), Mk 308, M2 (Flexible) & Mk 308, M2	174.0 -46.0	8700100	Tracer	447.0 -17.0	C100000	G3CS	340.0 -18.0	81004200	8612000	PSB	307.0 -1.0	--	--	A710000	Copper Alloy	1.0	C000000	Brass	8520000 (3 Drg.) or 81004200 (3 Drg.)	412.0 -46.0	0704000	--	NR 500	245.0	270 x 40 x 70.0	0700000 F000000 0700000	
30	COM	1170000	M1T	D044940	MIL-C-1010	Beaver Tip	Mk 308, M2 (Tracer Type), Mk 308, M2 (Flexible) & Mk 308, M2	174.0 -46.0	8700100	Tracer	447.0 -17.0	C100000	G3CS	340.0 -18.0	81004200	8612000	PSB	307.0 -1.0	--	--	A710000	Copper Alloy	1.0	C000000	Brass	8520000 (3 Drg.) or 81004200 (3 Drg.)	412.0 -46.0	0704000	--	NR 500	245.0	270 x 40 x 70.0	0700000 F000000 0700000	
11	STD	OTCM 3001	M2 (APF) M2 Steel Case	C103200 C103200	MIL-C-3000	Red Tip 10-ey Ammos	Mk 308, M2 (Tracer Type), Mk 308, M2 (Flexible) or Mk 308, M2	174.0 -46.0 174.0 -46.0	C000000	APF	412.0 -12.0 or 412.0 -12.0	8612000	Copper Alloy	325.0 -18.0	A710000	8612000	Steel	300.0 -10.0	--	--	A710000	Copper Alloy	1.0	C000000	Brass	8520000 (3 Drg.) or 81004200 (3 Drg.) or 81004200	412.0 -46.0 412.0 -46.0	0704000	--	NR 500	245.0	270 x 40 x 70.0	0700000 F000000 0700000	

3-LB MINIATURE PRACTICE BOMB Mk 5 Mods 2 and 3
3-LB MINIATURE PRACTICE BOMB AN-Mk 23 Mod 1
4.5-LB MINIATURE PRACTICE BOMB Mk 43 Mod 1

Mark.....	Mk 5.....	AN-Mk 23.....	Mk 43.....
Mod.....	2 and 3.....	1.....	1.....
General Arrangement.....	452859.....	452860.....	452858.....
List of Drawings.....	Sk 165595.....	Sk 165597.....	Sk 165596.....
Length of Assembled Bomb (in.).....	8.25.....	8.25.....	8.25.....
Diameter (in.).....	2.18.....	2.18.....	2.18.....
Fin Span (In.).....	2.5.....	2.5.....	2.5.....
Weight:			
Without Signal (lb).....	2.56.....	2.87.....	4.31.....
With Mk 4-Type Signal (lb).....	2.68.....	3.00.....	4.43.....
With Mk 5-Type Signal (lb).....	2.62.....	2.94.....	4.37.....
Firing-Pin Assembly.....	Mk 1 Mod 0.....	Mk 1 Mod 0.....	Mk 1 Mod 0.....
Signal.....	Mk 4 Mods or Mk 5 Mod 0.....	Mk 4 Mods or Mk 5 Mod 0.....	Mk 4 Mods or Mk 5 Mod 0.....

General Description

The 3-lb MPB Mk 5 Mods 2 and 3, the 3-lb MPB AN-Mk 23 Mod 1, and the 4.5-lb MPB Mk 43 Mod 1 are similar in physical appearance and differ basically in the metal used to cast the body.

Bomb Mk 5, now obsolescent, is manufactured from zinc alloy and weighs the least of the three bombs. Bomb AN-Mk 23 is made of cast iron. Bomb Mk 43, now obsolete, was manufactured from cast lead and was the heaviest of the three bombs.

The cast body has a bore throughout its transverse axis which houses a signal and firing-pin assembly.

Four fins are cast integrally with the bomb body. A rectangular sheet-metal shroud attached to the fins is used to stabilize the bomb in flight. Two crimps, 180 degrees apart, anchor the shroud to the fin blades.

The firing-pin assembly consists of two shallow metal cups, separated by a spacer which houses the firing pin. A cotter pin through the nose of the bomb body and two recesses in the lip of the forward cup lock the firing-pin assembly and signal in place.

Painting and Marking

Identification data is cast integrally on the body of the bomb during manufacture, and the bomb has no color marking other than that of the cast metal.

Use

The 3-lb MP Bomb Mk 5 is used for bombing practices on armored-deck target boats. The Bomb AN-Mk 23 is authorized for all bombing practices except those involving armored-deck target boats. The 4.5-lb MP Bomb Mk 43 was used for low-altitude, horizontal or dive bombing and on armored-deck target boats. The Bombs Mk 5, AN-Mk 23, and Mk 43 are used with the Mk 4-type signal, which expels a large puff of smoke rearward through the bore of the bomb when detonated by action of the firing pin. They also are used with the Mk 5 type signal, which contains a fluorescein dye and is actuated by a water inertia load on the firing pin. When the Mk 5 type signal is installed, the firing-pin assembly is not used. Special containers are utilized by aircraft to carry and release these bombs.

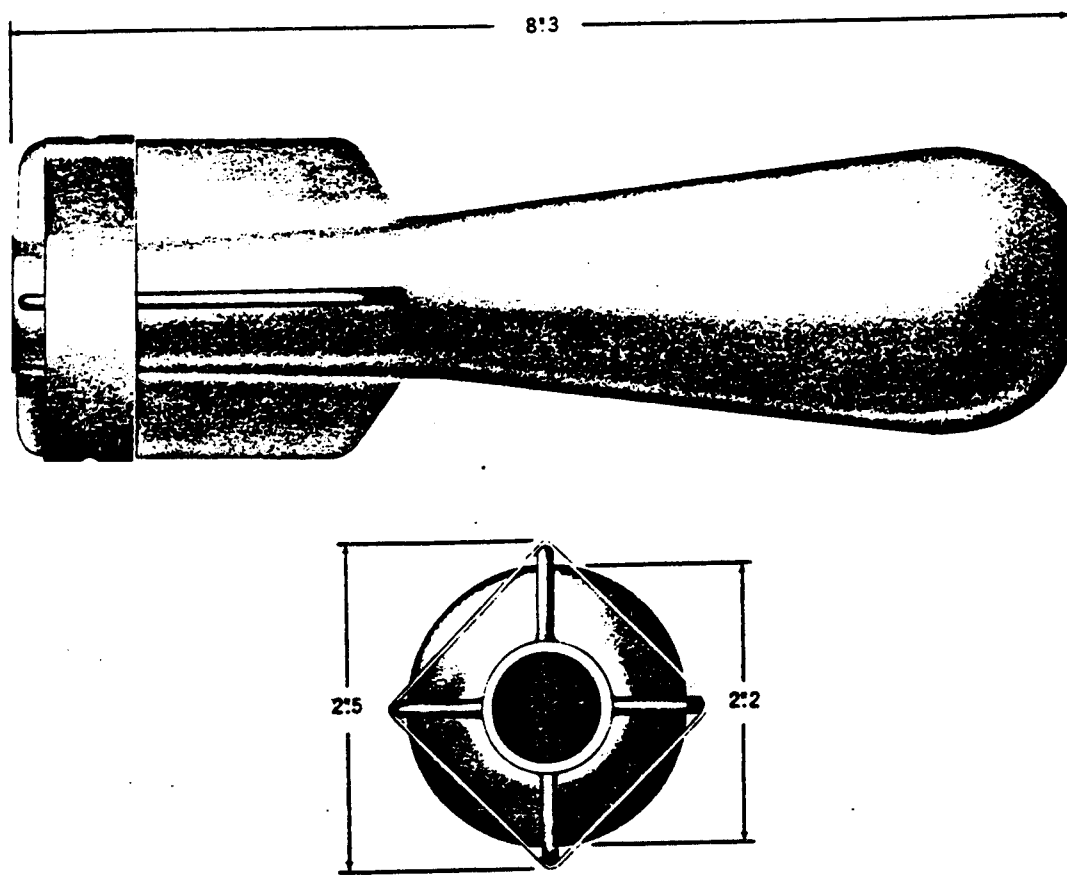


Figure 11-1.—3-lb Miniature Practice Bomb AN-Mk 23 Mod 1, Exterior View.

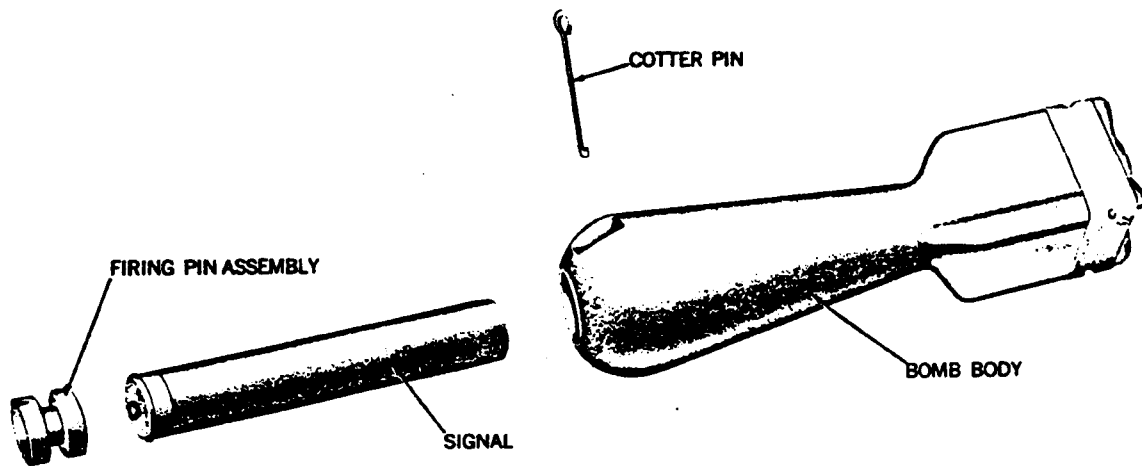


Figure 11-2.—3-lb Miniature Practice Bomb AN-Mk 23 Mod 1, Exploded View.

PRACTICE BOMB ASSEMBLIES

Assembly With the Mk 4 Type Signal

CAUTION: Signals and bombs are not to be unpacked in advance of requirements. If unpacked and not used, return them to their original packings.

1. Remove the bomb and the signal from their packings.

2. Remove the cotter pin and the firing-pin assembly from the nose of the bomb. The firing-pin assembly should fit loosely in the bomb and not bind when being removed.

3. Check the bore through the center of the bomb; it must be clean, smooth, and not damaged in any way.

4. Inspect the firing-pin assembly for

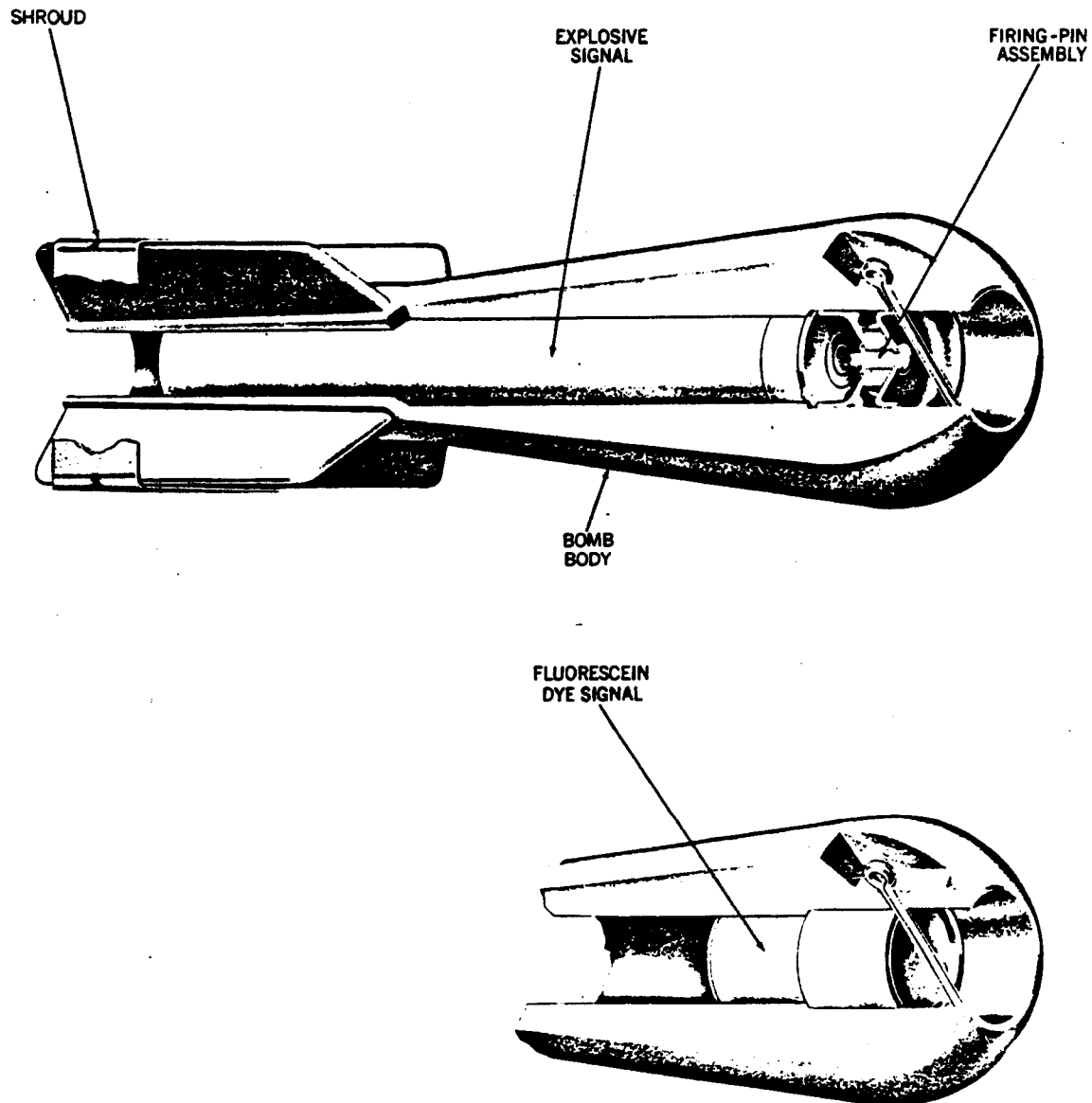


Figure 11-3.—3-lb Miniature Practice Bomb AN-Mk 23 Mod 1, Cutaway View and Detail Showing Signal Mk 5 Mod 0 Installed.

damage. Be sure the firing-pin cup is not deformed and that the firing-pin point is below the lip of its cup.

5. Place the bomb in a vertical position, nose end up.

6. Check that the signal is not swollen or deformed in any way. The primer must be flush or slightly below the base of the cartridge. Do not use a signal cartridge that is deformed in any way.

7. Insert the signal into the bomb, primer end up, and let it fall gently into place; do not force it. The base flange of the signal cartridge must rest on the bomb bore shoulder.

8. Insert the firing-pin assembly carefully with the firing-pin end toward the signal. The assembly must drop into place under its own weight.

CAUTION: Do not apply pressure to force the firing-pin assembly into the bomb. The assembly may collapse and fire the signal.

9. Rotate the firing-pin assembly so that the two notches in the lip line up with the two pin holes in the bomb nose. Do not apply pressure to the firing pin during this operation.

10. Insert the cotter pin through the nose holes and the recesses in the firing-pin assembly.

11. Spread the ends of the cotter pin with a screwdriver sufficiently to retain the pin

in the bomb. Do not bend the ends of the cotter pin at a right angle to the axis of the cotter pin or strike the ends to bend them into position.

CAUTION: Be extremely careful when handling practice bombs loaded with signals. Jarring or dropping the bomb may detonate the signal. Do not, under any circumstances, point either end of the signal toward other personnel. Loaders must not place their bodies in line with the nose or tail ends of the bombs.

Disassembly

To disassemble the complete bomb, the previous steps should be carried out in reverse order and the components restored to their original condition.

Assembly With the Mk 5 Type Signal

1. Prepare the bomb in accordance with steps 1 through 6 of the assembly instructions for the Mk 4 type signal.

2. Insert the signal with the small end toward the tail of the bomb.

3. Secure the signal in the bomb by replacing the cotter pin.

4. Spread the ends of the cotter pin sufficiently to lock it in place.

5. Retain the discarded firing-pin assemblies as spares or return them to the nearest supply point.

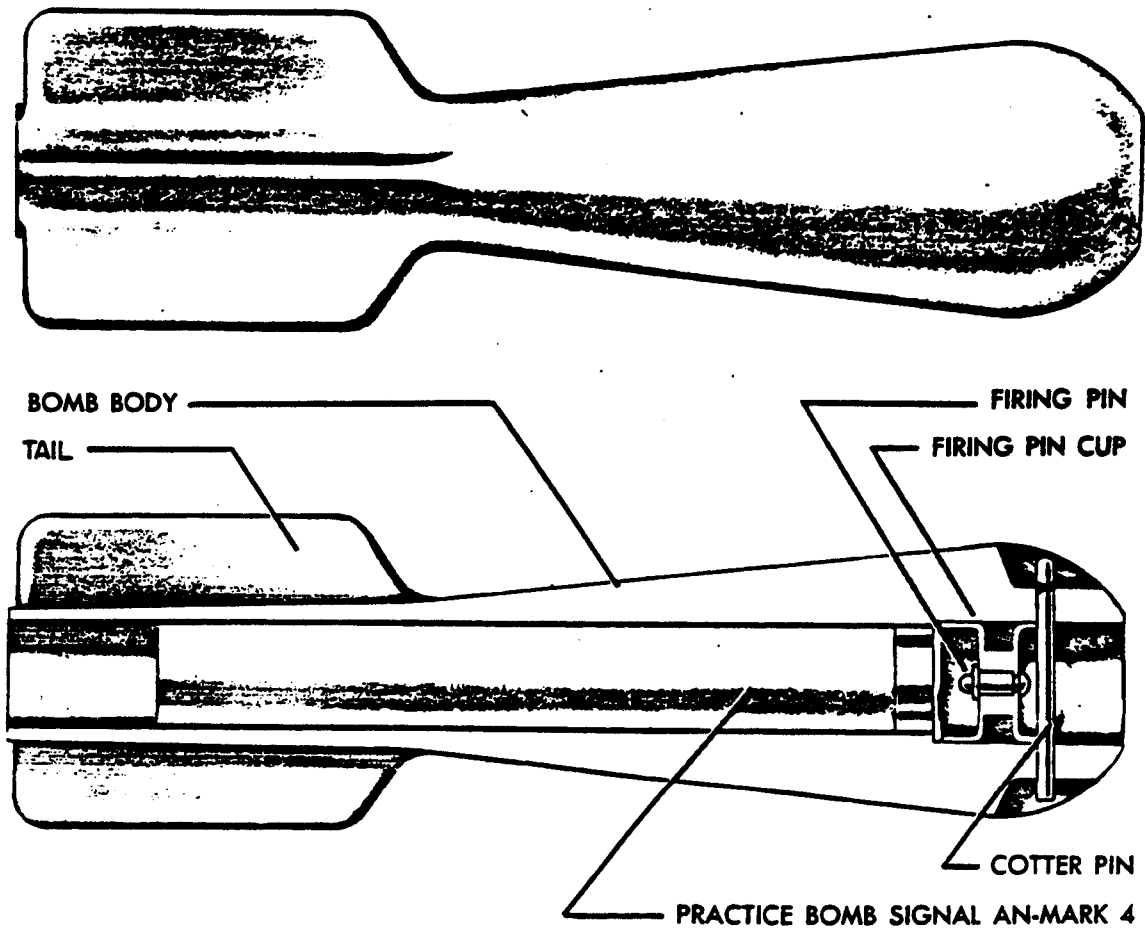


Figure 311. 4.5-pound Miniature Practice Bomb AN-Mk 43

Part 6 — Chapter 19

PRACTICE BOMBS

Section I — NAVY PRACTICE BOMBS

Miniature 3-pound Mk 3, Mk 4, AN-Mk5, and AN-Mk 23; and 4.5-pound AN-Mk 43

Over-all length, inches.....8.25
 Diameter, inches2.18
 ColorUnpainted

These small, cast-alloy bombs have a tube along their longitudinal axis which houses the Signal Cartridge AM-Mk 4 or Mk 5, a pyrotechnic charge for spotting purposes. The differences between these bombs are matters of size. The Miniature Practice Bomb AN-Mk 43 weighs 4.5 pounds; the others of this series weigh 3.0 pounds.

Miniature 13-pound Mk 19 or Mk 19 Mod 1

This bomb is like the other miniatures, except that it is larger. Its length is 13.0 inches, while its weight is 13.0 pounds.

"Old" Series Practice Bombs (Obsolete or being replaced)

No fuzes are used in these bombs, and they

contain no spotting charge, being filled either with water or with wet sand. The filling is usually stencilled on the body of the bomb. To prevent freezing and splitting of cases at high altitudes, anti-freeze is added. To improve spotting of hits, a spotting dye is also used.

"New" Series Practice Bombs

Mk 15 Mod 3 uses Spotting Signal Mk 7; the others use Mk 6 Mod 0.

This series bomb is a welded sheet-steel light-case design having identical dimensions to AN standard G.P. bombs, and uses AN standard G.P. bomb tails. The bomb has, welded to its body, two suspension lugs spaced 14.0 inches apart. Seven threaded recesses, located on the periphery at the approximate center of gravity, are for various hoisting conditions. At 90 degrees, on each side of the suspension lugs and slightly before the hoisting recesses, are threaded openings to receive trunnions.

By means of a strap, the appropriate practice bomb signal, Mk 6 or Mk 7, may be at-

"OLD" SERIES PRACTICE BOMBS—DATA

		Length	Diameter	Color	Total Weight	
					Water-Filled	Wet-Sand-Filled
100-lb.	Mk 7	41.2"	8.0"	Black	48.5 #	83.0 #
100-lb.	Mk 15 Mod 2	41.2"	8.0"	Black	56.0 #	95.0 #
500-lb.	Mk 5	67.3"	16.0"	Black	360.0 #	500.0 #
500-lb.	Mk 11	61.8"	15.0"	Black	268.0 #	448.0 #
500-lb.	Mk 21	61.8"	15.0"	Black	273.0 #	489.0 #
1,000-lb.	Mk 7	80.0"	19.0"	Black	580.0 #	1,000.0 #
1,000-lb.	Mk 22	79.0"	19.0"	Black	573.0 #	1,013.7 #

~~CONFIDENTIAL~~

"NEW" SERIES PRACTICE BOMBS—DATA

		Length	Diameter	Water-Loaded	Sand-Loaded
100-lb.	Mk 15 Mod 3	41.2"	8.0"	64.25 #	100 #
500-lb.	Mk 65 Mod 0	56.6"	14.0"	220.0 #	388.0 #
1,000-lb.	Mk 66 Mod 0	67.0"	18.6"	474.0 #	834.0 #
2,000-lb.	Mk 67 Mod 0	90.15"	23"	..	733.0 #

tached to the tail assembly with the forward end of the signal seated in a recess in the after end of the bomb body.

A flat-nose attachment has been designed for use with the Practice Bomb Mk 15 Mod 3 for anti-submarine bombing practice. The flat nose is installed by removing the nose-filling cap, slipping the attachment over the nose of the bomb, and then screwing the filling cap down tightly by hand to hold the attachment in place. The flat nose will prevent ricochet at entrance angles as low as 9°.

The 2,000-pound-size container was designed for an incendiary or practice filler but, thus far, it is approved by the Bureau of Ordnance for practice filling, sand, only. As designed for incendiary loads, it would take a nose fuze, the Burster Mk 1, and the Igniter Mk 40; however this is subject to change before Bureau approval of the bomb as an incendiary. The Mk 67 has standard suspension lugs and provision for trunnions.

Practice Bomb Signals (Navy)

AN-Mk 4 and AN-Mk 5: For the miniature practice bombs, these signals allow observers to spot the impact of salvos. The Practice Signal Cartridge AN-Mk 4 is an extra long 10-gauge shotgun shell which is inserted in the nose of the bomb. On impact, the cartridge is fired, expelling a large puff of black smoke from the tail of the bomb. The firing device consists of two shallow cups separated by a spacer, the firing pin extending through the bottom of one cup. The Signal Cartridge Mk 5 is the same size but

filled with fluorescein, which stains the water, giving a spot of longer duration than the AN-Mk 4.

Mk 6 Mod 0 and Mk 7 Mod 0: These signals are essentially cans of black powder fitted with the Fuze Mk 247. The Mk 6 is used in the Practice Bombs Mk 65 and Mk 66; the Mk 7 in the Bomb Mk 15 Mod 3. They are attached to the rear of the bomb by brackets or a strap arrangement. The Signal Mk 7 is 13.08 inches long and 2 inches in diameter. It has a total weight of 2.5 pounds. It has a filling of one pound of black powder. The Mk 6 is generally the same, except that the fuze is mounted off-center and the black-powder filling weighs two pounds.

