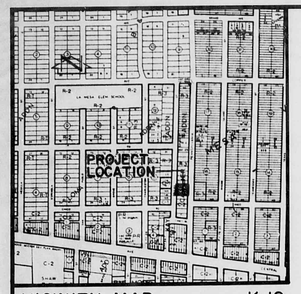
Hydrology K19/D71 Diamond Electric

K19/D71

DIAMOND
ELECTRIC

1 PLAN



VICINITY MAP K·19

SCALE 1" = 800'

LEGEND

- 5355 — EXISTING CONTOUR
- 55 — PROPOSED CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- EXISTING CHAINLINK FENCE
- EXISTING WOOD FENCE
- PROPOSED ASPHALT
- PROPOSED CONCRETE

LEGAL DESCRIPTION

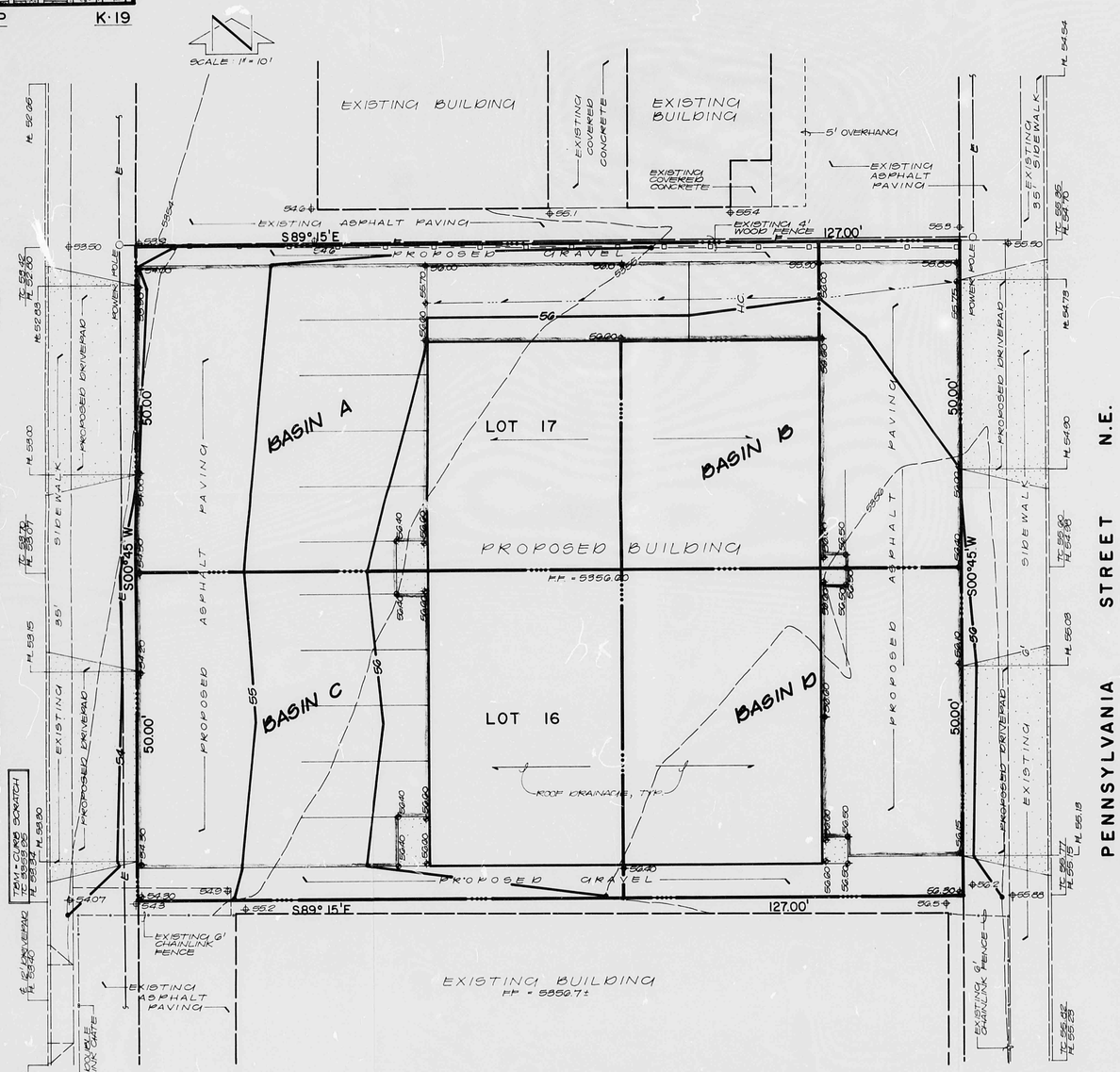
LOTS 16 & 17, CAVALIER ADDITION

TEMPORARY BENCHMARK

CURB SCRATCH @ THE PROJECTION OF THE SOUTHWEST PROPERTY CORNER OF LOT 16, AS SHOWN.
ELEVATION = 5358.95 FEET (MSLD)

PROJECT BENCHMARK

A STANDARD ACS DISK, STAMPED "G-K19, 1974 ACS" SET IN CONCRETE CYLINDER IN THE GROUND ON THE WEST MEDIAN NOSE OF THE INTERSECTION OF PENNSYLVANIA ST. & CENTRAL AVE. THE STATION IS LOCATED 625 FT. WEST OF CENTERLINE ON PENNSYLVANIA ST. & 17.0 FEET SOUTH OF CENTERLINE OF THE WESTBOUND LANE ON CENTRAL AVE.
ELEVATION = 5358.44 FEET (MSLD)



DRAINAGE PLAN

The following items concerning the Diamond Electric Drainage Plan are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

The proposed improvements, as shown by the Vicinity Map, are located between Dallas Street N.E. and Pennsylvania Street N.E., just north of Chico Road N.E. At present, much of the surrounding area is developed residentially. The site is undeveloped making it an infill site within a predominately developed area.

As shown by Plate K-19 of the Albuquerque Master Drainage Study, the site does not lie within a designated Flood Hazard Zone, however, there is a designated flooding in Pennsylvania Street N.E. adjacent to the southeast property corner. The flooding in this area is relieved by the Fairgrounds Storm Water Relief System which is in place. At present, the runoff generated by this site flows from east to west into Dallas Street N.E. Dallas Street N.E. drains north to Domingo Road N.E. then west in Domingo Road N.E. to Louisiana Boulevard N.E. Enroute, the runoff enters the Fairgrounds Stormwater Relief System which, as previously mentioned, relieves the flooding in this area.

