HYDROLOGY

D17/D55
2 PLANS

D17/D55

2 Plans

PRE-DESIGN CONFERENCE FINDINGS:

1. PRIOR TO BUILDING PERMIT A DRAINAGE PLAN PER D.P.M. REQUIREMENT MUST BE SUBMITTED FOR REVIEW AND APPROVAL.
2. PART OF DRAINAGE FILE NO. D-17/D-55 AND ALSO D-17/D-55A.
3. ALL DEVELOPED RUNOFF MUST EXIT THRU DRIVEPAD AT HAWKINS.

DRAINAGE COMMENTS:

1. THE SITE DOES NOT LIE WITHIN OR ADJACENT TO A DESIGNATED FLOOD HAZARD AREA.
2. THERE IS ESSENTIALLY NO OFF-SITE FLOW. THE PROPERTY EAST OF THE SITE SLOPES SLIGHTLY TOWARD THE S.T.Z. BUT MOST, IF NOT ALL, OF THE RUNOFF IS INTERCEPTED AND TAKEN TO HAWKINS STREET.
3. THE SITE RUNOFF IS CONVEYED TO HAWKINS STREET THROUGH THE EXISTING 24' ACCESS EASEMENT. THE RIGHT FOR DRAINAGE TO BE CONVEYED ACROSS TRACT "X-1" WAS GRANTED BY DRAINAGE COVENANT OF JULY 18, 1986 FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO ON JULY 18, 1986 IN BOOK MISC. 373A, PAGES 759 AND 760.
4. THE SOUTHERN PORTION OF THIS SITE IS FULLY DEVELOPED AND DRAINS TO ELLISON STREET.
5. THE WAREHOUSE ADDITION WILL DRAIN TO THE WEST AS DOES THE EXISTING WAREHOUSE. SINCE THE AREA BEHIND THE BUILDINGS WILL REMAIN UNPAVED AND THERE IS NO BUILDING RUNOFF CONTRIBUTING TO IT, THE RUNOFF FOR THIS AREA WILL REMAIN WHERE IT FALLS.

CONSTRUCTION NOTES:

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE AT 765-1234 FOR LOCATION OF EXISTING UTILITIES.
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL POTENTIAL OBSTRUCTIONS; SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
3. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, RULES, AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
4. ALL CONSTRUCTION WITHIN CITY RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE CITY OF ALBUQUERQUE STANDARDS AND PROCEDURES.

GENERAL NOTES:

1. NO SEARCH HAS BEEN MADE FOR EASEMENTS OF RECORD OTHER THAN THOSE SHOWN ON THE PLAT OF RECORD.
2. SEE ARCHITECTURAL SITE PLAN FOR ALL DIMENSIONS OF BUILDING, PARKING, ETC.

LEGEND:

EXISTING	NEW	DESCRIPTION
5117	17	CONTOUR
x16.6	16.14	SPOT ELEVATION
		PROPERTY LINE
		SWALE
		SHEET FLOW
N A		ROOF GUTTER
N A		DOWNSPOUT
	TC	TOP OF CURB/CONCRETE
	TA	TOP OF ASPHALT
	F.L.	FLOW LINE

DRAINAGE CALCULATIONS

E. RAINFALL INTENSITY,I (REF. A., PLATE 22.2 D-2)
$I=R_{6}60.84X(T_{c})^{-0.51}=(2.2)6.84(10)^{-0.51}=4.65IN/HR$

F. SOIL TYPE (REF. I.C., SHEET NO. 11)SOIL IS EMB, EMBUDO GRAVELY FINE SANDY LOAM, HYDROLOGIC SOIL GROUP "B"

G. RUNOFF CURVE NUMBER (CN)-(REF.I.A., PLATE 22.2 C-2)
UNDEVELOPED CN: ROOFS, PAVEMENT, CN=98; LANDSCAPING CN=61 AND UNDEVELOPED CN=79
WEIGHTED CN=(42354x98+5200x61+48653x79)/96207=86
DEVELOPED CN:WEIGHTED CN= (59702x98+5650x61+30855x79) /96207=90