The Fuze Mk 247 consists of an inertia weight held by a jump-out pin and a creep spring. The detonator is a blank caliber .38 cartridge. When the signal is placed in the bomb, the firing pin assembly is unscrewed and a blank caliber .38 cartridge inserted in the cartridge chamber. The firing assembly is then re-inserted and secured by means of a lock nut. At the time of loading the bomb into the plane, the arming wire is inserted through the jump-out pin, and the safety pin is then removed. Upon release from the plane, the arming wire is withdrawn, allowing the jump-out pin to be thrown free, arming the signal. Upon impact, the weighted firing pin overcomes the creep spring and impinges upon the primer of the caliber .38 blank cartridge, which, in turn, ignites the main black-powder charge.

powder should be covered with an inert, nonabrasive, powder such as talc, and brushed up with a soft brush. Any possible residue should be taken up by dabbing with a damp cloth.

118. FLARE, AIRCRAFT, PARACHUTE, AN-M26. *a. Data.* **FLARE, aircraft, parachute, AN-M26,** is a flare which is discharged from its case and ignited when the fuze functions. It is parachute supported and burns for 3 to 3.5 minutes with a yellowish light of 800,000 candle power. The fuzed flare is 50 inches in length, 8 inches in diameter, and weighs 52.5 pounds. Authorized fuzes are the same as those authorized for the photoflash bomb described in paragraph 117.

b. Assembly. To assemble the complete round, proceed as follows:

(1) Remove the flare and fuze from the packings and inspect for serviceability.

(2) Unseal and remove the shipping cover from the base of the flare case.

(3) Uncoil the hangwire-arming wire assembly from the container, pass it around the case and thread the wire through the forward suspension lug. Be careful not to pull on the hangwire so strongly as to pull out the hangwire container.

(4) Set and assemble the fuze as described in paragraph 41.

(5) If the flare is not used, reverse the steps above and return flare and fuze to their original condition and packing.

SECTION XIV. PRACTICE BOMBS

119. GENERAL. Practice bombs are provided for training of bombing crews in marksmanship. They resemble service bombs in appearance and flight characteristics and are provided with a fuze and spotting charge unless conditions make a special spotting charge unnecessary.

120. BOMB, PRACTICE, 3-LB., AN-MK. 5-MOD. 1. *a. Data.* **BOMB, practice, 3-lb., AN-Mk. 5-Mod. 1,** is a streamlined miniature practice bomb 8.25 inches in length and 2.5 inches in diameter. It is made of chromium plated steel. The authorized spotting charge is **SIGNAL, bomb, practice, miniature, AN-Mk. 4.**

b. Other models. **BOMB, practice, 3-lb., AN-Mk. 23,** is the same as the **AN-Mk. 5-Mod. 1** except that it is made of cast iron. **BOMB, practice, 4.5-lb., AN-Mk. 43,** is the same except that it is made of lead. **Cartridge, M4 or M5** may be substituted for **SIGNAL, bomb, practice, miniature, AN-Mk. 4.**

PRACTICE AND DEMONSTRATION BOMBS

NOTES	Type	Drg. No.	BOMB			ADAPTER-BOOSTERS				FUSES				PRIMER-DETONATORS		PACKING				Assembly No.				
			Explosive Charge			Inert Charge		Nose		Tail		Nose		Tail		Nose		Tail			Primer-Detonator			
			Wt.	Kind	Container	Wt.	Kind	Drg. No.	Designation	Drg. No.	Designation	Drg. No.	Designation	Drg. No.	Designation	Drg. No.	Designation	Drg. No.	Designation		Drg. No.	Designation	Drg. No.	
S & M	Practice, 3-lb., AN-Mk. 5, Mod. 1	Navy 227620	Lb.	Lb.		Lb.																1		
S & M	Practice, 3-lb., AN-Mk. 5, Mod. 1	Navy 227620	3.	.028	Black Powder	Navy 142, 244																2		
S & M	Practice, 17-lb., M7	82-0-26	22.5	.75	Smoke charge	76-3-175																3		
S & M	Practice, 300-lb., K344E & see	82-0-23	100	3	Black Powder	82-3-228	80	Sand														4		
S & M	Practice, 80-lb., M5 see	82-0-37	20.15	.13	Black Powder	82-3-270 ⁵																5		
eg	Practice, 300-lb., Mk. I	82-3-39	290	4	Black Powder	82-3-124	144	Sand			73-80-1	Practice, Mk. I			73-80-1	Practice, Mk. I	()	73-80-1	76-16-16		76-16-45	76-16-18	76-16-18	6
S & M	Practice, 70-lb., M3 see	82-0-44	19.7	.13	Black Powder	82-3-270 ⁵																		

S - Issue
M - Manufacture
Note - For arming wire assemblies, see Drawing 82-3-234.

- o - From stock of unloaded demolition bombs, Mk. I series.
- () - Primer-detonator assembly, Mk. I, practice.
- o - Packing box for tail adapter-boosters.
- o - Spotting charge M341.
- o - Same Fuse, M340 for container see Drg. 76-1-343.
- see - Sand, Suspension, M3, See Drg. 82-3-308. (for use on dive bombs only).
- g - Detonator, M11, Drg. 82-3-282.
- on - Fin, Drg. 82-3-276.
- g - Special loading for 53-lb. bomb to consist of 1 part sand and 2 parts conduct to equal 33 lbs.
- 5 - Spotting charge, for Container see Drg. 76-10-25; for Packing Box see Drg. 76-16-255.

Issued - September 6, 1924.
Revised - December 15, 1941.

ARMY PRACTICE BOMBS

3-pound AN-Mk 5 Mod 1

See Navy practice bombs.

20-pound M48

This is a dummy of the 20-pound Fragmentation Bomb AN-M41. It has a two-ounce black-powder charge and uses the Fuze M110 or AN-M110A1 in the nose. It is 21.8-inches long; weighs 19.7 pounds. It is issued in practice bomb clusters M2 and M2A1.

23-pound M71 and M71A1

These are parachute-type practice fragmentation bombs for clustering. They do not have a fuze or spotting charge, because of the presence of the parachute. The parachute assembly is the M3, modified from the M4 by removal of the suspension assembly, hand assembly, and pull wire container. M71 is 26.8 inches long; weighs 21 pounds. M71A1 differs by the addition of the shoulder to the bomb nose.

100-pound M38A2

Over-all length, inches.....	47.5
Diameter, inches.....	8.13
Weight, empty, pounds.....	15.7
Weight, sand-loaded and spotting charge, pounds.....	100

This bomb simulates a G.P. bomb of the same size. The spotting charge is assembled in a sleeve at the base of the bomb, within the fin box. Authorized spotting charges are M1A1, M3, and M4.

100-pound M75

Length, inches.....	47.0
Diameter, inches.....	8.0
Filler, hematite, pounds.....	72
Total weight, pounds.....	101.3

This bomb is designed to provide a target reference for practice bombing over snow-covered ranges. Resembling the chemical bomb of the same size, it consists of a light, sheet-metal case; a charge of red iron ore (hematite); a Burster M4; and a Fuze M108 in the nose.

100-pound M85

This model is a reinforced concrete design ordered to relieve a temporary shortage of the Practice Bomb M38A2 during the war.

Spotting Charges (Army)

M1A1

Over-all length, inches.....	11.18
Diameter, inches.....	3.43
Weight, pounds.....	4.25
Black-powder charge, pounds.....	3.0
Bomb used in.....	M38A2
Fuze.....	Integral inertia-type

This type of spotting charge fits in the after end of the 100-pound Practice Bomb M38A2. It produces a flash of flame and white smoke for observation of bombing accuracy. When assembled in the bomb, the can of the charge protrudes two to three inches out of the bomb body.

The fuze is an integral part of the spotting charge assembly. When the arming wire is pulled, the spring-loaded arming pin jumps out, leaving the inertia weight supported only by the combination firing pin and creep spring. On impact, the inertia weight drives this firing pin into the shotgun-type primer, which, in turn, ignites the black powder.

M3: The Spotting charge M3 has a 2¼-pound dark smoke filling and a black-powder igniter. It is 5/8 inch longer than the Spotting Charge M1A1, but otherwise is like it. The M3, with

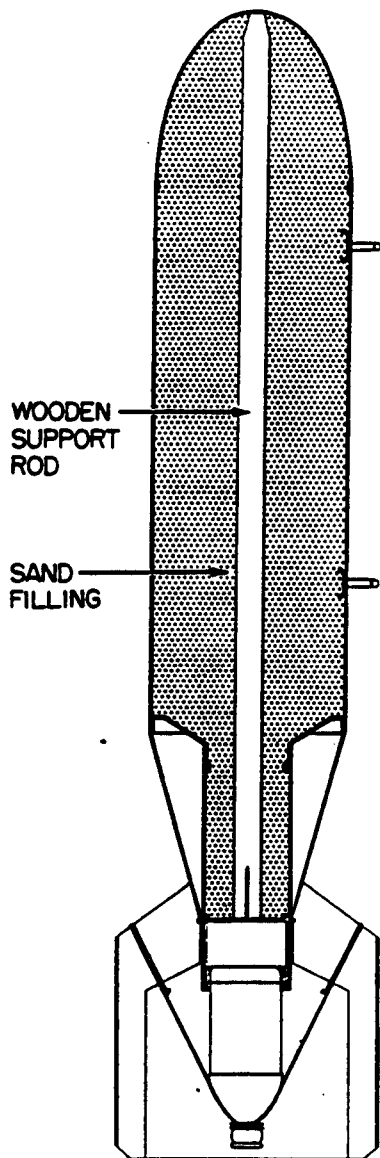


Figure 314. 100-pound Practice Bomb M38A2

its dark smoke filler, is well adapted for bombing practice over snow-covered terrain. The black-powder igniter charge contains approximately 425 grains. It is used in the Practice Bomb M38A2.

M5	
Over-all length, inches.....	7.37
Diameter, inches.....	2.95

Material	Glass
FS filler, fluid ounces.....	14.4

The Spotting Charge M5 consists of a glass bottle filled with FS smoke mixture. An ordinary bottle cap seals the mixture. The bottle is held to the Practice Bomb M38A2 by a wire twisted around the neck of the bottle and attached to the tail vanes. The charge assembly weighs 2.54 pounds.

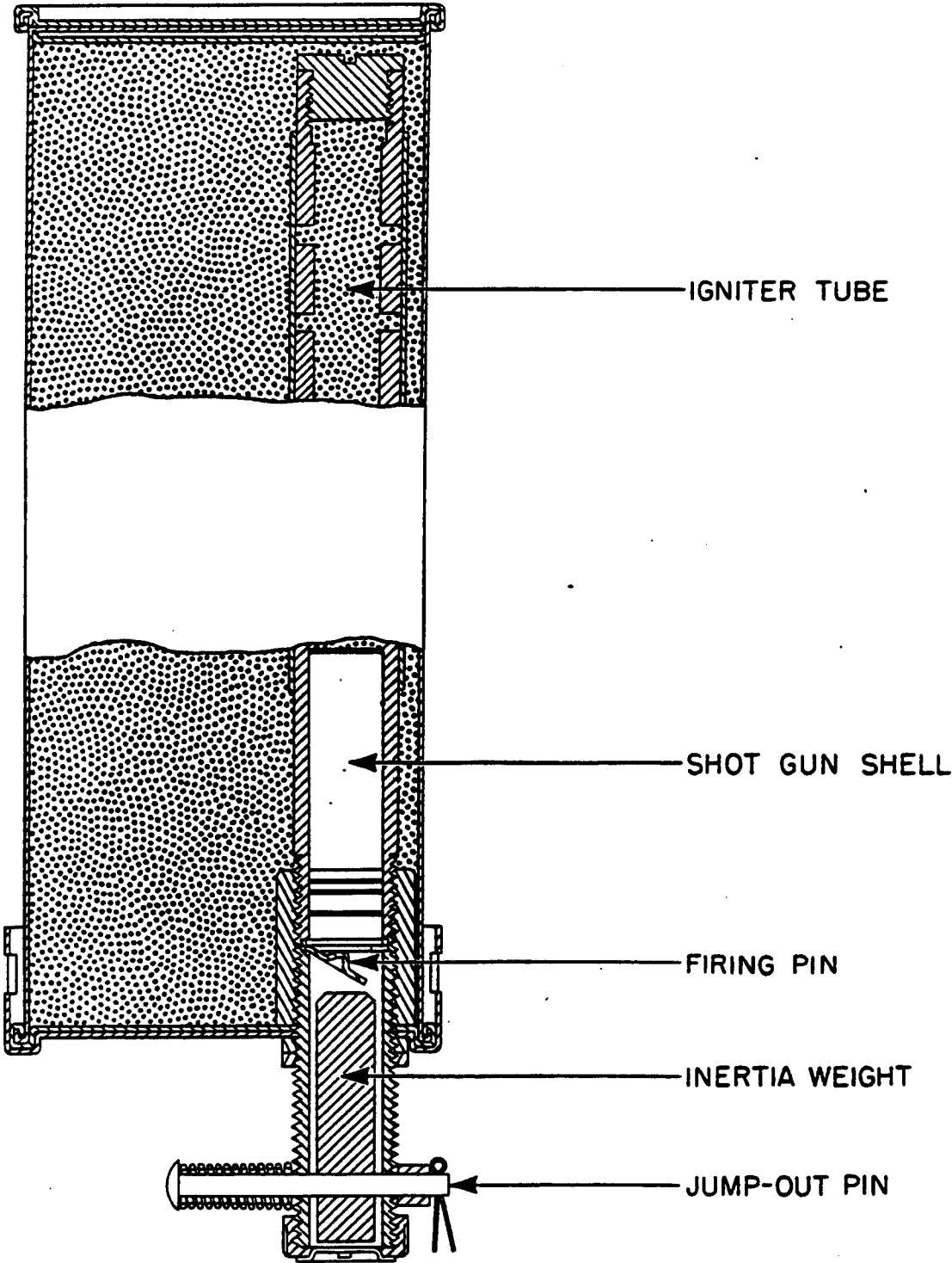


Figure 315. Spotting Charge M1A1

CONFIDENTIAL

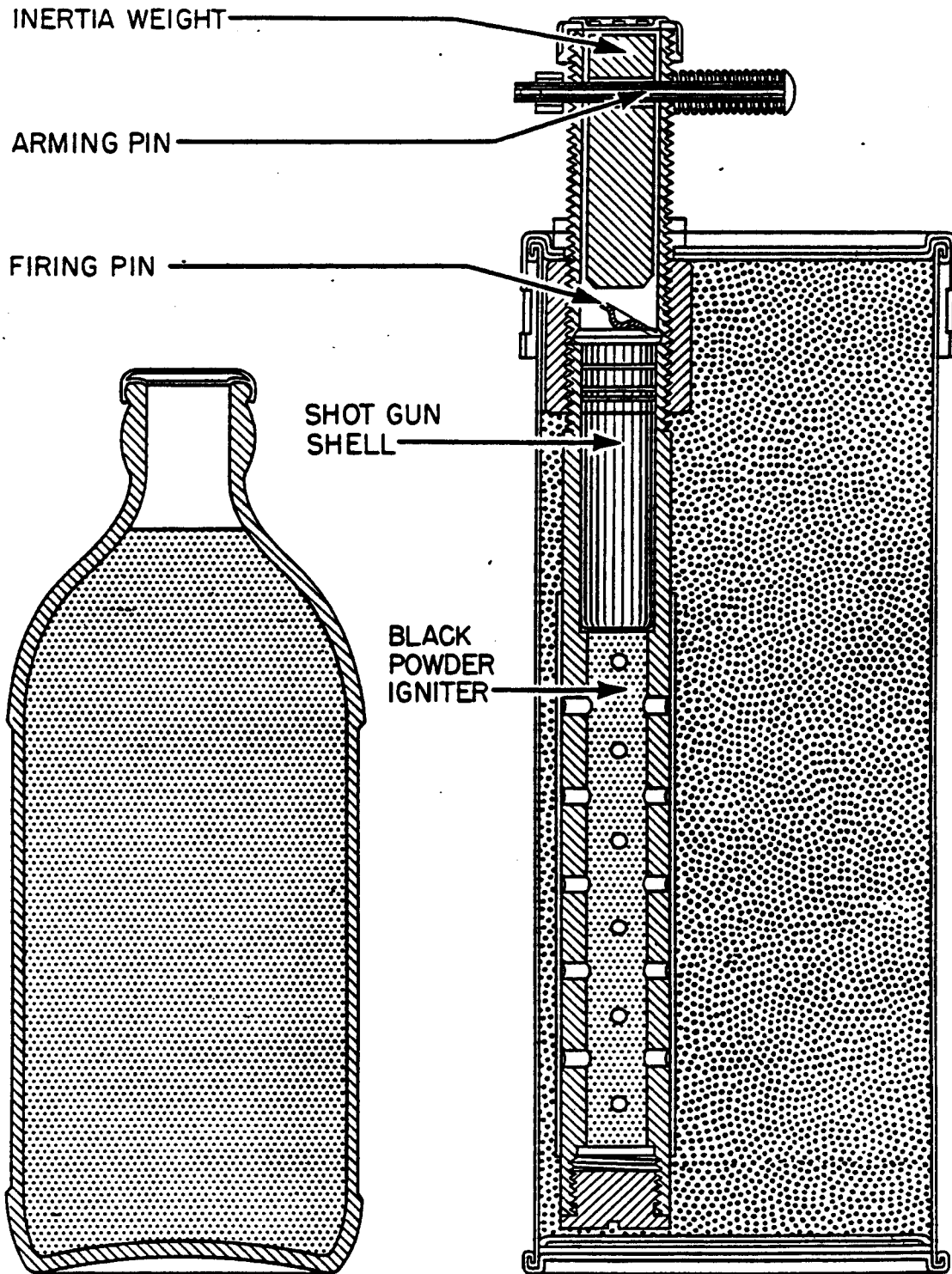


Figure 316. Spotting Charges M3 (right) and M5 (left)

c. **Assembly.** In order to assemble the spotting charge it is only necessary to remove the cotter pin in the nose of the bomb, remove the firing pin, insert the signal or cartridge, and replace the firing pin and cotter pin.

- ✓ 121. **BOMB, PRACTICE, 20-LB., M48.** This bomb represents a fin-stabilized fragmentation bomb. It is 21.8 inches in length and weighs 19.7 pounds. This bomb is intended to simulate to **BOMB, fragmentation, 20-lb., AN-M41.** It resembles the latter except that the body has a sheet metal closing disk in the side, and the charge is 2 ounces of black powder. The fuzes authorized for this bomb are **FUZE, bomb, AN-M110A1 (nose),** or **FUZE, bomb, M110 (nose).** **BOMB, practice, 20-lb., M48** is issued only in **CLUSTER, practice bomb, M2** and **CLUSTER, practice bomb, M2A1.** (See sec. XVII.)
- ✓ 122. **BOMB, PRACTICE, 23-LB., M71 AND M71A1.** These bombs represent parachute type fragmentation bombs for assembly in clusters. The complete bomb consists of **BODY, bomb, for 23-lb., practice bomb, M71 and M73, or M71A1 and M73A1** and parachute unit, assembly, **M3 (modified from M4 by removal of suspension assembly, band assembly, and pull wire container).** Note that fuze and spotting charge are unnecessary since the parachute is ample for spotting purposes. **BOMB, practice, 23-lb., M71,** is 26.8 inches long and weighs 21 pounds. The **M71A1** is modified by the addition of the shoulder to the nose of the bomb. It is used only in **CLUSTER, practice bomb, M5.** (See sec. XVII.)
- ✓ 123. **BOMB, PRACTICE, 23-LB., M73.** **BOMB, practice, 23-lb., M73,** simulates a parachute type fragmentation bomb intended for individual suspension. The complete round consists of an empty service bomb body and a parachute unit assembly. It is assembled by setting back the set screw in the collar on the base of the bomb body, screwing in the coupling of the case assembly and tightening the set screw. No fuze or spotting charge is necessary since the parachute serves for spotting purposes. The bomb, 28.5 inches long, weighs 21.1 pounds.
- ✓ 124. **BOMB, PRACTICE, 100-LB., M38A2.** a. **Data.** **BOMB, practice, 100-lb., M38A2,** is a round-nosed cylindrical bomb designed to simulate general-purpose bombs. (See fig. 117.) It is 47.5 inches long and 8.13 inches in diameter. As issued, the fins are assembled to the bomb body which is empty for sand loading in the field. The empty bomb weighs 15.7 pounds, sand filled; with spotting charge assembled, it weighs 100 pounds. The spotting charge is assembled in a sleeve at the base of the bomb, within the fin box.

b. **Spotting charge.** The authorized spotting charges are CHARGE, spotting, assembly, M1A1, M3, and M4. These assemblies consist of a 3-pound charge and an integral fuze consisting of an inertia type firing pin restrained by an arming pin, with a blank loaded shotgun shell for a primer. The M3 produces a large amount of black smoke and is authorized for use over ranges completely covered with snow. The M4 is authorized for use on ranges equipped with sonic spotting devices. The M1A1 is authorized for all other uses.

c. **Assembly.** To assemble the complete round, the following procedure may be used:

(1) *Load with sand to weight:* Remove the bomb from the carton and inspect for serviceability. Remove the closing cover from its place in the sleeve. Place the bomb upright and fill completely with a uniform sand mixture. Shake the load down well so that there will be no room for it to shift. If a lighter loading is desired, mix sawdust or sifted ashes with the sand. The bomb must be filled, and the loading material must be uniform. Press the closing cap into place.

(2) *Assembly spotting charge:* Insert spotting charge assembly and seat firmly with arming pin pointing away from bomb suspension lugs. Pass arming wire through rear suspension lug and then through eyelet in arming pin. Adjust to protrude 2 to 3 inches.

125. BOMB, PRACTICE, TARGET, 100-LB., M75. a. **Data.** BOMB, practice, target, 100-lb., M75, is provided to furnish a target reference for practice bombing over snow covered ranges. The bomb resembles the 100-pound chemical bomb and consists of a light sheet metal case, a charge of red iron ore (hematite), a burster, and a fuze. The bomb is 47 inches long and 8 inches in diameter. It weighs 101.3 pounds of which 72 pounds is hematite. Upon impact the burster distributes the charge over an area 35 feet in diameter.

b. **Complete round.** The complete round consists of the bomb, unfuzed, without burster, BURSTER, M4, FUZE, bomb, M108 (nose), with pressure plate, and WIRE, arming, assembly. The complete round, except burster, is shipped unassembled in a wooden box.

c. **Assembly.** To assemble the complete round, the following sequence should be observed:

(1) Remove components from packing and inspect for serviceability.

(2) Remove the fuze seat and adapter sleeve from the adapter.

(3) Insert the burster in the burster well; push it in until the shoulder of the burster seats against the shoulder of the burster well. Use no force.

(4) Replace the adapter sleeve and screw firmly against the burster.



IRAFD 26793

IRAFD 26793

PRACTICE AND DEMONSTRATION BOMBS

NOTES	Type	Drg. No.	ICMB			ADAPTER-BOOSTERS				FUSES				PRIMER-DETONATORS		PACKING					Assembly No.			
			Explosive Charge			inert Charge		Nose		Tail		Nose		Tail		Nose	Tail	Fuse		Primer-Detonators				
			Wt.	Kind	Container	Wt.	Kind	Drg. No.	Designation	Drg. No.	Designation	Drg. No.	Designation	Drg. No.	Designation	Designation	Drg. No.	Body Drg. No.	Nose Drg. No.	Tail Drg. No.		Nose Drg. No.	Tail Drg. No.	Container Drg. No.
S & M	Practice, 3-lb., AM-Mk. 5, Mod. 1	Navy 227680	lb. 3.	lb. .028	Black Powder	Navy 142, 244																		1
S & M	Practice, 17-lb., M37	82-0-26	22.5	.75	Smoke charge	76-8-175						73-8-22	High practice					(76-16-194) (76-16-195)	76-16-223					2
S & M	Practice, 100-lb., M38A2 § see	82-0-23	100	3	Black Powder	82-3-228	80	Sand																3
S & M	Practice, 20-lb., M5 see	82-0-37	20.45	.13	Black Powder	82-3-270 ^z						73-8-41	M307											4
S & M	Practice, 20-lb., M5 see	82-0-37	20.45	.13	Black Powder	82-3-270 ^z																		5
as	Practice, 300-lb., Mk. I	82-3-39	290	4	Black Powder	82-3-124	144	Sand		73-80-1	Practice, Mk. II			73-80-1	Practice, Mk. I	()	73-80-1	76-16-16		76-16-45		76-16-18	76-16-18	6
S & M	Practice, 20-lb., M8 see	82-0-44	19.7	.13	Black Powder	82-3-270 ^z						73-8-47	M310 #											

S - Issue
M - Manufacture
Note - For arming wire assemblies, see Drawing 82-3-234.

- o - From stock of unloaded demolition bombs, Mk. I series.
- () - Primer-detonator assembly, Mk. I, practice.
- o - Packing box for tail adapter-boosters.
- o - Spotting charge M311.
- § - See Fuse, M310 for container see Drg. 76-3-343.
- as - Nose, Suspension, Mk. I, See Drg. 82-3-308. (for use on dive bombs only).
- # - Detonator, Mk. I, Drg. 82-3-282.
- on - Fin, Drg. 82-3-274.
- o - Special loading for 53-lb. bomb to consist of 1 part sand and 2 parts combat to equal 33 lbs.
- z - Spotting charge, for Container see Drg. 76-30-25; for Packing Box see Drg. 76-16-255.

