

Stop 2: Tule Springs and Northern Las Vegas Valley

David Donovan

Tule Springs, the historic name for the area encompassed by Floyd Lamb State Park was one of the major spring complexes in Valley. Most of the wells drilled in this area, during the 1940's, were flowing artesian wells. Similar to current and historic hydrogeologic conditions found in the southeastern part of the Valley (Stops 3, 4 and 5). Ground water development since the 1940's has decreased the pressure in this area and the water table has declined to about 170 feet below land surface.

Directly west of Tule Springs is Mount Charleston, the highest part of the Spring Mountains and the source for most of the natural recharge in the Valley. The drainage immediately to the west is Kyle Canyon. Natural recharge is estimated at 40,000 acre-feet per year. Tule Springs are located in the lower part of the Kyle Canyon Alluvial Fan. North and east of Tule Springs are the Sheep and Las Vegas Ranges. Minor amounts of natural recharge are generated in these ranges, which are dryer and smaller than the Spring Mountains.

To the northwest of Tule Springs is Corn Creek Spring, a small but active spring, which is important as a source of water for the Desert Wildlife Range. The northwestern part of the Valley is part of a very large structural depression that extends as far north as Pyramid Lake in Northern Nevada called the Walker Lane. In Las Vegas Valley this structural depression is usually known as the Las Vegas Valley Shear Zone. Corn Creek Spring is the headwater of Las Vegas Wash (Stop 5), the major drainage of the Valley.

Las Vegas Wash skirts the northern edge of the Tule Flats and Gilcrease Playas, located immediately to the east. The playas underlie most of the city of North Las Vegas. The largest historic tributary of Las Vegas Wash is Las Vegas Creek, which began in the Las Vegas Valley Water District's Main Well Field (Stop 1). Las Vegas Wash was, ephemeral, except possibly, in the lower most part of the wash near Lake Mead. All of the water flowing to the wash was consumed by phreatophytes surrounding the spring complexes and associated perennial streams (Las Vegas Creek and Duck Creek). This lush vegetation of saltgrass, tules and mesquite forests are "meadows" for which Las Vegas is named.

Las Vegas Wash is now a very large creek or small river resulting from effluent discharges of the sewage treatment facilities located on the lower part of the wash. This originally enhanced the amount of phreatophytes in the wash but the large volumes of sediment free water (clear water flow) in the 1980's and 1990's has caused major downcutting and destruction some of the vegetation.