H. DIRECT RUNOFF, Q_D, INCHES (REF. I.A., PL. 22.2 C-4)
UNDEVELOPED Q_D = 1.1 IN. DEVELOPED Q_D = 1.4 IN.

III. ON-SITE PEAK DISCHARGE BY RATIONAL EQUATION:

A. EXISTING CONDITIONS:
Q_{100} = 0.62 X 4.65 X 2.21 = 6.37 CFS
Q_{10} = 0.657 X 6.37 = 4.18 CFS

B. DEVELOPED CONDITIONS:
Q_{100} = 0.72 X 4.65 X 2.21 = 7.40 CFS
Q_{10} = 0.657 X 7.40 = 4.86 CFS

IV. ON-SITE VOLUME BY S.C.S. METHOD:

A. EXISTING CONDITIONS:
V_{100} = AREA $(Q_D/12)$ = 96207 (1.1/12) = 8819 CF
V_{10} = 0.657 X 8819 = 5794 CF

B. DEVELOPED CONDITIONS:
V_{100} = AREA $(Q_D/12)$ = 96207(1.4/12) =11224 CF
V_{10} = 0.657 X 11224 = 7374 CF

I. REFERENCES:

A. CITY OF ALBUQUERQUE DEVELOPMENT PROCESS MANUAL (DPM) VOLUME 2, DESIGN CRITERIA, CHAPTER 22.
B. FLOODWAY MAP, PANEL 9 OF 50, (FEMA), OCTOBER 14, 1983.
C. SOIL SURVEY OF BERNALILLO COUNTY, NEW MEXICO, U.S. SOIL CONSERVATION SERVICE, JUNE, 1977.

II. ON-SITE RUNOFF CHARACTERISTICS:

A. UNDEVELOPED RUNOFF COEFFICIENT:

TYPE OF SURFACE	AREA	"C"VALUE	AREA("C")
STREETS, DRIVES, WALKS	23576	0.95	22397
ROOFS	18778	0.90	16900
LAWNS & LANDSCAPING	5200	0.25	1300
UNDEVELOPED	48653	0.40	19461
TOTAL AREA	96207±	2.2086 AC	60058

WEIGHTED "C" VALUE = 60058/96207=0.62
PERCENT IMPERVIOUS = 44%

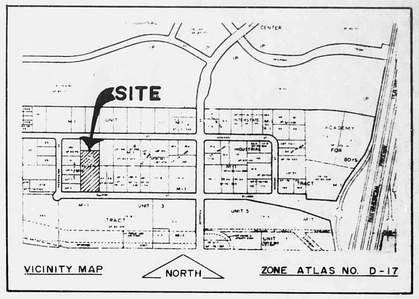
B. DEVELOPED RUNOFF COEFFICIENT:

TYPE OF SURFACE	AREA	"C"VALUE	AREA("C")
STREETS, DRIVES, WALKS	29177	0.95	27718
ROOFS	30523	0.90	27473
LAWNS & LANDSCAPING	5630	0.25	1413
UNDEVELOPED	30855	0.40	12342
TOTAL AREA	96207±	2.2086 AC	68,946

WEIGHTED "C" VALUE = 68,946/96207=0.72
PERCENT IMPERVIOUS = 62%

C. RAINFALL, 100-YR.,6-HR.:(REF. A., PLATE 22.2 D-1)
R_6 = 2.2 INCHES

D. TIME OF CONCENTRATION:10 MINUTES



BENCH MARK:

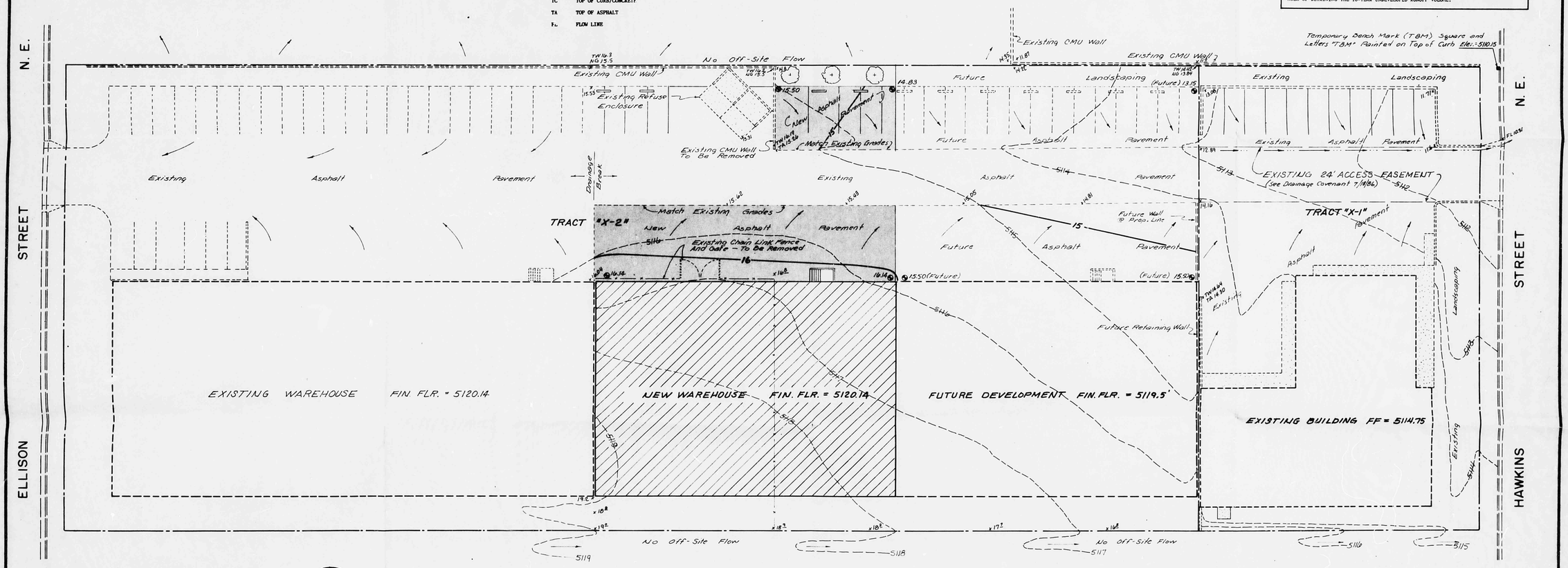
A.C.S. STATION 10-D17, LOCATED ALONG AND ELECTRICAL TRANSMISSION LINE, IN AN OPEN FIELD, 0.65 MILES WEST OF HIGHWAY I-25, AND ON THE PROJECTED CENTERLINE OF SAN ANTONIO DRIVE, N.E. A 40-PENNET NAIL IN THE SOUTH POLE OF PYLON #RES. ELEVATION 5109.28 FEET.

LEGAL DESCRIPTION:

A CERTAIN TRACT OR PARCEL OF LAND SITUATED WITHIN THE CITY LIMITS OF THE CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO: BEING AND COMPRISING TRACT "X-2", INTERSTATE INDUSTRIAL TRACT, WITHIN UNITS III & IV, SECTION 23, T11N, R3E, N.M.P.M.

EROSION CONTROL PLAN:

DURING CONSTRUCTION OF THE BUILDING, ALL RUNOFF FROM GRADED OR DISTURBED AREAS SHALL BE DETAINED IN PONDS, DIKES OR OTHER SUITABLE FACILITIES CAPABLE OF DETAINING THE 10-YEAR UNDEVELOPED RUNOFF VOLUME.



SITE GRADING PLAN
SCALE 1" = 20'

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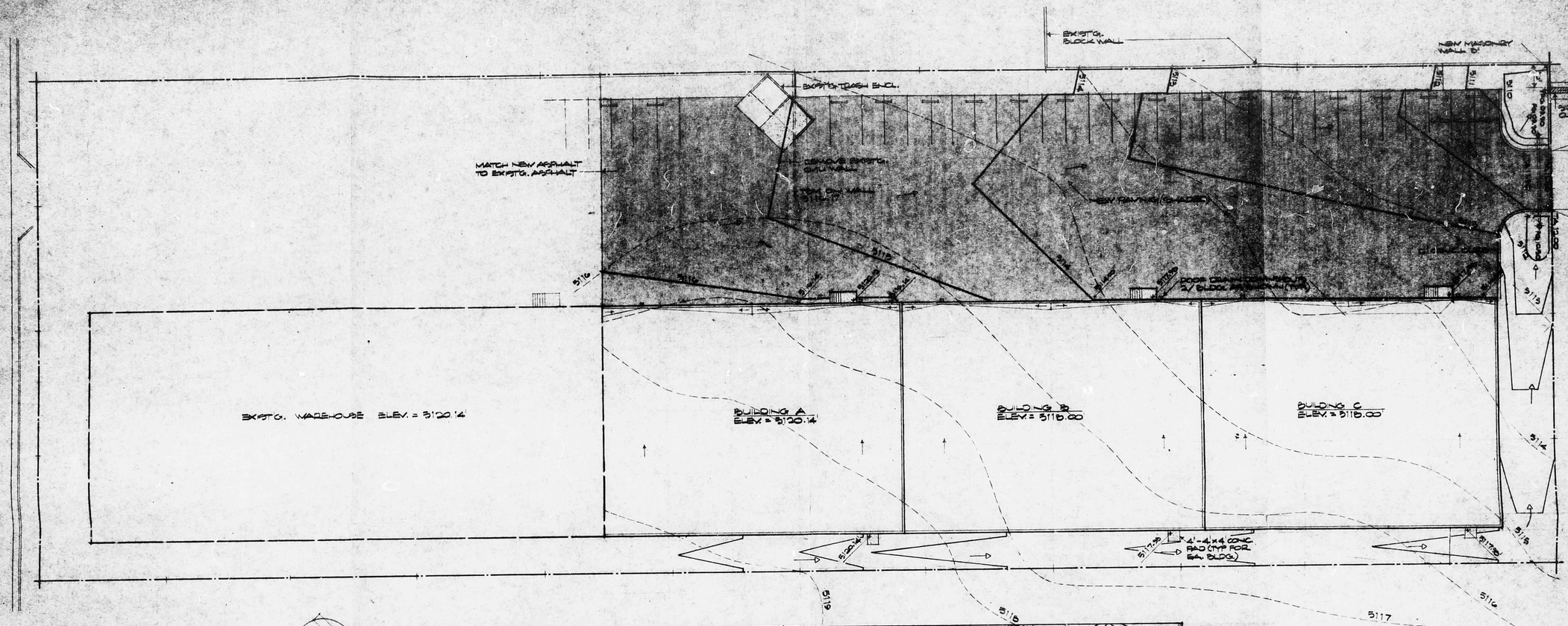
FRANK D. LOVELADY NEW MEXICO REGISTERED PROFESSIONAL ENGINEER 7/7/87