Issued - September 6, 1924.
Revised - December 15, 1941.

PRACTICE AND TARGET BOMBS

NOTES	BOMB					ADAPTER-BOOSTERS					FUZES					PRIMER-DETONATORS				PACKING					Assembly No.				
	TYPE	Assembly Complete Drg. No.	DRO. NO.	Weight Loaded and Fused Lb.	Spotting Charge			Insert Charge		TAIL		NOSE		TAIL		NOSE		TAIL		BOMB Body Drg. No.	FUZE		PRIMER-DETONATORS						
					Type	Drg. No.	Wt. Lb.	Wt. Lb.	Kind	Designation	Drg. No.	Designation	Drg. No.	Designation	Drg. No.	Designation	Drg. No.	Designation	Drg. No.		Designation	Drg. No.	Designation	Drg. No.		Designation	Designation	Designation	
S	Prac., 23 Lb., M71 h	82-0-91	82-3-253	21.1		None						None		None							20-4-386							1	
S & M	Prac., 23 Lb., M71Al h	82-0-91	82-3-253	21.1		None						None		None							20-4-386							2	
S	Prac., 23 Lb., M71 j	82-0-91	82-3-253	21.		None						None		None							20-4-386							3	
S	Prac., 23 Lb., M71Al j	82-0-91	82-3-253	21.		None						None		None							20-4-386							4	
S & M	Prac., 100 lb., M38A2	82-0-23	82-3-213	100.	M1A1 ^a	82-3-228	4.25	80	Sand			None	a	82-3-228							76-16-393		76-16-214					5	
S	Prac., 100 lb., M85 a	82-0-96	82-3-405	103.5	M1A1 ^a	82-3-228	4.25	95	b			None	a	82-3-228							82-3-407		76-16-214					6	
S	Target, Prac., 100 lb., M75 m	82-0-97	82-3-409	101.2		82-14-45	72. ^d					M106 ^e	73-8-44	None							76-16-409	76-16-238						7	
S & M	Target, Prac., 100 Lb., M75Al m	82-0-97	82-3-409	101.2		82-14-45	72. ^d					M106 ^e	73-8-44	None							76-16-409	76-16-238						8	
																													9
																													10
																													11
																													12
																													13
																													14

S - Issue.
M - Manufacture.
Prac. - Practice.

- (a) - Spotting Charge, M3 and M4 also may be used. Drgs. 82-3-402 and 82-3-496 respectively.
- (b) - Bomb is made of reinforced concrete.
- (c) - Uses Pin Assembly, M105, Drg. 82-3-406.
- (d) - Uses Red Iron-Oxide (Hematite).
- (e) - Fuze uses Pressure Plate, Drg. 82-3-410.
- (f) - Parachute Unit M3, Drg. 82-3-265.
- (g) - Parachute Unit, M4, Drg. 82-3-400.
- (h) - Uses Burster, AK-M4, Drg. 82-3-281.

ISSUED - September 6, 1924
REVISED - 1 May 1947

Ordnance and Explosives
Archives Search Report
for
Benson/Ocotillo Dry Lake
San Diego County, California
Project Number J09CA701106

APPENDIX E

REPORTS/STUDIES

APPENDIX E
REPORTS/STUDIES

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E-1 INPR for Site No. J09CA7011, 17 January 1995 (B-14)

DEFENSE ENVIRONMENTAL RESTORATION PROGRAM
FORMERLY USED DEFENSE SITES
FINDINGS AND DETERMINATION OF ELIGIBILITY

BORREGO SPRINGS
BORREGO SPRINGS, CALIFORNIA
SITE NO. J09CA701100

FINDINGS OF FACT

1) During the early 1940s the Army, Navy, and Marines acquired authorization to use six locations in the vicinity of Borrego Springs as primarily bombing targets and/or landing fields. Not all the real estate information was available, but the research conducted indicates that the property was acquired as follows. The largest area of property acquired consisted of the Army's Borrego Maneuver Area. The Maneuver Area consisted of 400 square miles (calculated 256,000 acres) that were acquired from the State of California via a Use Permit dated 10 March 1942. This permit exempted three areas: portion of Township 9 South, Range 9 East, lying between U.S. Highway No. 99 and the Santa Rosa Mountains (this area is an Indian Reservation); Benson's Dry Lake lying north of Ocotillo (Naval landing field); and area adjacent to western boundary on which houses, fences and other improvements have been erected. It is not clear if private properties were also exempted. Two of the Navy's properties were located within the Army's property and included: Borrego Military Wash and Clark's Dry Lake. No records were found that indicated the size of Borrego Military Wash or when the Department of the Navy acquired it. Clark's Dry Lake consisting of 640 acres was acquired from private parties through a Declaration of Taking dated 25 October 1943. Two additional Navy areas included Benson Dry Lake (353.11 acres) and Borrego Hotel (160 acres) and were acquired from private parties. Benson Dry Lake consisted of four parcels. Two of the parcels, 160 acres (Marvin Ben Couch) and 85.21 acres (Elbert and Chesta Benson) were purchased by the Department of Defense (DOD) on 19 November 1940. The other two parcels, 80 acres (John Sheran et al) and 27.90 acres (Elaine L. Wright et al) were acquired through a Declaration of Taking (condemnation) on 20 March 1941. Borrego Hotel was acquired from Elmo Rowland Livingston via Declaration of Taking, dated 10 July 1941. Finally, the Marines acquired an undefined amount of acreage (calculated 1920 acres) in the town of Borrego Springs known as Camp Ensign.

2) The Department of the Army acquired 400 square miles for use in force-on-force maneuvers and anti-aircraft training for troops stationed in the San Diego area. However, records indicate that the Army's use of the area may have been less than originally planned for. Referenced improvements to the Maneuver Area primarily included roads. The Navy sites were predominantly used as various bombing targets and emergency landing strips. Emergency landing strips were installed by the Navy at Benson Dry Lake and Clark's Dry Lake. Expected and or observed military improvements at the bombing targets include: remains of rake stations, remains of mobil target tracks, and remains of targets. The Marine site was reportedly used as a tent camp for trainees

from the San Diego area. No references of permanent structures or improvements were found for Camp Ensign.

3) Documentation detailing the Department of Defense (DOD) disposal activities were not available for all the sites. The records found indicated that the majority of the properties were relinquished during the 1950s. The 400 square miles which constituted the Maneuver Area were predominantly relinquished back to the State of California. Currently, the State of California owns this property as part of the Anza-Borrego Desert State Park. The 540 acres which comprises Clark's Dry Lake was transferred to Bart J. Comer, through a Deed of Trust, on 21 September 1956. The property was subsequently granted to the State of Maryland for use as a radar telescope site. During the late 1980s the property was transferred to the State of California to be incorporated into Anza-Borrego State Park. The 353.11 acres which constituted Benson Dry Lake was relinquished to the County of San Diego for use as a municipal airport. Disposal documents for Benson Dry Lake indicate that the property contained no improvements and was transferred to the County of San Diego on 17 August 1956. The 160 acres which comprised the former Borrego Hotel was declared excess and sold to Ray Formost on 6 September 1956. The former site of Borrego Hotel is currently owned by multiple private parties but only one owner is identified on the records. Site specific real estate records were not available for Camp Ensign. However the real estate records indicate that the undefined amount of acreage (calculated 1920 acres) which constituted Camp Ensign were sold to private parties and have subsequently been subdivided and are owned by multiple private parties.

DETERMINATION

Based on the foregoing Findings of Fact, the site has been determined to have been formerly used by the Department of Defense. It is therefore eligible for the Defense Environmental Restoration Program - Formerly Used Defense Site established under 10 USC 2701 et seq.

17 Jan 95

Date

for DE Pitt col
 BRUCE K. SCOTT
 Brigadier General, U.S. Army
 Commanding

Navy - Benson Dry Lake (also known as Ocotillo Dry Lake) (just outside the southern boundary of the Army's Borrego Maneuver Area) - This area lies just outside the boundary of Anza-Borrego Desert State Park at the northeast corner of Highway 78 and Split Mountain Road. The property acquired consisted of four parcels totalling 353.11 acres. Two of the parcels, 160 acres (Marvin Ben Couch) and 85.21 acres (Elbert and Chesta Benson) were purchased by the Department of Defense (DOD) on 19 November 1940. The other two parcels, 80 acres (John Sheran et al) and 27.90 acres (Elaine L. Wright et al) were acquired through a Declaration of Taking (condemnation) on 20 March 1941.

The property was used by the Department of the Navy as a dive bombing target and an emergency landing field. Use of the property during World War II is documented. Post World War II use of the property is not clear from the documentation. The property was declared excess 20 December 1955. Disposal documents indicate that the property contained no improvements and was transferred to the County of San Diego on 17 August 1956. San Diego County currently owns the property and operates a small airport at the site.

While the real estate documents indicates that no improvements were constructed at the site, two remnants of stone-reinforced bunkers were observed on the small hills immediately east of the landing field. These structures provided excellent viewing areas of the landing field to the west and the Military Wash target area approximately 3 miles to the north. No other structures were noted during the site visit and no ordnance was found.

According to Jim Walker, OEW expert with the Army Corps of Engineers, the most likely ordnance expected at a former bombing target would be practice bombs with spotting charges. According to the Borrego Springs Fire Department a 20-pound practice bomb has been recovered from the area.

Navy - Borrego Hotel (also known as Halfhill Dry Lake) (Outside the boundary of the Army's Borrego Maneuver Area) - The area is located approximately 1.5 miles south on Split Mountain Road from the intersection of Highway 78 and Split Mountain Road. The subject property comprised of 160 acres that consist of the southeast 1/4 of Section 26 Township (T) 12 South (S) and Range (R) 8 East (E) was acquired from Elmo Rowland Livingston via Declaration of Taking, dated 10 July 1941. The property was declared excess and sold to Ray Formost on 6 September 1956. Currently, the property is owned by multiple private parties (only one owner shown).

This location was designated as a dive bombing target. In the general area was the former site of the "Little Miracle Hotel" (also referred to as the "Borrego Hotel"). The hotel was deserted in the 1930s. Today only the slab of the 14 room hotel exists. An abandoned water well lies west of the former hotel. No ordnance was found in the area and the only structure observed which could present a hazard was the exposed casing of the water

PROJECT SURVEY SUMMARY SHEET
FOR
DERP-FUDS OEW PROJECT NO. J09CA701106

BORREGO SPRINGS
BORREGO SPRINGS, CALIFORNIA
SITE NO. J09CA701100
6 JULY 1994

PROJECT DESCRIPTION: During World War II the Department of the Army, the Department of the Navy, and the Marines used sections of the Anza-Borrego Desert State Park and/or private property in the Borrego Springs area for military purposes. The area was used for multiple purposes which include: force-on-force maneuvers, anti-aircraft training, various kinds of bombing targets, emergency landing fields, and training camps.

The majority of the acreage acquired by the Department of Defense (DOD) entailed 400 square miles that constituted the Army's Maneuver Area. The Maneuver Area included acreage that the Navy used at Borrego Military Wash (acreage unknown) and Clark's Dry Lake (640 acres). Property acquired by the Navy included Benson Dry Lake (353.11 acres) and Borrego Hotel (160 acres). Finally, the Marines acquired an undetermined amount of property (calculated 1920 acres) known as Camp Ensign.

None of the historical records revealed what kinds of clearance activities were conducted in the area, if any. However, reported accounts and visual inspection of the property revealed that various types of ordnance has been found, including live rounds. Agencies and personnel contacted concerning ordnance in the area included Jim Walker, OEW expert with the Army Corps of Engineers; Anza-Borrego State Park Rangers; Army 70th Ordnance Detachment, Explosive Ordnance Disposal (EOD); San Diego Sheriff's Department; San Diego Fire Department; Borrego Springs Fire Department; Yuma Proving Ground; and the Marine Corps EOD at Camp Pendelton. Expected and/or reported ordnance sightings are listed below by area.

Navy - Benson Dry Lake (also known as Ocotillo Dry Lake) (just outside the southern boundary of the Army's Borrego Maneuver Area) - The property was used by the Department of the Navy during World War II as a dive bombing target and an emergency landing field. During the 1950s the property was transferred to San Diego County which operates a small airport at the site. Expected ordnance at a former bombing target would primarily include practice bombs with spotting charges. During the sites visit remnants of two stone-reinforced bunkers were observed on the small hills immediately east of the landing field. These structures provided excellent viewing areas of the landing field

to the west and the Military Wash target area approximately 3 miles to the north. No other structures were noted during the site visit and no ordnance was found. However, according to the Borrego Springs Fire Department a 20-pound practice bomb has been recovered from the area.

PROJECT ELIGIBILITY: The property was formerly owned and used by the DOD (Army, Navy and Marines). Any ordnance found could be the result of past DOD activity.

POLICY CONSIDERATIONS: No policy considerations are known to exist that would affect proposal of this project.

PROPOSED PROJECT: Recommend the Corps' Mandatory Center of Expertise (MCX) for OEW at the Huntsville Division make a determination if further action is required.

RAC FORM: Attached.

DISTRICT POC: Request CEHND inform Mr. Jatin Desai at (213) 894-6266 when a determination is made regarding the project status.

Ordnance and Explosives
Archives Search Report
for
Benson/Ocotillo Dry Lake
San Diego County, California
Project Number J09CA701106

APPENDIX F

LETTERS/MEMORANDUMS/MISCELLANEOUS ITEMS

APPENDIX F

LETTERS/MEMORANDUMS/MISCELLANEOUS ITEMS

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OCOTILLO IN BOREGO VALLEY

The Flower of the Desert

By Archie J. Hicks



Ocotillo is on State Highway No. 78; 90 miles east of Oceanside; 32 miles east of Julian; 15 miles west of Route No. 99 at Salton Sea. 175 miles to Los Angeles; 92 miles to San Diego

Reprint From
THE COAST DISPATCH
Encinitas, California
May 4, 1939

The editor and his wife hit for the desert, Friday afternoon, and passed the balance of the week at Ocotillo where they enjoyed the use of a commodious cottage belonging to Mr. and Mrs. R. E. Rogers of Del Mar.

Ocotillo is in the Borego valley, 32 miles from Julian and down the Banner grade to within a short distance of the Imperial county line.

The center of activity is the Benson service station operated by Mr. and Mrs. Benson, who resided a short time last year at Rancho Santa Fe. Across the road is a natural landing field used extensively by the government fliers.

There are several cottages within the immediate neighborhood of the station.

Mr. Rogers and an associate, Thorwald Siegfried of Los Angeles, have considerable acreage overlooking the landing field which they plan to divide into smaller tracts and use to encourage building of homes for permanent and week end residences.

Water is secured from wells. Domestic water can be secured at a depth of 100 feet while at 350 feet seems to be an unlimited supply. The deeper level is exceptionally fine water. One owner in developing his property has provided a swimming pool which is used at so much per swim. The pool is emptied regularly and the water used for irrigation purposes.

He also pumps from the well into a large storage tank and into tank trucks which make regular trips between the ranch and El Centro. The water hauled to El Centro is bottled and sold for 10c a gallon. The water is as pure as water can be and tastes like melted snow.

Ocotillo is named for the plant of that name which covers that area of Borego valley.

The Ocotillo, or Fouqueria splendens, is a southern California and

Mexican plant. It is a tall pole like branchless bush topped with a large and beautiful scarlet blossom.

The ocotillo is used for poles and palings for fencings. Bensons have a large garden enclosed with a fence made of these poles. Many of them have rooted and are blooming, adding to the attractiveness of the spot.

It is typical desert country that surrounds Ocotillo which in turn is surrounded by mountains. Split mountain to the south was formerly the land of dinosaurs. Footprints since formed in stone and other evidences of the prehistoric times are seen in this area.

Then there is Superstition mountain which in the afternoons appears to be floating along on the clouds. This deception is caused by a purple haze that forms at the base of the hill, obscuring the lower portion.

Ocotillo was at one time the battle and hunting grounds for a huge Indian village located in the nearby canyons. These canyons were perforated with springs of cold water that flowed thruout the year until in early 1800 an earthquake closed most of them.

Arrowheads, necklaces, ollas, and many other articles fashioned and used by the Indians are being recovered from the desert lands and the mountains. Persons interested in Indian lore will find this a haven worthwhile.

Ocotillo has brought many people back to health. Several of the most outstanding writers of today have regained their health and built up their talent for writing while sojourning on this desert.

Ocotillo is a healthy spot. The climate keeps the thermometer active. The mercury climbs in the summer and drops in the winter. Last Saturday and Sunday the weather was pleasant, only 106 and 110. During July and August it

gets hot. However, no one ever becomes prostrated with the heat.

During the afternoon a breeze comes up and cools off the place so that you can sleep at nights, and how the tired business man or athlete can relax at Ocotillo.

It rains very seldom and when it does it rains very little. But the neighboring mountains get heavy rains and deep snows which accounts for the underground basin of cold pure water at Ocotillo.

A mountain of gypsum southeast of Ocotillo keeps a large cement mill at Plaster City in operation. The gypsum is hauled to the cement plant on a narrow gauge railroad.

The mine has been in operation for years but has succeeded in only scratching the surface. The deposit is a huge mountain of pure gypsum. Near Ocotillo is another interesting mine. Here strontium oxide is secured in unlimited quantities. This is a substance resembling clusters of spun glass or finely granulated sugar. It clings to a sort of petrified mud substance. It is used in the manufacture of red flares used by railroads and traffic officers for signals of danger. It is also used in other pyrotechnic effects.

There is another deposit of ore from which paint is made.

Petrified wood is found in abundance.

Rogers and Siegfried have perfected the design of an inexpensive house that can be built quickly and that will be particularly adaptable to the desert climate.

Cobble stones and mineral rocks can be secured from the land near by. The sand in this locality is especially adaptable for cement use. A mixture of 10 to 1 has greater strength than richer mixtures with the sands in the cities. Government tests verify this fact.

A portable form is set up and the stone and mortar is piled against

this until proper height and length is obtained. The form is removed from the inside leaving a plastered interior and a stone finish exterior.

A special roof with false roof beneath protects the interior from the heat.

While it may be hot as blazes outside, in the shade a person will most invariably find it cool and pleasant.

The soil seems to grow most anything you can plant when you give it water.

The landing field at Ocotillo is used for war maneuvers and experiments of various explosives.

The actual target practice takes place in what is called the "bad lands," just north of the landing field. Here they have built a massive concrete dugout where the observers can hole in and watch the marksmanship of the fliers and the effects of the various bombs dropped.

Saturday noon while the editor was stretched full length in the patio, cool and comfortable, hiding a triple portion of a wonderful salad with intermittent gargles of a refreshing drink, eight of Uncle Sam's monster bombers swooped down and landed at the foot of the knoll on which the Rogers hacienda is located. In a very short time those planes were lined up evenly and the 28 occupants emerged and trailed across the road to Benson's for sandwiches and —. Soon they were away and after soaring to heights proceeded to drop little bombs and big ones. However, on this occasion the big ones were filled with water instead of explosives. But when those things hit the ground you can tell where they landed without a doubt.

The large bombs are dropped from a carriage or hanger beneath the plane while the little fellows are slid down from the front during a power dive. Those boys head their planes for the earth nose

downward at 350 miles per. When you think there is another wrecked plane and a flier, the little bomb is let loose, the plane turns its nose upward and away they go off in the clouds.

And the accuracy of these fliers is something to observe. They can just about place those bombs in your vest pocket, though it no doubt would spoil the pocket.

As the war talk gets talkier, the planes get more numerous and more active at Ocotillo.

As the business man gets more tired and the older folk get older Ocotillo will get more populated. It's a land where the human body and mind can be rehabilitated, where the old last longer and where the young get healthier and all become happier.

Ocotillo, nestled down at the base of these mountains, is beamed upon in daytime by a health-giving sun and at night the moon comes up on one mountain and shines across for a while and then moves on over to another and rests there like a huge spotlight extending its beams down in the valley, making it most as light as day. It simply draws you forth from your shelter and leads you off across the desert in the pure invigorating air to some of the many points of interest, or maybe just a stroll. But it impresses you with the beauty of the land and that all places are not filled with murder, suicide, divorces and strife. Then you return and how you do relax and sleep.

If you have a bad cold, your joints are stiff or you think you are going to give way to a jolt of influenza, take a trip to Ocotillo and you'll forget there is such a thing.

Or if you feel strong and have an overabundance of energy take the trip and learn more about San Diego county and its resources. You will find the revelations worthwhile.

MI-9 (2141)
(980488)

U. S. NAVAL AIR STATION
SAN DIEGO, CALIFORNIA
March 13, 1941.

95-aho

MEMORANDUM

From: The Commanding Officer (District Air Officer).
To: Colonel S.L. Howard, USMC, 2nd Marine Brigade,
Marine Corps Base, San Diego, California.

Subject: Navy Operating Areas in Borego and Imperial Valleys.

Enclosure: (A) Chart showing present and proposed Navy air
operating areas in Borego and Imperial Valleys.

1. In compliance with a telephone request from Lieut. Harger, enclosure (A) is forwarded herewith.

2. The Navy will require the proposed emergency machine gun range east of the Salton Sea on account of the fact that the present off-shore ranges are restricted by Army coastal firing from Fort Rosecrans, Torrey Pines Mesa and Carlsbad and such Marine firing as may take place in the above areas.

3. The status of the Borego Valley sites now being used by the Navy is as follows:

Clarks Dry Lake	- Airfield and horizontal bombing target. Property leased by Navy.
Borego Wash	- Horizontal bombing target only. Property leased by Navy.
Cecilie	- Landing field and dive bombing target. Property being purchased by Navy.
Borego Hotel Site	- Landing field and dive bombing target. Property leased by Navy.
Coyote Wells	- Landing field. Horizontal bombing target three (3) miles east. Property leased by Navy.
Jacumba	- Airfield only. Property leased by Navy.
Salton Sea	- Water bombing target and seaplane operating area.

H. L. SUMNER.

COPY

COPY

COPY

(COPY-MFC)

U.S. NAVAL AIR STATION
SAN DIEGO, CALIFORNIA

A4-3(1)/H1-23(CFL)
(950042)

95-ehc

Jan. 24, 1942

From: The Commanding Officer.
To: The Commandant, Eleventh Naval District.

Subject: Danger Areas - San Diego Area.

Reference: (a) OpNav ltr. Op-38-E-KB EG/A4-3(3)(411231)
Serial 359238 dated December 31, 1941.

Enclosure: (A) Four (4) Photostats SD21079 1141 showing
bombing and gunnery areas.

1. It is recommended that the existing bombing targets now in use by activities operating from the Naval Air Station, San Diego, be retained as danger areas. These targets are shown on Enclosure (A).

2. The location of all bombing targets now in use or proposed in this area are as follows:

<u>BOMBING TARGET</u>	<u>LATITUDE</u>	<u>LONGITUDE</u>
BT-1 Ramar	32-53.7 N	117-08.2 W
BT-2 Medale	32-50.2 N	117-11.4 W
BT-3 Alder	32-32.6 N	117-07.1 W
BT-4 Coyote Hill	32-37.7 N	117-25.5 W
BT-5 Diego	32-35.3 N	116-05 W
BT-6 Tillo	32-35.3 N	116-08.2 W
BT-7 Ottilio	32-35.3 N	116-07 W
BT-8 Lake Dry	32-35.3 N	116-16.2 W
BT-9 FontSea	32-35.3 N	117-05.3 W
BT-10 (Proposed)	32-35.3 N	116-07.4 W
BT-11 (Proposed)	32-35.3 N	117-05.1 W
BT-12 Water Target	32-35.3 N	117-12.1 W
BT-13 Water Target	32-35.3 N	117-09.6 W

Danger areas for all land and water bombing targets are circles of four (4) miles in diameter circumscribed around the location indicated.

3. It is recommended that special danger areas for aerial machine gun practice be specified as extending from the Mexican Border to Point Fermin for a distance of twenty (20) miles to seaward. Such machine gun practice with the areas involved will be designated, described in the same manner as for surface vessels.

A4-3(1)/H1-23(CFL)

(950042)

U. S. NAVAL AIR STATION
SAN DIEGO, CALIFORNIA

95-ehc

Subject: Danger Areas - San Diego Area.

4. It is not considered necessary to establish danger areas in the San Diego area in connection with military flight training other than those outlined in paragraph (2). It is believed that the designation of this coastal region as a combat zone will adequately cover this category.

5. Practice artillery firing by Army, Navy and Marine Corps activities in this area are publicized by adequate firing notices. Unless organizations conducting such firing request the establishment of danger areas within their firing limits, this station will not propose danger areas other than those specified in paragraph (2) above.

/s/ E. L. GUNTHER
E. L. GUNTHER

FU 179 REF.

