

DRAINAGE INFORMATION SHEET

PROJECT TITLE: South Valley EPA Superfund
Remedial Action Well ZONE ATLAS/DRAINAGE FILE # L-16 / D11ALEGAL DESCRIPTION: 0.10 Acres within the City of Albuquerque, Puerto
Del Sol Golf CourseCITY ADDRESS: 1800 Girard Boulevard S.E., Albuquerque, New MexicoENGINEERING FIRM: William Matotan & Associates, Inc CONTACT: Rodney E. PetersonADDRESS: 230 Truman N.E., Albuquerque, NM PHONE: 265-8467OWNER: U.S. Government CONTACT: Tom GossU.S. Army Engineer District-Albuquerque
ADDRESS: PO Box 1580, Albuquerque, NM PHONE: 766-1774ARCHITECT: Not Applicable CONTACT: _____

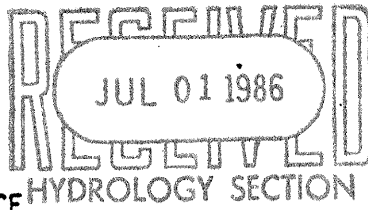
ADDRESS: _____ PHONE: _____

SURVEYOR: William Matotan & Associates, Inc. CONTACT: Rodney E. PetersonADDRESS: same as above PHONE: 265-8467CONTRACTOR: Not Applicable CONTACT: _____

ADDRESS: _____ PHONE: _____

PRE-DESIGN MEETING:

____ YES

X NO____ COPY OF CONFERENCE
RECAP SHEET PROVIDED

DRB NO. _____

EPC NO. _____

PROJECT NO. _____

TYPE OF SUBMITTAL:

____ DRAINAGE REPORT

X DRAINAGE PLAN

____ CONCEPTUAL GRADING & DRAIN PLAN

X GRADING PLAN

____ EROSION CONTROL PLAN

____ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

____ SECTOR PLAN APPROVAL

____ SKETCH PLAT APPROVAL

____ PRELIMINARY PLAT APPROVAL

X SITE DEVELOPMENT PLAN APPROVAL

____ FINAL PLAT APPROVAL

____ BUILDING PERMIT APPROVAL

____ FOUNDATION PERMIT APPROVAL

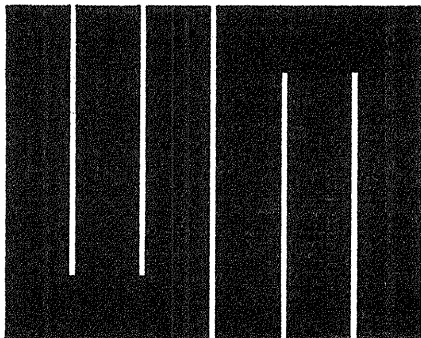
____ CERTIFICATE OF OCCUPANCY
APPROVAL

____ ROUGH GRADING PERMIT APPROVAL

DATE SUBMITTED: 1 July 1986 X GRADING/PAVING PERMIT APPROVALBY: William Matotan & Associates, OTHER (SPECIFY).

**SOUTH VALLEY SUPERFUND SITE
BURTON WELL NO. 4
SITE DRAINAGE PLAN**

MAY 1986



William Matotan and Associates Inc.

230 Truman Street Northeast

Albuquerque, New Mexico 87108

Telephone 505 265-8467



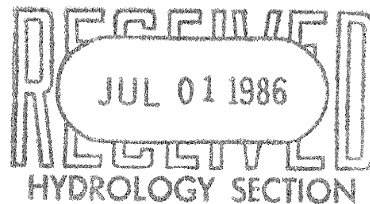
US Army Corps
of Engineers
Albuquerque District

A-E CONTRACT NO. DACW47-85-C-0053
With Modification No. P00001

DATE: 30 MAY 1986

WILLIAM MATOTAN & ASSOCIATES, INC.
230 TRUMAN STREET N.E.
ALBUQUERQUE, NEW MEXICO

DESIGN OF NEW WATER WELL
SOUTH VALLEY SUPERFUND SITE
ALBUQUERQUE, NEW MEXICO



PART II - CIVIL

1. Site Analysis

a. Existing Site

(1) Location. The project is located in the southeast quadrant of Albuquerque, New Mexico. The well site is on the west-central boundary of the Puerto Del Sol Golf Course approximately 250 feet north of the intersection of Vail Avenue S.E. and Girard Boulevard S.E.

