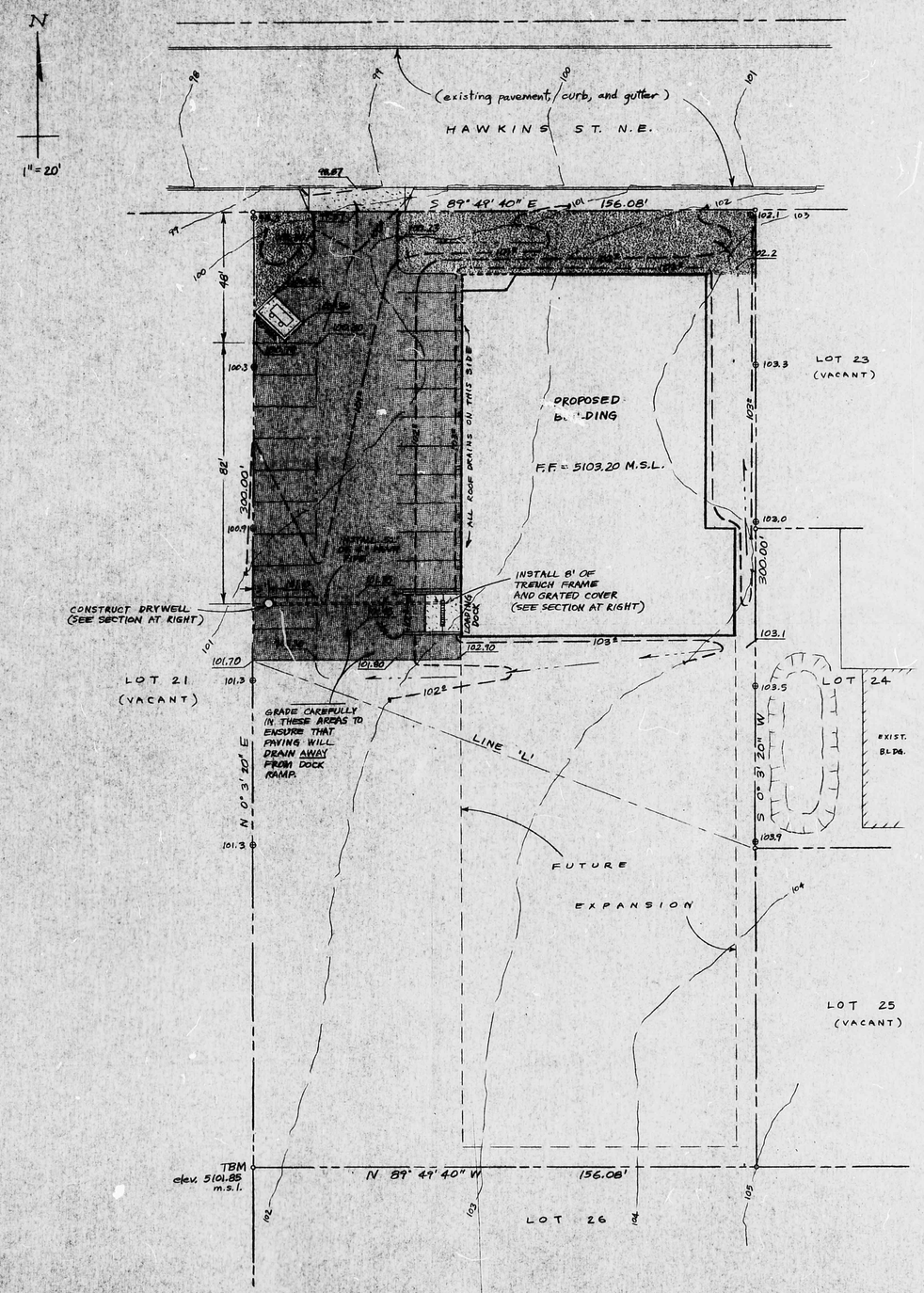
HYDROLOGY D17/D38 UNITED OFFSET SUPPLY

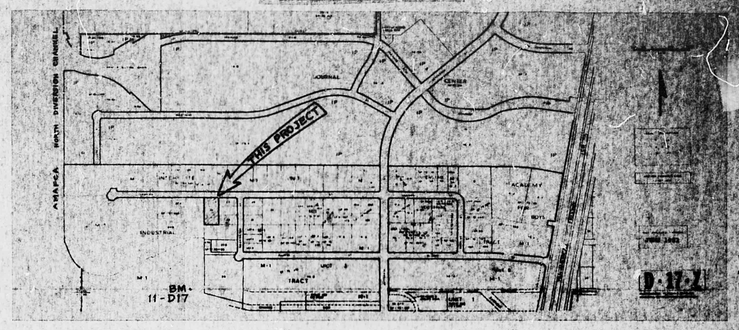
D17/D38

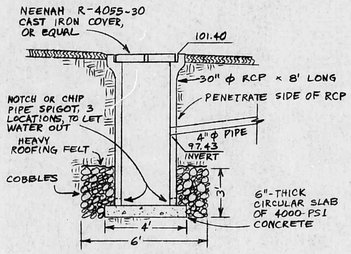
UNITED
OFFSET
SUPPLY

2 PLANS

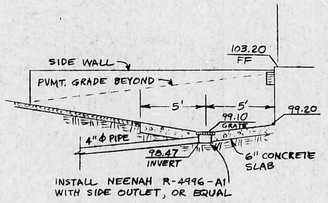


VICINITY MAP





DRY WELL SECTION
NO SCALE



LOADING DOCK RAMP SECTION
NO SCALE

LEGEND

- Asphalt pavement
- Landscaping
- Concrete
- 101 — Existing contours
- 101* — Proposed contours
- ⊙ 103.0 — Existing spot elevation
- 103.50 — Proposed grade

EXISTING CONDITIONS

The site is not in a flood hazard area on the Flood Hazard Boundary Map. The area drains directly into the AMAFCA North Diversion Channel, via Hawkins Street and a drainage easement. The City Hydrology Section has determined that discharge of runoff from the subject property need not be controlled.

The undeveloped lots 23 and 25 to the east of the property drain and will continue to drain onto the property. Lot 24 contains two developed retention ponds for its runoff. Lot 26, presently under construction, is assumed to contain its own drainage also. Lot 21, undeveloped, drains to the west, away from the subject parcel.

Area of site = 46824 s. f.