RESTRICTED

U. S. ARMY AIR FORCES



AIRPORT DIRECTORY

CONTINENTAL

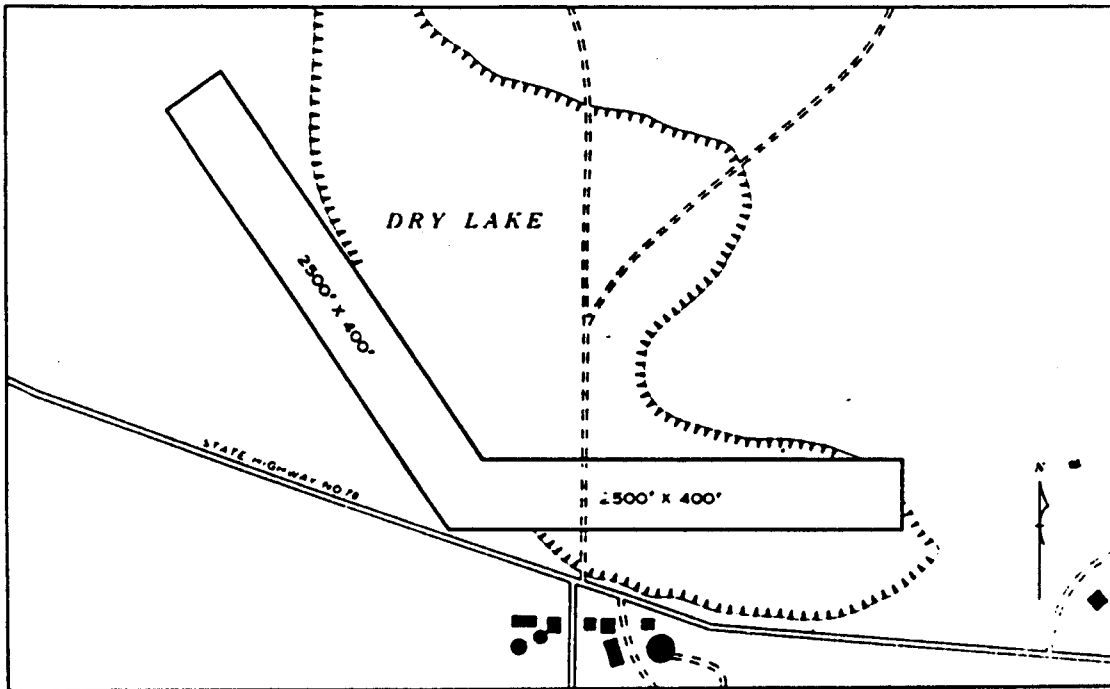
UNITED STATES

VOLUME 1

**PUBLISHED BY
AERONAUTICAL CHART SERVICE
ARMY AIR FORCES
WASHINGTON, D. C.**

RESTRICTED

SALTON SEA FIELD AUXILIARY
(06469 OCOTILLO DRY LAKE OUTLYING FIELD)
WESTMORLAND



LOCATION:

FROM CITY - 30.7 mi. WNW (air line).
POSITION - Lat. 32°09'25", Long. 116°07'30".
ALTITUDE - 180'.
CITY POPULATION - 1,010.

RADIO FACILITIES:

RANGE - None.
TOWER - None.
GND/AIR - None.
INSTRUMENT APPROACH AND LETDOWN PROCEDURE - None.

DESCRIPTION:

TYPE - Navy.
SIZE - 120 acres (total area).
SHAPE - L.
LANDING AREA - Landing strips: E/W 2,500' x 400', NW/SE 2,500' x 400', sandy silt.
DRAINAGE - Natural.
APPROACH HAZARDS - Hills, all directions; bldgs., S.
MARKINGS - Wind sock.
LIGHTING - None.

WEATHER:

PREVAILING WIND - No data.
PRECIPITATION - No data.
TEMPERATURE - No data.
FOG - Nov. to Apr.
FACILITIES (At Airport) - None reported.

FACILITIES:

HANGARS - None.
SHOPS - None.
GASOLINE -
At Airport - None.
In Vicinity - At Salton Sea Field.
OIL -
At Airport - None.
In Vicinity - At Salton Sea Field.
COMMUNICATIONS - Telephone.
PERSONNEL ACCOMMODATIONS (Transient) -
At Airport - None reported.
In Vicinity - At Westmorland.

TRANSPORTATION:

AIRLINES - None reported.
RAILROADS - Southern Pacific, at Westmorland.
Sidings - At Westmorland.
ROADS - State No. 78, adjacent S, paved.
FACILITIES - None reported.

OPERATED BY: Navy.

OWNED BY: U. S. Govt.

GENERAL REMARKS: Salton Sea Field, 17.5 mi. E.

12317 (Otay Mesa) (Cont'd).

Obstructions - fence all around; pole line on North to be removed upon completion of construction.

Truck Route: Silver Strand to San Ysidro; left at marker, cross U.S. No. 101 and proceed east to field. NE portion NE/SW Runway and SE portion SE/NW runway closed for construction.

Other Facilities: No gasoline service.

06469 (Ocotillo Dry Lake). Altitude - 160 feet.
325 Acres.

Purpose: Dive bombing target on NE portion of field. Horizontal bombing target 3 miles north of field. Emergency landing field.

Communication Facilities: (Nearest telephone) Wood's Desert Outpost, Julian 3-F-12, Banner, California. Other facilities, Service Station, limited meals, lodging at field, no aviation service. Runways - (2), 400' x 2500'; E/W, NW/SE. Obstructions - low gravel hill surrounding field; oil derrick one-half (1/2) miles North-east.

Truck Route: U.S. No. 80 to El Cajon; U.S. No. 78, 61 miles to Banner; U.S. No. 78, 33 miles to Ocotillo.

Other Facilities: No gasoline service.

01715 (Miramar). Altitude - 470 feet.
200 Acres.

Purpose: To be a carrier practice landing field and ~~target~~ ~~target~~.

Communication Facilities: (Telephones). Woodcrest 4074.

Condition: Runways under construction, unusable.

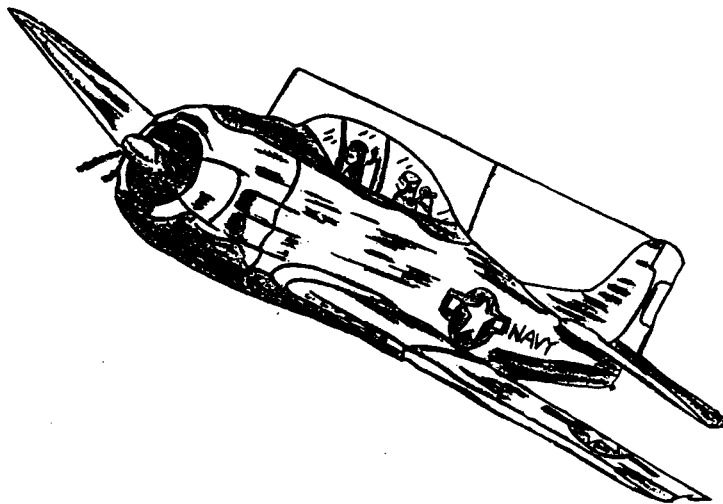
Truck Route: Via Old Town and Linda Vista Road (U.S. No. 395) through Kearney Mesa and Camp Elliott; continue three (3) miles to Miramar P.O.; two (2) miles north on County Road to field.

Other Facilities: No gasoline service.

NAVY DEPARTMENT
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
WASHINGTON, D.C.

Op-56D12 JGX
H2-14
Serial: 579P56D
OpNav-P-56D-101

COMPILATION OF NAVAL AIR TARGETS, GUNNERY AND BOMBING AREAS



REPRODUCED AT THE NATIONAL ARCHIVES

15510

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N-6 A
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11th NAVAL DISTRICT -- POSTWAR GUNNERY AND TARGET AREA REQUIREMENTS (CONTD)

NAME	NO.	LATITUDE	LONGITUDE	DESCRIPTION	USE	REMARKS	SUPPORTING ACTIVITY	OWNERSHIP STATUS	LEASE NO.	EXPIRATION DATE
Ocotillo Dry Lake	66	33°09'06"N	116°08'10"W	Concentric circles 50'-100' and 200' radii.	Horizontal, glide or dive bombing.		NAS El Centro	USN owned.		
Holtville	68	32°56'45"N	115°12'30"W	Concentric circles 50'-100' and 200' radii.	Dive bombing and strafing.		NAS El Centro	USOAC USN owned, SOAC - leased State of Calif. Permit.	NOY(R)-34196	Permit - 30 June 1948
Holtville	94	32°55'10"N	115°16'15"W	2 Concentric circles 75'-150'	Rocket firing.		NAS El Centro	Use permits.		
Holtville	95	33°01'36"N	115°18'48"W	2 Concentric circles 75'-150'.	Rocket firing.		NAS El Centro	Use Permits.		
Trabuco	102	33°38'11"N	117°36'20"W	2 Concentric circles 75'-150'.	Rocket firing.		NCAS El Toro	Lease	NOY(R)-37241	30 June 1948
Coyote Wells	103	32°53'05"N	115°52'12"W	2 Concentric circles 75'-150'.	Tiny Tim Rocket firing.		NAS El Centro	Permit for U.S. Dept. of Interior.		
Coyote Wells	103A	32°51'10"N	115°54'32"W	2 Concentric circles 75'-150'.	Tiny Tim Rocket firing.		NAS El Centro	NE& SE& Sec.13 Lease not executed. Rev. Permit.		
Lake Hodges	106	33°00'49"N	117°08'48"W	2 Concentric circles 75'-150'.	SCAR Rockets Only.		NCAS Miramar	Lease	NOY(R)-35957	30 June 1948
Trabuco	108	33°37'00"N	117°37'00"W	2 Concentric circles 75'-150'.	Rocket firing.		NCAS El Toro	Lease	NOY(R)-37241	30 June 1948
Chocolate Mt. Gunnery Range, also known as Dunlap Gunnery Range.		33°31'00"N 33°33'00"N 33°00'00"N 33°08'00"N	115°45'00"W 115°35'00"W 115°04'00"W 114°56'00"W	Air to Air Gunnery Range.	Aerial Gunnery.		NAS El Centro	Taken over under the 2nd war powers act. misc. permits and leases. 358,248 acres-US gov. owned. 10,100 acres-State of Calif. permit, 2,500 acres - leased.		30 June 1948
San Clemente Impact Area (S.Clem.Is.)		All of that portion of S.Clem.Is. southeast of 32°52'40" 32°54'40"	118°30'30" 118°28'00"	Air support Gunnery.	Air support.			Navy owned.		

REPRODUCED AT THE NATIONAL ARCHIVES

GENERAL SERVICES ADMINISTRATION
Public Buildings Service
49 Fourth Street
San Francisco 3, California

November 17, 1955

Re: Excess Real Properties

NOTICE OF AVAILABILITY

TO FEDERAL GOVERNMENT AGENCIES

The Department of the Navy has reported as excess to the requirements of the Department of Defense the following described properties:

1. GSA Control No. N-Calif-543 - Emergency Landing Field, Coyote Wells, Imperial County, California:

The property consists of approximately 215 acres of land described as follows: Tract 56 and Lots 1, 2, 16, and 17 of Tract 55 (portions of Sections 32 and 29), all in T. 16 S., R. 10 E., SBB&M, Imperial County, California. The property is located approximately 17 miles west of Seeley, California, and about 1/2 mile east of Coyote Wells, California. This is desert area, but there is some possibility of developing the land for agricultural use, inasmuch as deep wells in the vicinity have been developed. The tract is irregular in shape.

2. GSA Control No. N-Calif-544 - Emergency Landing Field, Target 63 (Boregoc Hotel Site, San Diego Co., California):

The property consists of approximately 160 acres of land and is described as the SE $\frac{1}{4}$ of Section 26, T. 12 S., R. 8 E., SBB&M, County of San Diego, California. The property is subject to road and transmission line rights-of-way, and is located in a southeasterly direction from Borrego, California.

3. GSA Control No. N-Calif-545 - Emergency Landing Field, Ocotillo Dry Lake, San Diego County, California:

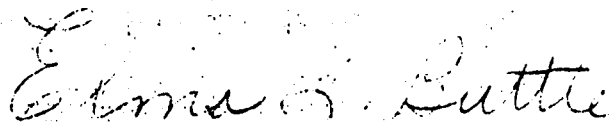
The property consists of approximately 353.11 acres of land, located in Sections 3, 4, 9, and 10, T. 12 S., R. 8 E., SBB&M, San Diego County, California. The tract is irregular in shape and the southern boundary is the Julian-Kane Springs Road. The property is in a southeasterly direction from Borrego, California.

For more complete descriptions of the properties or other information, please contact this office or the District Public Works Officer, 11th Naval District, 1220 Pacific Highway, San Diego 30, California.

The purpose of this Notice is to determine whether any further Federal Government requirements exist for these properties, in the absence of which, they will be disposed of in accordance with existing laws and regulations.

(over)

It will be appreciated if you will advise us not later than December 16, 1955, if your Agency is interested in acquiring any of the above-described lands, otherwise no reply to this Notice is required.



Elmo L. Buttle, Chief
Real Property Disposal Division

Camp Hearn into the 1930s (Kettner 1927; Hinds 1991). However, little information has been uncovered to document if the 11th Cavalry made any other forays into ABDSP lands during that period.

World War II Military Land Use in ABDSP (1940-1945)

With the outbreak of World War II in Europe in 1939, the United States made a conscientious effort to improve its military capabilities. In 1939 Congress began to appropriate millions of dollars for new military facilities, equipment, and personnel. In 1940 they would authorize over \$13 billion for defense (*Engineering News Record* 10-24-1940:35). After France fell to Germany in June 1940 the appropriations and the construction activity increased exponentially. By January 1941 the Army and Navy had begun what would be a record program of rapid construction of operational and training facilities (*Engineering News Record* 10-24-1940:40-42; 1-2-1941:20; Garner 1993:47-58).

Military land use in ABDSP during World War II would reflect this massive mobilization and training effort. Even remote sections of the country as ABDSP became entwined within the national war effort. ABDSP's lands would be used by the U.S. Army, Navy, and Marine Corps for a wide range of military training. It would also see evidence of the historic merger of the scientific and military communities that would fuel the Cold War arms race through the California Institute of Technology's rocket testing operations. Unlike the earlier military activities that literally passed through ABDSP's lands, the World War II land use would physically impact the park's land. The bombing targets, impact and maneuver areas would leave physical reminders of the past military use.

The U.S. Navy in ABDSP

~~One of the major defense concerns the military had was for additional aviation support and training facilities.~~ In 1938 the US Navy had only 1,000 airplanes in its fleet. Navy planners realized by early 1940 that a 15,000 plane Naval air force would be needed for wartime operations. Subsequently, Navy wartime plans called for the establishment of outlying, often inland fields for training and development (Bureau of Yards and Docks 1947:229). Navy officers at the 11th Naval District headquarters in San Diego began their search for additional training and aviation facilities in early 1940 (Planning Officer Files 2-10-1940). In February 1941 the District Commandant appointed a Board of officers to develop a plan for increased aviation operations. The plan would have to accommodate the new 15,000 plane program, locate existing wartime facilities and organize acquisition, development, and use of these facilities. The Board completed the report in October 1941 (Commandant's Files 2-20-1941; 10-11-1941:1-2). In it they identified several sites within ABDSP, most of which had already been obtained and developed when the report was completed.

One of the most pressing needs for the Navy was bombing targets for training the thousands of new pilots. Requirements for good bombing training areas included locations free of any activity or property that might be damaged by errant drops, good

access from roadways, nearby areas for landing fields, and good year round weather (Planning Officer Files 8-7-1940:1-2). By early 1941, Navy, Army, and civil aviation officials had identified the desert areas of San Diego and Imperial Counties as fitting their aviation training needs. In March 1941 the Navy listed four areas within the "Borego"(sic) Valley as navy landing field and bombing targets. They also indicated that these areas would possibly see use as Marine Corps anti-aircraft and artillery ranges (Planning Officer Files 3-13-1941; 3-28-1941). By June the Navy informed the Civil Aeronautics Administration that all of their auxiliary airfields were completed and should be added to the CAA's "Danger Areas in Air Navigation" list to make them off-limits to civilian flyers (Planning Officers Files 6-4-1941).

The four sites within or near the current ABDSP boundaries included Clarks Dry Lake, Borego Wash (sometimes referred to as Military Wash), Ocotillo (also known as Benson's Dry Lake), and the Borego Hotel site. Clarks Dry Lake consisted of a horizontal and dive bombing target with an emergency landing field. On July 15, 1941 the Navy purchased 640 acres from the Southern Pacific Land Company at 75 cents an acre (\$400). The Navy appropriated \$5600 to construct the landing field and two bomb proof "rake stations" to help record test drops (Planning Officer Files 10-11-1941:7,28,42; Directory of Air Bases c.1945; Orrell 1991:13-24). Borego Wash (Military Wash) and Ocotillo was originally planned to be the most developed of the Navy's ABDSP associated sites. The Navy Board's report noted that the sites were to be developed as a "major auxiliary service field for horizontal and dive bombing practice; gunnery training," and as a stopover facility for transcontinental ferrying of aircraft. Plans called for three standard runways, barracks, mess hall, officers quarters, gasoline and ammunition storage, and utilities. The Navy appropriated \$5600 for dive bombing targets and rake stations to be constructed at Borego Wash on land leased from State Parks on November 3, 1941 (Planning Officer Files 10-11-1941:6, 27, 42; Directory of Air Bases c.1945; Orrell 1991:51-59). In January 1942 the Navy arranged to lease the land for the landing field at Benson's Dry Lake just north of the state highway (now 78) from Elbert Benson of Westmoreland. Although a iron structure was leased at this site, none of the planned housing or operational facilities other than the landing field were constructed (Planning Officer Files 1-14-1942; 1-11-1942; 3-16-1942). The Borego Hotel site (located near Halfhill Dry Lake) was also used for horizontal and dive bombing and an emergency landing field (Planning Officer Files 10-11-1941:8, 27, 42; 1-12-1942; Directory of Air Bases c.1945).

The Navy's sites in or near Borego Valley were part of a larger complex of military activities in the desert. The Navy had contemplated establishing a post similar to that planned at Ocotillo and Borego Wash for Coyote Wells, south of the park along US Highway 80. Although the landing field was constructed, the bombing ranges would not be built at this site. The Navy did develop a seaplane training base on the southwest end of the Salton Sea. The planned facilities at Ocotillo were expected to be used to quarter any personnel training at the inland sea base. In early 1942 the Navy began construction of the Naval Auxiliary Air Station (NAAS) Salton Sea. Later development of base facilities at the site, which served seaplane training and water based bombing targets, may

have been the reason for the lack of development of the Ocotillo facilities (Planning Officers File 10-11-1941:6-8).

Due to impacted aviation air space in San Diego, the Navy also took over a Civil Aeronautics Administration airfield at Seeley, twelve miles west of El Centro in 1942. Originally planned as a navy auxiliary field it was transferred to the marine corps and redesignated Marine Corps Air Station, El Centro (Newland 1994:11-14). In 1943 the Marine Corps requested that the planned Coyote Wells bombing target be moved to a remoter area directly west of the base for gunnery training away from the Army's Yuha and Seeley proving grounds and gunnery ranges (Corps of Engineer Files 1940-1945). This area, seen on 11th District maps during the War as the Coyote Wells Bombing Target, was the precursor to the post-war era Carrizo Impact Area on the park's southeast boundary (Planning Officer KV Files 4-27-1943; 5-4-1943; 11th District Map 6-30-1943). In addition, the Navy established an Auxiliary Air Station at Holtville in 1943 to provide added training facilities to the District air fleet (NAAS Holtville History 1946).

The Navy's use of the bombing and landing facilities in ABDSP was directed through the Naval Air Station, San Diego. The NAAS Salton Sea was used as the local staging base for the training activities. In late 1942 the Borego Valley facilities were placed within a "naval aircraft operations area" to restrict the airspace use to Navy and Marine aviation units (Planning Officer Files 10-2-1942). As such, its maintenance was under the jurisdiction of NAAS Salton Sea. The bombing practice utilized non-active bombs that had only a small detonation charge to help identify drop location. The targets at the bombing sites consisted of light colored stones placed in circular patterns with aligned stone "arrows." Navy personnel would be sheltered in the reinforced concrete "rake stations" where they could view and chart the bomb drops (Orrell 1991:18-24). It is also speculated that rocketry practice happening at NAAS Salton Sea, as well as moving target practice for antiaircraft training may have occurred at the Navy's Borego Wash site (Orrell 1991:55). The antiaircraft training may have been associated with either the records noting Marine Corps gunnery training or the activities that the US Army was undertaking near ABDSP (Orrell 1991:55; Planning Officer Files 1-9-1942).

The Army at ABDSP

The US Army also found use for ABDSP's remote desert lands. The Army faced the same problem of training millions of new soldiers prior to and during the war. As such, training areas were required for large-scale maneuvers. On March 20, 1942 the Commander of the Southern California Sector of the Western Defense Command, Major General Wilson informed his commands that 400 square miles of desert land in San Diego and Imperial Counties was available for training. The Army designated the land as the Borego Maneuver Area and obtained leases from private property owners and the State Park Commission (Orrell 1991:85-88). The maneuver area basically encompassed all the ABDSP land north of Highway 78 and west of present day Highway 86. Activities of the Army in this area would focus on training maneuvers and antiaircraft gunnery training of units from Camp Callan in San Diego and Camp Haan in Riverside (Orrell 1991:27; 82-83; Smith Collection 3-20-1942).



South Coastal Information Center
Social Science Research Laboratory
College of Arts and Letters
San Diego State University
5500 Campanile Drive
San Diego CA 92182-4537

(619) 594-5682

October 10, 1996

L. Dauphin
SIOAC-ESL
Director
USADACS
Savanna, IL 61074-9639

Dear Mr. Dauphin,

We have conducted a records search as per your request for the Borrego Hotel and Benson Dry Lake project located on the Borrego Mountain SE, Borrego Mountain, and Shell Reef USGS 7.5-minute quadrangle maps in San Diego County.

There is one prehistoric habitation site within one mile of your Borrego Hotel project area. There are eight sites within one mile of your Benson Dry Lake project area. They are made up of, habitation sites, food processing sites, and possible manufacturing and/or procurement sites.

The cultural resources present in the above project areas may require significant mitigation if they are to be utilized. Cultural resources are nonrenewable and often easily damaged; their scientific and aesthetic values are significantly impaired by disturbance.

Federal law allows us to release our record search information to only the following qualified individuals: archaeologists, architects or historians. Because there are cultural resources in your project area we recommend that you contact a qualified archaeologist to review this record search.

Your qualified professional can receive the site maps and the site forms by sending us a letter, at the above address, requesting the information. The qualified professional will also need to include their vitae or resume, and a copy of the Agreement of Confidentiality which is enclosed. Be sure to give the project name and who the requested the search in the letter. Please let us know when we can be of further service.

Sincerely,

A handwritten signature in black ink, appearing to read 'Gabrielle Jamison', is written over the typed name.

Gabrielle Jamison
Research Assistant
South Coastal Information Center
San Diego State University

Ordnance and Explosives
Archives Search Report
for
Benson/Ocotillo Dry Lake
San Diego County, California
Project Number J09CA701106

APPENDIX G

REAL ESTATE DOCUMENTS

APPENDIX G

REAL ESTATE DOCUMENTS

Table of Contents

G-1 Report of Excess Real Property, 31 October 1955 (B-24)

G-2 Surplus Real Property Classification, 6 July 1956
(B-25)

G-3 Deed, United States to County of San Diego, 4 October
1956 (B-26)

**REPORT OF EXCESS
REAL PROPERTY**

1. HOLDING AGENCY NO. **37** DATE RECEIVED (GSA use only) **11-8-55**
2. DATE OF REPORT **Oct. 31, 1955** GSA CONTROL NO. (GSA use only) **N-calg-54**

3. TO (Furnish address of GSA regional offices)
**General Services Administration
49 Fourth Street
San Francisco 3, California**

4. FROM (Name and address of holding agency)
**Navy Department
Washington 25, D. C.**

5. NAME AND ADDRESS OF REPRESENTATIVE TO BE CONTACTED
**Real Estate Division
Bureau of Yards and Docks
Navy Department
Washington 25, D. C.**

6. NAME AND ADDRESS OF CUSTODIAN
**District Public Works Officer
11th Naval District
1220 Pacific Highway
San Diego 30, California**

7. PROPERTY IDENTIFICATION
**Emergency Landing Field
Ocotillo Dry Lake**

8. PROPERTY ADDRESS (Give full location)
**S. 3, 4, 9, and 10, T. 12 S. R. 8 E
S.B.M., San Diego County, Calif.**

9. SPACE DATA						10. LAND	
USE	NUMBER OF BUILDINGS (1)	FLOOR AREA (Sq. ft.) (2)	NUMBER OF FLOORS (3)	FLOOR LOAD CAPACITY (4)	CLEAR HEADROOM (5)	(From SF 118b)	ACRE OR SQUARE FEET
A. OFFICE						A. FEE	353.11
B. STORAGE						B. LEASED	
C. OTHER (See 9 F)						C. OTHER	
D. TOTAL (From SF 118a)						D. TOTAL	353.11
E. GOV'T INTEREST:			F. SPECIFY "OTHER" USE ENTERED IN C ABOVE				
(1) OWNER							
(2) TENANT							

11. COST TO GOVERNMENT			12. LEASEHOLD(S) DATA (Use separate sheet if necessary)	
ITEM	SCHEDULE	COST	A. TOTAL ANNUAL RENTAL	\$
A. BUILDINGS, STRUCTURES, UTILITIES, AND MISCELLANEOUS FACILITIES	A (Col. d)	\$	B. ANNUAL RENT PER SQ. FT. OR ACRE	\$
B. LAND	B (Col. f)	8,825.00	C. DATE LEASE EXPIRES	
C. RELATED PERSONAL PROPERTY	C (Col. h)		<input checked="" type="checkbox"/> NOTICE REQUIRED FOR RENEWAL	
D. TOTAL (Sum of 11A, 11B, and 11C)		8,825.00	E. TERMINAL DATE OF RENEWAL RIGHTS	
E. ANNUAL PROTECTION AND MAINTENANCE COST (Government-owned or leased)			F. ANNUAL RENEWAL RENT PER SQ. FT. OR ACRE	\$
13. DISPOSITION OF PROCEEDS			G. TERMINATION RIGHTS (In days)	
			LESSOR	GOVERNMENT
15. HOLDING AGENCY USE			14. TYPE OF CONSTRUCTION	
Emergency Landing Field				
			16. RANGE OF POSSIBLE USES	

17. NAMES AND ADDRESSES OF INTERESTED FEDERAL AGENCIES AND OTHER INTERESTED PARTIES

18. REMARKS

There is no known defense need for this property within the Department of Defense. This Report of Excess is not affected by Title VI of Public Law 155, 82nd Congress (65 Stat. 365).