W E

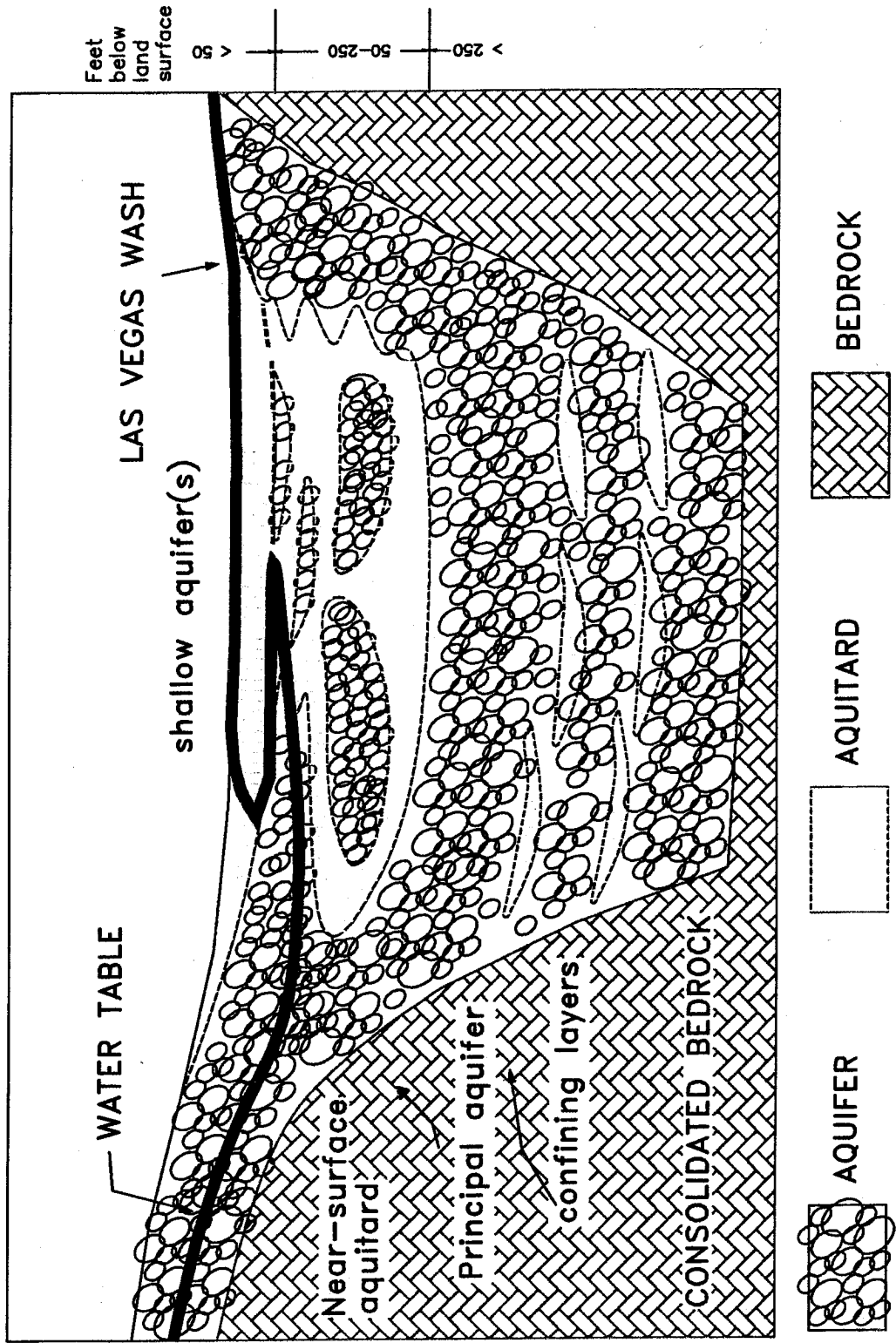


Figure 4-1. - Schematic depth zones in the Las Vegas Valley ground-water system. Cross-section generally depicts conditions across valley from west-to-east along Charleston Boulevard.

