U. S. DI
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LAND CAPABILITY ST
INDIAN RESERVATIONS IN

Compiled by J. C. Walker, (

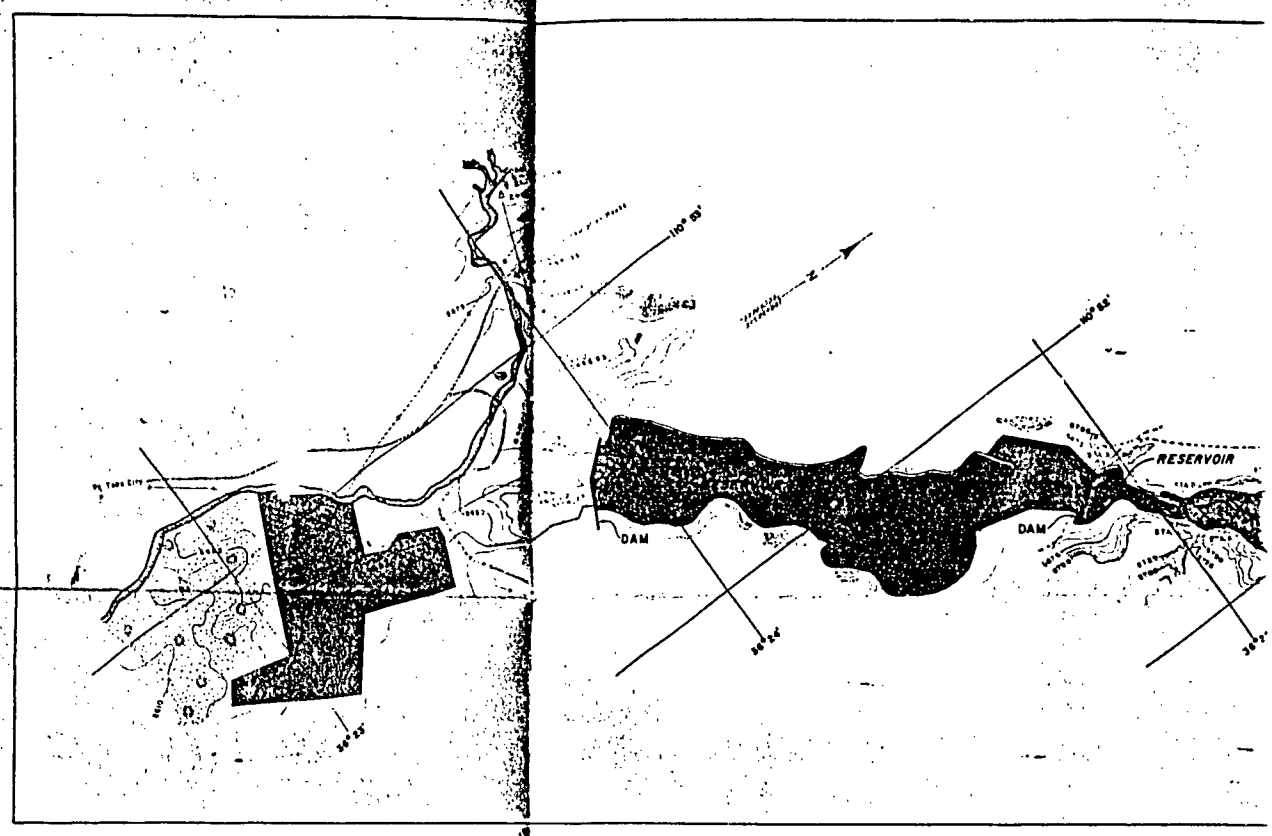
		SOIL CHARACTERISTICS			
1	2	3	4	5	
LAND CLASS	DEFINITION	DEPTH	TEXTURE	PERMEABILITY OF SUBSOIL	PERMI OF SU
I	Land that meets all requirements for maximum production of adapted crops under irrigation without special practices. The soil must be deep and the texture favorable for crop production. The permeability of the soil must fall within the optimum range, i.e. from moderately slow to moderately rapid. The inherent fertility must be high. The slope of the land must be nearly level with no apparent erosion. The land must be well drained and easily worked. This land must be free of any continued limiting characteristics such as alkalinity, salinity, etc.	DEEP TO VERY DEEP Deep 36" to 60" Very deep 60"	MODERATELY HEAVY TO MEDIUM Silty clay loam to very fine sandy loam.	MODERATELY SLOW TO MODERATELY RAPID 0.10" to 2.5" per hour	MODERAT 0.25" to
II	Land that meets most requirements for production of adapted crops under irrigation with easily applied protective measures. The soil must be at least moderately deep and the texture suitable for crop production. The permeability of the soil must fall within the range of slow to rapid. The inherent fertility must be moderately high. The slope must be gentle with only slight erosion. The land must be moderately well drained and easy to work. Limiting characteristics such as salinity, alkalinity, etc., must be slight to moderate.	MODERATELY DEEP TO VERY DEEP Moderately deep 20" to 36" Deep 36" to 60" Very deep 60" +	HEAVY TO MODERATELY LIGHT Clay to sandy loam	SLOW TO MODERATELY RAPID Slow - 0.05" to 0.10" per hour Moderately slow - 0.10" to 0.25" per hour Moderate - 0.25" to 1.0" per hour Moderately rapid - 1.0" to 2.5" per hour	MODERATELY Moderatel 0.10" t Moderate 0.25" t Moderatel 1.0" to Rapid - 2.5" to
III	Land that meets most requirements for production of adapted crops under irrigation with intensive protective measures. The soil may be shallow in depth to a limiting layer such as bedrock, hardpan, claypan, or porous infertile sands and gravels. The permeability of the soil must fall within the range of very slow to very rapid. The inherent fertility may be lower than in other classes. The land may be moderately sloping with severe erosion. It may be imperfectly drained and more difficult to work than other arable classes. Limiting characteristics such as salinity, alkalinity, etc., may be moderate.	SHALLOW TO VERY DEEP Shallow 10" to 20" Moderately deep 20" to 36 Deep 36" to 60" Very deep 60" +	VERY HEAVY TO LIGHT Very heavy clay (60% + of 2 micron clay) to loamy sand.	VERY SLOW TO RAPID Very slow - Less than 0.05" per hour Slow - 0.05" to 0.10" per hour Moderately slow - 0.10" to 0.25" per hour Moderate - 0.25" to 1.0" per hour Moderately rapid - 1.0" to 2.5" per hour Rapid - 2.5" to 5.0" per hour	SLOW TO Slow - 0.05" t Moderatel 0.10" t Moderate 0.25" t Moderatel 1.0" to Rapid - 2.5" to Very rapi 5.0" to
IV	Land that meets requirements for production of permanent type crops under irrigation with careful management practices and occasional cultivation. This land may be steep, with very severe erosion. It may be more difficult to drain, or irrigate, less fertile, more open and porous with excessive permeability, or otherwise less suitable for cultivation than class III land. Because of these severe limitations, greater selectivity of crops and more careful management of the land is required.	SHALLOW TO VERY DEEP Shallow 10" to 20" Moderately deep 20" to 36" Deep 36" to 60" Very deep 60" +	VERY HEAVY TO LIGHT Very heavy clay (60% + of 2 micron clay) to loamy sand.	VERY SLOW TO RAPID Very slow - Less than 0.05" per hour Slow - 0.05" to 0.10" per hour Moderately slow - 0.10" to 0.25" per hour Moderate - 0.25" to 1.0" per hour Moderately rapid - 1.0" to 2.5" per hour Rapid - 2.5" to 5.0" per hour	SLOW TO Slow - 0.05" t Moderatel 0.10" t Moderate 0.25" t Moderatel 1.0" to Rapid - 2.5" to Very rapi 5.0" to
V VI VII VIII	Land that is not suited for irrigation because it fails to meet minimum requirements specified for irrigable classes.				

S. DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS

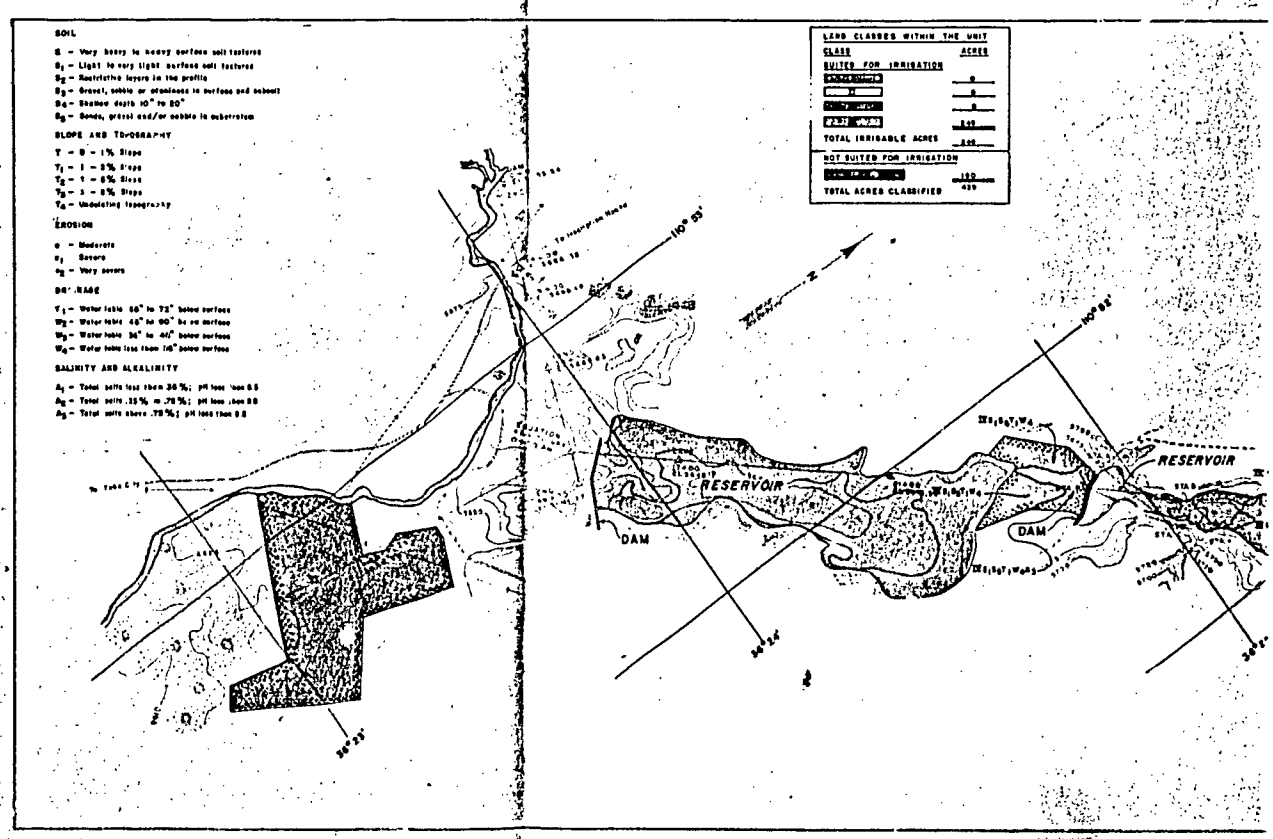
STANDARDS FOR IRRIGABLE LANDS IN THE LOWER COLORADO RIVER BASIN

lker, O. V. Chenoweth and E. L. Wight March 22, 1956

			ASSOCIATED LAND CHARACTERISTICS			
6	7	8	9	10	11	12
PERMEABILITY OF SUBSTRATUM	SOIL PROFILE LIMITATIONS	SLOPES	EROSION	DRAINAGE	SALINITY AND ALKALINITY	NOTES
ODERATE TO RAPID i.e. 25" to 5.0" per hour	NONE	NEARLY LEVEL T = Nearly level 0 to 1%	NO APPARENT EROSION	WATER TABLE BELOW 72"	NO APPARENT SALINITY OR ALKALINITY	
ATELY SLOW TO RAPID derately slow = 0.10" to 0.25" per hour derate = 0.25" to 1.0" per hour derately rapid = 1.0" to 2.5" per hour pid = 2.5" to 5.0" per hour	S = VERY HEAVY TO HEAVY SURFACE SOIL TEXTURES VERY HEAVY = 60% plus of 2 micron clay. HEAVY = Clay, silty clay, sandy clay, heavy clay loam, heavy silty clay loam. S_1 = LIGHT TO VERY LIGHT TEXT. LIGHT = Fine sandy loam, sandy loam, loamy fine sand, loamy very fine sand. 1/ VERY LIGHT = Loamy sand, sand and coarse sand. S_5 = SANDS, GRAVEL AND/OR COBBLE IN SUBSTRATUM WITH EXCESSIVE DRAINAGE.	NEARLY LEVEL TO GENTLY SLOPING T = Nearly level 0 to 1% T_1 = Gently sloping 1 to 3% T_4 = Undulating topography	NONE TO SLIGHT Less than 25% of original topsoil removed.	WATER TABLE BELOW 60" W_1 = Water table from 60" to 72" below surface. 2/	SLIG..." A_1 = Less than .35% total salts with pH less than 8.5	1/ S_1 and S_5 cannot be mapped in combination in this class. 2/ W_1 and A_1 cannot be mapped in combination in this class.
OW TO VERY RAPID w = 0.05" to 0.10" per hour derately slow = 0.10" to 0.25" per hour derate = 0.25" to 1.0" per hour derately rapid = 1.0" to 2.5" per hour pid = 2.5" to 5.0" per hour ry rapid = 5.0" to 7.0" per hour	S = VERY HEAVY TO HEAVY SURFACE SOIL TEXTURES 1/ VERY HEAVY = 60% plus of 2 micron clay. HEAVY = Clay, silty clay, sandy clay, heavy clay loam, heavy silty clay loam. S_1 = LIGHT TO VERY LIGHT TEXT. LIGHT = Fine sandy loam, sandy loam, loamy fine sand, loamy very fine sand. 1/ VERY LIGHT = Loamy sand, sand and coarse sand. S_2 = RESTRICTIVE LAYERS IN THE PROFILE. S_3 = GRAVEL, COBBLE OR STONINESS IN SURFACE AND SUBSOIL. 2/ S_4 = SHALLOW DEPTH 10" - 20" 2/ S_5 = SANDS, GRAVEL AND/OR COBBLE IN SUBSTRATUM WITH EXCESSIVE DRAINAGE.	NEARLY LEVEL TO MODERATELY SLOPING T = Nearly level 0 to 1% T_1 = Gently sloping 1 to 3% T_2 = Moderately sloping 3 to 5% T_4 = Undulating topography	SLIGHT TO SEVERE Slight = Less than 25% of original topsoil removed. e = Moderate = 25% to 75% of original topsoil removed. e_1 = Severe = ranges from 75% of topsoil to 25% of subsoil removed. 3/	WATER TABLE BELOW 48" W_1 = Water table from 60" to 72" below surface. W_2 = Water table from 48" to 60" below surface. W_3 = Water table from 36" to 48" below surface 4/	SLIGHT TO MODERATE A_1 = Less than .35% total salts with pH less than 8.5 A_2 = Total salts .35% to .75% with pH less than 9.0 5/	1/ S and S_1 can only be mapped with S_4 when textures range from heavy to light. 2/ S_3 and S_4 cannot be mapped in combination with other restrictive profile limitations in this class. 3/ e_2 may be included in this class on deep alluvial soils with medium textures. 4/ W_3 and A_2 cannot be mapped in combination in this class. 5/ A_2 and S_2 cannot be mapped in combination in this class.
OW TO VERY RAPID w = 0.05" to 0.10" per hour derately slow = 0.10" to 0.25" per hour derate = 0.25" to 1.0" per hour derately rapid 1.0" to 2.5" per hour pid = 2.5" to 5.0" per hour y rapid 5.0" to 7.0" per hour	S = VERY HEAVY TO HEAVY SURFACE SOIL TEXTURES VERY HEAVY = 60% plus of 2 micron clay. HEAVY = Clay, silty clay, sandy clay, heavy clay loam, heavy silty clay loam. S_1 = LIGHT TO VERY LIGHT TEXT. LIGHT = Fine sandy loam, sandy loam, loamy fine sand, loamy very fine sand. VERY LIGHT = Loamy sand, sand and coarse sand. S_2 = RESTRICTIVE LAYERS IN THE PROFILE. S_3 = GRAVEL, COBBLE OR STONINESS IN SURFACE AND SUBSOIL. S_4 = SHALLOW DEPTH 10"-20" S_5 = SANDS, GRAVEL AND/OR COBBLE IN SUBSTRATUM WITH EXCESSIVE DRAINAGE.	NEARLY LEVEL TO STRONGLY SLOPING T = Nearly level 0 to 1% T_1 = Gently sloping 1 to 3% T_2 = Moderately sloping 3 to 5% T_3 = Stongly sloping 5 to 8% T_4 = Undulating topography	SLIGHT TO VERY SEVERE Slight = Less than 25% of original topsoil removed. e = Moderate = 25% to 75% of original topsoil removed. e_1 = Severe = ranges from 75% of topsoil to 25% of subsoil removed. e_2 = Very Severe = All of original topsoil and 25% to 75% of subsoil removed	WATER TABLE 36" to 48" W_1 = Water table from 60" to 72" below surface. W_2 = Water table from 48" to 60" below surface. W_3 = Water table from 36" to 48" below surface W_4 = Water table less than 36" from surface. 1/	SLIGHT TO SEVERE A_1 = Less than .35% total salts with pH less than 8.5 A_2 = Total salts .35% to .75% with pH less than 9.0 A_3 = Total salts above .75% with pH less than 9.5	1/ Water table less than 36" may be mapped in this class when other factors are favorable for special crops.