19. REPORT AUTHORIZED BY
NAME **E. G. WRIGHT**
TITLE **HEAD, DISPOSAL SECTION OPERATIONS BRANCH REAL ESTATE DIVISION BY DIRECTION OF CHIEF OF BUREAU**

SIGNATURE *E. G. Wright*

LAND

SCHEDULE B—SUPPLEMENT TO REPORT OF EXCESS REAL PROPERTY

1. HOLDING AGENCY NO. 373	2. PAGE 1 OF 1 PAGES OF THIS SCHEDULE
3. GOVERNMENT INTEREST <input type="checkbox"/> LEASE <input type="checkbox"/> PERMIT <input checked="" type="checkbox"/> FEE <input type="checkbox"/> LICENSE <input type="checkbox"/> EASEMENT <input type="checkbox"/> INFORMAL AGREEMENT	GSA CONTROL NO. (GSA use only) N-calif-545

LINE NO. (a)	TRACT NO. (b)	NAME OF FORMER OWNER OR LESSOR AND ADDRESS (c)	EXCESS REAL PROPERTY			TYPE OF ACQUISITION (h)	RESTRICTIONS ON USE OR TRANSFER OF GOVERNMENT INTEREST (i)
			TRACT ACQUIRED (Acres or SUBSECTION) (d)	ACRES OR SUBSECTION (e)	COST (f)		
1		J.J. Lebakker, heirs	80	80	\$2,000.00		Condemnation - U.S.A. vs 80 acres of land m/1 in San Diego County, Calif., John F. Sheran, et al; Civil No. 88-8D in the U.S.D.C., Southern District of California, Southern Division.
2							
3							
4							
5							
6							
7							
8		Elaine L. (Wright) McGraw, R.E. and Ella Rogers	27.90	27.90	700.00		Condemnation - U.S.A. vs 27.90 acres of land m/1 in San Diego County, Calif. Elaine L. Wright et al; No. 155 Civil in U.S.D.C., Southern District of California, Southern Division.
9							
10							
11							
12							
13							
14		E.E. and Chesta Benson	85.21	85.21	2,125.00	Purchase	
15							
16							
17		Marvin Ben Couch	160.00	160.00	4,000.00	Purchase	
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
2		TOTAL	353.11	353.11	\$8,825.00		

GENERAL SERVICES ADMINISTRATION SURPLUS REAL PROPERTY CLASSIFICATION (Including Related Personal Property)	1. GSA REGIONAL OFFICE 9-San Francisco	2. GSA CONTROL NUMBER N-Cal-545
	3. HOLDING AGENCY NUMBER 373	4. TYPE OF ACTION (Check one) <input type="checkbox"/> ORIGINAL <input checked="" type="checkbox"/> RECLASSIFICATION <input type="checkbox"/> CORRECTION
	5. DATE REPORT OF EXCESS RECEIVED 11/8/55	6. DATE DETERMINED SURPLUS 12/20/55
SEE DISTRIBUTION AND PREPARATION INSTRUCTIONS ON THE REVERSE		

7. PROPERTY IDENTIFICATION
Ocotillo Dry Lake Emergency Landing Field, San Diego County, California

8. AREA DETERMINED SURPLUS (in Acres)			
a. FEE 353.11	b. LEASED -	c. OTHER -	d. TOTAL 353.11

9. CLASSIFICATION

CODE SYMBOL	DESCRIPTIVE DESIGNATION	ACREAGE	ALLOCATION OF COSTS
-------------	-------------------------	---------	---------------------

11	Airport	353.11 fee	\$8,825.00
TOTAL - Reported excess and Surplus			\$8,825.00

10. REMARKS

This is a reclassification. The property consists of 353.11 acres of unimproved land located in the northeastern part of San Diego County, California. It was acquired by the government for use as an emergency landing field.

The Department of Commerce, CAA recommended by letter dated June 25, 1956 that the property be transferred to the County of San Diego for use as a public airport.

It is recommended that the entire acreage be reclassified 11- Airport property.

11. RECOMMENDED BY		12. APPROVED BY	
SIGNATURE <i>M. J. McNamara</i> M. J. McNamara	DATE 7/6/56	SIGNATURE <i>Elmo L. Buttle</i> Elmo L. Buttle, Chief, RPDD	DATE 7/6/56

QUITCLAIM DEED

THIS INDENTURE, made this 17th day of August, 1956, between the UNITED STATES OF AMERICA, acting by and through the ADMINISTRATOR OF GENERAL SERVICES, under and pursuant to the powers and authority contained in the provisions of the Federal Property and Administrative Services Act of 1949 (63 Stat. 377) and the Surplus Property Act of 1944 as amended thereby, and applicable rules, regulations and orders, Party of the First Part, and the COUNTY OF SAN DIEGO, a political subdivision of the State of California, Party of the Second Part,

WITNESSETH: That the said Party of the First Part, for and in consideration of the assumption by the Party of the Second Part of all the obligations and its taking subject to certain reservations, restrictions and conditions and its covenant to abide by and agreement to certain other reservations, restrictions and conditions all as set out hereinafter, has remised, released and forever quitclaimed, and by these presents does remise, release and forever quitclaim, unto the said Party of the Second Part, its successors and assigns, under and subject to the reservations, restrictions, conditions, exceptions, and rights hereinafter set out, all its right, title and interest in the following described property situate in the County of San Diego, State of California:

All that certain parcel of land in San Diego County, California, being a portion of the Northeast quarter of the Northeast quarter of Section 9, Township 12, south Range 8 East, S.B.B. & M., lying northerly of the centerline of the Julian-Kane Springs Road, more particularly described as follows:

Beginning at the Northeast corner of said Section 9; thence S. 0° 04' 12" E., along the easterly line of said Section 9, a distance of 1151.58 feet to a point on the centerline of said Julian-Kane Springs Road; thence North 70° 49' 28" West, along the centerline of said Julian-Kane Springs Road, a distance of 1397.26 feet, more or less, to an intersection with the west line of the Northeast quarter of the Northeast quarter of said Section 9; thence Northerly along the West line of said Northeast quarter of the Northeast quarter of Section 9, a distance of 690.79 feet, more or less, to the Northwest corner of said Northeast quarter of the Northeast quarter of Section 9; thence N. 89° 55' 15" E., a distance of 1319.17 feet to the point of beginning; containing 27.90 acres, more or less.

All that portion of the Northwest Quarter of Section Ten, Township Twelve South, Range Eight East, San Bernardino Meridian, according to U. S. Government Survey, lying North of a line One Hundred Feet North of and parallel to the North Boundary of the Julian-Kane Springs Road, containing 85.21 acres, more or less, the course of said Road being more particularly described in a deed from Elbert E. Benson to the County of San Diego, dated July 14, 1937 and recorded April 13, 1939 in Book 896, Page 60 of the Official Records of San Diego County.

The $\frac{1}{2}$ of the $\frac{1}{4}$ of Sec. 3, Twp. 12 S., R. 8 E, S.B.B.M., consisting of 80 acres, more or less.

Southeast quarter ($\frac{1}{4}$), Section 4, Township 12 South, Range 8 East, S.B.B.M., 160 acres, more or less.

Said property transferred hereby was duly declared surplus and was assigned to the Administrator of General Services for disposal, acting pursuant to the powers and authority contained in the provisions of the Federal Property and Administrative Services Act of 1949 and applicable rules, regulations and orders.

TO HAVE AND TO HOLD said premises, with appurtenances, under and subject to the reservations, restrictions and conditions set forth in this instrument, unto the said Party of the Second Part, its successors and assigns forever.

By the acceptance of this deed or any rights hereunder, the said Party of the Second Part, for itself, its successors and assigns, agrees that the transfer of the property transferred by this instrument is accepted subject to the following restrictions set forth in subparagraphs (1) and (2) of this paragraph, which shall run with the land, imposed pursuant to the authority of Article 4, Section 3, Clause 2, of the Constitution of the United States of America, the Federal Property and Administrative Services Act of 1949, the Surplus Property Act of 1944, as amended, Reorganization Plan One of 1947 (12 Fed. Reg. 4534), and applicable rules, regulations and orders:

(1) That, except as provided in subparagraph (6) of the next succeeding unnumbered paragraph, the land, buildings, structures, improvements and equipment in which this instrument transfers any interest shall be used for public airport purposes for the use and benefit of the public, on reasonable terms and without unjust discrimination and without grant or exercise of any exclusive right for use of the airport within the meaning of the terms "exclusive right" as used in subparagraph (4) of the next succeeding paragraph. As used in this instrument, the term "airport" shall be deemed to include at least all such land, buildings, structures, improvements and equipment.

(2) That, except as provided in subparagraph (6) of the next succeeding paragraph, the entire landing area, as defined in WAA Regulation 16, dated June 26, 1946, and all structures, improvements, facilities and equipment in which this instrument transfers any interest shall be maintained for the use and benefit of the public at all times in good and serviceable condition, provided, however, that such maintenance shall be required as to structures, improvements, facilities and equipment only during the remainder of their estimated life, as determined by the Civil Aeronautics Administrator or his successor. In the event materials are required to rehabilitate or repair certain of the aforementioned structures, improvements, facilities or equipment, they may be procured by demolition of other structures, improvements, facilities or equipment transferred hereby and located on the above described premises which have outlived their use as airport property in the opinion of the Civil Aeronautics Administrator or his successor.

By the acceptance of this deed or any rights hereunder, the said Party of the Second Part for itself, its successors and assigns also assumes the obligations of, covenants to abide by and agrees to, and this transfer is made subject to, the following restrictions and reservations set forth in subparagraphs (1) to (6), inclusive, of this paragraph, which shall run with the land, imposed pursuant to the authority of Article 4, Section 3, Clause 2, of the Constitution of the United States of America, the Federal Property and Administrative Services Act of 1949, the Surplus Property Act of 1944, as amended, Reorganization Plan One of 1947 (12 Fed. Reg. 4534), and applicable rules, regulations and orders:

Ocotillo Dry Lake Emergency Landing Field
N-Cal-545

(1) That insofar as it is within its powers, the Party of the Second Part shall adequately clear and protect the aerial approaches to the airport by removing, lowering, relocating, marking or lighting or otherwise mitigating existing airport hazards and by preventing the establishment or creation of future airport hazards.

(2) That the United States of America (hereinafter sometimes referred to as the "Government") through any of its employees or agents shall at all times have the right to make nonexclusive use of the landing area of the airport at which any of the property transferred by this instrument is located or used, without charge: Provided, however, that such use may be limited as may be determined at any time by the Civil Aeronautics Administrator or his successor to be necessary to prevent undue interference with use by other authorized aircraft: Provided, further, that the Government shall be obligated to pay for damages caused by such use, or if its use of the landing area is substantial, to contribute a reasonable share of the cost of maintaining and operating the landing area, commensurate with the use made by it.

(3) That during any national emergency declared by the President of the United States of America or the Congress thereof, the Government shall have the right to make exclusive or nonexclusive use and have exclusive or nonexclusive control and possession, without charge, of the airport at which any of the property transferred by this instrument is located or used, or of such portion thereof as it may desire, provided, however, that the Government shall be responsible for the entire cost of maintaining such part of the airport as it may use exclusively, or over which it may have exclusive possession or control, during the period of such use, possession, or control, and shall be obligated to contribute a reasonable share, commensurate with the use made by it, of the cost of maintenance of such property as it may use nonexclusively or over which it may have nonexclusive control and possession; Provided, further, that the Government shall pay a fair rental for its use, control, or possession, exclusively or nonexclusively of any improvements to the airport made without United States aid.

(4) That no exclusive right for the use of the airport at which the property transferred by this instrument is located shall be vested (directly or indirectly) in any person or persons to the exclusion of others in the same class, the term "exclusive right" being defined to mean

- (a) any exclusive right to use the airport for conducting any particular aeronautical activity requiring operation of aircraft;
- (b) any exclusive right to engage in the sale or supplying of aircraft, aircraft accessories, equipment, or supplies (excluding the sale of gasoline and oil), or aircraft services necessary for the operation of aircraft (including the maintenance and repair of aircraft, aircraft engines, propellers, and appliances).

(5) That, except as provided in subparagraph (6) of this paragraph, the property transferred hereby may be successively transferred only with the proviso that any such subsequent transferee assumes all the obligations imposed upon the Party of the Second Part by the provisions of this instrument.

Ocotillo Dry Lake Emergency Landing Field
N-Cal-545

(6) That no property transferred by this instrument shall be used, leased, sold, salvaged, or disposed of by the Party of the Second Part for other than airport purposes without the written consent of the Civil Aeronautics Administrator, which shall be granted only if said Administrator determines that the property can be used, leased, sold, salvaged or disposed of for other than airport purposes without materially and adversely affecting the development, improvement, operation or maintenance of the airport at which such property is located.

(7) The Party of the Second Part does hereby release the Government, and will take whatever action may be required by the General Services Administrator to assure the complete release of the Government from any and all liability the Government may be under for restoration or other damages under any lease or other agreement covering the use by the Government of the airport, or part thereof, owned, controlled or operated by the Party of the Second Part, upon which, adjacent to which, or in connection with which, any property transferred by this instrument was located or used; Provided, that no such release shall be construed as depriving the Party of the Second Part of any right it may otherwise have to receive reimbursement under Section 17 of the Federal Airport Act for the necessary rehabilitation or repair of public airports heretofore or hereafter substantially damaged by any Federal agency.

By acceptance of this instrument or any rights hereunder, the Party of the Second Part further agrees with the Party of the First Part as follows:

(1) That in the event that any of the aforesaid terms, conditions, reservations or restrictions is not met, observed, or complied with by the Party of the Second Part or any subsequent transferee, whether caused by the legal inability of said Party of the Second Part or subsequent transferee to perform any of the obligations herein set out, or otherwise, the title, right of possession and all other rights transferred by this instrument to the Party of the Second Part, or any portion thereof, shall at the option of the Party of the First Part revert to the Party of the First Part sixty (60) days following the date upon which demand to this effect is made in writing by the Civil Aeronautics Administrator or his successor in function, unless within said sixty (60) days such default or violation shall have been cured and all such terms, conditions, reservations and restrictions shall have been met, observed or complied with, in which event said reversion shall not occur and title, right of possession, and all other rights transferred hereby, except such, if any, as shall have previously reverted, shall remain vested in the Party of the Second Part, its transferees, successors and assigns,

(2) That if the construction as covenants of any of the foregoing reservations and restrictions recited herein as covenants or the application of the same as covenants in any particular instance is held invalid, the particular reservations or restrictions in question shall be construed instead merely as conditions upon the breach of which the Government may exercise its option to cause the title, right of possession and all other rights transferred to the Party of the Second Part, or any portion thereof, to revert to it, and the application of such reservations or restrictions as covenants in any other instance and the construction of the remainder of such reservations and restrictions as covenants shall not be affected thereby.

Ocotillo Dry Lake Emergency Landing Field
N-Cal-545

IN WITNESS WHEREOF, the Party of the First Part has caused these presents to be executed as of the day and year first above written.

UNITED STATES OF AMERICA
Acting by and through
Administrator of General Services

By /s/ Elmo L. Buttle
Elmo L. Buttle
Chief, Real Property Disposal Division
Public Buildings Service
General Services Administration
Region 9, San Francisco, California

STATE OF CALIFORNIA)
) ss.
City and County of San Francisco)

On this 4th day of October 1956, before me, Phil M. Silsby

A Notary Public in and for the City and County of San Francisco, State of California, personally appeared Elmo L. Buttle, known to me to be the Chief, Real Property Disposal Division, Public Buildings Service, General Services Administration, Region 9, San Francisco, California, and acknowledged that he executed the said instrument on behalf of the United States of America, acting by and through the Administrator of General Services.

WITNESS my hand and official seal.

/s/ Phil M. Silsby
Notary Public
in and for the City and County of
San Francisco, State of California

(S E A L)

My Commission Expires: Aug. 5, 1956

CONFIDENTIAL
(U)

CERTIFICATE OF RECORDATION

I, Gilbert E. Morton, of the Office
of the County Recorder of the County of San Diego,
State of California, did receive on the 31st day of October,
1956, for filing and recordation the following instrument: #154262

Quitclaim Deed dated the 17th day of August, 1956,
between the United States of America, acting by and through
the Administrator of General Services, Party of the First
Part, and the County of San Diego, Party of the Second Part.

I further certify that the same has been recorded in
Book 6322, at page 568, of the Official Records of the said
County.

Roger N. Howe
Recorder

(S E A L)

By /s/ Gilbert E. Morton
Deputy Recorder

Return to:

General Services Administration
49 Fourth Street, Rm. 455
San Francisco, California
Attention: Clarence W. Hull
Regional Counsel

90715
1000

Ordnance and Explosives
Archives Search Report
for
Benson/Ocotillo Dry Lake
San Diego County, California
Project Number J09CA701106

APPENDIX H

NEWSPAPERS/JOURNALS

(Not Used)

Ordnance and Explosives
Archives Search Report
for
Benson/Ocotillo Dry Lake
San Diego County, California
Project Number J09CA701106

APPENDIX I

INTERVIEWS

APPENDIX I

INTERVIEWS

Table of Contents

I-1 Transcribed interview between Ms. Sally West, San Diego Historical Society and Mr. Henry Aaron Barling, Sr., 1 March 1992

I-2 Conversation Record with SGT Conrad Grayson, San Diego County Sheriff's Dept., and SI Team, 22 January 1997

I-3 Conversation Record with members of 70th EOD and SI Team, 22 January 1997

I-4 Conversation Record with Investigator Steve Sawyer, Borrego Springs Fire Dept., and SI Team, 27 January 1997

I-5 Conversation Record with Deputy Charles Hahn, San Diego County Sheriff's Dept., and SI Team, 27 January 1997

I-6 Conversation Record with Mr. Fred Jee, Anza-Borrego Desert State Park, and SI Team, 27 January 1997

I-7 Conversation Record with Ms. Noreen Crane, Ocotillo Wells Municipal Airport, and SI Team, 27 January 1997

I-8 Conversation Record with Mr. Mark Jorgensen, Anza-Borrego Desert State Park, and SI Team, 27 January 1997

I-9 Conversation Record with Mr. Al McLeary, Ocotillo State Off Road Park, and Mr. Nick Iaiennaro, CENCR-ED-DO, 13 February 1997

I-10 Conversation Record with Deputy Jim McKenna, San Diego County Sheriff's Dept., and Mr. Nick Iaiennaro, CENCR-ED-DO, 17 February 1997

SAN DIEGO HISTORICAL SOCIETY

ORAL HISTORY PROGRAM

an interview with
HENRY AARON BARLING, SR. 1906 -
March 1, 1992

This interview was conducted by Sally West
Transcribed by Shirley A. Brandes
Edited by Sally West
Final typed by Mary R. (Polly) Baker
Supervised by Sarah B. West, Staff Coordinator

HB: No, ma'am. Down here, right down in the low part, there were a few. I think they were Yaquis, but they didn't stay very long. All they had was three or four burros. I owned that place down there for three years. Sold it, got rid of it because I couldn't get my permits from San Diego County to build on it. They kept giving me such a bad time, so I just give it up and sold it.

SW: And they were the only Indians that you remember?

HB: All the rest of them were all Spanish in there and Mexicans.

SW: As you said, during the war the Marines came in here. Were there a great many of them?

HB: No. It was a small, kind of an artillery bunch. And they lived in tents out there. Just like in World War I, they had their tents and their mess hall.

SW: Of course, we thought at the time we would be fighting in Africa. That is probably why they were looking for a desert area to train in. Now, another thing I heard was that (General) Patton trained his troops. I understood from some people they were all up in the Riverside County area, up in those deserts. Did you know of any tank training that went on down here with George Patton and his tank corps?

HB: No, ma'am, I don't. I couldn't give you that because they were all moving out gradually. The Navy gradually moved out from their bomber base. Years after that they went up here in the mountains and found all kinds of wrecked planes, the engines and everything, buried up in the mountains over there, up on Clark Dry Lake.

SW: Did the Navy have hangars here? Did they really take off from here?

HB: Oh, yeah. They had an airfield. They also had one over here at Burro Bend. And the Army did, too. But the Army and the Marines were all stationed over here at Ocotillo Wells. You see, out there what they call a lake, that was all a flying base for the Navy. They used to come in there and land. Oh, they had quite a bunch out there in the air corps of the Navy at one time. They began to leave about the latter part of 1947.

SW: So, it was well after the war, but they were here during the war years?

HB: Then they began to move all their equipment and everything.

CONVERSATION RECORD	TIME 0830	DATE Wed 22 Jan 97
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TYPE

VISIT CONFERENCE

TELEPHONE
INCOMING
OUTGOING

NAME OF PERSON CONTACT WITH SGT Conrad Grayson	ORGANIZATION San Diego County Sheriff - Arson and Bomb Squad	TELEPHONE NO. (619) 467-4579
--	--	--


SUBJECT
Benson/Ocotillo Dry Lake

SUMMARY

SGT Grayson has been with the San Diego County Sheriff's Arson and Bomb Squad for 20 years and is the chairman of all military and civilian EODs in the county. Although his main expertise is in booby traps and other such devices, he also is knowledgeable of military OE because of the amount found in San Diego County. SGT Grayson stated that alot of OE has been found in the Anza Borrego area, but most of it is discovered along the roadside after being removed by civilians from the actual impact area. SGT Grayson has never been called to an actual impact area, as he normally alerts the 70th EOD to respond to any findings of military OE. SGT Grayson was not aware of the former existence of a bomb target at Benson/Ocotillo Dry Lake, nor is he aware of any incidents involving OE within the boundaries of Benson/Ocotillo Dry Lake. Also, SGT Grayson is not aware of any CWM training or activities ever occurring in the area.

ACTION REQUIRED
File

ACTION TAKEN
Filed

NAME OF PERSON DOCUMENTING COVERSATION Christopher J. Churney	ORGANIZATION CENCR-ED-DO	TELEPHONE NUMBER (309) 794-6011
SIGNATURE 	TITLE Chem Engineer	DATE 22 Jan 1997

CONVERSATION RECORD	TIME 0700	DATE Mon 27 Jan 97
----------------------------	---------------------	------------------------------

TYPE

VISIT

CONFERENCE

<input type="checkbox"/>	TELEPHONE
<input type="checkbox"/>	INCOMING
<input type="checkbox"/>	OUTGOING

NAME OF PERSON CONTACT WITH
Investigator Steve Sawyer

ORGANIZATION
Borrego Springs
Fire Department

TELEPHONE NO.
(619)767-5436

SUBJECT
Benson/Ocotillo Dry Lake

SUMMARY

Investigator Sawyer has been with the Borrego Springs Fire Department Arson/Bomb Unit for 14 years and has visited the Borrego Springs area for 19 years. His organization is normally called for assistance for all ordnance/explosives incidents in the Borrego Springs/Anza Borrego State Park area. Investigator Sawyer was aware of one incident at Benson/Ocotillo Dry Lake. A Mk 76 25 lb fragmentation bomb was found (date unknown) in the SE corner of the site in an area that is now a landfill. However, this frag bomb was had been removed from another impact area in the region and was not associated with any activities at Benson/Ocotillo Dry Lake. Investigator Sawyer has knowledge of several OE incidents throughout the region, but none of them are related to the former activities at the site. Also, none of the incidents he is aware of resulted in injury or death. Investigator Sawyer has no knowledge of any CWM training or activities ever occurring in the area.