The Grading Plan shows 1) existing and proposed grades indicated by spot elevations and contours at 1'0" intervals, 2) continuity between existing and proposed grades, and 3) the limit and character of the proposed improvements. As shown by this plan the proposed improvements consist of the construction of a building along with adjacent paving and landscaping. Flows generated from this site are discharged to both Dallas Street N.E. and Pennsylvania Street N.E. Basins A and C flow to Dallas Street N.E. via drivepads while Basins B and D flow to Pennsylvania Street N.E. via drivepads. This is accomplished without having any cross-lot drainage. Runoff entering Dallas Street N.E. flows as described above. The runoff which enters Pennsylvania Street N.E. flows north to Copper Avenue N.E. and then west on Copper Avenue N.E. and enters the Fairgrounds Stormwater Relief System. No offsite flows enter the site because the adjacent lots direct their generated runoff toward the streets, and the streets appear to contain all flows.

The calculations which appear hereon analyze both the existing and developed conditions for the 100-year, 6-hour rainfall event. The Rational Method has been used in accordance with the City of Albuquerque Development Process Manual, Volume II. As shown by these calculations, the proposed improvements will increase the peak discharge by only 0.9 cfs (approximately), thereby having a negligible impact on this watershed. Based upon this negligible increase in runoff, the fact that this is an infill site, the effect of the Fairgrounds Stormwater Relief System on flooding, and the predominant trend of this watershed toward free discharge without detention ponding, the free discharge of runoff from these two small lots is appropriate.