110° 53'
110° 52'
RESERVOIR
DAM
DAM
36° 24'
36° 23'



SOIL
S – Very heavy to heavy surface soil textures
S1 – Light to very light surface soil textures
S2 – Restrictive layers in the profile
S3 – Gravel, cobble or stoniness in surface and subsoil
S4 – Shallow depth 10" to 20"
S5 – Sands, gravel and/or cobble in substratum
SLOPE AND TOPOGRAPHY
T – 0 – 1% Slope
T1 – 1 – 3% Slope
T2 – 3 – 5% Slope
T3 – 5 – 8% Slope
T4 – Undulating topography
EROSION
e – Moderate
e1 – Severe
e2 – Very severe
DRAINAGE
W1 – Water table 56" to 72" below surface
W2 – Water table 48" to 60" below surface
W3 – Water table 36" to 40" below surface
W4 – Water table less than 16" below surface
SALINITY AND ALKALINITY
A1 – Total salts less than 36%; pH less than 8.5
A2 – Total salts .35% to .75%; pH less than 8.0
A3 – Total salts above .75%; pH less than 8.0
LAND CLASSES WITHIN THE UNIT
CLASS
ACRES
SUITED FOR IRRIGATION
TOTAL IRRIGABLE ACRES
NOT SUITED FOR IRRIGATION
TOTAL ACRES CLASSIFIED
110° 53'
110° 52'
RESERVOIR
RESERVOIR
DAM
DAM
36° 24'
36° 23'

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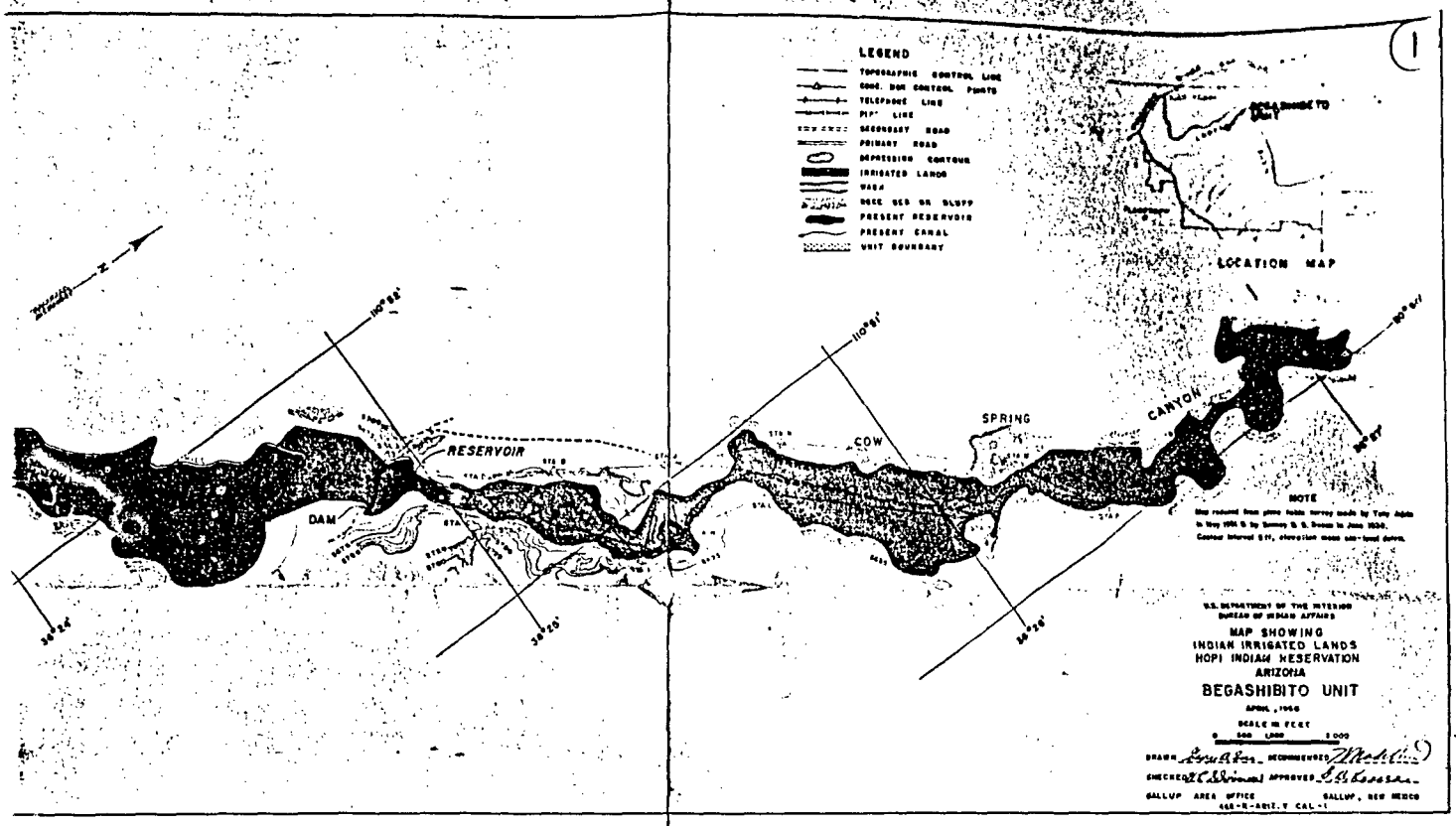
U. S. Exhibit No.
Ident. Adm.



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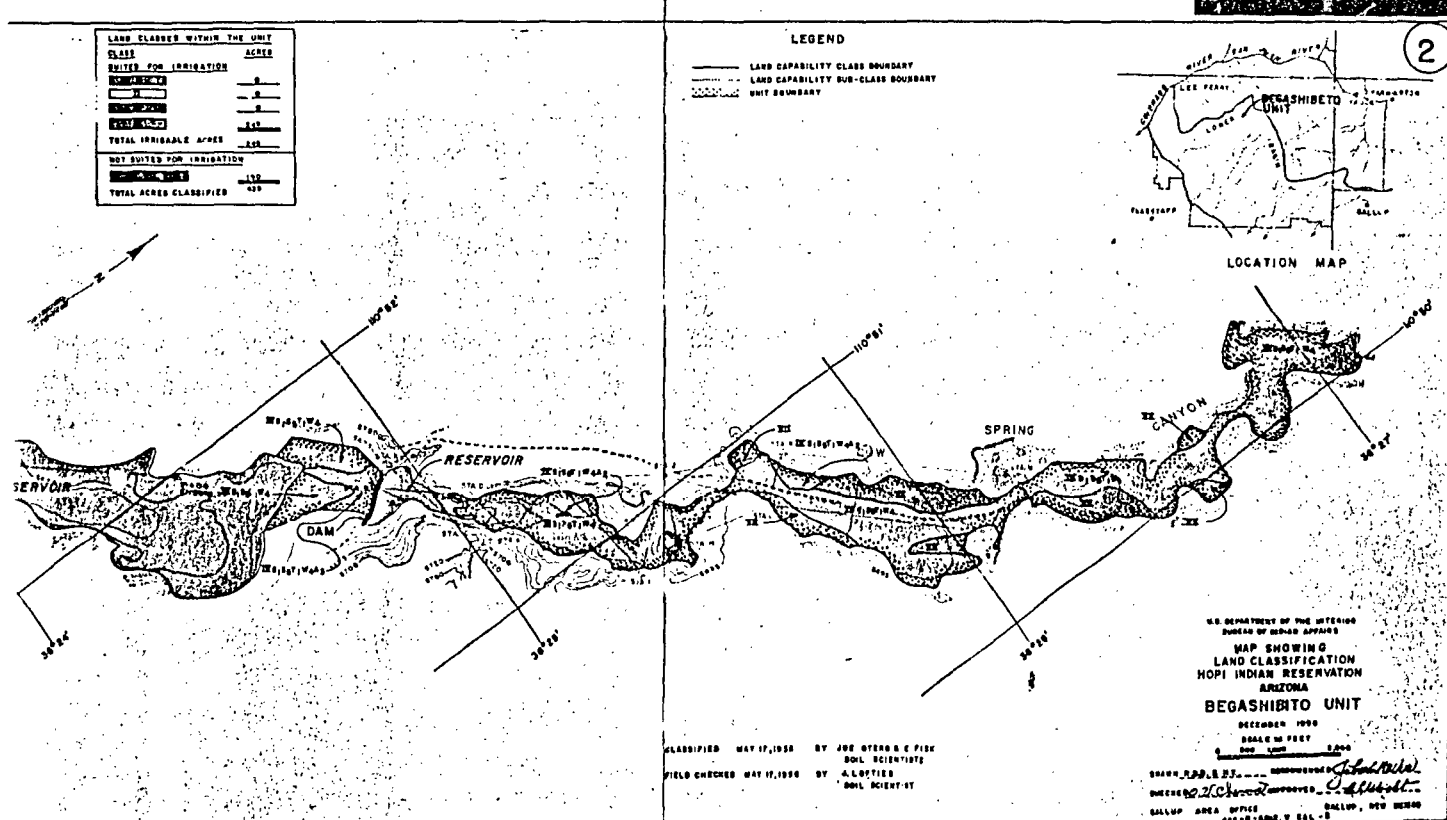