ACTION REQUIRED
File

ACTION TAKEN
Filed

NAME OF PERSON DOCUMENTING CONVERSATION Christopher J. Churney	ORGANIZATION CENCR-ED-DO	TELEPHONE NUMBER (309)794-6011
SIGNATURE <i>Christopher J. Churney</i>	TITLE Chem Engineer	DATE 27 Jan 1997

CONVERSATION RECORD	TIME 0815	DATE Mon 27 Jan 97
----------------------------	---------------------	------------------------------

TYPE

VISIT CONFERENCE

TELEPHONE
 INCOMING
 OUTGOING

NAME OF PERSON CONTACT WITH Deputy Charles K. Hahn	ORGANIZATION San Diego County Sheriff's Dept - Rural Enforcement Division	TELEPHONE NO. (619) 767-5656
--	---	--

SUBJECT
Benson/Ocotillo Dry Lake

SUMMARY

Deputy Hahn has been with the Sheriff's Department in the Borrego Springs area for 6 years. He stated that he does not personally respond to OE incidents, as that is usually handled by the Fire Department Arson/Bomb Unit and/or the 70th EOD. Deputy Hahn was aware of the discovery of a 3 lb practice bomb in the Military Wash area 3-4 years ago and believed the trees in the Five Palms area had been fired upon by military aircraft. However, he knew of no incidents occurring at Benson/Ocotillo Dry Lake and had never been called out there to respond to an incident. Lastly, Deputy Hahn stated he had no knowledge of any CWM training or activities occurring in the area.

ACTION REQUIRED
File

ACTION TAKEN
Filed

NAME OF PERSON DOCUMENTING CONVERSATION Christopher J. Churney	ORGANIZATION CENCR-ED-DO	TELEPHONE NUMBER (309) 794-6011
SIGNATURE <i>Christopher J. Churney</i>	TITLE Chem Engineer	DATE 27 Jan 1997

CONVERSATION RECORD	TIME 0900	DATE Mon 27 Jan 97
----------------------------	---------------------	------------------------------

TYPE	<input checked="" type="checkbox"/> VISIT	<input type="checkbox"/> CONFERENCE	<input type="checkbox"/> TELEPHONE INCOMING OUTGOING
-------------	---	-------------------------------------	--

NAME OF PERSON CONTACT WITH Fred Jee	ORGANIZATION Anza-Borrogo Desert State Park	TELEPHONE NO. (619) 767-5311
--	--	--

SUBJECT
Benson/Ocotillo Dry Lake

SUMMARY

Mr. Jee is a Supervisory Park Ranger at Anza-Borrogo Desert State Park and has been at this park since 1975. Mr. Jee is extremely knowledgeable of former ranges within park boundaries and the OE remaining at these ranges. However, he was not aware of any OE presence at Benson/Ocotillo Dry Lake, as it is outside of park boundaries. Mr. Jee has no knowledge of any CWM training or activites occurring in the area.

Mr. Jee stated that there are several archaeological and palaentological sites and artifacts throughout the area. Typical in the area are villages, pots, tool making devices, quarries, burial grounds, sleeping circles and fossils.

Mr. Jee stated that most of the historic quarterly reports written by rangers at the park have been destroyed, so there are no historic written logs or reports to review.

ACTION REQUIRED
File

ACTION TAKEN
Filed

NAME OF PERSON DOCUMENTING COVERSTATION Christopher J. Churney	ORGANIZATION CENCR-ED-DO	TELEPHONE NUMBER (309) 794-6011
SIGNATURE <i>Christopher J. Churney</i>	TITLE Chem Engineer	DATE 27 Jan 1997

CONVERSATION RECORD	TIME 0900	DATE Mon 27 Jan 97
----------------------------	---------------------	------------------------------

TYPE

VISIT CONFERENCE

<input checked="" type="checkbox"/>	TELEPHONE
<input type="checkbox"/>	INCOMING
<input checked="" type="checkbox"/>	OUTGOING

NAME OF PERSON CONTACT WITH Noreen Crane	ORGANIZATION Ocotillo Wells Municipal Airport	TELEPHONE NO. (619) 596-3905
---	---	---------------------------------

SUBJECT
Benson/Ocotillo Dry Lake

SUMMARY

Ms. Crane is the airport manager of the Ocotillo Wells Municipal Airport which is located on Benson/Ocotillo Dry Lake. She is also the airport manager for Giles pie Field in Giles pie, CA and her office is in El Cajon, CA. Ocotillo Wells Municipal Airport has no employees and is basically a dirt landing strip for local pilots. Ms. Crane stated that she has been the airport manager for 15 years and is not aware of any OE being discovered at the site. She also stated the landing strips undergo frequent grading to ensure they are smooth and level. No incidents involving OE at the site have ever been brought to her attention.

ACTION REQUIRED
File

ACTION TAKEN
Filed

NAME OF PERSON DOCUMENTING COVERSATION Christopher J. Churney	ORGANIZATION CENCR-ED-DO	TELEPHONE NUMBER (309) 794-6011
SIGNATURE <i>Christopher J. Churney</i>	TITLE Chem Engineer	DATE 27 Jan 1997

CONVERSATION RECORD	TIME 1045	DATE Mon 27 Jan 97
----------------------------	---------------------	------------------------------

TYPE

VISIT CONFERENCE

TELEPHONE
 INCOMING
 OUTGOING

NAME OF PERSON CONTACT WITH Mark Jorgensen	ORGANIZATION Anza-Borrego Desert State Park	TELEPHONE NO. (619) 767-5311
--	--	--

SUBJECT
Benson/Ocotillo Dry Lake

SUMMARY

Mr. Jorgensen is a Park Ranger and Ecologist at Anza-Borrego Desert State Park. He has been at this park since 1972, but has been visiting/exploring the area since 1963. Mr. Jorgensen was very knowledgeable about past incidents involving OE in the area and their locations. However, he knew of no incidents involving OE occurring at Benson/Ocotillo Dry Lake. Mr. Jorgensen also stated he had no knowledge of any CWM training or activities in the area.

ACTION REQUIRED
File

ACTION TAKEN
Filed

NAME OF PERSON DOCUMENTING COVERSATION Christopher J. Churney	ORGANIZATION CENCR-ED-DO	TELEPHONE NUMBER (309) 794-6011
SIGNATURE <i>Christopher J. Churney</i>	TITLE Chem Engineer	DATE 27 Jan 1997

CONVERSATION RECORD	TIME 1410	DATE Thu 13 Feb 97
----------------------------	---------------------	------------------------------

TYPE

VISIT CONFERENCE

TELEPHONE
 INCOMING
 OUTGOING

NAME OF PERSON CONTACT WITH Al McLeary	ORGANIZATION Ocotillo State Off Road Park	TELEPHONE NO. (619) 767-5391
--	--	--

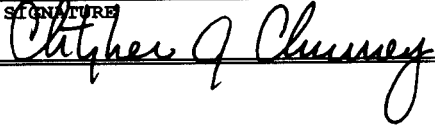
SUBJECT
Benson/Ocotillo Dry Lake

SUMMARY (abstracted from 2/13/97 interview by Nick Iaiennaro, ED-DO)

Mr. McLeary stated he has been a Ranger at Ocotillo State Off Road Park for 20 years, a position he filled after his retirement from the Navy. The Ocotillo State Off Road Park surrounds the Benson/Ocotillo Dry Lake site and the park headquarters is just west of the site. However, Mr. McLeary was not aware of any ordnance presence at Benson/Ocotillo Dry Lake. Mr. McLeary did state that he was familiar with an ordnance presence in the Military Wash, Clark's Lake and Carrizo areas. Mr. McLeary was not aware of any incidents involving OE that resulted in injury or of any CWM training or activities ever occurring in the area.

ACTION REQUIRED
File

ACTION TAKEN
Filed

NAME OF PERSON DOCUMENTING COVERSATION Christopher J. Churney	ORGANIZATION CENCR-ED-DO	TELEPHONE NUMBER (309) 794-6011
SIGNATURE 	TITLE Chem Engineer	DATE 13 Feb 1997

CONVERSATION RECORD	TIME 1030	DATE Mon 17 Feb 97
----------------------------	---------------------	------------------------------

TYPE

VISIT

CONFERENCE

<input checked="" type="checkbox"/>	TELEPHONE
<input type="checkbox"/>	INCOMING
<input checked="" type="checkbox"/>	OUTGOING

NAME OF PERSON CONTACT WITH
Deputy Jim McKenna

ORGANIZATION
San Deigo County
Sheriff's Dept - Rural
Enforcement Division

TELEPHONE NO.
(619)767-5656

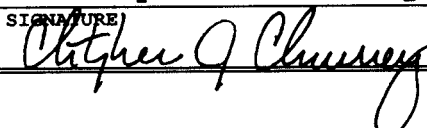
SUBJECT
Benson/Ocotillo Dry Lake

SUMMARY (abstracted from 2/17/97 interview by Nick Iaiennaro, ED-DO)

Deputy McKenna stated he has been with the San Deigo County Sheriff's Dept in Borrego Springs for 17 years. He stated that in his 17 years in the area, he has only received 2-3 call relating to ordnance, and all were related to OE discovered in the Carrizo area. Deputy McKenna was not aware of any ordnance presence at Benson/Ocotillo Dry Lake. Deputy McKenna was not aware of any incidents involving OE that resulted in injury or of any CWM training or activities ever occurring in the area.

ACTION REQUIRED
File

ACTION TAKEN
Filed

NAME OF PERSON DOCUMENTING COVERSATION Christopher J. Churney	ORGANIZATION CENCR-ED-DO	TELEPHONE NUMBER (309)794-6011
SIGNATURE 	TITLE Chem Engineer	DATE 17 Feb 1997

Ordnance and Explosives
Archives Search Report
for
Benson/Ocotillo Dry Lake
San Diego County, California
Project Number J09CA701106

APPENDIX J

PRESENT SITE PHOTOGRAPHS

APPENDIX J

PRESENT SITE PHOTOGRAPHS

Table of Contents

- J-1 Area A: M38A2 100 lb practice bomb debris
- J-2 Area A: Mk 5 and Mk 23 3 lb practice bomb debris
- J-3 Area A: M38A2 100 lb and Mk 23 3 lb practice bomb debris
- J-4 Area A: M1A1 spotting charge debris and .50 cal projo
- J-5 Area A: Mk 23 3 lb practice bomb debris
- J-6 Area A: M38A2 100 lb practice bomb debris
- J-7 Area B: North end of NW-SE runway looking south
- J-8 Area A: M38A2 100 lb practice bomb tail fin assembly
- J-9 Area A: Endcap to M1A1 spotting charge
- J-10 Area A: Shattered Mk 23 3 lb practice bomb
- J-11 Area A: Buried M38A2 100 lb practice bomb
- J-12 Area A: M1A1 spotting charge debris
- J-13 Area B: Possible observation post
- J-14 Area B: Looking west from possible observation post
- J-15 Area C: Northeastern portion of dry lake
- J-16 Area C: Looking west from eastern edge of E-W runway
- J-17 Area C: Panoramic view of E-W runway
- J-18 Area C: Panoramic view of NW-SE runway



J-1 Area A: Debris from M38A2 100 lb practice bomb near target center; see plate 4.



J-2 Area A: Debris from Mk 5 and Mk 23 3 lb practice bombs near target center; see plate 4.



J-3 Area A: Debris from M38A2 100 lb and Mk 23 3 lb practice bombs east of target center; see plate 4.



J-4 Area A: M1A1 spotting charge debris and .50 cal projo southwest of target center; see plate 4.



J-5 Area A: Mk 23 3 lb practice bomb debris southwest of target center; see plate 4.



J-6 Area A: M38A2 100 lb practice bomb debris southwest of target center; see plate 4.



J-7 Area B: North end of NW-SE runway; looking south; see plate 4.



J-8 Area A: M38A2 100 lb practice bomb tail fin assembly at western edge of dry lake; see plate 4.



J-9 Area A: Crushed endcap to M1A1 spotting charge southeast of target center; see plate 4.



J-10 Area A: Shattered Mx 23 3 lb practice bomb southeast of target center; see plate 4.



J-11 Area A: Buried M38A2 100 lb practice bomb west of target center; looking west see plate 4.



J-12 Area A: Debris from M1A1 spotting charge west of target center; see plate 4.



J-13 Area B: Possible remains of an observation post; looking east; see plate 4.



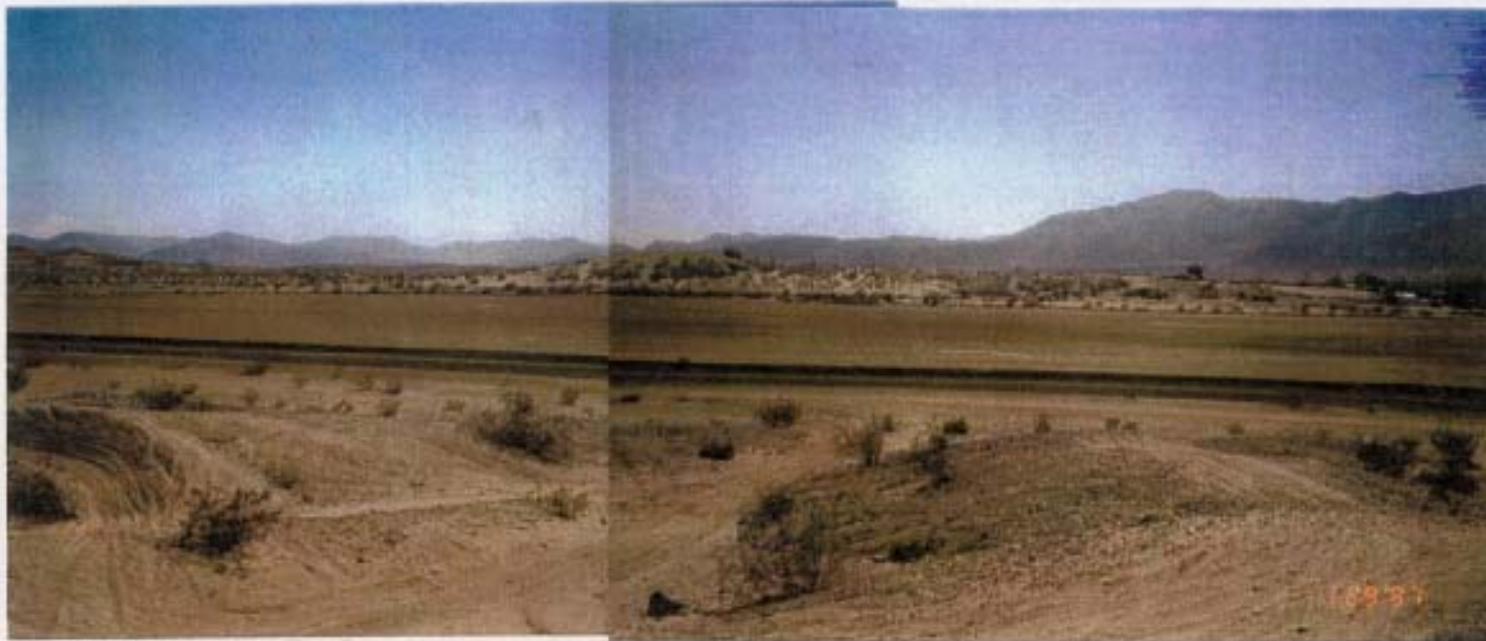
J-14 Area B: Looking east from possible OP over Areas A and B; see plate 4.



J-15 Area C: Northeastern portion of dry lake; looking west; see plate 4.



J-16 Area C: Looking west from eastern edge of E-W runway; see plate 4.



J-17 Area C: Panoramic view of E-W runway from hill in east center of site; looking south to southwest; see plate 4.



J-18 Area C: Panoramic view of NW-SE runway from hill in east center of site; looking SW to NW; see plate 4.

Ordnance and Explosives
Archives Search Report
for
Benson/Ocotillo Dry Lake
San Diego County, California
Project Number J09CA701106

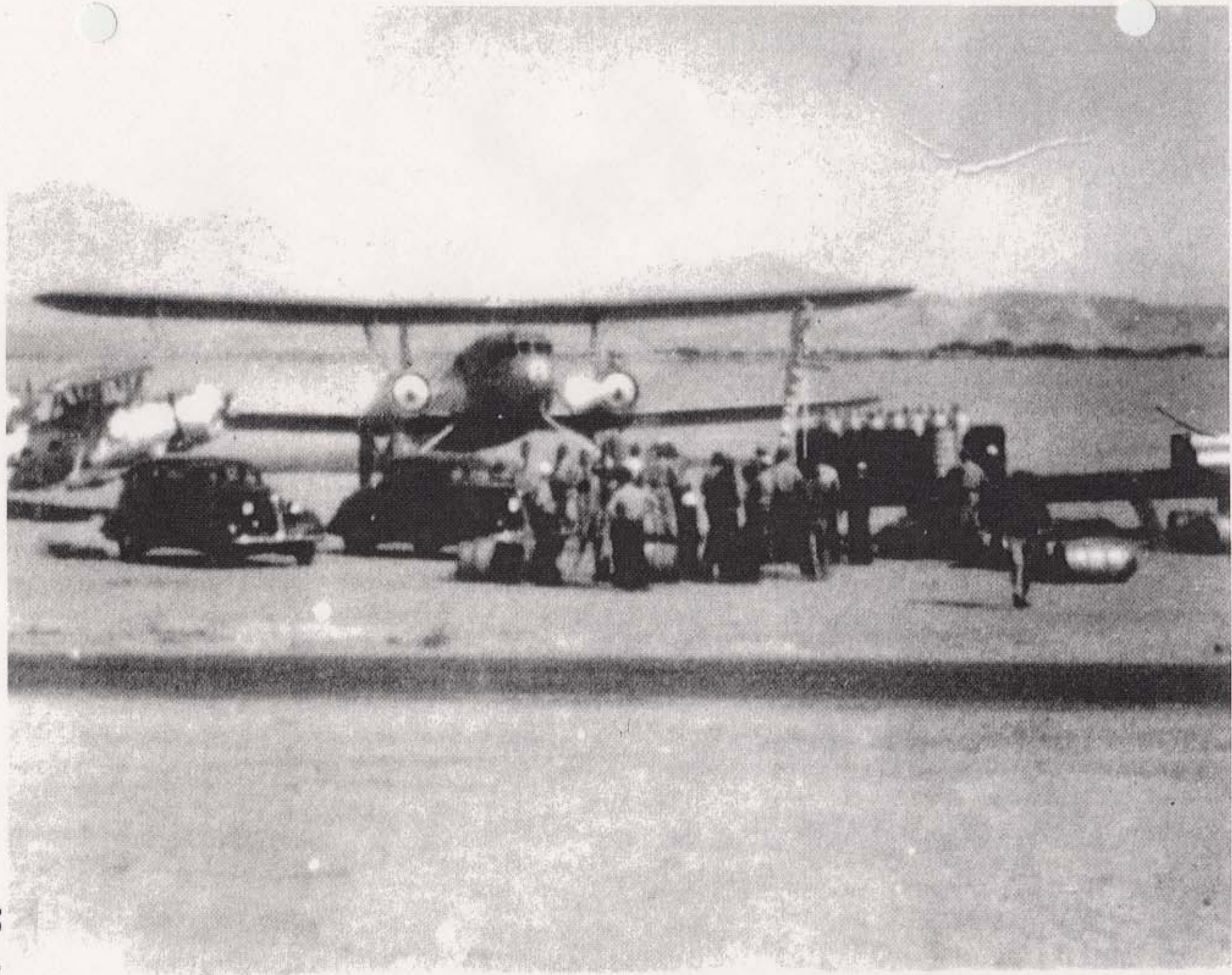
APPENDIX K

HISTORICAL PHOTOGRAPHS

APPENDIX K
HISTORICAL PHOTOGRAPHS

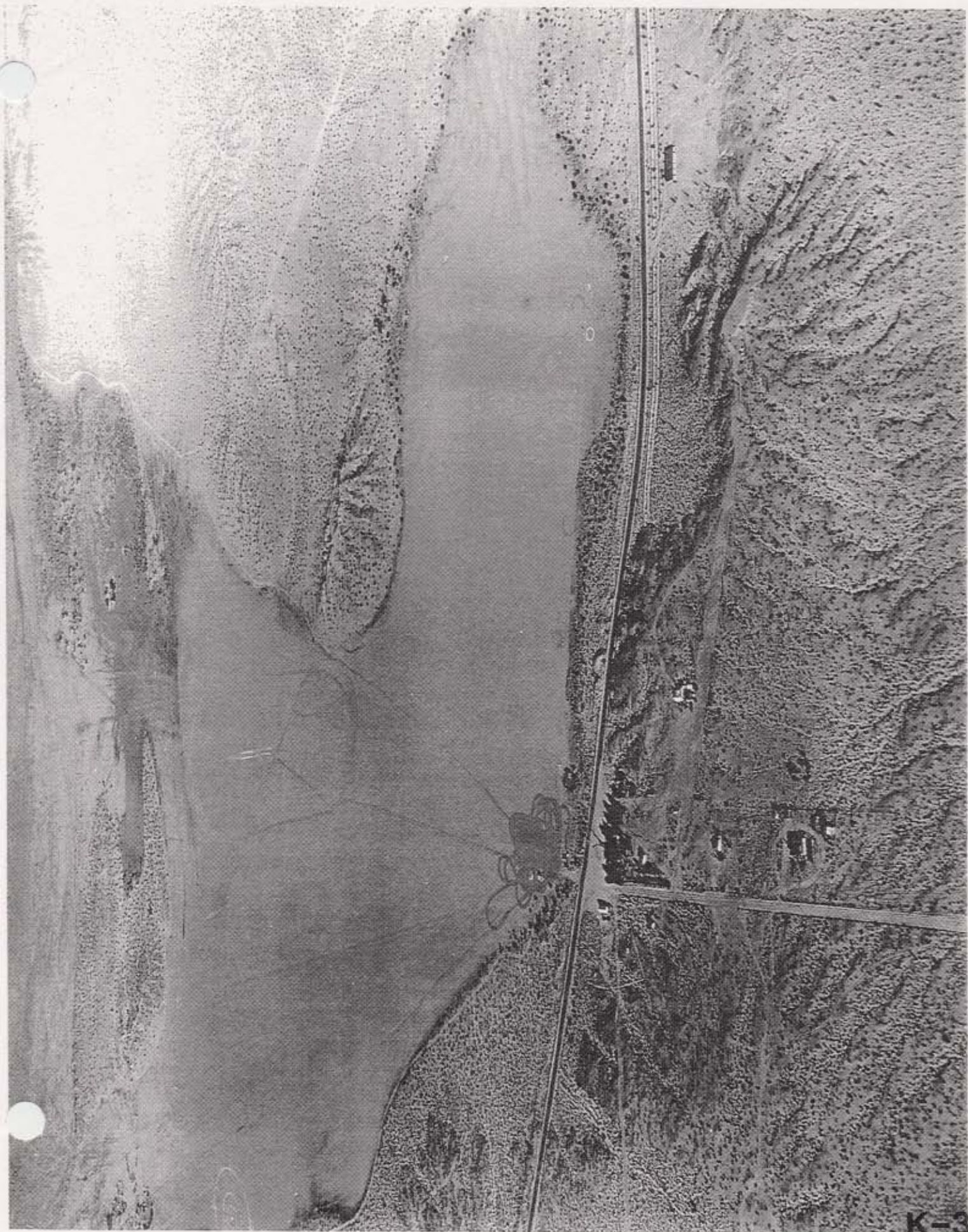
Table of Contents

- K-1 Photo of planes on Benson/Ocotillo Dry Lake, circa 1939
(B-27)
- K-2 Aerial photo looking north from 7,000 ft, 5 December
1944 (B-28)
- K-3 Aerial photo looking north from 2,500 ft, 5 December
1944 (B-29)
- K-4 Aerial photo, 16 August 1989 (B-30)



K-1





8-16-89



Ordnance and Explosives
Archives Search Report
for
Benson/Ocotillo Dry Lake
San Diego County, California
Project Number J09CA701106

APPENDIX L

REFERENCE MAPS/DRAWINGS

APPENDIX L

REFERENCE MAPS/DRAWINGS

Table of Contents

- L-1 Survey Map of Ocotillo Dry Lake Landing Field, circa 1941 (B-31)
- L-2 Ocotillo Airport Layout Plan, 1968 (B-32)
- L-3 County Plat Map 253-04, circa 1992 (B-33)
- L-4 County Plat Map 253-09 sheet 1, circa 1992 (B-34)
- L-5 County Plat Map 253-11 sheet 1, circa 1990 (B-35)

Excerpt from Field
 The West half of the Southwest Quarter of Sec 3,
 the Southwest Quarter of Section 4 excepting the
 North 300 ft or the East 200 ft thereof, that
 portion of the Northeast Quarter of the Northeast
 Quarter of Sec 9 lying North of the Julian-Kearse
 Springs Highway, and that portion of the West
 half of Sec 10 lying North of the Julian-Kearse
 Springs Highway, all in Township 12 South,
 Range 6 East, S 25 T 12 R 6 E.

Surveyed under contract made and entered into on October 2 1940,
 between the United States of America, by Rear Admiral Charles
 A. Blakely, U.S. Navy Commandant, Eleventh Naval District,
 San Diego, California, acting for the Secretary of the Navy,
 pursuant to the provisions of Act of Congress approved June
 16 1940 (54 Stat Chap 375), Part of the First Part, and Norman
 O. Glover, a licensed land surveyor in the State of California,
 Part of the Second Part.