(2) Condition. The site is primarily grassed slopes between an existing berm around the golf course pond, the paved street section of Girard Boulevard and an unimproved parking area for the golf course maintenance personnel. The present grass area incorporates part of the golf course sprinkler system which will be removed and reinstalled under this project.

b. Adaptation. The well enclosure, equipment building and site orientation and location are displayed on Plate 1.

Minimum clearance of 30 feet between the well bore and existing 36-inch concrete cylinder pipe was maintained.

Location of the site is as far north as possible to minimize infringement on the existing drive and parking areas used by the golf course maintenance personnel. This location made use of a 2-foot to 7-foot sloped retaining wall along the north and east boundaries necessary to maintain the stability of the existing berm around the golf course irrigation pond and to minimize the finished slopes on the site.

Vertical control was selected based on the elevation at the street access and to maintain the greatest coverage over the 36-inch concrete cylinder pipe at the west boundary of the site. Finished floor elevation is approximately 4 feet above the high water level for a 100 year storm.

Paved parking area is sufficient to accommodate the maintenance personnel vehicles and a small number of additional vehicles.

Landscaping for the site will consist of a grass slope with sprinkler system in the 12-foot strip between the paved parking area and the existing concrete sidewalk on the west side of the site.

Security will be provided by a 6-foot high non-climbable chain link fence enclosing the site on all four sides with the only access being a 20-foot double gate at the street access.

2. Grading and Storm Drainage

a. The existing drainage of the site is overland flow to the south and west into Girard Boulevard. Site grading as displayed on Plate 1 in Attachment 9 will maintain this southwestern drainage pattern with outlet to Girard Boulevard only at the drive pad.

3. Pavements

Pavements to be constructed for this facility will have access and parking usage. Pavement components will consist of flexible pavement and the sections listed below are based on incomplete design data and intended for interim use.

a. Access and Parking Area

(1) Consideration is given to vehicular access to the site by removing the existing 14-foot residential drive pad on Girard Boulevard and installing a 20-foot drive pad. This will require removal and replacement of the existing curb and gutter and 3.5-foot wide concrete sidewalk.

b. 2" Asphalt Hot Mix Surface Course

c. Prime Coat

d. 6" Untreated Base Course Compacted to 95%

e. 6" Subgrade Compacted to 95%

4. Storm Drainage

a. Type of materials to be specified.

Manhole. Will be constructed of concrete block, brick, poured concrete or precast reinforced concrete. Block or brick construction will be plastered inside and out with 1/2-inch mortar. Manhole construction will be equal to City of Albuquerque Manhole "Type C."

Manhole Rim and Cover shall be a pressure type, round manhole frame with bolted lid, Neenah Foundry R-6464 Series or equal.

Well Wash Line, discharging to existing storm sewer system will be 8-inch ductile iron pipe.

b. Proposed storm frequency, rainfall intensity and methods used for runoff analysis are shown hereinafter in the "Storm Drainage Calculations," Sheets 1 through 5.

c. A special storm sewer manhole will be required (See Plate 1), to convey the well wash water to the existing City storm sewer system. The manhole will require a pressure type cover and lid to contain surcharge pressures in the event the 100 year frequency storm runoff occurs simultaneous with the well pump "start and stop" discharge into the storm sewer.

d. Surface storm water, together with intermittent well water, will discharge from the proposed facility into the existing adjacent City storm drainage system on Girard Boulevard. Project site runoff will be 0.46 cfs for a 100 year frequency storm and 0.30 cfs for the 10 year frequency storm. Intermittent discharge from the proposed well will be at a rate of 2700 gpm (6.0 cfs). Analysis of flows into the existing storm sewer system indicate the proposed facility will have minimal impact on the system. The existing 27-inch diameter storm drain line, together with the existing concrete lined channel will adequately handle the storm water runoff and well wash water from the proposed project.

e. Storm drainage calculations are attached herewith and a site drainage map, Plate 1, is enclosed.

Storm Drainage Calculations

1. Drainage Areas Contributing to the existing City of Albuquerque storm sewer system on Girard Blvd., immediately west of the proposed project site are:

Offsite-Drainage Area No.1,

Offsite-Drainage Area No.2

On site-Drainage Area No.3

2. Storm Frequency

Both the 10 year and 100 year frequencies are treated hereinafter.