From S. C. S. Soil Survey, soil at the site is EmB and WeB and is in Group B. From Plate 22.2 C-1 of the Development Process Manual, 'c' factor = 0.34 for 0% impervious.

From Plate 22.2 D-1, 100-year rainfall = 2.2"

$$Q_{100} = 0.34 \times \frac{2.2"}{12"/ft.} \times 46824 \text{ s.f.}$$

$$= 2919 \text{ cu. ft. runoff from Lot 22.}$$

$$Q_{10} = 2919\ (0.657) = 1918 \text{ cu. ft.}$$

For simplicity, it will be assumed that all of Lots 23 and 25 drain onto the subject parcel, and no other land drains onto the parcel.

$$Q_{100} = 2 \times 100 \times 190 \times 0.34 \times \frac{2.2"}{12"/ft.}$$

$$= \underline{2369 \text{ cu. ft.}}$$

$$Q_{10} = 2369\ (0.657) = 1556 \text{ cu. ft.}$$

Existing peak flow rate

$s = 0.017$ ± From 22.2 B-1, v = [illegible] fps

$$T_c = 0.0078\ \frac{L^{0.77}}{s^{0.385}} = 2.13 \text{ min. (Use 10 min.)}$$

From 22.2 D-2,

$i_{100} = 2.16 \times 2.2 = 4.752$ in./hr.

$i_{10} = 4.752 \times 0.657 = 3.122$ in./hr.

Onsite runoff

Area of lots 22, 23, and 25:

$$A = 1.07 \text{ ac.} + \frac{2 \times 100 \times 190}{43560} = 1.947 \text{ ac.}$$

$$Q_{100} = c\, i_{100}\, A = 0.34 \times 4.752 \times 1.947$$

$$= \underline{3.15 \text{ cfs}}$$

$Q_{10} = 3.15 \times 0.657 = 2.07$ cfs sheet flow onto Lot 21 and into Hawkins Street.