Surveyed By Norman O Glover, L.S. 1880
 November, 1940

Norman O Glover

Approved after examination of maps and comparing
 with data of record
 WALTER R. CHILDS County Surveyor

By Dayton

FILE NO
 Filed at the request of Norman O Glover at
 minutes past o'clock M this day
 of 1940
 WALTER R. CHILDS County Recorder

By Dayton

NOTE
 Bearings distances and coordinates are in terms of the
 Lambert Conformal Polyconic Projection, State of
 California, Grid No 6 Survey controlled locally
 by U.S.C. & G.S. Triangulation Stations Palm and
 Donillo 1939, and my own stations Oil and Borrow
 Palm 1' 415 221 44
 1' 432 092 43

Plat of Survey of
OCOTILLO DRY LAKE LANDING FIELD
 Being in Secs. 3, 4, 9 & 10 of T12S R 6E SBBM
 San Diego County Calif.

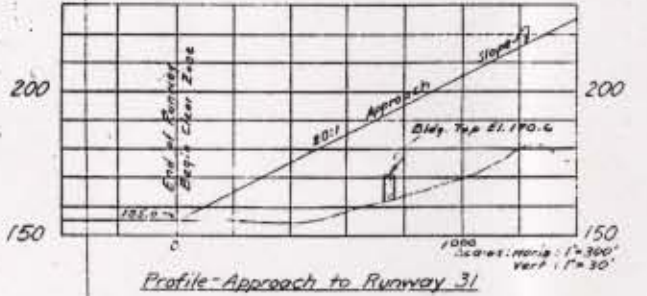
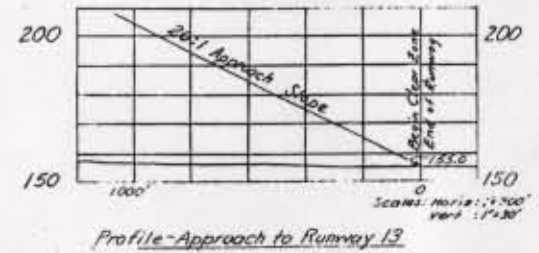
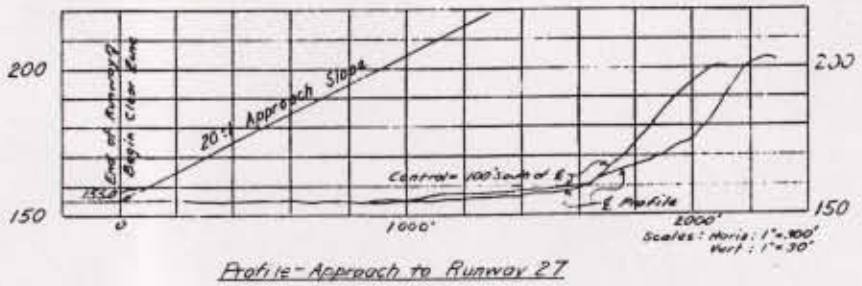
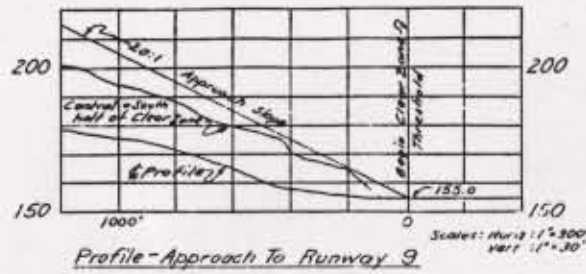
Scale 1" = 1000'
 Bid No. GSA-PBS-9-L-34
 General Services Administration
 49 4th Street
 San Francisco, Calif.

Total Acreage - 353.11 ±



187066
Paulson (b)

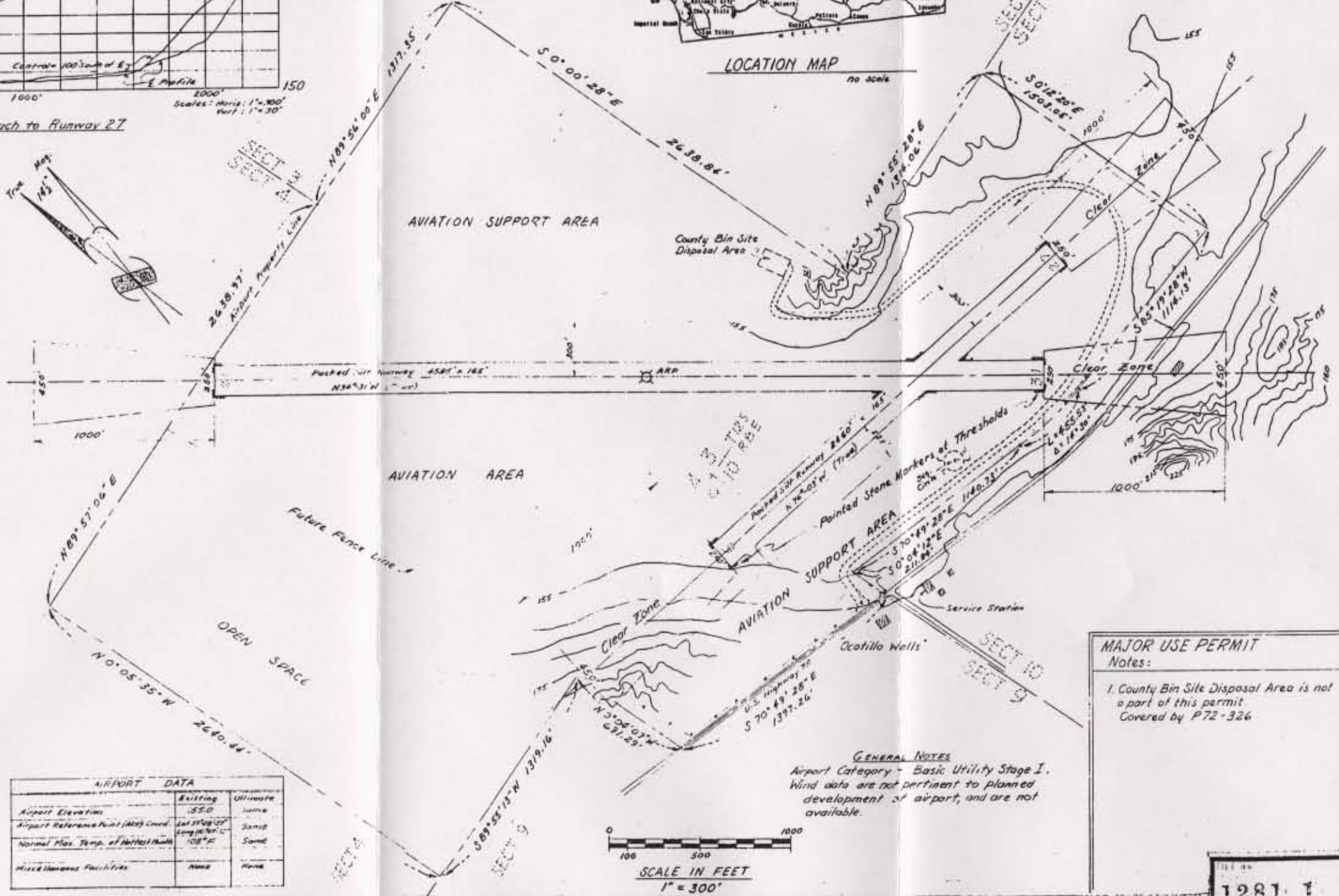
P.W. Drawing No
 ND11/NI-9(66)



RUNWAY DATA				
	Runway 9-27		Runway 13-31	
	Existing	Ultimate	Existing	Ultimate
Length	2460'	Same	4585'	Same
Usable Length - Take off	9' = 2385'	Same	13' = 4555'	Same
Usable Length - Landing	9' = 2160'	Same	13' = 4335'	Same
Effective Runway Gradient	0.0%	Same	0.0%	Same
Wind Coverage (ISMP)	See	See	See	See
Instrument Runway	None	None	None	None
Pavement Strength	#000"	Same	#000"	Same
Approach Slopes & Clear-Zones	9' = 20:1	Same	13' = 40:1	Same
Lighting	None	None	None	None
Marking	R R	R R	R R	R R
Navigation Aids	None	None	None	None

* Gross weight in pounds of single wheel aircraft.
 ** Pointed Stone markers at corners and intersections of runways.
 Runways are part of a dry lake bed and are unusable when flooded.

AIRPORT DATA		
	Existing	Ultimate
Airport Elevation	550'	Same
Airport Reference Point (ARP) Coord.	Lat 33°08'50" N Long 117°01'10" W	Same
Normal Max. Temp. of Hottest Month	108°F	Same
Miscellaneous Facilities	None	None



MAJOR USE PERMIT
Notes:
1. County Bin Site Disposal Area is not a part of this permit. Covered by P72-326

GENERAL NOTES
Airport Category - Basic Utility Stage I.
Wind data are not pertinent to planned development of airport, and are not available.

COUNTY OF SAN DIEGO
DEPARTMENT OF PUBLIC WORKS

WILBUR L. SECO
Chairman, Board of Supervisors

APPROVED

DATE

REVISIONS

REVISIONS

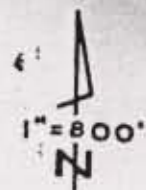
OCOTILLO AIRPORT
LAYOUT PLAN

1281.1

L-2

THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY. NO LIABILITY IS ASSUMED FOR THE ACCURACY OF THE DATA SHOWN. ASSESSOR'S PARCELS MAY NOT COMPLY WITH LOCAL SUBDIVISION OR BUILDING ORDINANCES.

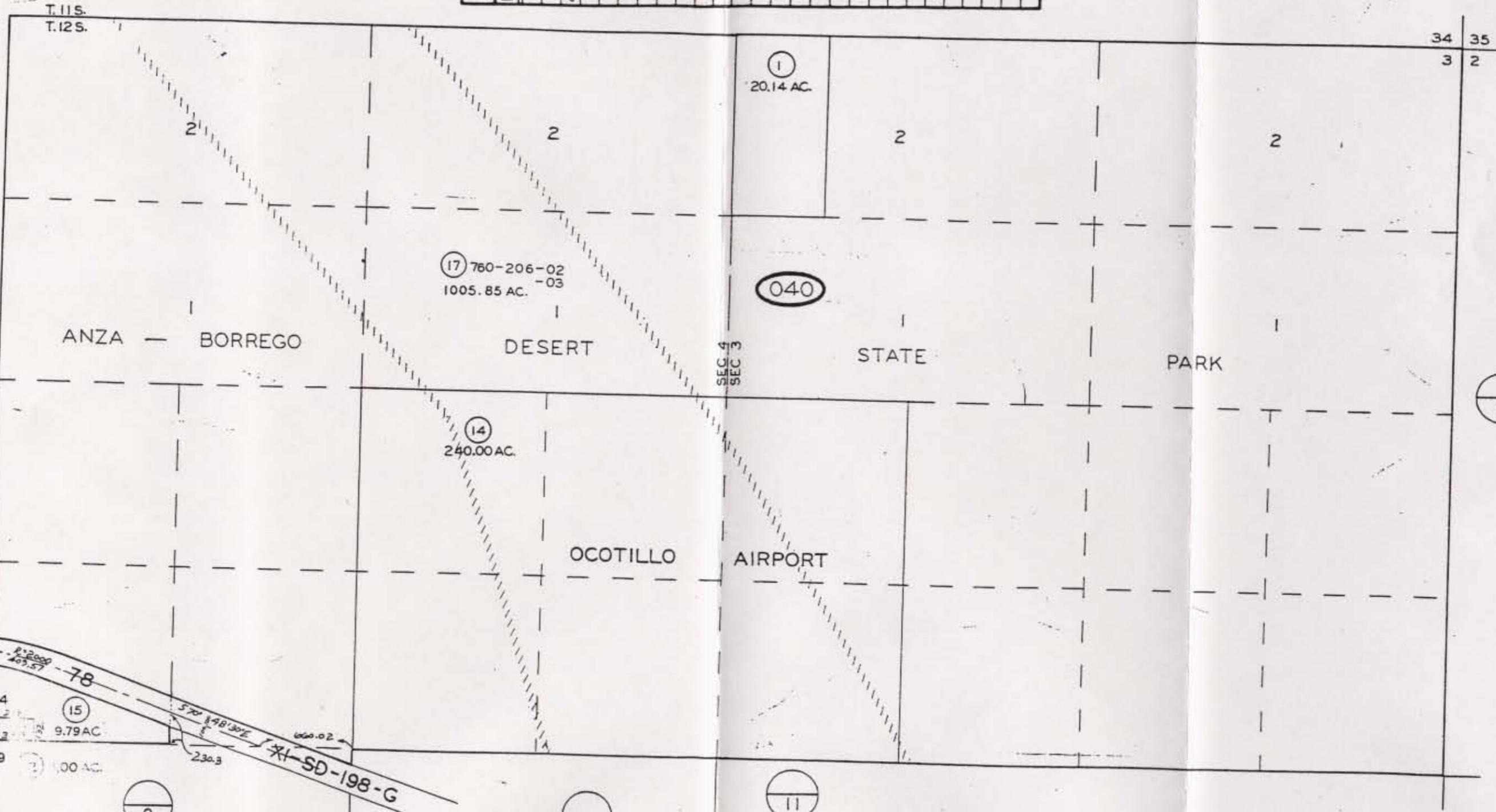
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4-28-93 MAS

CHANGES	BLK	OLD	NEW	YR	CUT	CANC	
						75	2552
	6113	14	75	2552			
	11	15	16	78	4150		
	040	2-57	7-104				
		16	17	92	1241		

202
19



2

5

9
SHT. 2

9
SHT. 1

11
SHT. 1

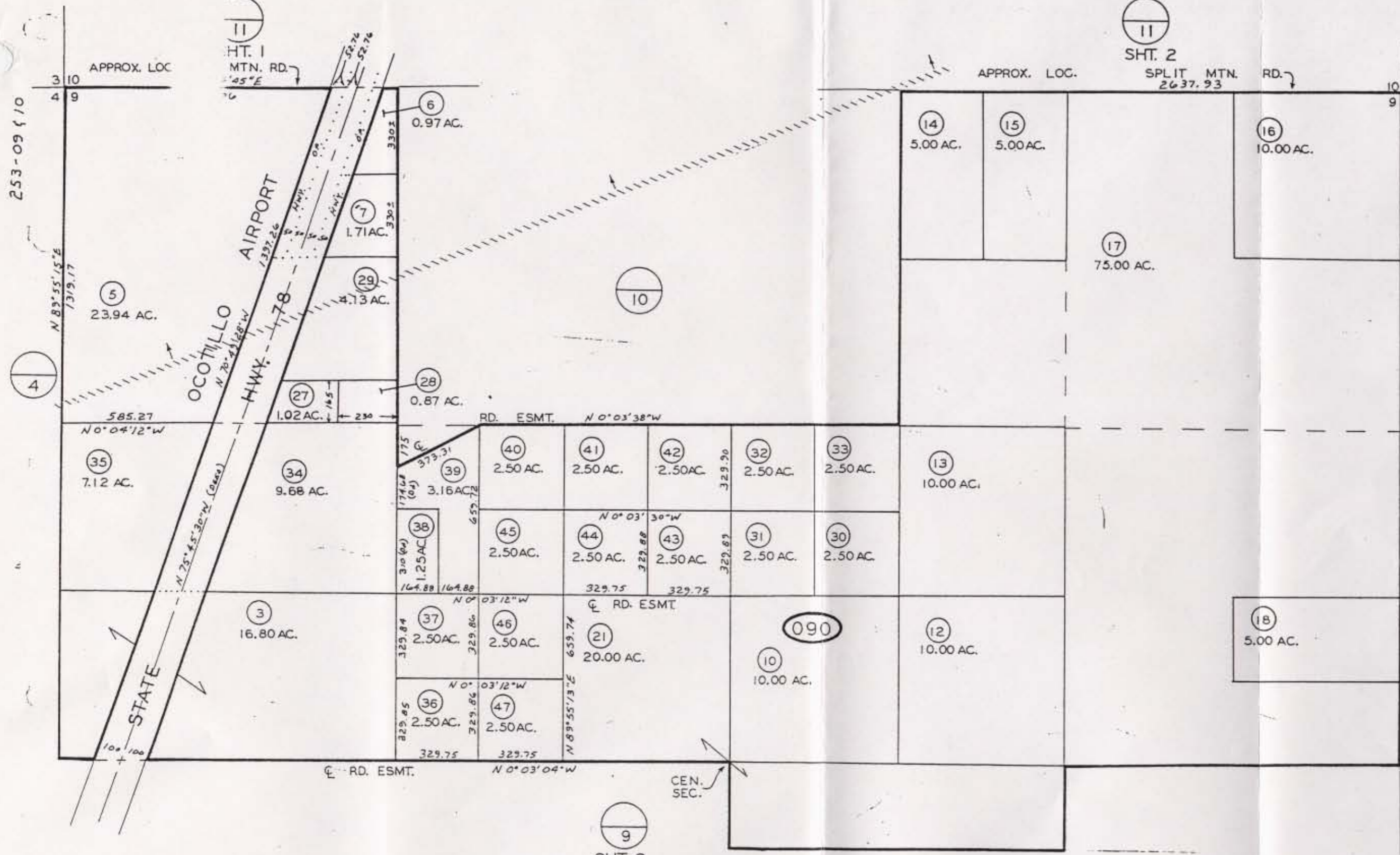
SEC 3 - T12S-R8E
SEC 4 - T12S-R8E-POR
SEC 9 - T12S-R8E-POR NW 1/4

////////// FAULT ZONE BDY.

MATTW
7-9-76
SAN DIEGO COUNTY
ASSESSOR'S MAP
BOOK 253 PAGE 04...

ASSESSMENT PURPOSES ONLY

1"=400'



M 7-13-76

CHANGES

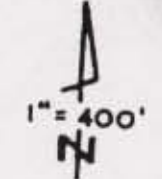
BLK	OLD	NEW	YR	CUT
	USE PAR 48	NEXT		

MAP DATE 7-9-76
SAN DIEGO COUNTY ASSESSOR'S MAP BOOK 253 PAGE 09 SHT. 1 OF 2

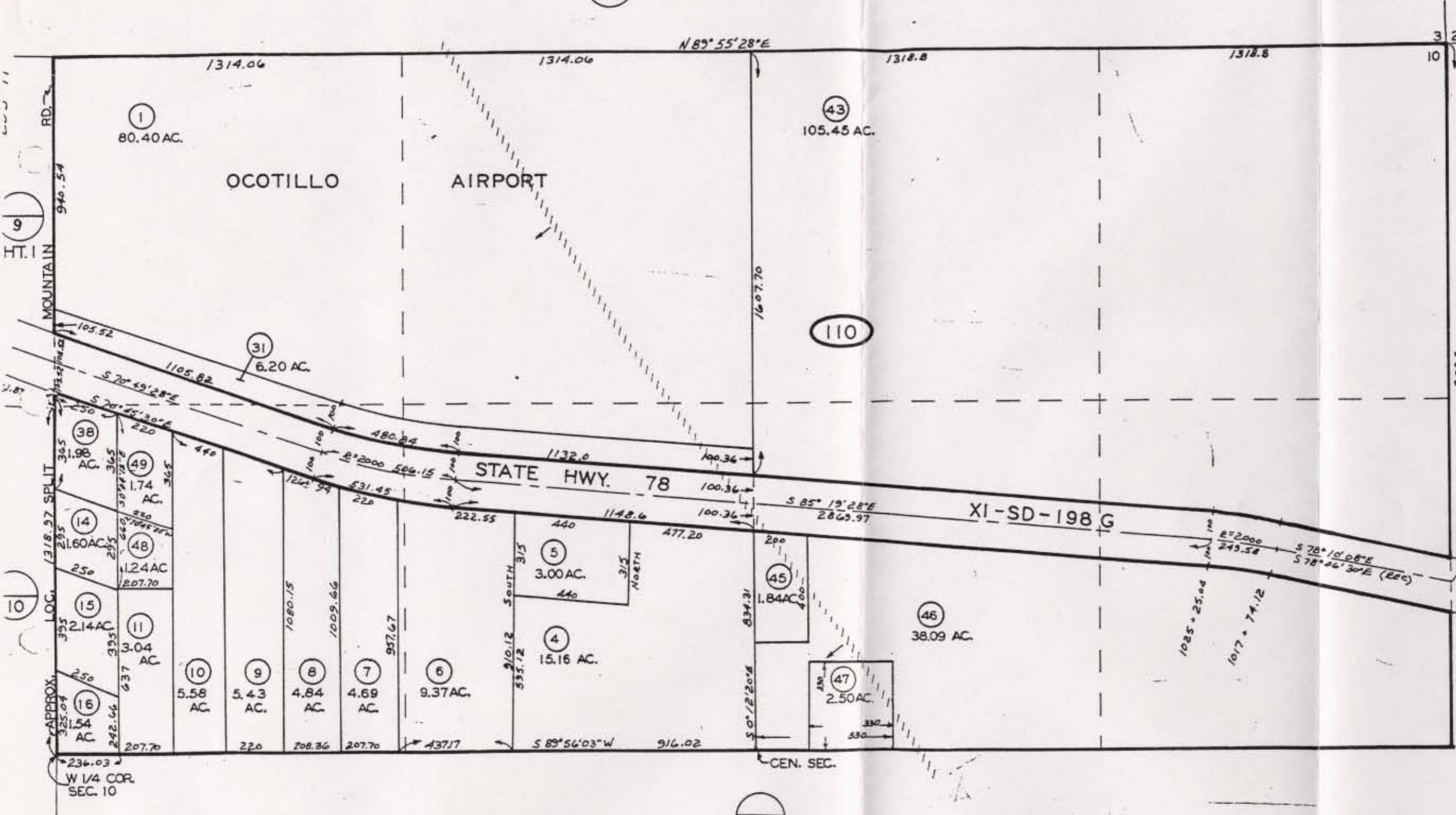
PREPARED FOR ASSESSMENT PURPOSES ONLY. NO LIABILITY IS ASSURED FOR THE ACCURACY OF THE DATA SHOWN. ASSESSOR'S PARCELS SUBJECT TO LOCAL SUBDIVISION OR BUILDING ORDINANCES. FOR ASSESSMENT PURPOSES ONLY

FAULT ZONE BDY.

SEC. 9 - T12S - R8E - POR N 1/2 & POR SW 1/4
LS 268 - ROS 893



15-24-89



CHANGES

BLK	OLD	NEW YR	CUT		
110	3	43-45	71	1616	cc
110	1	AC	72	5966	
110	9 & 10	B/L	72	7221	
	44	46-47	87	1710	
	12	48 & 49	90	1049	

ALM 7-14-76
SAN DIEGO COUNTY
ASSESSOR'S MAP
BOOK 253 PAGE 11 MAPPED FOR
SHT. 1 OF 3

THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY. NO LIABILITY IS
ASSUMED FOR THE ACCURACY OF THE DATA SHOWN. ASSESSOR'S PARCELS
MAY DIFFER FROM LOCAL SUBDIVISION OR BUILDING ORDINANCES.