GRADING AND DRAINAGE PLAN
WAREHOUSE ADDITION FOR
WESTWIDE DISTRIBUTORS, INC.
4111 ELLISON STREET, N.E.
ALBUQUERQUE, NEW MEXICO



SITE GRADING PLAN

1"=20'-0"

THE SITE DOES NOT LIE WITHIN A DESIGNATED FLOOD HAZARD ZONE AS SHOWN BY THE FLOOD INSURANCE RATE MAP, PANEL 4 OF 15. NO PONDING IS REQUIRED; HOWEVER, PROPOSED PONDING AREAS ARE TO BE LANDSCAPED AND WILL SERVE AS DESILTING PONDS. RUNOFF FROM THE NEW CONSTRUCTION WILL DISCHARGE DIRECTLY INTO HAWKINS THROUGH A SIDEWALK CULVERT LOCATED AT THE NORTHWEST PROPERTY CORNER. NO OUTSIDE FLOWS ENTER THE DEVELOPMENT (TOTAL REPLATTED AREA) AND ALL FLOWS ARE DISCHARGED DIRECTLY INTO ADJACENT STREETS. LOT 5 AND LOT 32 WILL BE COMBINED INTO ONE TRACT OR LOT AND WILL BE REPLATTED AS SUCH. FOR ADDITIONAL LANDSCAPING INFORMATION SEE SHEET A-1 OF THE CONSTRUCTION DRAWINGS.

BENCH MARK: B-D17, A 40-PENNY NAIL IN THE SOUTH POLE OF PYLON #RE9, LOCATED ALONG AN ELECTRIC TRANSMISSION LINE, IN OPEN FIELD, 0.50 MILES WEST OF HWY I-25, AND ON THE PROJECTED CENTERLINE OF SAN ANTONIO DR. N.E. ELEVATION 5124.389.

TBM: A SQUARE MARKED ON TOP OF MASONRY WALL BETWEEN LOT 5 AND LOT 32. APPROXIMATELY 50 FEET EAST OF WEST PROPERTY LINE. ELEVATION 5116.17.

UNDEVELOPED FLOW CONDITIONS: SOIL SERIES AND MAP SYMBOL Emb, HYDROLOGIC SOIL B, RUNOFF CURVE NO. 69. WEIGHTED C = 0.40.
Q = CIA = (0.40)(4.65 INCHES/HOUR)(1.793 ACRES)
Q = 3.33 CFS

CAPACITY OF SWALE: $V = \frac{1.486}{0.02}(R)^{*}(Z/3\ POWER)(S^{\frac{1}{2}})$

$V = \frac{1.486 \times 0.23 \times .01^{\frac{1}{2}}}{0.02}$

V = 2.08 CFS

Q = AV
Q = 3.0 x 2.08
Q = 6.24 CFS

A= 6 x0.50x0.50x2
= 3.0 SQ. FT.
R= A/P
P= 20.02
R= 3.0 ÷ 20.02
R= 0.15

ESTIMATED RUNOFF TO BE CARRIED BY SWALE: A = 1.18 ACRES, C = 0.0
Q = CIA
= 0.90 x 4.65 x 1.18
Q_{100} = 4.94 CFS LESS THAN 6.24 CFS O.K.