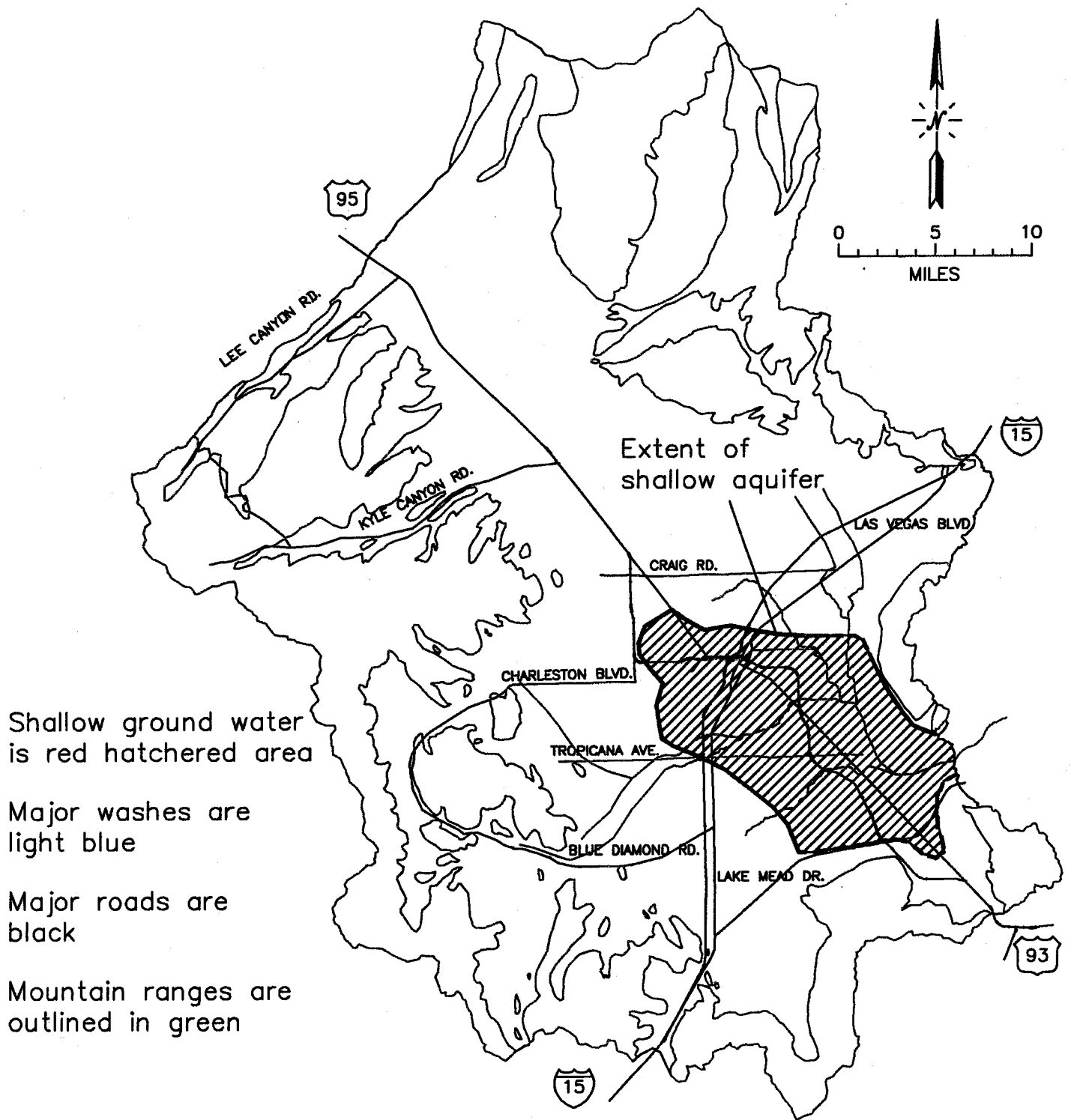


Figure 4-2. --Location of Shallow Ground Water in the Las Vegas Valley.