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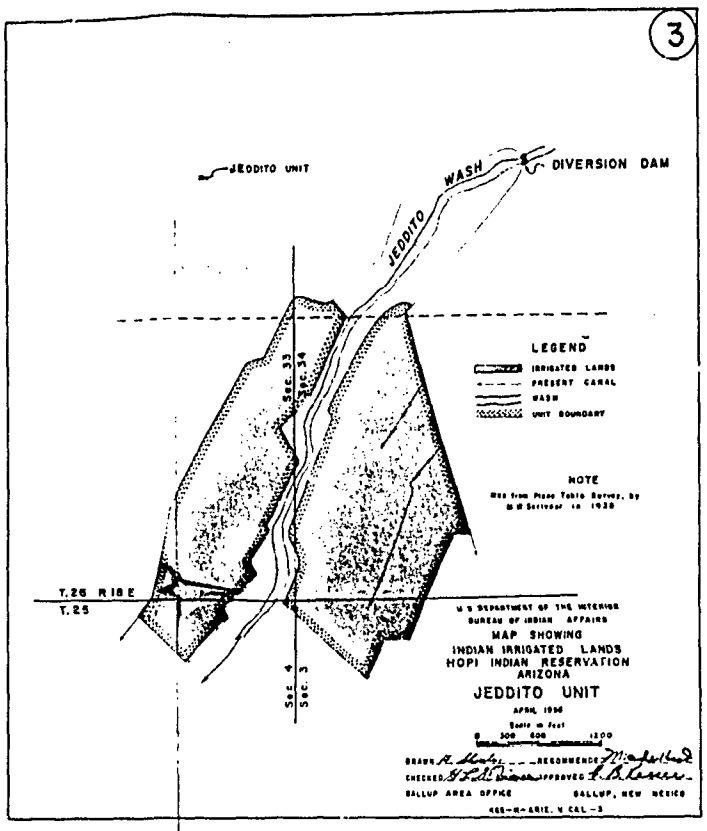

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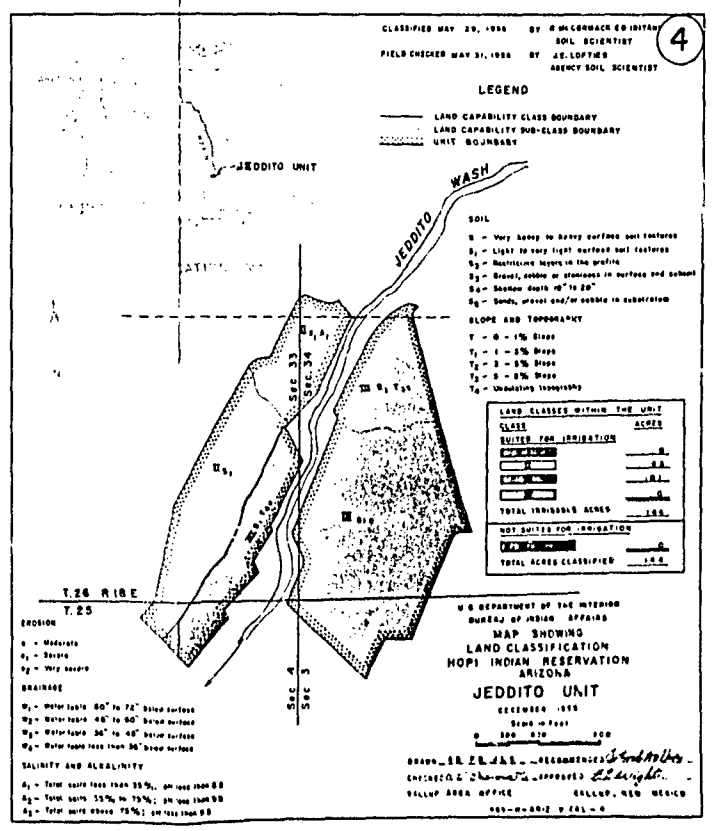

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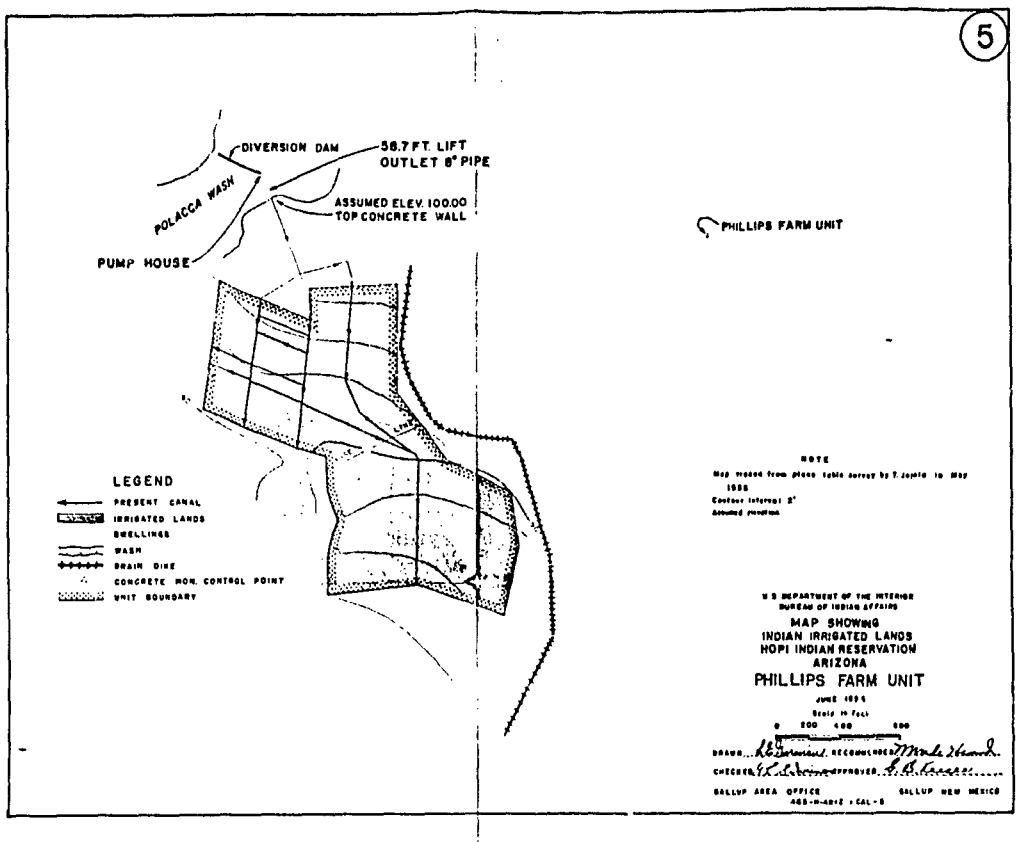