DEVELOPED CONDITIONS

The area south of line 'L' will continue to drain onto Lot 21. North of line 'L', all runoff (including runoff from Lot 23) will exit the drivepad into Hawkins Street, except for a 12' x 25' paved area in the loading ramp, which will drain into the drywell.

'c' factor calculations, north of 'L'

Dirt area = 780 + 1952 + 2135 + 204 + 1200 + 19000
= 28271 s. f.

Paved area (except ramp) = 7000 + 520 − 300
= 8020 s. f.

Roof area = 8664 + 306 = 8970 s. f.

Landscaping = 418 + 2240 = 2658 s. f.

$$\text{Composite 'c'} = \frac{[0.43\ (8020 + 8970) + 0.34\ (28271) + 0.3\ (2658)]}{47919}$$

$$c = \frac{15282 + 9612 + 797}{47919} = 0.54$$

$$\text{Peak } Q_{100} = 0.54\ (4.752)\left(\frac{47919}{43560}\right) = 2.82 \text{ cfs}$$

$$Q_{10} = 2.82\ (0.657) = 1.85 \text{ cfs}$$

For asphalt swale approaching drive pad, find depth required to handle 100-year flow:

slope = 0.010

from 22.2 B-1, v = 1.36 fps

$$Q = Av \qquad A = \frac{Q}{v} = \frac{2.82 \text{ cfs}}{1.36 \text{ fps}}$$

$$A = 2.07 \text{ s. f.}$$

$$A = 13\ d = 2.07$$

$d_{100} = 0.16$ ft. vs. actual depth of 0.23 ft. O. K.

BENCH MARK INFORMATION

Elevations on this plan are derived from City control station 11-D17, which is a forty-penny nail in the north side of power pole 8R7, located approximately 640 feet southwest of the intersection of Eliston and Washington Streets, elevation 5098.591 feet above mean sea level. The temporary bench mark (TBM) is a capped rebar set in concrete at the southeast corner of the subject parcel. The survey was performed by Southwest Surveying Company, Inc.

NOTE: Add 5000 feet to all elevations except those indicated "M. S. L."

LEGAL DESCRIPTION

Lot 22, Unit 4, Interstate Industrial Tract.

FOR DRAINAGE FILE

D17 - D38

DRAINAGE PLAN

for

United Offset Supply

5824 Hawkins Street NE
Albuquerque, New Mexico

ENGINEER'S CERTIFICATION

I, Richard C. Bryant, certify that this drainage plan was prepared by me or under my direct supervision and is true and correct to the best of my knowledge and belief.

Richard C. Bryant
Registered Professional Engineer
Reg. No. 4801
New Mexico
(505) 831-6286