3. Rainfall Volume

From Volume 2, "Design Criteria", City of Albuquerque Development Procedures Manual, (D.P.M.), Plate 22.2 D-1, Section 22:

6 Hour Rainfall Volume, 100 yr. freq. = 2.30"

6 Hour Rainfall Volume, 10 yr. freq. = 1.51"

4. Rainfall Intensity

From D.P.M., Plate 22.2 D-2, Section 22:

For Time of Concentration (T_c) = 10 minutes,
intensity factor = 2.15

and

100 yr. intensity = $(2.30)(2.15) = 4.95$

and

10 yr. intensity = $(1.51)(2.15) = 3.25$

Storm Drainage Calculations (Cont'd)

5. Method for Determining Runoff

Use Rational Method as per D.P.M.

$$Q = C i a$$

where

Q = Runoff in cubic feet/second (cfs)

C = Runoff coefficient, from D.P.M.
Section 22, Page 17.

i = Rainfall intensity

a = Drainage Area in acres

6. Runoff

Offsite Drainage Area No. 1

$a = 45$ acres (golf course, overland flow)

Time of Concentration, $T_c = .0078 \frac{L^{.77}}{S^{.385}}$
(DPM Section 22, P. 3)

$$= .0078 \left(\frac{1500^{.77}}{0.034^{.385}} \right) = 8 \text{ min. Use } 10 \text{ min.}$$

$C = 0.25$ (D.P.M., Section 22, P. 17)

$$Q = C i a$$

$$Q_{100} = (0.25)(4.95)(45) = 55.69 \text{ cfs}$$

$$Q_{10} = (0.25)(3.25)(45) = 36.56 \text{ cfs}$$

Storm Drainage Calculations (cont'd)

6. Runoff (Cont'd)

Offsite Drainage Area No. 2 (Street Drainage)

$$a = \frac{48' \times 1900'}{43,560'} = 2.1 \text{ acres}$$

$$T_c = 10 \text{ min.} \therefore i_{100} = 4.95 \quad i_{10} = 3.25$$

$$C = 0.95 \text{ for pavement (D.P.M., Section 22, P.17)}$$

$$Q = CIA$$

$$Q_{100} = (0.95)(4.95)(2.1) = 9.88 \text{ cfs}$$

$$Q_{10} = (0.95)(3.25)(2.1) = 6.48 \text{ cfs}$$

On site Drainage Area No. 3

$$\text{Roofed area } 630 \text{ sq. ft.} = 0.01 \text{ acres}$$

$$C = 0.90 \text{ (D.P.M., Sec. 22, P.17)}$$

$$\text{Pavement area} = 3825 \text{ sq. ft.} = 0.09 \text{ acres}$$

$$C = 0.95 \text{ (D.P.M., Sec. 22, P.17)}$$

$$\text{Total area (a)} = 0.10 \text{ acres}$$

$$T_c = 10 \text{ min.} \therefore i_{100} = 4.95 \quad i_{10} = 3.25$$

$$C \text{ (weighted)} = 0.94$$

$$Q = CIA$$

$$Q_{100} = (0.94)(4.95)(0.10) = 0.46 \text{ cfs}$$

$$Q_{10} = (0.94)(3.25)(0.10) = 0.30 \text{ cfs}$$

Storm Drainage Calculations (Cont'd)

6. Runoff (Cont'd)

Total storm runoff from Drainage Areas 1, 2 and 3

$$Q_{100} = 55.69 + 9.88 + 0.46 = 66.03 \text{ cfs}$$

$$Q_{10} = 36.56 + 6.48 + 0.30 = 43.34 \text{ cfs}$$

These flows enter existing City storm sewer system No. 215 at the existing double-C catch basins which discharge into manhole No. 5-715 and the concrete drainage channel, about 150' north of the intersection of Vail Ave. S.E. and Girard Blvd. S.E.

7. Catch Basin Capacity

The existing catch basins are at the low point of a sag vertical curve (sump condition) on Girard Blvd.

For sump condition:

$$Q = CLH^{3/2} \text{ (Dept. of Army TM 5-820-4, P. 40)}$$

where Q = capacity in cfs
 L = perimeter of grate in feet
 H = Depth of flow above inlet
 C = Constant = 3.0

At curb-full flow condition:

$$Q = (3)(18.0)(0.67)^{3/2} = 29.6 \text{ cfs per catch basin}$$

and 59.2 cfs for 2-double "C" catch basins

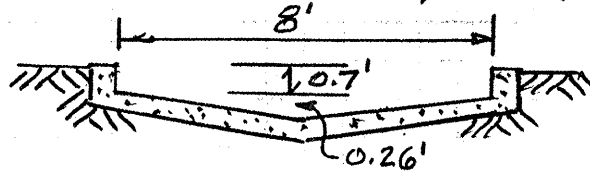
At 0.4' depth condition:

$$Q = (3)(18.0)(0.4)^{3/2} = 13.7 \text{ cfs} \times 2 = 27.4 \text{ cfs}$$

Note: Capacities shown above should be reduced approx. 50% for trash accumulation.

