HYDROLOGY

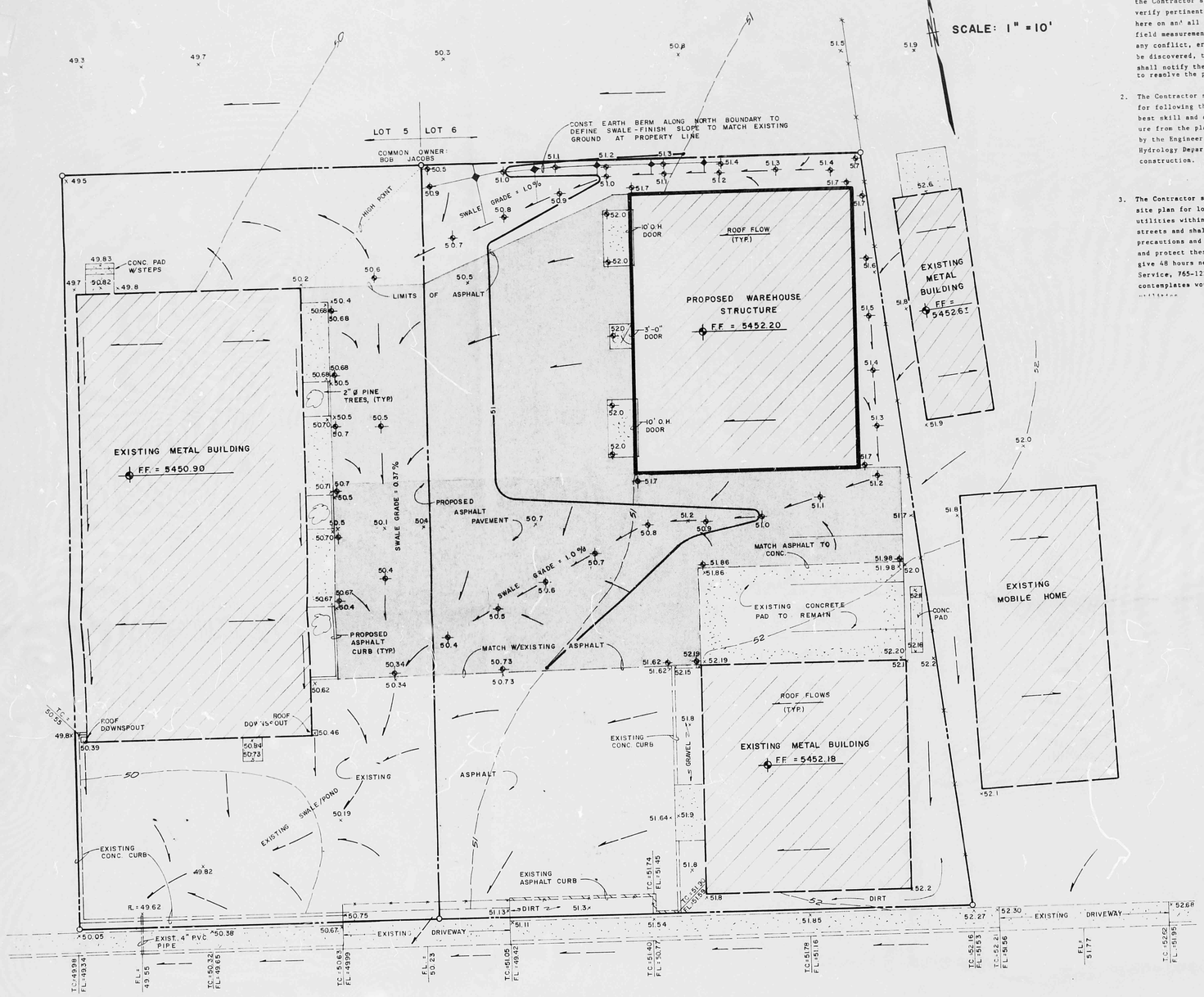
L20/D22

ONE PLAN

1 PLAN FOR

TUMBLEWEED PARK

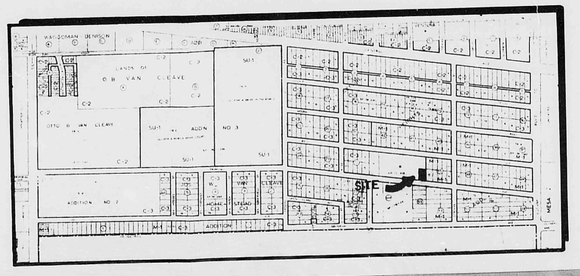
L 20-D22



LEGEND

- SIDEWALK, CURB & GUTTER (EXISTING, PROPOSED)
- PROPOSED ASPHALT
- BUILDING (EXISTING, PROPOSED)
- PROPERTY LINE
- X 12.7 — EXISTING SPOT ELEVATION
- 12.7 / 10 — EXISTING CONTOUR
- 12.5 — PROPOSED SPOT ELEVATION
- 10 — PROPOSED CONTOUR
- SURFACE FLOW DIRECTION

VICINITY MAP L20



CONSTRUCTION NOTES:

1. Before beginning construction, the Contractor shall check and verify pertinent figures shown here on and all applicable field measurements. Should any conflict, error or discrepancy be discovered, the Contractor shall notify the Engineer at once to resolve the problem.

2. The Contractor shall be responsible for following the plans using his best skill and attention. Any departure from the plans must be approved by the Engineer and the City Hydrology Department prior to construction.

3. The Contractor shall check the site plan for locations of existing utilities within or adjacent to streets and shall take all necessary precautions and efforts to locate and protect these utilities. He shall give 48 hours notice to Line Locating Service, 765-1234, for any work that he contemplates would interfere with said utilities.