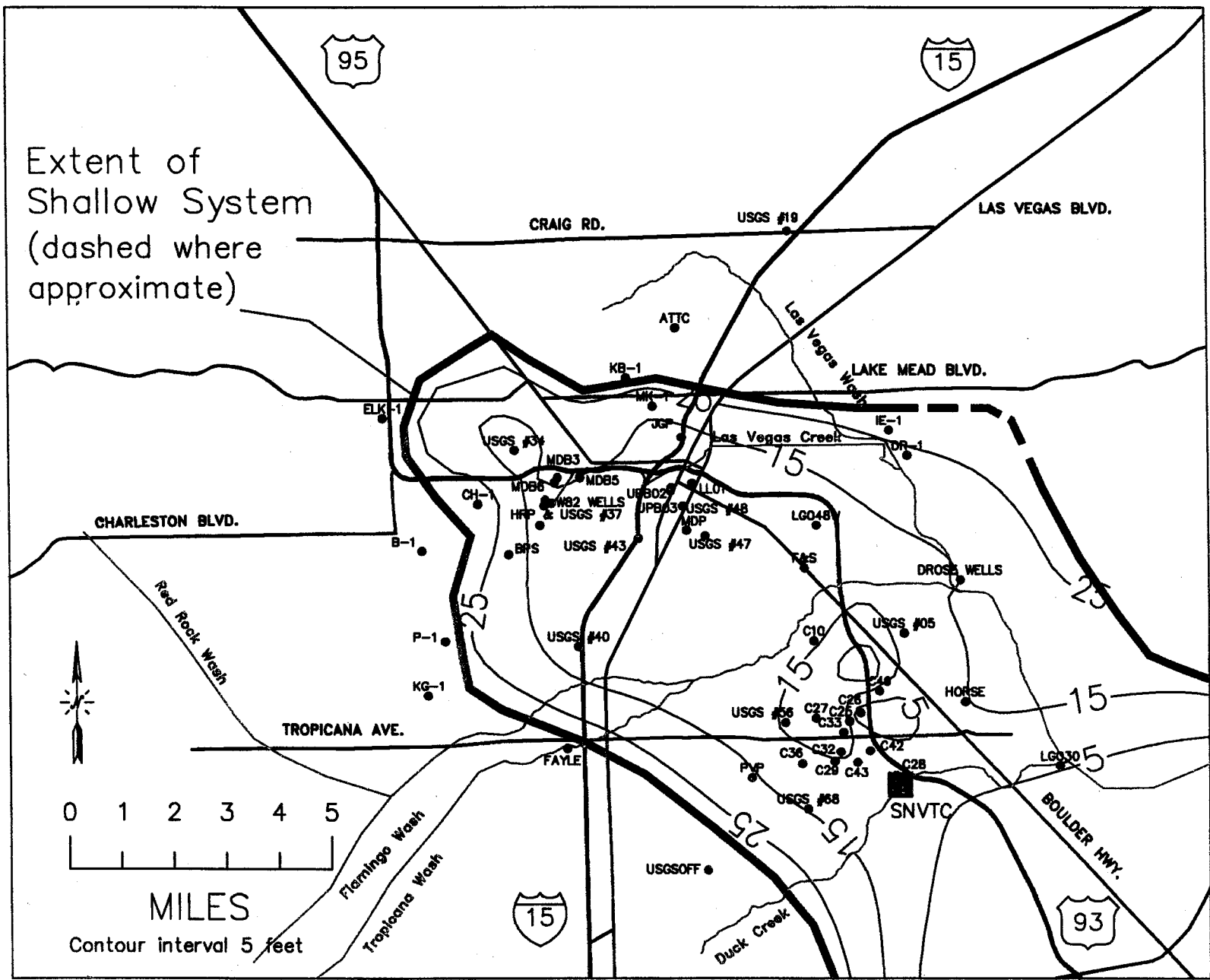


Figure 4-3.--Depth to water contours of the Shallow System in feet below land surface.