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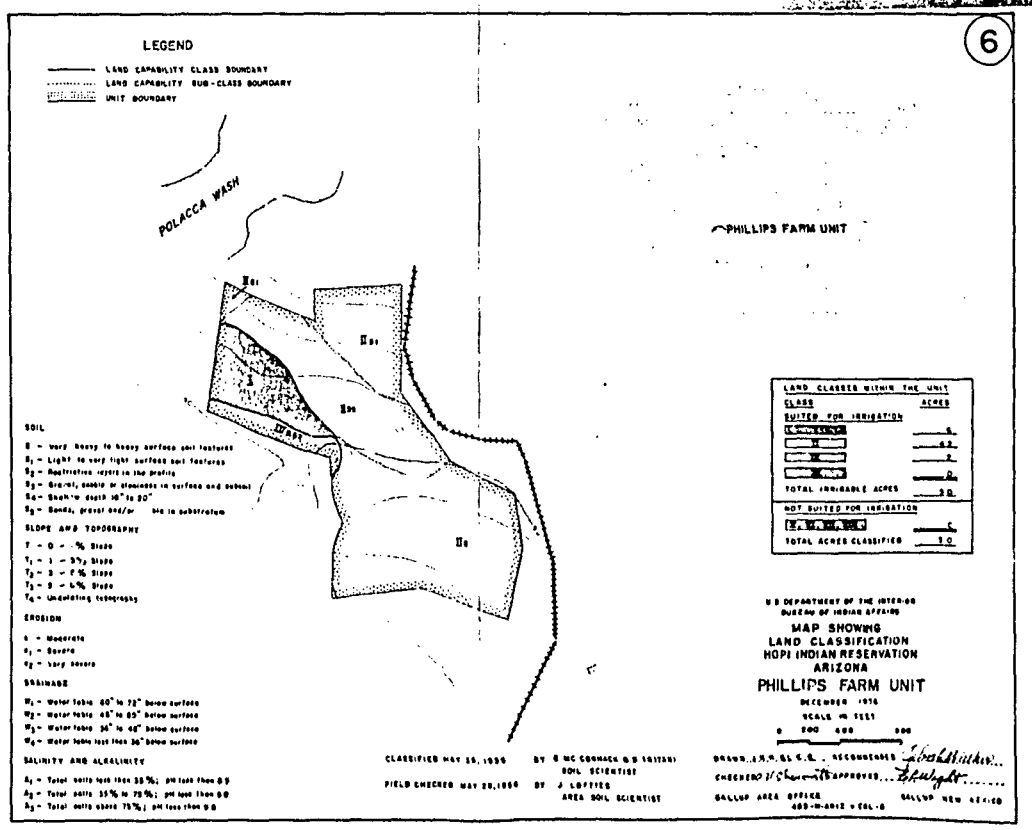
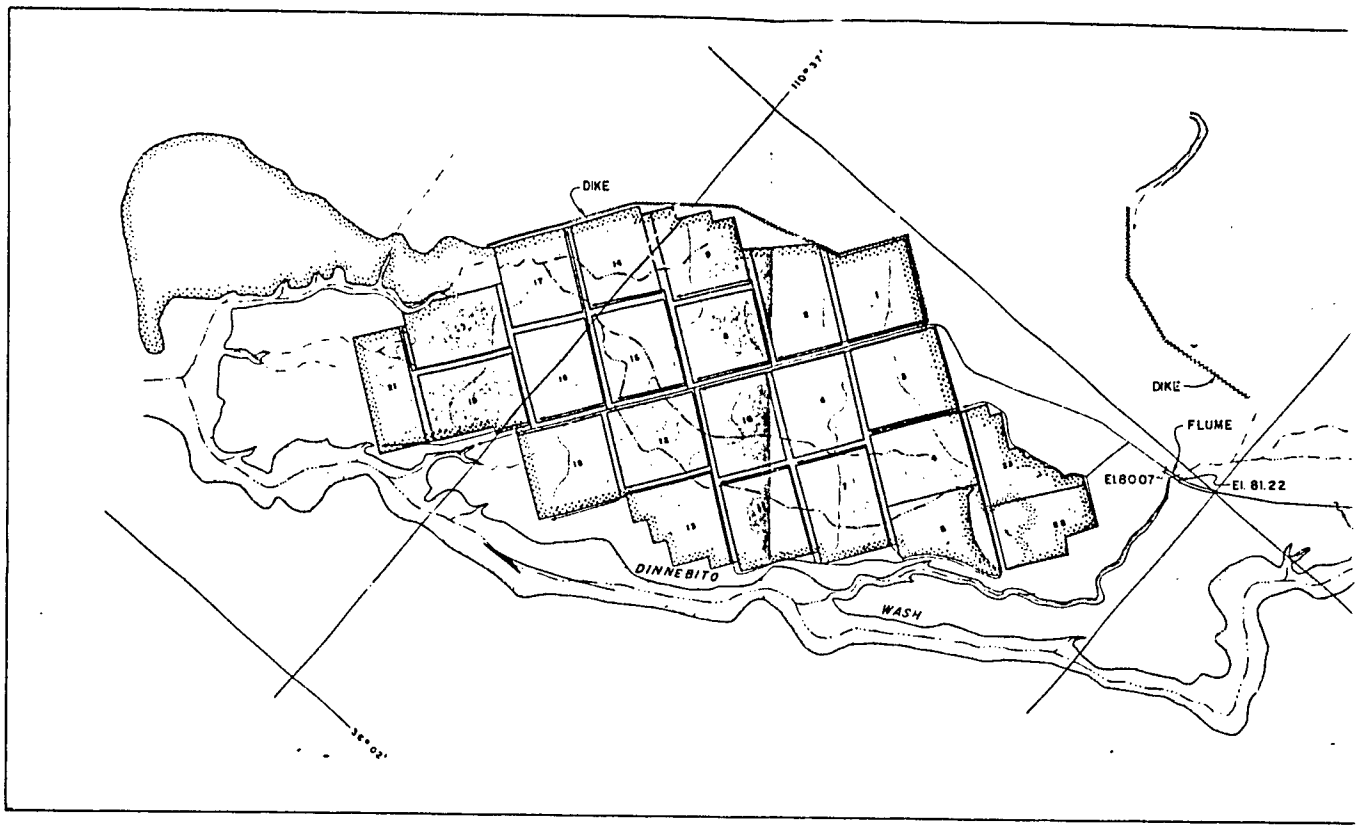
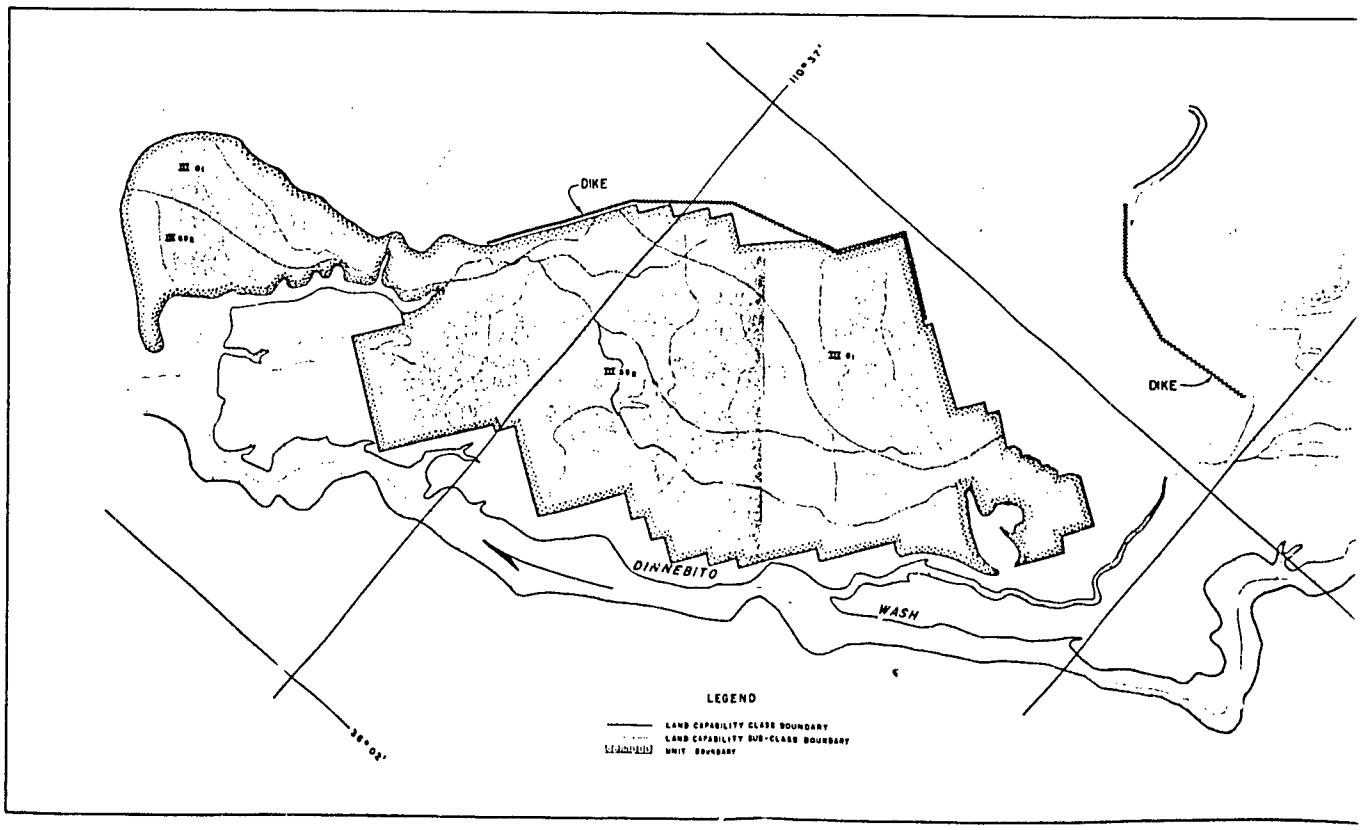