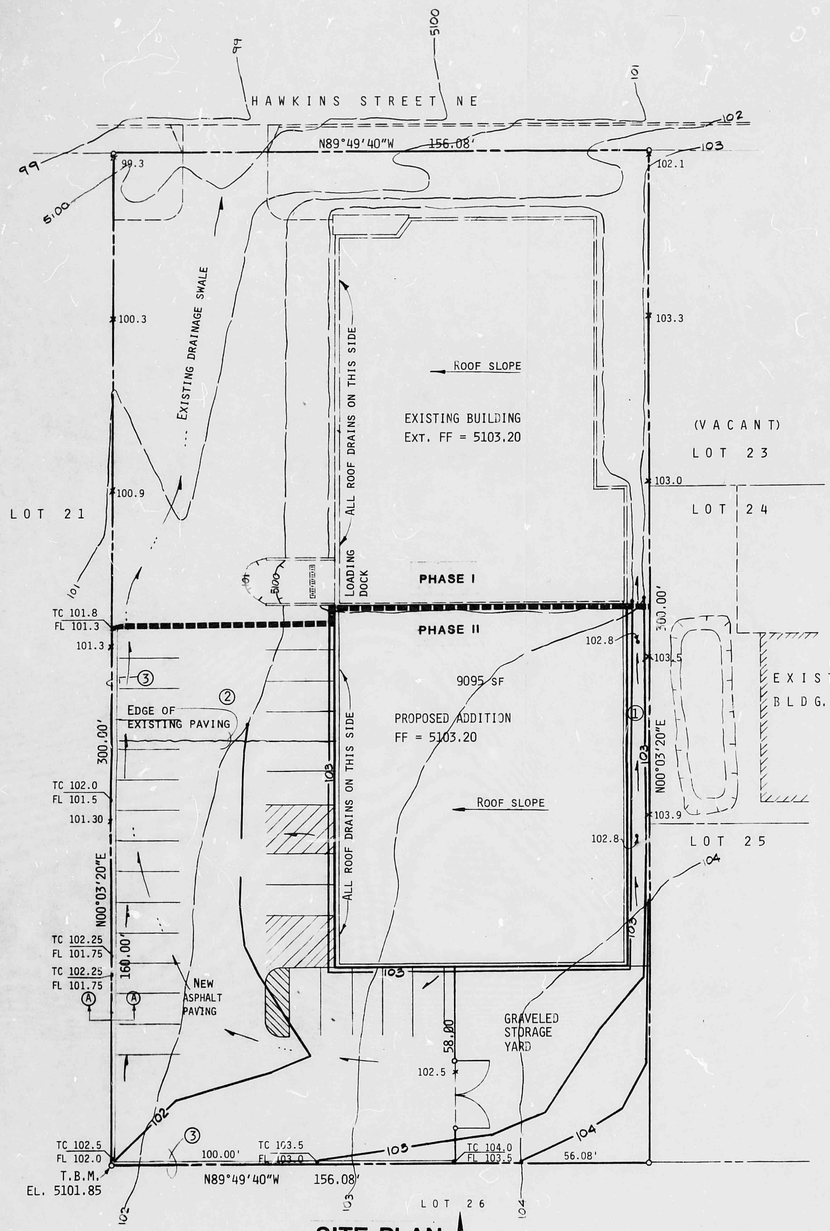
STATE OF NEW MEXICO — JOSEPH B. BURWINKLE JR. — No. 430 — REGISTERED ARCHITECT — 6/2/83

ALBUQUERQUE BLDG. DEPT. JUN 06 1983 J.D.C. PLAN SECTION

2 of 5

JOSEPH B. BURWINKLE JR + ASSOC. ARCHITECT
ALBUQ. N. MEXICO

D17/D38



SITE PLAN

1" = 20'-0"

LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING SPOT ELEVATIONS
- PROPOSED GRADE
- EXISTING CURB
- PROPOSED CURB
- TC 102.0 / FL 101.5 — TOP OF CURB / FLOWLINE ELEVATIONS
- FLOW DIRECTIONAL ARROW
- EXISTING BLDG.
- PROPOSED BLDG.
- FLOW LINE

LEGAL DESCRIPTION

LOT 22, UNIT 4, INTERSTATE INDUSTRIAL TRACT

BENCH MARK(S)

CITY CONTROL STATION 11-D17, WHICH IS A FORTY-PENNY NAIL ON THE NORTH SIDE OF POWER POLE ER7, LOCATED APPROXIMATELY 640 FEET SOUTHWEST OF THE INTERSECTION OF ELLISON AND WASHINGTON STREETS, ELEVATION = 5098.59

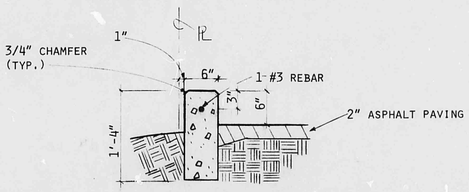
TEMPORARY BENCHMARK: CAPPED REBAR SET IN CONCRETE AT THE SOUTHWEST CORNER OF THE SUBJECT PARCEL, ELEVATION = 5101.85

GENERAL NOTES

1. THIS PLAN IS IN COMPLIANCE WITH GORDON HERKENHOFF & ASSOCIATES REPORT FOR MASTER DRAINAGE PLAN FOR THE INTERSTATE INDUSTRIAL PARK.
2. THIS PLAN IS CONSISTENT WITH THE PREVIOUSLY APPROVED DRAINAGE PLAN FOR UNITED OFFSET SUPPLY, PREPARED BY RICHARD C. BRYANT ON APRIL 22, 1983.
3. THIS SITE (LOT 22) DOES NOT ACCEPT ANY OFFSITE FLOWS AND IS NOT LOCATED IN A FLOOD HAZARD AREA.
4. ALL DEVELOPED STORM WATER RUNOFF EXITS THE PROPERTY VIA SITE DRIVEPAD (PHASE I), AND EVENTUALLY DISCHARGES TO AMAFCA NORTH DIVERSION CHANNEL VIA HAWKINS STREET AND A DRAINAGE EASEMENT.