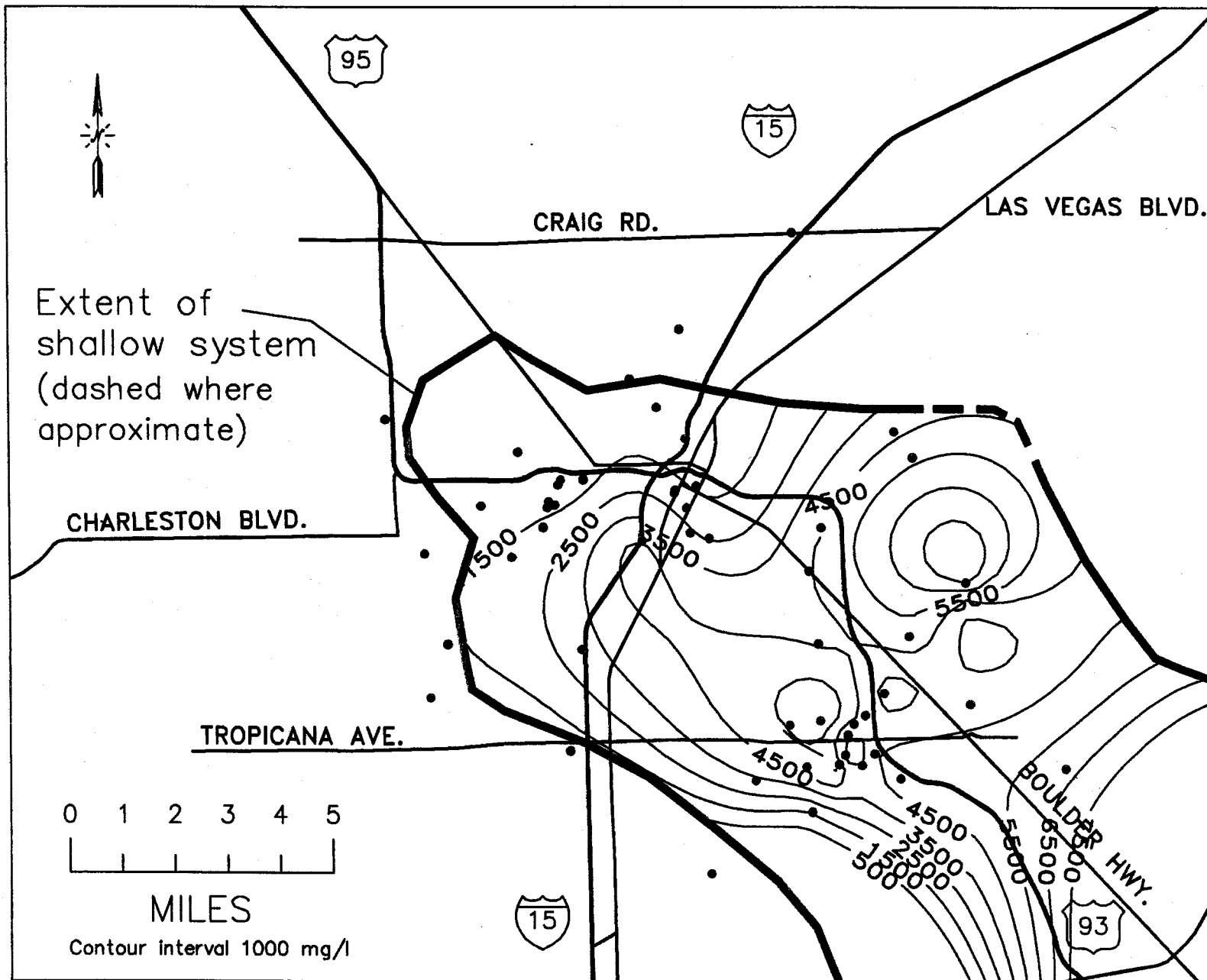
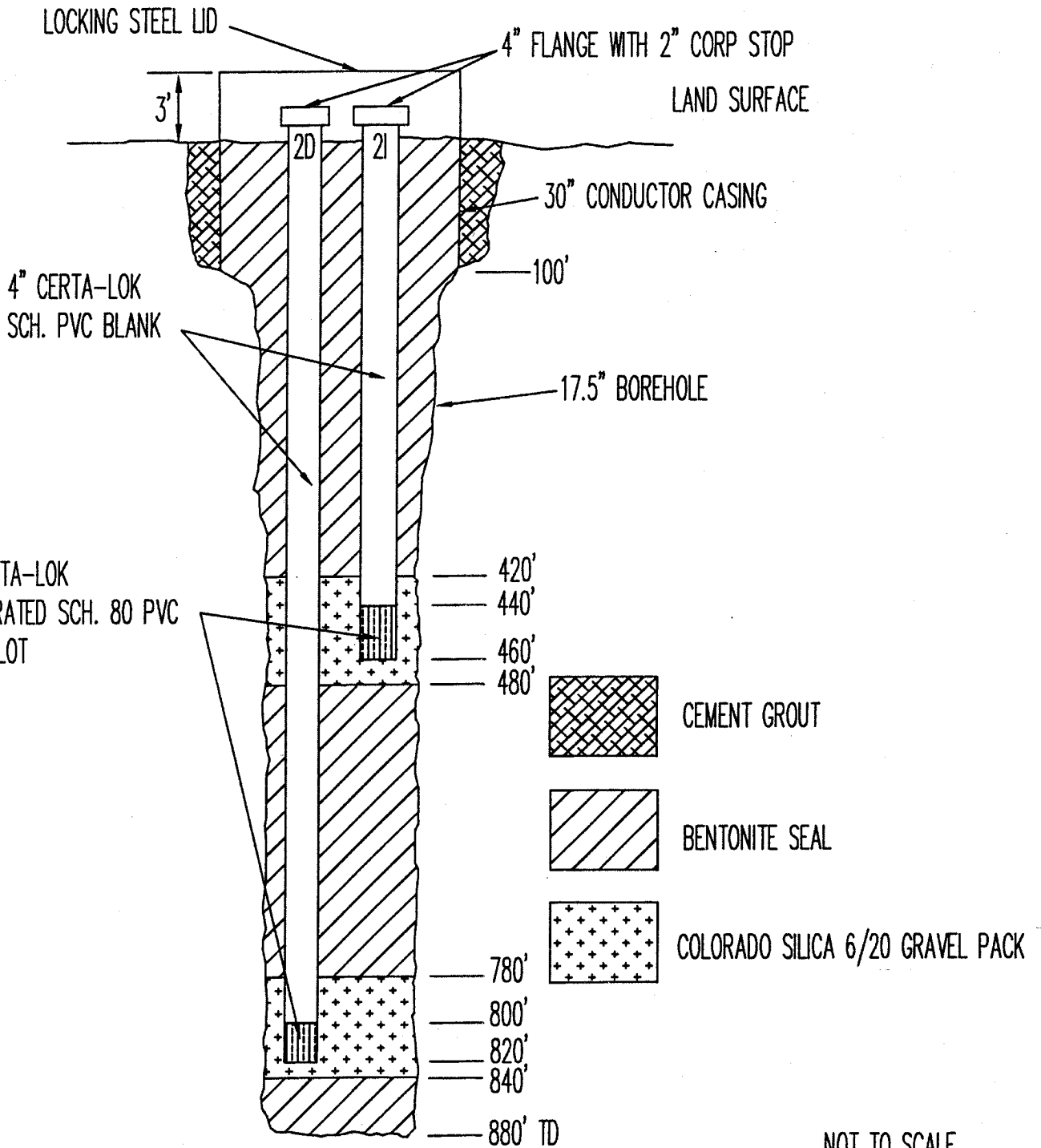


Figure 4-4.--Total dissolved solids contours in mg/l.