DIKE
DIKE
FLUME
El 80.07
El. 81.22
DINNEBITO
WASH


DIKE
DIKE
DINNEBITO
WASH
LEGEND
LAND CAPABILITY CLASS BOUNDARY
LAND CAPABILITY SUB-CLASS BOUNDARY
UNIT BOUNDARY

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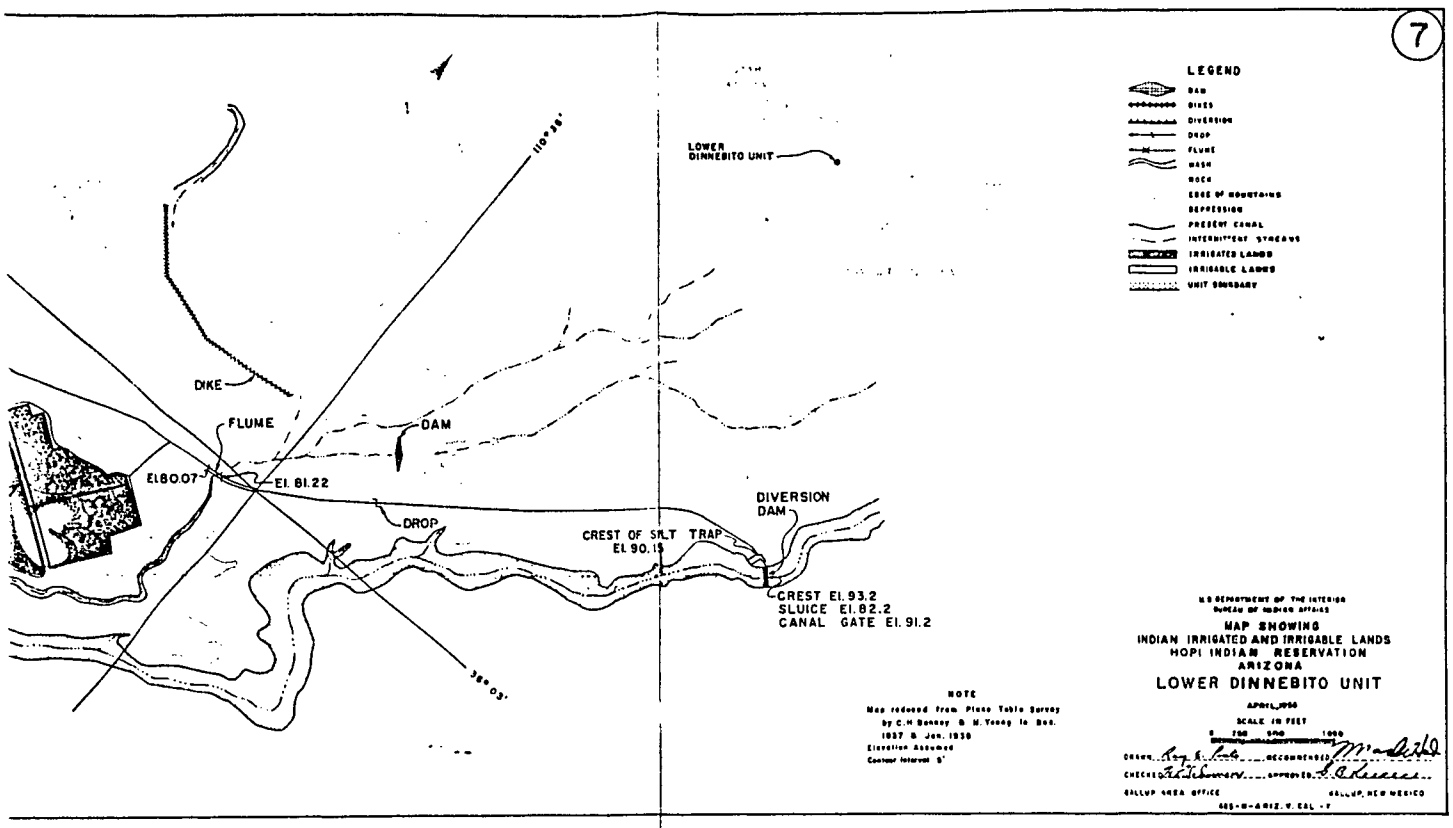