WESTWIDE DISTRIBUTORS

LEGAL DESCRIPTION: Interstate Industrial Tract, Unit 4, Lots 5 and 32.
ZONE ATLAS: D-17-Z

RUNOFF COMPUTATIONS AND STATEMENTS:

Lot 5 has been developed and has an existing warehouse; lot 32 will be developed for parking including the addition to the existing warehouse. Lot 32 drains north and the grading plan will not alter the drainage discharging into Hawkins Street. At a predesign conference it was determined no on-site ponding is required. The runoff from lot 32 will accumulate at the northwest corner of the property and will be discharged into Hawkins Street through the construction of a new 2 foot wide sidewalk culvert.

RATIONAL FORMULA: Q=CIA where A is in Acres
C is coefficient of runoff
I is intensity of rainfall, in/Hr.

A = TOTAL AREA FROM LOT 32 and a small portion of LOT 5= 1.793 Acres

C = Coefficient of runoff for 100% developed = 0.90

I = INTENSITY OF RAINFALL FOR 100 YEAR FREQUENCY = 4.65 inches/Hour
Tc = 10 Min.

$P_{(6\ Hour\ Duration)}$ = 2.20 inches, 100 year frequency

Q = CIA = 0.90 x 4.65 x 1.793

Q = 7.50 CFS

SIDEWALK CULVERT CAPACITY (CITY STD. DWG. K-16-1):

$Q = C_d A \sqrt{2gh}$ Where, h= 1.33 ft., and w= 2.0 ft.

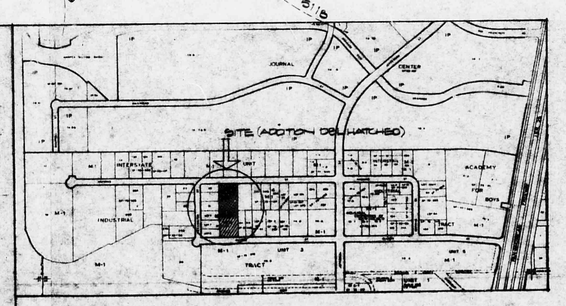
$Q = 0.60 \times 1.33 \times 2.0(2 \times 32.2 \times 1.33)^{\frac{1}{2}}$

Q = 7.44 CFS approximately 7.50 CFS O.K.

Provide a small desilting pond upstream from sidewalk culvert and incorporate into landscaping scheme.

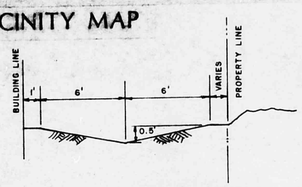
IF THE SIDEWALK CULVERT IS CLOGGED THE DRIVEPAD WILL ACT AS A SPILLWAY.

CONSTRUCT MASONRY WALL TO PROVIDE 1.33 FEET OF HEAD.

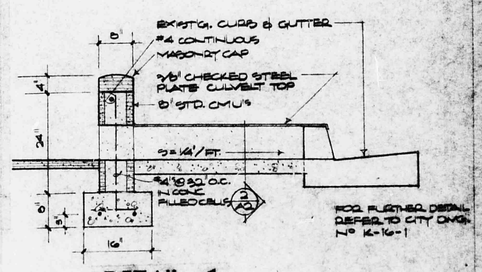


D-17-Z

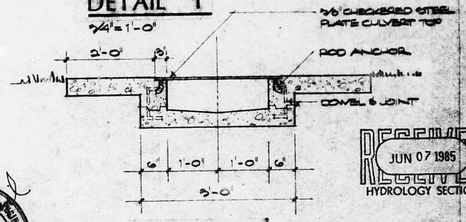
VICINITY MAP



SWALE AT EAST SIDE OF BUILDING



DETAIL 1
3/4"=1'-0"



DETAIL 2
3/4"=1'-0"

REGISTERED PROFESSIONAL ENGINEER No. 14570 NEW MEXICO JACOB A. VIGIL

REVISED 6/6/85 JAV.

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Dyer/McClernon Architects/Planners P.A.
1401 Eliza SE, NM Albuquerque, New Mexico 87123

WESTWIDE DISTRIBUTORS INC.
WAREHOUSE ADDITIONS 1985

Sheet Title: SITE GRADING PLAN & DETAILS

Date: 4-19-85

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