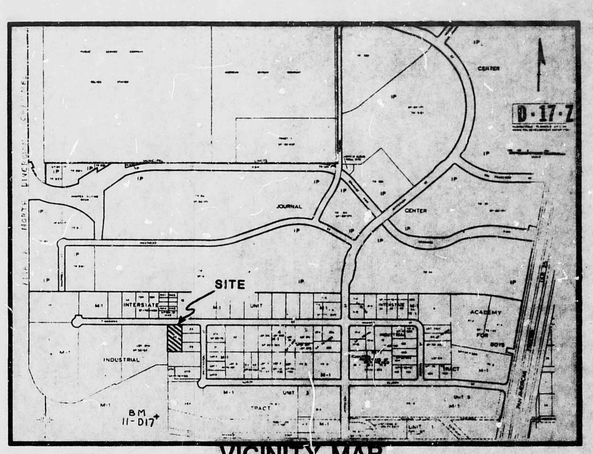
DRAINAGE NOTES

1. REMAINING DIRT AREA WILL NOT ACCEPT ANY DEVELOPED FLOWS. STORMWATER WILL BE CONTAINED WITHIN THE AREA OR FLOW LINE WILL ALLOW DISCHARGE NORTH TO HAWKINS STREET.
2. NEW PAVING SHALL MATCH EXISTING PHASE I PAVING OR A PORTION OF THE PHASE I PAVING SHALL BE REMOVED AND REPLACED AT A GRADE AS TO PROVIDE FOR THE FREE DISCHARGE OF STORM WATERS.
3. PARKING CURB DETAIL SHOWN BY SECTION A-A.



SECTION A-A

HEADER CURB 1" = 1'-0"



VICINITY MAP

DRAINAGE CALCULATIONS

RUNOFF DATA

UNDEVELOPED 'C' FACTOR = 0.34
DEVELOPED 'C' FACTOR = 0.90
(FROM PLATE 22.2 C-1 OF THE DEVELOPMENT PROCESS MANUAL AND FROM S.C.S. SOIL SURVEY, SOIL AT SITE IS IN GROUP B.)

100 YEAR RAIN FALL = 2.2" (FROM PLATE 22.2 D-1)

I = (PLATE 22.2 D-1) (PLATE 22.2 D-2)

I = (2.2) (2.16) = 4.75

AREA (PHASE II) = 25,610 S.F. = 0.59 ACRES

EXISTING CONDITIONS

Q = CIA

Q_{100} = (0.34) (4.75) (25,610/43,560) = 0.95 CFS

Q_{10} = (0.95) (0.657) = 0.62 CFS

V_{100} = (0.34) (2.2/12) (25,610) = 1596 CU. FT.

V_{10} = (1596) (0.657) = 1049 CU. FT.

DEVELOPED CONDITIONS

Q_{100} = (0.90) (4.75) (24,960/43,560) = 2.45 CFS

Q_{10} = (2.45) (0.657) = 1.61 CFS

V_{100} = (0.90) (2.2/12) (24,960) = 4,118 CU. FT.

V_{10} = (4118) (0.657) = 2706 CU. FT.

FRED C. ARFMAN NEW MEXICO 7322 PROFESSIONAL ENGINEER
10-1-85

RECEIVED NOV 12 1985 HYDROLOGY SECTION

D17/D38

Date
Drawn By
Checked

UNITED OFFSET SUPPLY
3600 HAWKINS NE

DRAINAGE PLAN
PHASE II

ISAACSON & ARFMAN, P.A.
CONSULTING ENGINEERING ASSOCIATES
Albuquerque, New Mexico

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