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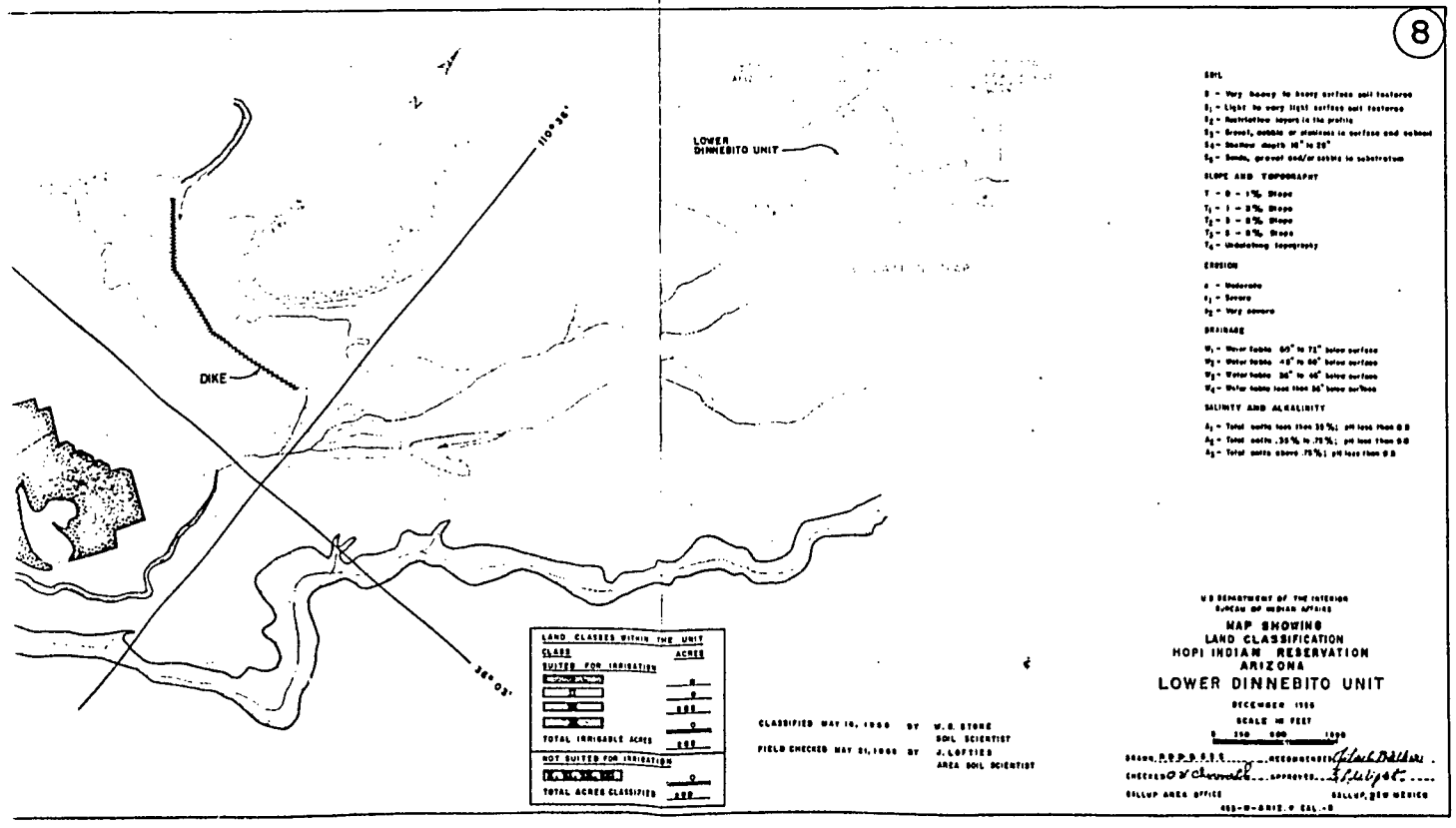
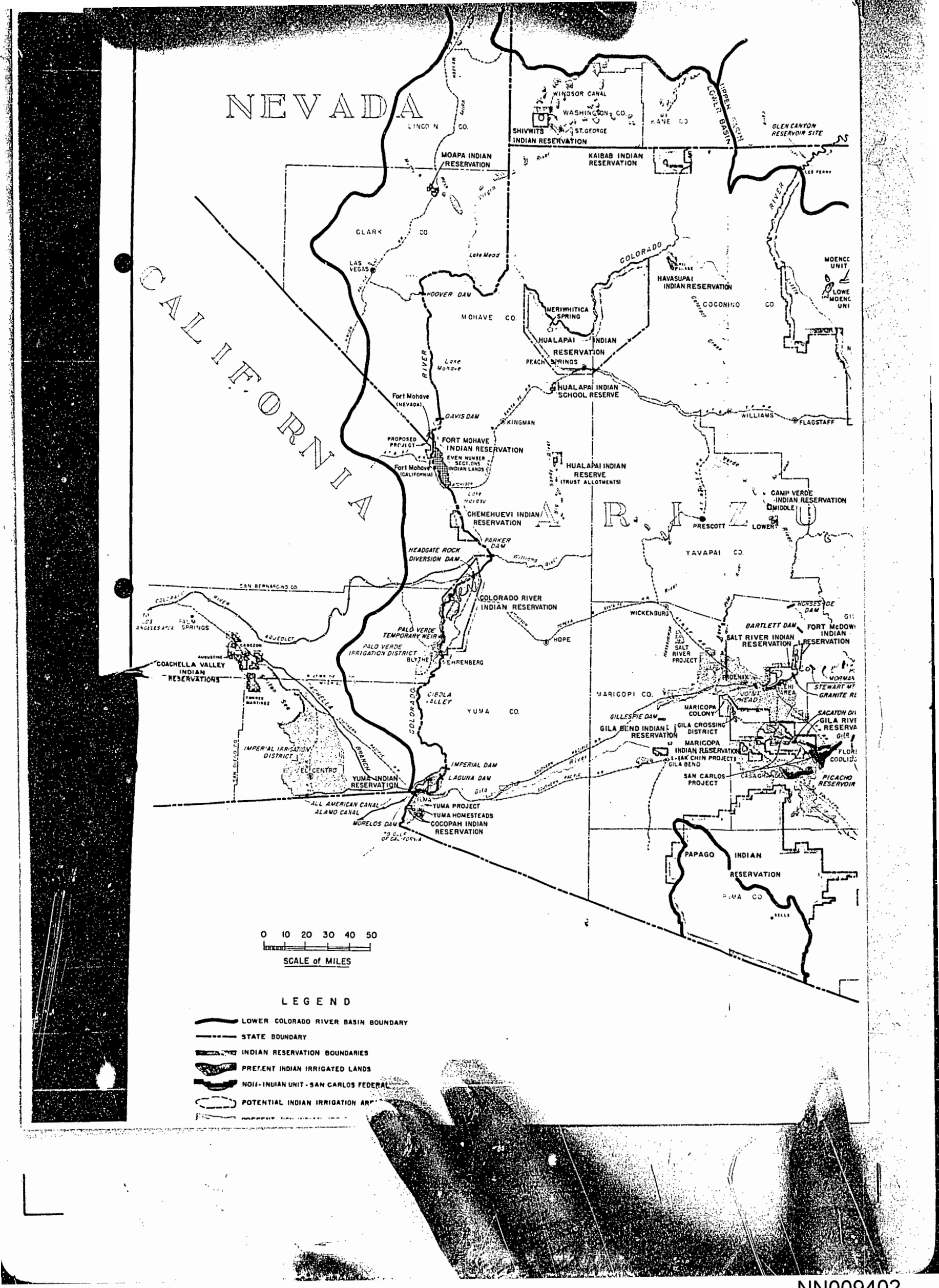
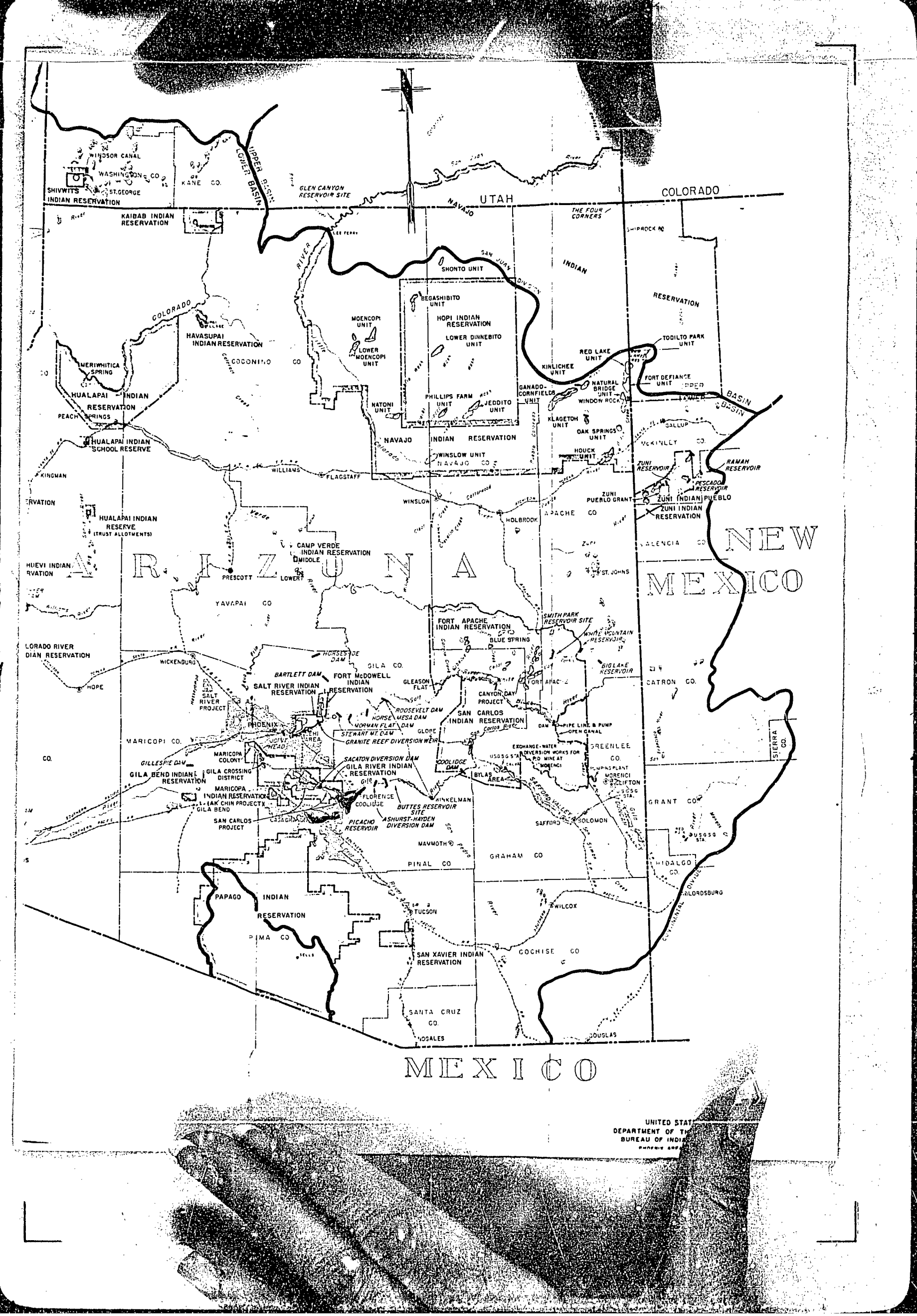