Well ID	Pad Elevation ¹	Total Depth ¹	Screen Interval ¹	Sample Date	LAB_EC	TDS	pH	HCO3	CL	SO4	NO3	Na	K	Ca	Mg	NO3 as N
ATTC	2026	72	67-72	4/2/96	1030	633	7.86	191	113	199	3	26	4.1	98	49	0.68
W82MED	2139.7	31	5-30	4/4/96	1260	821	7.62	301	89	266	29	41	5.1	111	70	6.5
CH-1	2251.7	45	30-45	4/3/96	1940	1320	7.52	378	147	470	61	114	7.2	126	117	13.8
FAYLE	2169.3	48	43-48	4/4/96	1340	988	7.63	198	52	494	4.1	31	4.7	157	67	0.92
KB-1	2060.6	50	35-50	4/3/96	2120	1530	7.49	309	147	639	44	137	11	148	115	9.98
IE-1	1781	39	29-39	4/2/96	2910	2410	7.83	224	227	1170	24	175	18	188	214	5.3
CR-1	1850	46	21-41	1/31/95	4240	3820	7.59	243	291	2100	16	332	14	372	260	3.58
JM-1		30	15-30	4/2/96	4550	4760	7.74	237	451	2590	28	389	18	276	454	6.38
SNVTC #1	1816	108	40-100	2/22/97	4520	4610	8.04	221	311	2320	41.6	312	52	505	241	9.39
SNVTC #2I	1817	480	440-460	8/27/98	881	na	8.04	338	10.9	312	<.04	278	3.42	8.1	4.09	na
	All concentrations in mg/l															
	¹ Units are in feet															

Table4-1.--Water quality of shallow ground-water system in the Las Vegas Valley, Clark County, Nevada

COMPLETION DIAGRAM FOR WELL NO. SNVTC #2



REV.	DESCRIPTION	BY	DATE	CHK'D.
RECOMMENDED	MG		DATE	
DRAWN	CF		DATE 8/26/98	
CHECKED	MG		DATE	

DRILL AND DEVELOP WELL NO. SNVTC #2

SOUTHERN NEVADA WATER AUTHORITY
 1001 SOUTH VALLEY VIEW BOULEVARD
 LAS VEGAS, NEVADA 89153

DRAWING NUMBER

922

SHEET 1 OF 1

WELLOTT

2" PVC Piezometer Inserted in 3" Steel Conductor Casing (See Figure 4)

20" Riser Pipe—Low Carbon Steel (0.312" Wall) (Length may be adjusted depending on final depth)

4" PVC Gravel Tubes

9'x5' Steel Conductor Casing

Concrete Cap
Bentonite Seal (1' Minimum)

20' X20' Low Carbon Steel WireWrap Screen (0.040" Slots)

Filter Pack—#8x1/4" Wash Rounded Gravel

20' X10' Low Carbon Steel Blank Casing (0.312" Wall)

108'

20' X20' Low Carbon Steel WireWrap Screen (0.040" Slots)

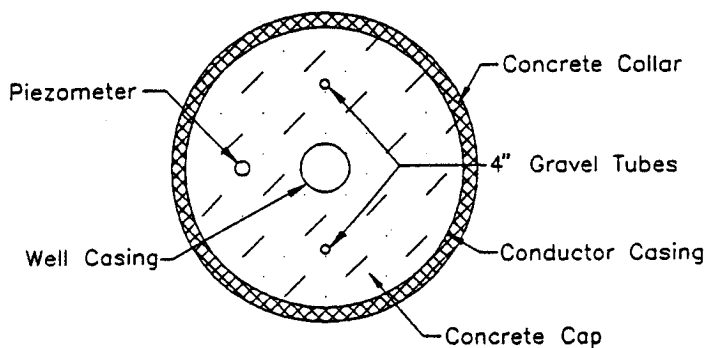
20' X10' Low Carbon Steel Blank Casing (0.312" Wall)

20' X20' Low Carbon Steel WireWrap Screen (0.040" Slots)

20' X10' Low Carbon Steel Blank Tail Pipe (0.312" Wall)

Concrete Bottom Cap (5' Min.)

CROSS-SECTION



PLAN VIEW



Harding Lawson Associates
Engineering and
Environmental Services

WELL CONSTRUCTION DETAIL
Southern Nevada Water Authority
Russell Road and Mountain Vista Street
Las Vegas, Nevada

FIGURE

3

DRAWN
AER

PROJECT NUMBER
34619

APPROVED
RnJ

DATE
9/97

REVISED DATE