HYDROLOGY D17/D15 2 PLANS

D17/D15

2 PLANS

MSM/SP Group

CONSULTING ENGINEERS • SURVEYORS • PLANNERS

2601 Wyoming Blvd., N.E. Suite F Albuquerque, N.M. 87112

505 292-1936

A SPG COMPANY

TRANSMITTAL

TO CITY ENGINEER, HYDROLOGY
4TH FLOOR CITY HALL

ATTN: FRED AGUIRRE

DATE AUGUST 17, 1983

RE: SUNCHASE, CITY DWG. No. 1891

JOB NO. 0690293

WE ARE SENDING THE FOLLOWING ☐ ATTACHED, ☐ UNDER SEPARATE COVER, VIA HAND

☐ PRINTS ☐ COPY OF LETTER ☐ CHANGE ORDER ☐ SPECIFICATIONS

☐ ESTIMATES ☐ PROPOSAL ☐ REPORTS ☑ CALCULATIONS

NO. OF COPIES	DATED	DESCRIPTION
1	–	CHANNEL DESIGN CALCULATIONS - PROJECT NO. 1891

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THESE ARE TRANSMITTED:

☑ FOR YOUR USE ☐ FOR REVIEW AND COMMENT

☐ FOR APPROVAL ☐ AS REQUESTED

REMARKS: –

CC: FILE

MSM/SP Group

Pirie Pepper

CHANNEL DESIGN

Design Q = 350 cfs (per City Engineer/Hydrology)

Channel Shape - Rectangular

Channel Bottom Width = 8 ft.

Channel Slope - 117 ft @ 0.0224 and 372 ft. @ 0.0150

Use Manning's Equation to find flow depths and velocities (n=0.013)

(1) For s = 0.0224

$$350 = (8d)\frac{1.486}{0.013}\left(\frac{8d}{8+2d}\right)^{2/3}(0.0224)^{1/2}$$

d = 2.08 ft. V = 21.1 fps

(2) For s = 0.0150

$$350 = (8d)\frac{1.486}{0.013}\left(\frac{8d}{8+2d}\right)^{2/3}(0.0150)^{1/2}$$

d = 2.39 ft. V = 18.3 fps

Freeboard Requirement - 2 ft. (per DPM Vol. 2 sec. 22.3 - C.4.a.3)

Total Channel Depth Requirement

(1) For s = 0.0224 d = 2.08 + 2 = 4.08 ft.

(2) For s = 0.0150 d = 2.39 + 2 = 4.39 ft.

Check superelevation at curve with R = 70 ft.

$$s = \frac{V^2 b}{gr}$$ (per DPM Vol. 2 sec. 22.3 - C.3.a.1, supercritical)

$$s = \frac{(21.1)^2 8}{32.2\ (70)} = 1.88 \text{ ft.}$$

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Total channel depth requirement through curve

d = 4.08 + 1.58 = 5.66 ft.

Transition from earth lined to concrete

Max. rate of bottom width transition - 7.5:1
(per DPM Vol. 2 Sec. 22.3 - C.3.f.3.a)

Alignment change - 8 ft.

8 x 7.5 = 60 ft.

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Sunchase Apt

F 17 D15

JAMES E. TEMPLETON
CONTRACTOR

October 11, 1982

City of Albuquerque
Hydrology Dept.

Att: Bernie Montoya

Sir,

Per our discussion of this date, this letter will relieve the City of any responsibility for water damage to the building or parking areas due to ponding in the (2) areas on the south side of the building.

These areas are enclosed by curbs and receive only partial roof runoff.

Sincerely,

James E. Templeton

James E. Templeton

7208-A JEFFERSON, N.E. ★ ALBUQUERQUE, NEW MEXICO 87109 ★ (505) 345-5271

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