Storm Drainage Calculations (Cont'd)

8. Concrete Channel Capacity



Channel Section

Use Manning formula $Q = \frac{1.486}{n} a R^{2/3} S^{1/2}$
where:

Q = Capacity in cfs

$n = 0.020$ (from USCE SWD-EIM, P. II-11)

$$a = (0.7')(8') + (4')(0.26') = 6.64 \text{ sq. ft.}$$

$$R^{2/3} = \left(\frac{6.64}{9.4} \right)^{2/3} = 0.7922$$

$$S^{1/2} = (0.044)^{1/2} = 0.2098$$

$$Q = \left(\frac{1.486}{0.02} \right) (6.64) (0.7922) (0.2098) = \underline{82 \text{ cfs}}$$



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

July 22, 1986

Rodney Peterson
William Matotan & Associates
230 Truman, NE
Albuquerque, New Mexico 87108

RE: DRAINAGE PLAN FOR REMEDIAL ACTION WELL
(L-16/D11A) RECEIVED JULY 1, 1986

Dear Mr. Peterson:

The above referenced plan, dated May 1986, is approved for site plan.
Building Permit sign-off by Hydrology will require an S.O. #19 for
work in public right-of-way.

If you have any questions, call me at 766-7644.

Cordially,

Carlos A. Montoya, P.E.
City/County Floodplain Administrator

CAM/bsj

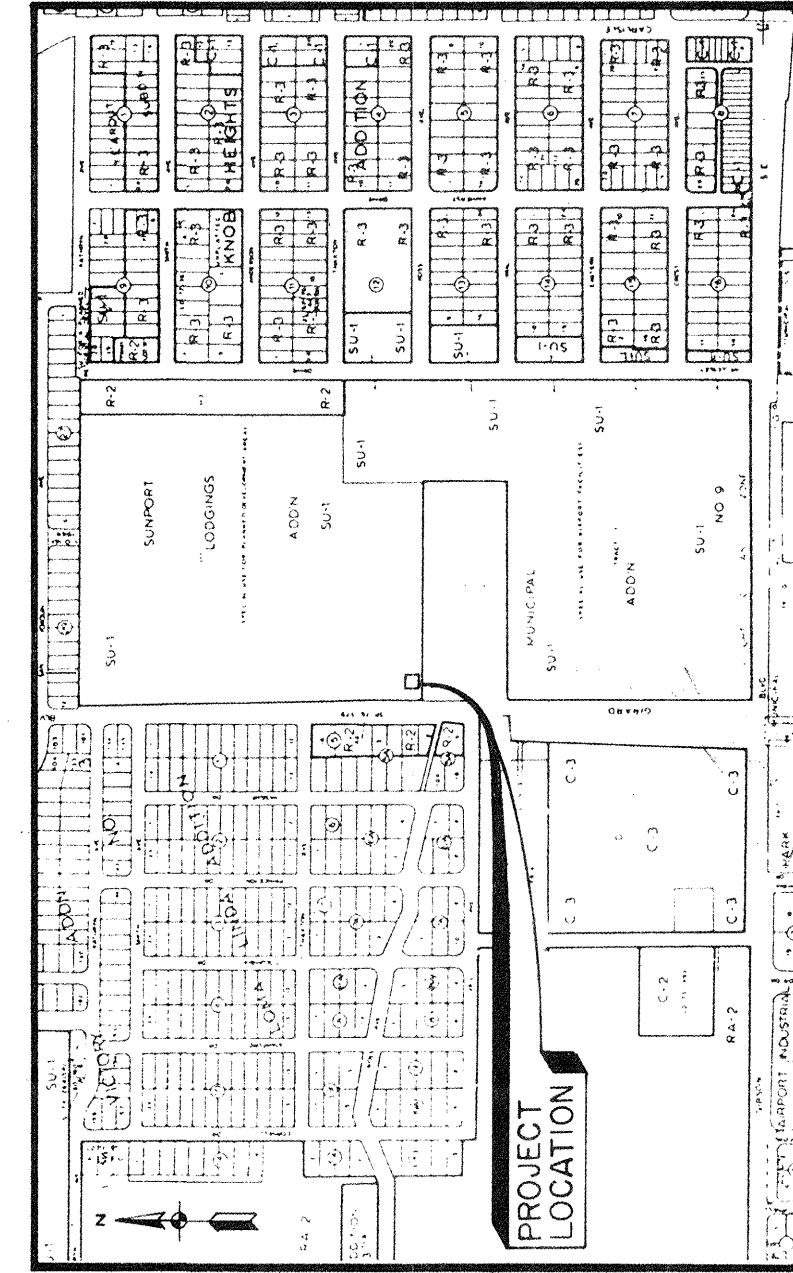
LEGEND	
PROPOSED	EXISTING
LSM--○--○--	Lawn Sprinkler Main Supply (With Sprinkler Heads)
W---	Water Line
SS---	Site Sanitary Sewer
SD---	Storm Drain
WM--○--	Water Meter
WV---	Water Valve
5280	Contours
MH--○--	Manhole
UE---	Underground Electrical Line
UT---	Underground Telephone Line
UG---	Underground Gas Line
○--○--	Chain Link Fence
○--○--	Power Pole
TC 67.98	Top of Curb Elevation
---	Curb and Gutter
---	Direction of Drainage
Cap	Storm Drain Capacity