CALCULATIONS

Ground Cover Information

From SCS Bernalillo County Soil Survey, Plate 31:

MWA - Madurez-Wink

Hydrologic Soil Group B

Rational Method

Discharge: $Q = CiA$

where C varies

$i = P_6 (6.84)\, T_c^{-0.51} = 5.05$ in/hr
$P_6 = 2.39$ in (DPM Plate 22.2D-1)
$T_c = 10$ min (minimum)
A = area, acres

Volume: $V = CP_6A(1/12)$

Where C varies
$P_6 = 2.39$ in (DPM Plate 22.2D-1)
A = area, sf

Existing Condition

$A_{total} = 12{,}700$ sf $= 0.29$ Ac
$A_{imp} = 0$ sf; % impervious = 0%

'C' = 0.34 (DPM Plate 22.2C-1)

$Q_{100} = CiA = (0.34)(5.05)(0.29) = 0.5$ cfs
$V_{100} = CP_6A = (0.34)(2.39/12)(12{,}700) = 860$ cf

Developed Conditions

Basin A

$A_{tot} = 3900$ sf $= 0.09$ AC
$A_{imp} = 3645$ sf % imp = 93%
'C' = 0.90 (DPM Plate 22.2C-1)
$Q_{100} = CiA = (0.90)(5.05)(0.09) = 0.4$ cfs
$V_{100} = CP_6A = (0.90)(2.39/12)(3900) = 700$ cf

Basin B

$A_{tot} = 2450$ sf $= 0.06$ Ac
$A_{imp} = 2324$ sf % imp = 95%
'C' = 0.91 (DPM Plate 22.2C-1)
$Q_{100} = CiA = (0.91)(5.05)(0.06) = 0.3$ cfs
$V_{100} = CP_6A = (.91)2.39/12)(2450) = 445$ cf

Basin C

$A_{tot} = 3750$ sf $= 0.09$ Ac
$A_{imp} = 3375$ sf % imp = 90%
'C' = 0.86 (DPM Plate 22.2C-1)
$Q_{100} = CiA\ (0.86)(5.05)(0.09) = 0.4$ cfs
$V_{100} = CP_6A = (0.86)(2.39/12)(3750) = 640$ cf

Basin D

$A_{tot} = 2600$ sf $= 0.06$ Ac
$A_{imp} = 2322$ sf % imp = 89%
'C' = 0.85 (DPM Plate 22.2C-1)
$Q_{100} = CiA = (0.85)(5.05)(0.06) = 0.3$ cfs
$V_{100} = CP_6A = (0.85)\ 2.39/12)(2600) = 440$ cf

Comparison

$\Delta Q_{100} = (0.4 + 0.3 + 0.4 + 0.3) - 0.5 = 0.9$ cfs (increase)
$\Delta V_{100} = (700 + 445 + 640 + 440) - 860 = 1365$ cf (increase)

EROSION CONTROL MEASURES

1. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AT THE PROPERTY LINES AND WETTING THE SOIL TO KEEP IT FROM BLOWING.
2. THE CONTRACTOR SHALL PROMPTLY CLEAN UP ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY SO THAT THE EXCAVATED MATERIAL IS NOT SUSCEPTIBLE TO BEING WASHED DOWN THE STREET.
3. THE CONTRACTOR SHALL SECURE "TOPSOIL DISTURBANCE PERMIT" PRIOR TO BEGINNING CONSTRUCTION.

CONSTRUCTION NOTES:

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE 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 PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE CITY OF ALBUQUERQUE STANDARDS AND PROCEDURES.

RECEIVED FEB 11 1986 HYDROLOGY SECTION

JEFFREY G. MONTOYA NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER 01-10-86

Bohannan-Huston Associates, Inc.
811 DALLAS N.E. · ALBUQUERQUE · NEW MEXICO · 87110
ENGINEERS

NO.	DATE	BY	REVISIONS

DESIGNED BY RHD
DRAWN BY LBD
APPROVED JGM

JOB NO. 60111
DATE 02·86

GRADING & DRAINAGE PLAN
DIAMOND ELECTRIC

K19/D71

FILE NO.
SHEET 1 OF 1