NEVADA
CALIFORNIA
ARIZ
LINCOLN CO.
WINDSOR CANAL
WASHINGTON CO.
KANE CO.
UPPER BASIN
LOWER BASIN
GLEN CANYON RESERVOIR SITE
SHIVWITS INDIAN RESERVATION
ST. GEORGE
MOAPA INDIAN RESERVATION
KAIBAB INDIAN RESERVATION
CLARK CO.
LAS VEGAS
Lake Mead
HOOVER DAM
COLORADO
HAVASUPAI INDIAN RESERVATION
COCONINO CO.
MOENCO UNIT
MOHAVE CO.
MERIWHITICA SPRING
HUALAPAI INDIAN RESERVATION
PEACH SPRINGS
Lake Mohave
HUALAPAI INDIAN SCHOOL RESERVE
Fort Mohave (NEVADA)
DAVIS DAM
KINGMAN
WILLIAMS
FLAGSTAFF
PROPOSED PROJECT
FORT MOHAVE INDIAN RESERVATION
EVEN NUMBER SECTIONS INDIAN LANDS
Fort Mohave (CALIFORNIA)
HUALAPAI INDIAN RESERVE (TRUST ALLOTMENTS)
CAMP VERDE INDIAN RESERVATION
MIDDLE
CHEMEHUEVI INDIAN RESERVATION
PRESCOTT
LOWER
PARKER DAM
HEADGATE ROCK DIVERSION DAM
YAVAPAI CO.
SAN BERNARDINO CO.
COLORADO RIVER INDIAN RESERVATION
WICKENBURG
HORSESHOE DAM
BARTLETT DAM
FORT McDOWELL INDIAN RESERVATION
PALM SPRINGS
PALO VERDE TEMPORARY WEIR
PALO VERDE IRRIGATION DISTRICT
BLYTHE
EHRENBERG
HOPE
SALT RIVER INDIAN RESERVATION
SALT RIVER PROJECT
COACHELLA VALLEY INDIAN RESERVATIONS
PHOENIX
STEWART MT
GRANITE RE
MARICOPA CO.
CIBOLA VALLEY
YUMA CO.
MARICOPA COLONY
GILLESPIE DAM
GILA BEND INDIAN RESERVATION
GILA CROSSING DISTRICT
SACATON DIV
GILA RIVE RESERVA
IMPERIAL IRRIGATION DISTRICT
MARICOPA INDIAN RESERVATION
(AK CHIN PROJECT)
GILA BEND
EL CENTRO
IMPERIAL DAM
LAGUNA DAM
YUMA INDIAN RESERVATION
SAN CARLOS PROJECT
PICACHO RESERVOIR
ALL AMERICAN CANAL
ALAMO CANAL
YUMA PROJECT
YUMA HOMESTEADS
MORELOS DAM
COCOPAH INDIAN RESERVATION
PAPAGO INDIAN RESERVATION
PIMA CO.
0 10 20 30 40 50
SCALE of MILES
LEGEND
LOWER COLORADO RIVER BASIN BOUNDARY
STATE BOUNDARY
INDIAN RESERVATION BOUNDARIES
PRESENT INDIAN IRRIGATED LANDS
NON-INDIAN UNIT - SAN CARLOS FEDERAL
POTENTIAL INDIAN IRRIGATION AR



UTAH
COLORADO
NEW MEXICO
MEXICO
ARIZONA
UPPER BASIN
LOWER BASIN
NAVAJO INDIAN RESERVATION
HOPI INDIAN RESERVATION
HAVASUPAI INDIAN RESERVATION
HUALAPAI INDIAN RESERVATION
HUALAPAI INDIAN SCHOOL RESERVE
HUALAPAI INDIAN RESERVE (TRUST ALLOTMENTS)
CAMP VERDE INDIAN RESERVATION
FORT APACHE INDIAN RESERVATION
SAN CARLOS INDIAN RESERVATION
SALT RIVER INDIAN RESERVATION
FORT McDOWELL INDIAN RESERVATION
GILA RIVER INDIAN RESERVATION
GILA BEND INDIAN RESERVATION
MARICOPA INDIAN RESERVATION
PAPAGO INDIAN RESERVATION
SAN XAVIER INDIAN RESERVATION
ZUNI INDIAN RESERVATION
ZUNI INDIAN PUEBLO
ZUNI PUEBLO GRANT
SHIVWITS INDIAN RESERVATION
KAIBAB INDIAN RESERVATION
WINDSOR CANAL
WASHINGTON CO
KANE CO.
ST. GEORGE
GLEN CANYON RESERVOIR SITE
THE FOUR CORNERS
SHIPROCK
SHONTO UNIT
BEGASHIBITO UNIT
MOENCOPI UNIT
LOWER MOENCOPI UNIT
LOWER DINNEBITO UNIT
TODILTO PARK UNIT
RED LAKE UNIT
KINLICHEE UNIT
FORT DEFIANCE UNIT
NATURAL BRIDGE UNIT
WINDOW ROCK
GANADO-CORNFIELDS UNIT
PHILLIPS FARM UNIT
JEDDITO UNIT
NATONI UNIT
KLAGETOH UNIT
OAK SPRINGS UNIT
HOUCK UNIT
WINSLOW UNIT
NAVAJO CO
COCONINO CO
MERIWHITICA SPRING
PEACH SPRINGS
KINGMAN
WILLIAMS
FLAGSTAFF
WINSLOW
HOLBROOK
APACHE CO
GALLUP
McKINLEY CO.
ZUNI RESERVOIR
RAMAH RESERVOIR
PESCADO RESERVOIR
VALENCIA CO
ST. JOHNS
PRESCOTT
LOWER
YAVAPAI CO
HOPE
WICKENBURG
SALT RIVER PROJECT
PHOENIX
MARICOPA CO.
GILA CO.
GLEASON FLAT
CANYON DAY PROJECT
FORT APACHE
BIG LAKE RESERVOIR
CATRON CO.
SIERRA CO.
GREENLEE CO.
MORENCI
CLIFTON
GRANT CO
SAFFORD
SOLOMON
GRAHAM CO
PINAL CO
MAMMOTH
TUCSON
WILCOX
COCHISE CO
SANTA CRUZ CO.
NOGALES
DOUGLAS
LORDSBURG
HIDALGO CO.
MARICOPA COLONY
GILA CROSSING DISTRICT
GILLESPIE DAM
SAN CARLOS PROJECT
FLORENCE
COOLIDGE
WINKELMAN
BUTTES RESERVOIR SITE
ASHURST-HAYDEN DIVERSION DAM
PICACHO RESERVOIR
SACATON DIVERSION DAM
GRANITE REEF DIVERSION WEIR
STEWART MT. DAM
NORMAN FLAT DAM
HORSE MESA DAM
ROOSEVELT DAM
BARTLETT DAM
HORSESHOE DAM
SMITH PARK RESERVOIR SITE
WHITE MOUNTAIN RESERVOIR
BLUE SPRING
GLOBE
COOLIDGE DAM
BYLAS AREA
SAFFORD VALLEY
PIPE LINE & PUMP
OPEN CANAL
EXCHANGE-WATER DIVERSION WORKS FOR P.D. MINE AT MORENCI
PUMPING PLANT
UNITED STAT
DEPARTMENT OF TH
BUREAU OF INDIA

MEXICO

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
PHOENIX AREA OFFICE

WITHIN LOWER COLORADO RIVER BASIN

MAP SHOWING

INDIAN IRRIGATED LANDS AND PROPOSED ULTIMATE DEVELOPMENT

MARCH 1956

DRAWN C.K. Shirley & J.H. Jones (C.K. SHIRLEY & J.H. JONES) RECOMMENDED F.M. Haverland (F.M. HAVERLAND)
CHECKED C.P. Southworth (C.P. SOUTHWORTH) APPROVED G.B. Keesee (G.B. KEESEE)

PHOENIX, ARIZONA.

LOWER COLORADO RIVER BASIN BOUNDARY
STATE BOUNDARY
INDIAN RESERVATION BOUNDARIES
PRESENT INDIAN IRRIGATED LANDS
NON-INDIAN UNIT - SAN CARLOS FEDERAL
POTENTIAL INDIAN IRRIGATION AREAS
PRESENT NON-INDIAN IRRIGATED LANDS
PRESENT DAM AND RESERVOIR
POTENTIAL DAM AND RESERVOIR SITE
IRRIGATION CANAL
AQUEDUCT
PUMPING PLANT
SETTLEMENTS AND TOWNS
COUNTY BOUNDARY
ZUNI PUEBLO GRANT

Base map is compiled from Report "The Colorado River," Bureau of Reclamation 1946.
Reservation data is from maps prepared by Bureau of Indian Affairs.
Revised April 1956 d. d. Houghton