DRAINAGE COMPUTATIONS

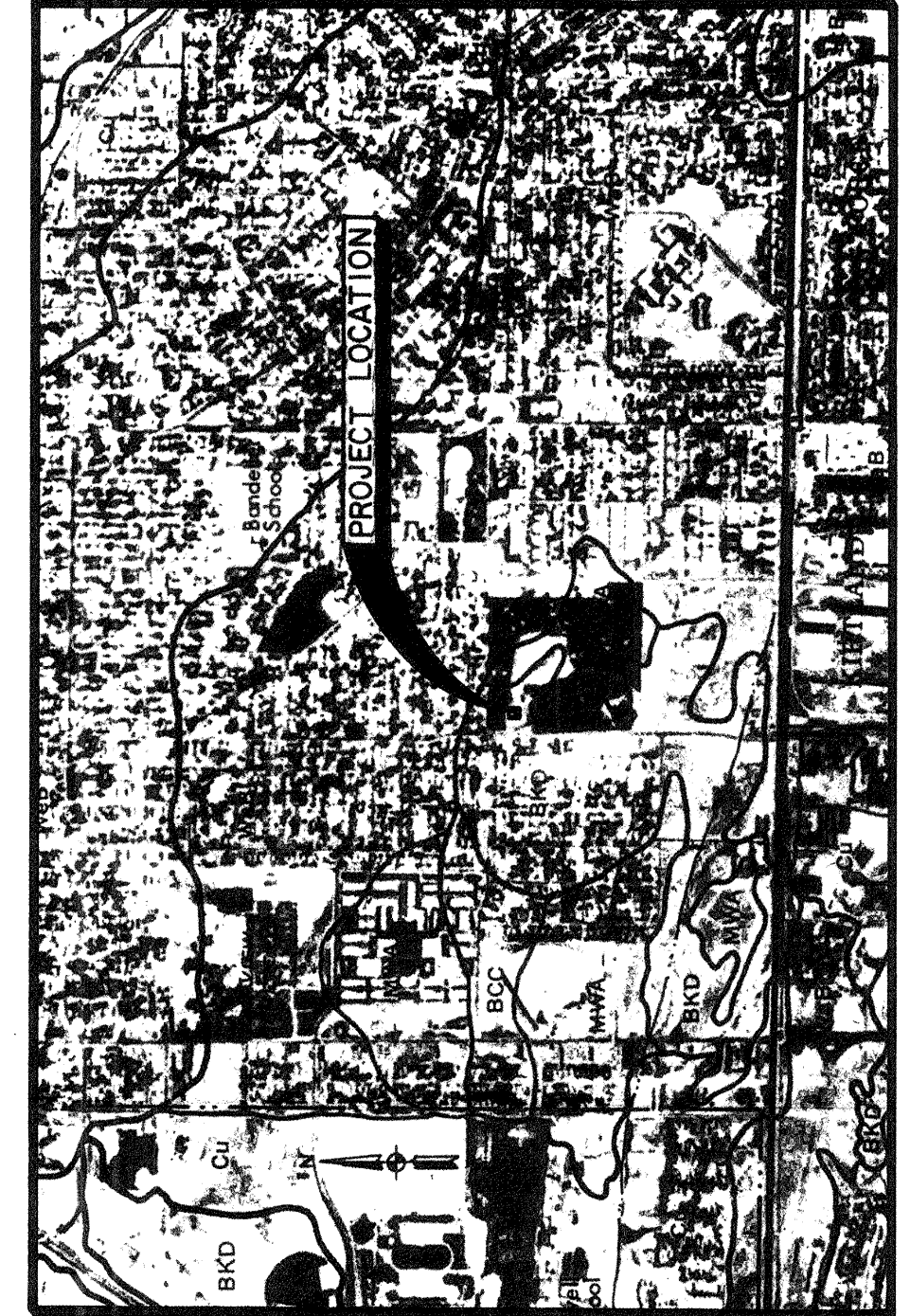
OFFSITE DRAINAGE
AREA 1 - Drainage is as shown on Flood Hazard Map. All drainage is into catch basins on Girard and drainage channel.
Q = cfs where,
Q = Discharge in cfs,
C = 0.25 (D.P.M., Section 22, page 17)
I_h = 4.95 I_c = 3.25 (D.P.M., Plate 22.2 D-2)
a = area = 45 Acres
Q₁ = (0.25) (4.95) (45) = 55.69 cfs
Q₂ = (0.25) (3.25) (45) = 36.56 cfs
AREA 2 - Drainage area consists of Girard Blvd. from Gibson to 300 feet north of the intersection of Girard and Vail.
Q = cfs where,
Q = 0.95 (D.P.M., Section 22, page 17)
I_h = 4.95 I_c = 3.25 (D.P.M., Plate 22.2 D-2)
a = 2.1 Acres
Q₁ = (0.95) (4.95) (2.1) = 9.88 cfs
Q₂ = (0.95) (3.25) (2.1) = 6.48 cfs
ONSITE DRAINAGE
AREA 3 - Area 3 consists of Pump & Equipment Bldg., 630 Sq. Ft. roofed area, paved access drive and parking area, 3825 sq. ft.; total 4455 sq. ft. = 0.10 Acres.
Q = cfs where
Q = 0.90 for roofed area (D.P.M., Section 22, page 17)
0.95 for pavement area (D.P.M., Section 22, page 17)
C, weighted = 0.94