SEC 10 - T12S - R8E - N 1/2
LS 268 - ROS 893

Ordnance and Explosives
Archives Search Report
for
Benson/Ocotillo Dry Lake
San Diego County, California
Project Number J09CA701106

APPENDIX M

ARCHIVES SEARCH REPORT CORRESPONDENCE

(Not Used)

Ordnance and Explosives
Archives Search Report
for
Benson/Ocotillo Dry Lake
San Diego County, California
Project Number J09CA701106

APPENDIX N

REPORT DISTRIBUTION LIST

APPENDIX N

REPORT DISTRIBUTION LIST

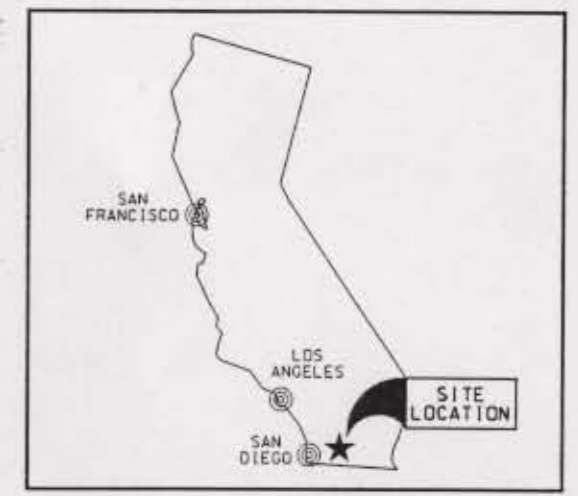
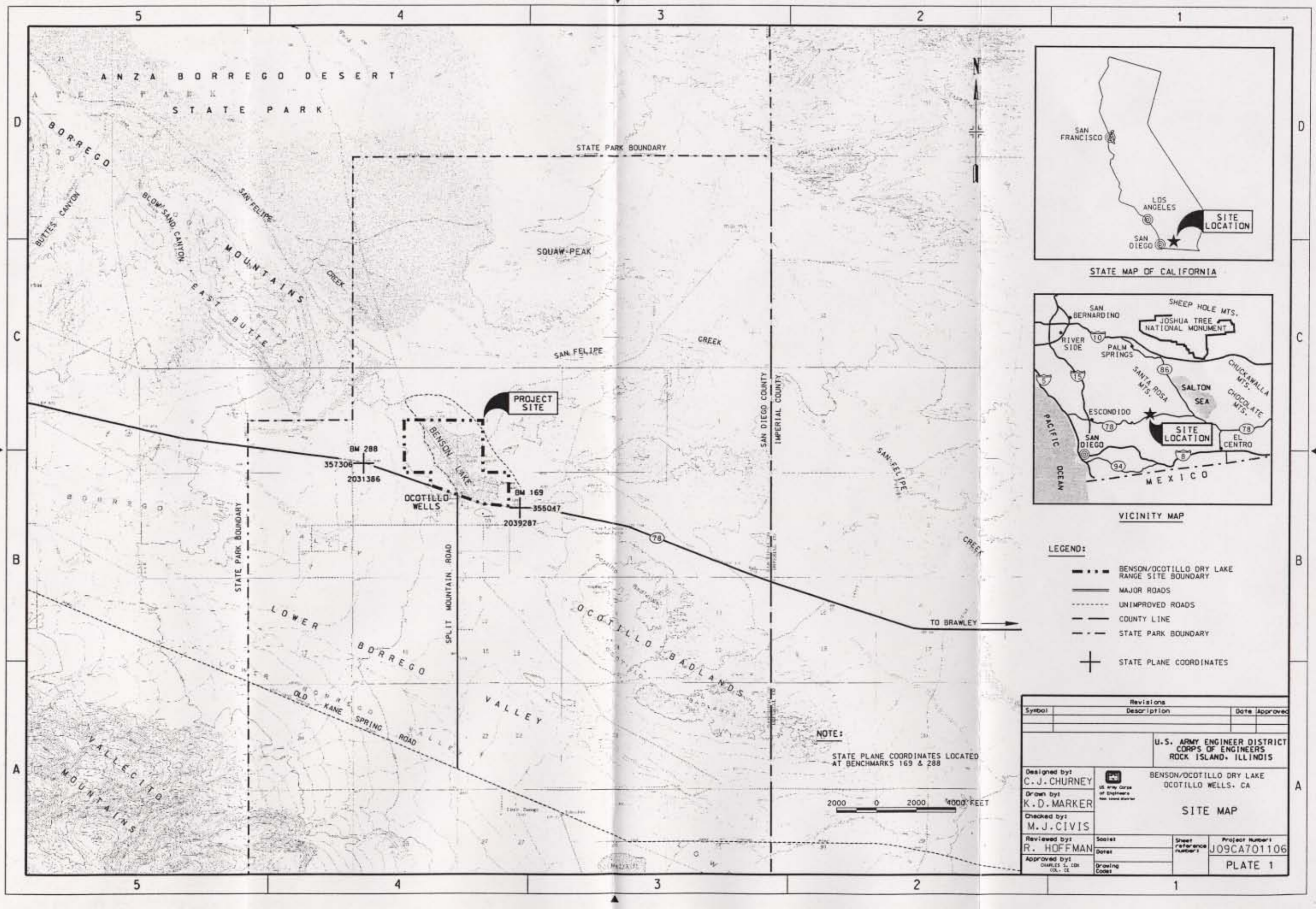
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	I	II	III
Commander, U.S. Army Engineering and and Support Center, Huntsville, ATTN: CEHNC-OE (Mardis) P.O. Box 1600 Huntsville, Alabama 35807-4301	2	-	-
Commander, U.S. Army Engineer District, Los Angeles, ATTN: CESPL-ED-MI (Boghossian) 911 Wilshire Boulevard Los Angeles, California 90017-3401	4	-	-
Commander, U.S. Army Engineer Division, North Central, ATTN: CENCD-PP-PM (Warda) 111 North Canal Street Chicago, Illinois 60606-2870	1	-	-
Commander, Defense Ammunition Center ATTN: SIOAC-ESL Savanna, Illinois 61074-9639	1	-	-
Commander, U.S. Army Engineers District, Rock Island P.O. Box 2004 Rock Island, IL 61204-2004 ATTN: CEMVR-			
ED	-	-	1
ED-D	-	-	1
ED-DO	3	-	-

I = FINAL REPORT
 II = FINDINGS REPORT
 III = ROUTED FINAL REPORT

Ordnance and Explosives
Archives Search Report
for
Benson/Ocotillo Dry Lake
San Diego County, California
Project Number J09CA701106

REPORT PLATES

22-MAY-1997 13:51
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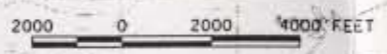
STATE MAP OF CALIFORNIA



VICINITY MAP

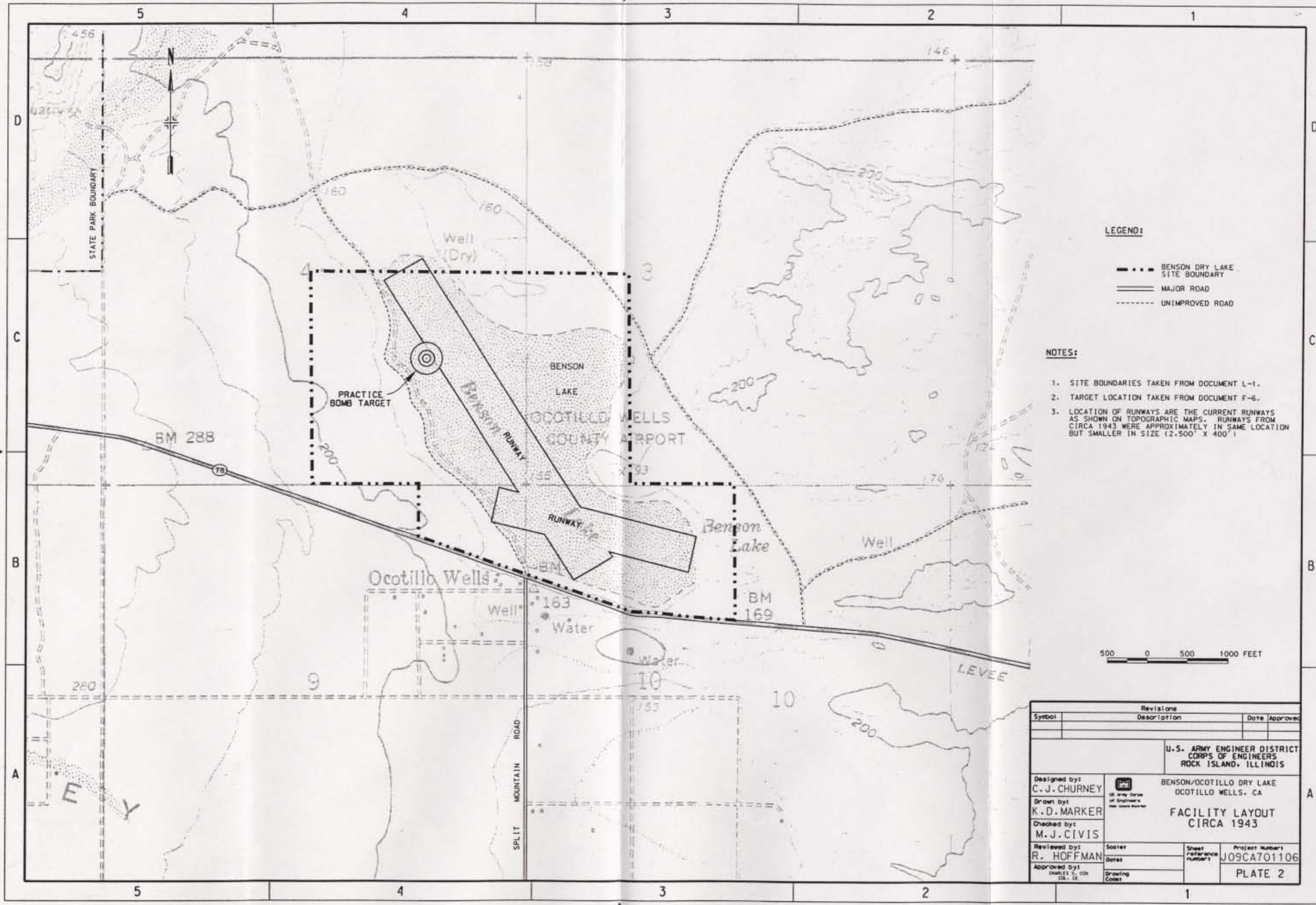
- LEGEND:**
- BENSON/OCOTILLO DRY LAKE RANGE SITE BOUNDARY
 - == MAJOR ROADS
 - UNIMPROVED ROADS
 - - - COUNTY LINE
 - - - STATE PARK BOUNDARY
 - + STATE PLANE COORDINATES

NOTE:
 STATE PLANE COORDINATES LOCATED AT BENCHMARKS 169 & 288



Revisions		
Symbol	Description	Date Approved
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS		
Designed by: C. J. CHURNEY	 U.S. Army Corps of Engineers Rock Island District	BENSON/OCOTILLO DRY LAKE OCOTILLO WELLS, CA
Drawn by: K. D. MARKER		
Checked by: M. J. CIVIS	SITE MAP	
Reviewed by: R. HOFFMAN	Scale:	Sheet reference number:
Approved by: CHARLES L. COE, CE	Date:	Project Number: J09CA701106
	Drawing Code:	PLATE 1

22-MAY-1997 14:11
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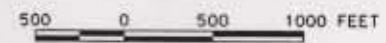


LEGEND:

- BENSON DRY LAKE SITE BOUNDARY
- == MAJOR ROAD
- - - UNIMPROVED ROAD

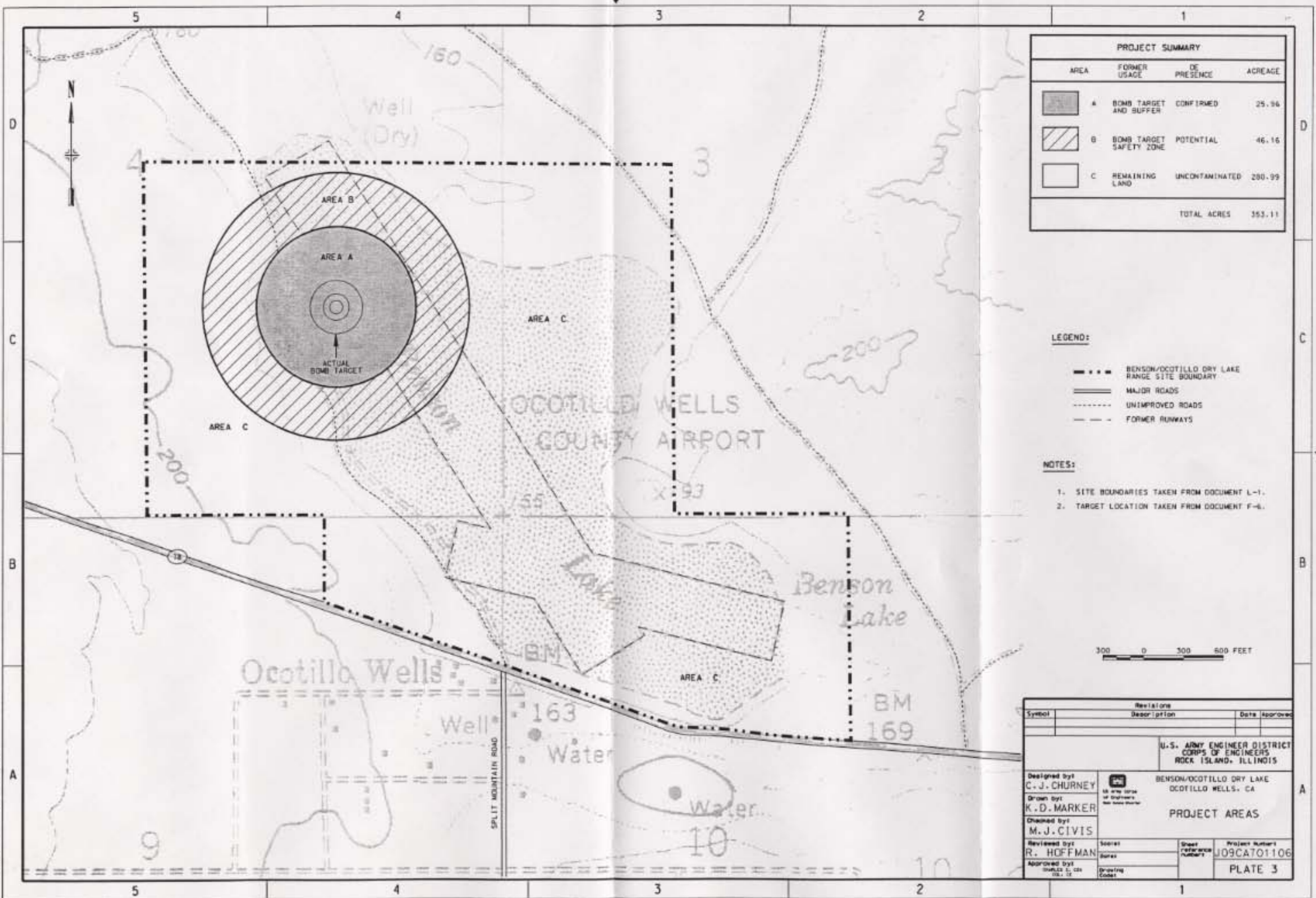
NOTES:

1. SITE BOUNDARIES TAKEN FROM DOCUMENT L-1.
2. TARGET LOCATION TAKEN FROM DOCUMENT F-6.
3. LOCATION OF RUNWAYS ARE THE CURRENT RUNWAYS AS SHOWN ON TOPOGRAPHIC MAPS. RUNWAYS FROM CIRCA 1943 WERE APPROXIMATELY IN SAME LOCATION BUT SMALLER IN SIZE (2,500' X 400')



Revisions		Date Approved	
Symbol	Description		
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS			
Designed by:	C. J. CHURNEY	BENSON/OCOTILLO DRY LAKE OCOTILLO WELLS, CA FACILITY LAYOUT CIRCA 1943	
Drawn by:	K. D. MARKER		
Checked by:	M. J. CIVIS		
Reviewed by:	R. HOFFMAN	Scale:	Sheet reference number:
Approved by:	CHARLES S. COX COL., USAR	Date:	Project Number:
		Drawing Code:	J09CA701106
			PLATE 2

22-MAY-1997 14:11:18
 at: c:\proj\ocotillo\ocotillo\ocotillo3.dgn



PROJECT SUMMARY			
AREA	FORMER USAGE	DE PRESENCE	ACREAGE
	A BOMB TARGET AND BUFFER	CONFIRMED	25.94
	B BOMB TARGET SAFETY ZONE	POTENTIAL	46.16
	C REMAINING LAND	UNCONTAMINATED	280.99
TOTAL ACRES			353.11

LEGEND:

- BENSON/OCOTILLO DRY LAKE RANGE SITE BOUNDARY
- MAJOR ROADS
- UNIMPROVED ROADS
- FORMER RUNWAYS

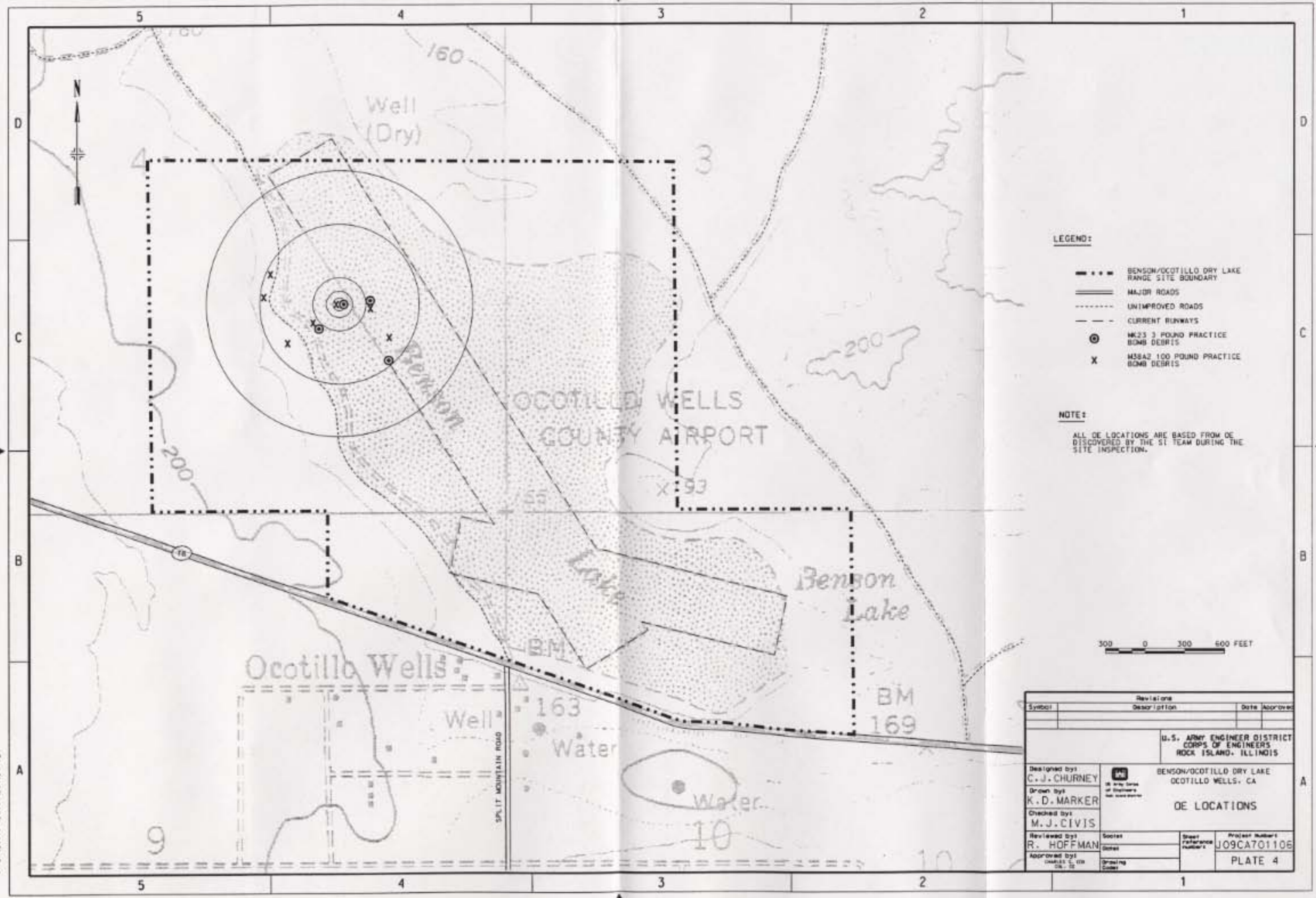
NOTES:

1. SITE BOUNDARIES TAKEN FROM DOCUMENT L-1.
2. TARGET LOCATION TAKEN FROM DOCUMENT F-6.



Revision		Date		Approved	
Symbol	Description				
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS					
Designed by C. J. CHURNEY		BENSON/OCOTILLO DRY LAKE OCOTILLO WELLS, CA PROJECT AREAS			
Drawn by K. D. MARKER					
Checked by M. J. CIVIS		PROJECT AREAS			
Reviewed by R. HOFFMAN					
Approved by M. L. G. GIBSON		Sheet Number		Project Number J09CA701106	
		Drawing Code		PLATE 3	

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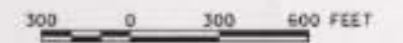


LEGEND:

- BENSON/OCOTILLO DRY LAKE RANGE SITE BOUNDARY
- ==== MAJOR ROADS
- UNIMPROVED ROADS
- - - - CURRENT RUNWAYS
- ⊙ M423 3 POUND PRACTICE BOMB DEBRIS
- X M38A2 100 POUND PRACTICE BOMB DEBRIS

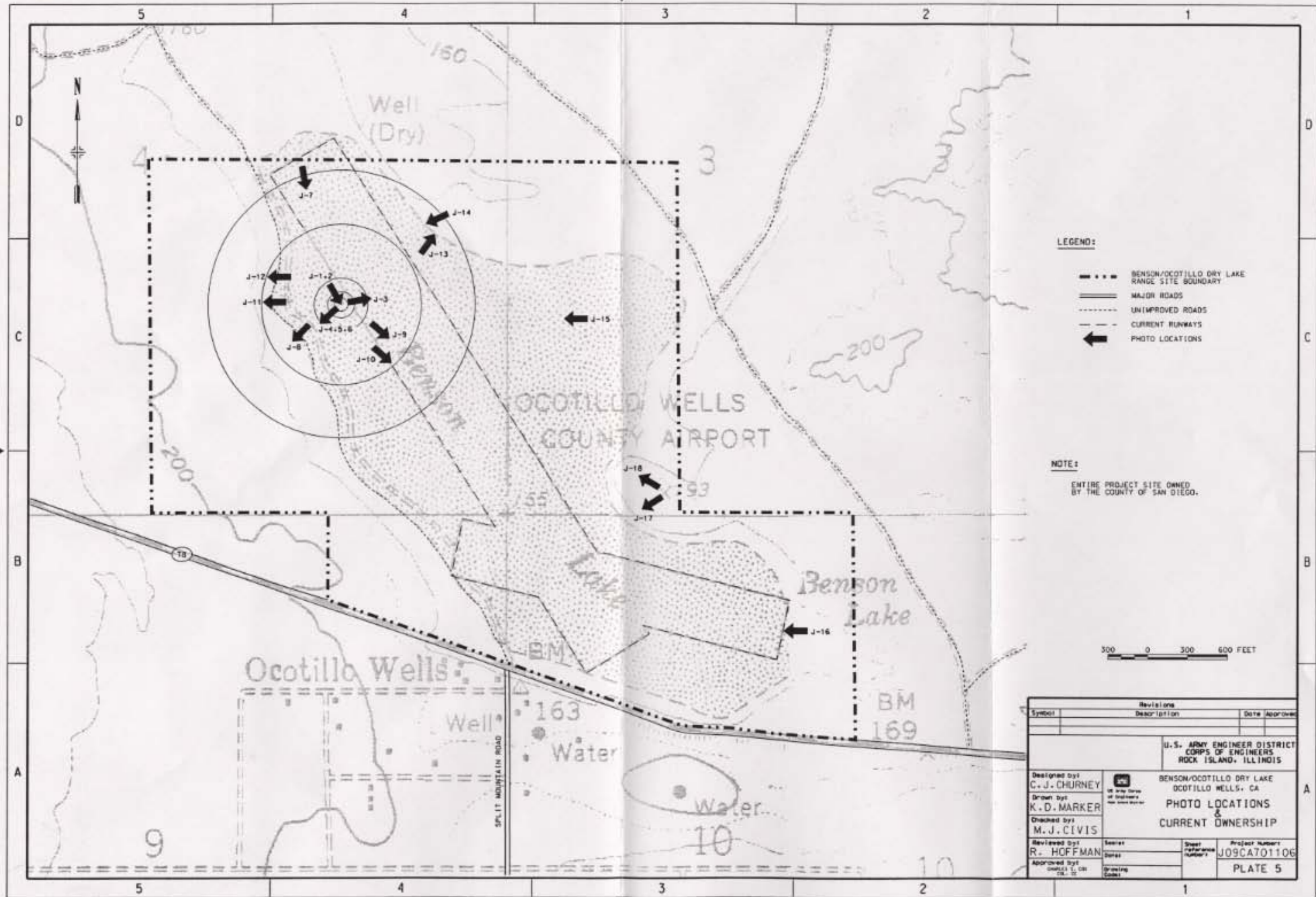
NOTE:

ALL DE LOCATIONS ARE BASED FROM DE DISCOVERED BY THE SI TEAM DURING THE SITE INSPECTION.



Revisions		Date		Approved	
Symbol	Description				
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS					
Designed by C. J. CHURNEY		BENSON/OCOTILLO DRY LAKE OCOTILLO WELLS, CA DE LOCATIONS			
Drawn by K. D. MARKER					
Checked by M. J. CIVIS		Sheet Date		Project Number JO9CA701106	
Reviewed by R. HOFFMAN		Drawing Color		PLATE 4	
Approved by CHARLES E. ITO C.E.T.					

22-MAY-1997 14:21
 41 MPTJ EC134ND350 EAS260P4 .DGN




LEGEND:

- BENSON/OCOTILLO DRY LAKE RANGE SITE BOUNDARY
- == MAJOR ROADS
- - - UNIMPROVED ROADS
- - - CURRENT RUNWAYS
- ← PHOTO LOCATIONS

NOTE:

ENTIRE PROJECT SITE OWNED BY THE COUNTY OF SAN DIEGO.

500 0 300 600 FEET

Revisions		Date		Approved	
Symbol	Description				
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS					
Designed by C. J. CHURNEY	 BENSON/OCOTILLO DRY LAKE OCOTILLO WELLS, CA PHOTO LOCATIONS & CURRENT OWNERSHIP	Project Number		J09CA701106	
Drawn by K. D. MARKER		Sheet Reference		PLATE 5	
Checked by M. J. CIVIS		Drawing Code			
Reviewed by R. HOFFMAN		Scale			
Approved by [Signature]	Scale				