HYDROLOGY SECTION
AUG 31 1984

Scope

The proposed improvements comprised of a new warehouse structure and paved parking area, is located at 9935 Trumbell S.E., which is south of Central Avenue, between Moon and Eubank Blvd. The present site is partially developed with an existing structure occupying the front portion of the lot. The owner of the site, Mr. Bob Jacobs, would like to utilize the adjacent lot's drainage facilities to control runoff from the proposed improvements. He requested this concept in order to keep from having to regrade and repave the existing asphalt area adjacent to the street. Mr. Jacobs owns both lots, and will provide the necessary drainage covenants for crossing the common lot line.

The intent of this plan is to show:

a) Grading relationships between the existing ground elevations and proposed finished elevations in order to facilitate positive drainage to designated discharge points.

b) The extent of proposed site improvements, including buildings, walks and pavement.

c) The flow rate/volume of rainfall runoff across or around these improvements and methods of handling these flows to meet City requirements for drainage management.

d) The relationship of onsite improvements with existing neighboring property to insure an orderly transition between proposed/surrounding grades.

General Notes

Legal: Lot 6, Replat of Tract 'B', Skyline Heights, Albuquerque, New Mexico

Surveyor: Ron Fortsbauer Survey Company

B.M.: ACS B.M. "Susan", a std. USC&GS Brass Tablet stamped "Susan 1969" located at S.E. corner of Ridgecrest well #2 site at the intersection of Southeast Ave. and Garcia St. S.W., Elv. = 5,444.49 (MSLD)

TBM.: Top of curb S.W. corner of site at lot line projection Elv. 5,450.97.

Soils: SCS Soils Map #32, Soil type "IMB", Hydrologic Soil Group "B"

Flood Hazard: Site is not located in or immediately adjacent to flood hazard area. Nearest flood area is located on Moon St. (AMDS L-20)

Offsite Drainage: Site has constant grade form east to west matching the street at a slope of 2% ±. Offsite flows from the adjacent lot to the east are minor and cross the property line in the form of sheet flow for eventual routing to Trumbell.

Erosion Control Plan: The proposed improvements will not be phased construction, so there is no anticipated stockpiled earth that would be subject to erosion.

Calculations: Based on a pre-design meeting with City Hydrology on 8-14-84, the following criteria was established:

a) The proposed drainage across lot lines to be covered by drainage covenant.

b) Address the volume requirements and existing capacity of pond to determine effect of increased runoff.

Calculations are based on the City of Albuquerque DPM Manual, Vol. II for the 100 year-6 hour storm, using the Rational Formula to compare the existing and proposed runoff rates.

Rational Method Q=CIA

Area of Site: 11,598 ft^2 = 0.27 acre

Area of Proposed Improvements: 7486 ft^2 = 0.17 acre

Runoff Coefficient

Exist Site	Developed Site
A imp = 0 acre	A imp = 0.13 acre
% imp = 0 %	% imp = 0.13/0.17 = 74%
'c' = 0.34 (DPM 22.2 C-1)	'c' = 0.72 (DPM 22.2 C-1)

Rainfall Intensity

$I = P_6 (6.84 \cdot Tc^{-0.51}) = 5.18"/hr$

where P_6 = 2.65 in (DPM 22.2 D-1), and

Tc = 10 minutes (in)

Existing Conditions - drains to Lot 5

$Q_{100} = (0.34)(5.18)(0.17)$

$= 0.3$ cfs

$V_{100} = \frac{(Q_{100})(5Tc)(60 \text{ sec/in})}{2}$

$= 45$ ft^3 (hydrograph method)

Developed Condition - drains to Lot 5

$Q_{100} = (0.72)(5.18)(0.17)$

$= 0.6$ cfs

$V_{100} = \frac{(0.6)(50)(60)}{2}$

$= 900$ ft^3

Capacities of Existing Pond - Lot 5
(From Drainage Plan by T.N. 8/83)

Peak flow to pond from Lot 5	= 0.6 cfs
Discharge rate from pond	= 0.4 cfs
V required in pond	= 120 ft^3
V provided in pond	= 380 ft^3 at surface area of 1920 ft^2

Summary of Results

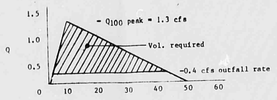
Q_{100} = 0.6 - 0.3 = 0.3 cfs (increase)

V_{100} = 900 - 450 = 450 ft^3 (increase)

Total area draining to pond =
0.17 acre (Lot 5) + 0.17 acre (Lot 6) = 0.34 acre

Average composite 'c' = 0.70 (0.17/0.34) + 0.72(0.17/0.34) = 0.71

Q_{100} = CIA = (0.71)(5.18)(0.34)
= 1.3 cfs



V required = $\frac{(1.3-0.4)(35)(60)}{2}$

$= 945$ ft^3

Total pond capacity = 380 ft^3 @ Elv. 50.0 @ surface area = 1920 ft^2

Excess volume to pond = 945 - 380 = 565 ft^3

Net effect on active pond area would be to raise water level by 0.3'. The actual elevation increase would be less due to an actual larger area for the water to spread out over, plus the spillway would then be activated for any water over the elevation of 50.0. The potential elevation rise of the water surface will not effect any of the existing improvements for Lot 5, nor will the increased runoff rate from Lot 6 be a problem because the rate is less than 1 cfs.

L20/D22

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(505) 268 - 3444

REVISIONS	DATE

DESIGNED CTS 8/24
DRAWN CTS 8/24
CHECKED CTS 8/24

DRAINAGE / GRADING PLAN
TUMBLEWEED PARK
9935 TRUMBELL S.E.

CTS

CHRISTOPHER T. SCHUMAN
NEW MEXICO
NEW PROFESSIONAL ENGINEER

SHEET 1 OF 1