I_h = 4.95 I_c = 3.25 (D.P.M., Plate 22.2 D-2)
Q₁ = (0.94) (4.95) (0.10) = 0.46 cfs
Q₂ = (0.94) (3.25) (0.10) = 0.30 cfs
CATCH BASIN CAPACITY (IN SUMP CONDITION)
Q = CLH^{3/2} where
Q = Capacity in cfs
L = Perimeter of catch basin
H = Depth from free water surface to hydraulic grade line.
Q = (3) (18.0) (0.67)^{3/2} = 29.6 x 2 = 59.2 cfs (Curb Full)
Q = (3) (18.0) (0.4)^{3/2} = 13.7 cfs x 2 = 27.4 cfs (0.4 depth)
CONNECTOR PIPE CAPACITY (From D.P.M. Plate 22.3 D8) where Connector Pipe = 15-inch diameter
H = 10'
Q = 25 cfs x 2 = 50 cfs
CONCRETE LINED CHANNEL CAPACITY where Q = $\frac{4.48}{100} \times R^{2/3} \times S^{1/2} \times A$
Q = $\frac{4.48}{100} \times 6.64 \times 0.7922 \times 0.2098 = 82 \text{ cfs}$



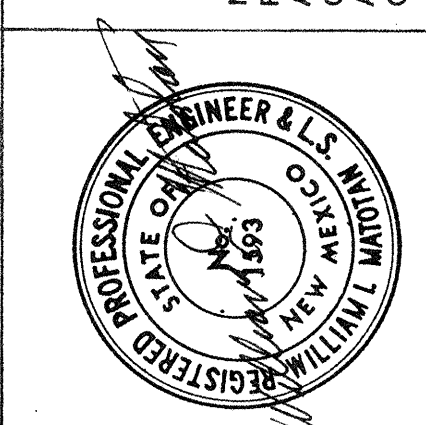
FLOOD HAZARD MAP
NOT TO SCALE



VICINITY MAP L-16
NOT TO SCALE



SOILS MAP
NOT TO SCALE



NOTE: ALL OPERATIONS PERFORMED IN ACCORDANCE WITH THE WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CORPS OF ENGINEERS PUBLICATIONS: "SAFETY AND HEALTH REQUIREMENTS MANUAL", REVISED OCTOBER, 1984.

