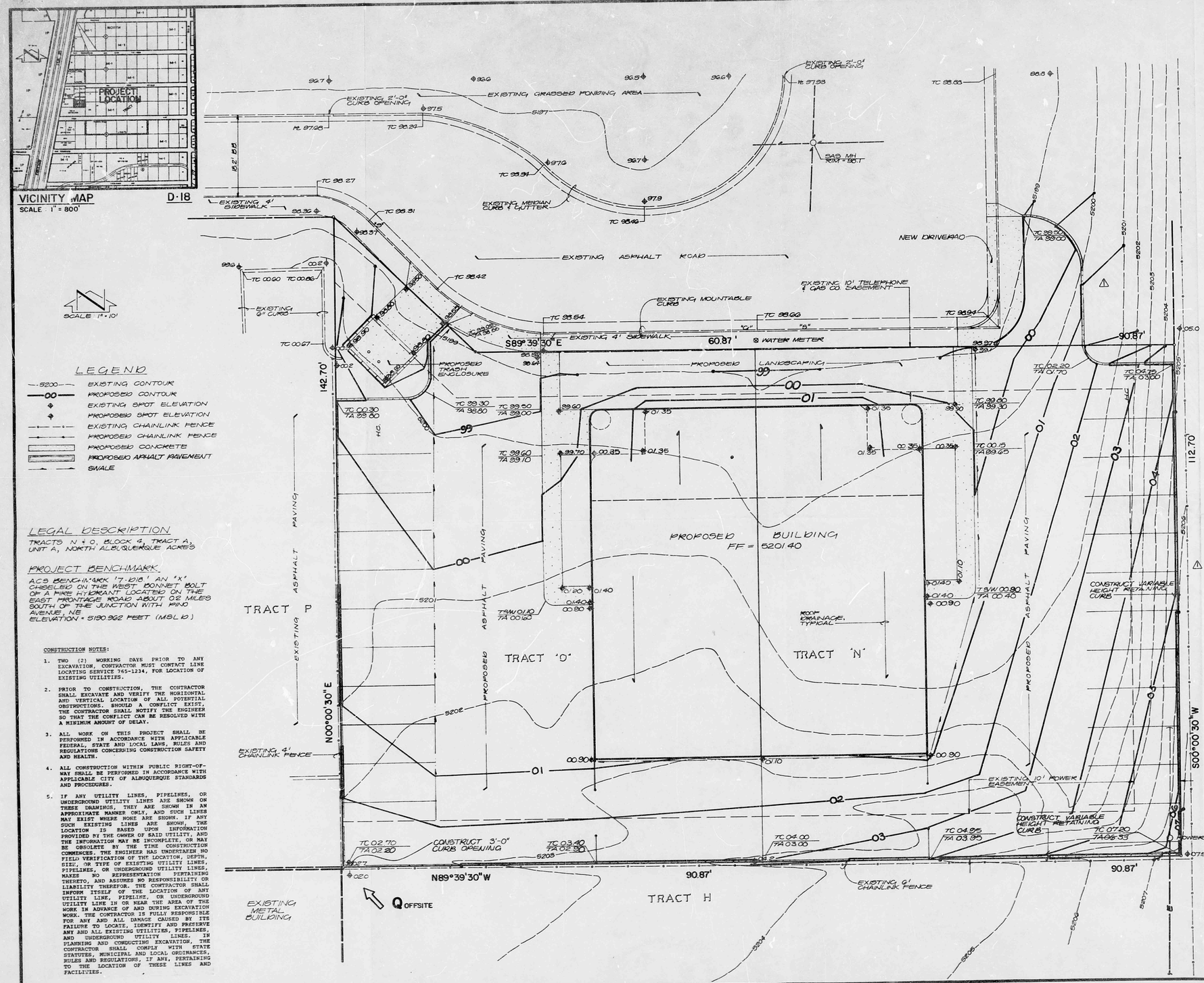
HYDROLOGY

D18/D8D
ONE PLAN

D18/D8D

1 PLAN



DRAINAGE PLAN

The following items concerning the Chisel Smith Office/Warehouse No. 2 are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

As shown by the Vicinity Map, this site is located on a private entrance road just east of the east frontage road. Furthermore, this site is located north of Pino Avenue N.E. where it intersects the east frontage road of Interstate Highway 25. The site is more particularly described as Tracts N and O, Block 4, North Albuquerque Acres. At present, the site is undeveloped and has been masterplanned in a drainage report prepared by Gordon Herkenhoff and Associates, dated August 1981, Hydrology File No. D18/D8. Some of the adjacent sites are developed with various levels of density.

A review of the National Flood Insurance Program Flood Boundary and Floodway Maps for the City of Albuquerque, New Mexico, reveals that this site is not located within a designated Flood Hazard Zone. The previously mentioned master drainage plan addresses the method for controlling drainage from this site. More particularly, this site is located in Area No. 2 as discussed by the Drainage Master Plan. Tracts N and O discharge to the private entrance roadway which is presently constructed. From this point, the runoff from the site enters the existing ponding area within the median of the private roadway. This ponding area was constructed under City Work Order (Project NO. 1289) and is now in place. In accordance with the approved Drainage Master Plan, the runoff from this site will be freely discharged to the private roadway where it will enter the existing pond.

The Grading Plan shows 1) existing and proposed grades indicated by spot elevations and contours at 1'0" intervals, 2) the limit and character of the existing improvements, 3) the limit and character of the proposed improvements, and 4) continuity between existing and proposed grades. As shown by this Plan, the site presently drains from south to north. Under the proposed construction, each tract will discharge via drivepads to the private roadway. The parcels have been graded such that there will be no cross-lot drainage. Major offsite flows are not anticipated to affect this site because the City's Pino Yard is located to the east and has been developed with a curb which diverts developed runoff away from the common lot line. Because the City Yard is fenced, it was not possible to obtain an exact location of that curb, but it is located near the common lot line. The land to the south of the site slopes toward the southwest corner of the site. These flows, which are quantified below, will be accepted and discharged to the private entrance road. The land located to the west of the site slopes away from the site and does not contribute any runoff either.

The Calculations which appear hereon analyze both the existing and proposed conditions for the 100-year, 6-hour rainfall event. The Rational Method has been used for the analysis of peak discharge rate, and the SCS Method has been used for quantifying runoff volume. Both Methods have been used in accordance with City of Albuquerque Development Process Manual, Volume II, along with the Mayor's Emergency Rule dated January 14, 1986. As shown by these Calculations, a minor increase in runoff is anticipated due to construction.

CALCULATIONS

Ground Cover Information

From SCS Bernalillo County Soil Survey,
Plate: 11; Etc - Embudo-Tijeras complex
Hydrologic Soil Group: B
Existing Pervious CN = 70 (DPM Plate 22.2 C-2
Pasture or Range Land: fair condition)
Developed Pervious CN = 61 (DPM Plate 22.2 C-2
Open space: good condition)

Time of Concentration/Time to Peak

$T_c = 0.0078\ L^{0.77}/S^{0.385}$ (Kirpich Equation)

$T_p = T_c = 10$ min.

Point Rainfall

$P_6 = 2.2$ in. (DPM Plate 22.2 D-1)

Rational Method

Discharge: $Q = CiA$

where C varies
$i = P_6\ (6.84)\ T_c^{-0.51} = 4.65$ in/hr
$P_6 = 2.2$ in (DPM Plate 22.2D-1)
$T_c = 10$ min (minimum)
A = area, acres

SCS Method

Volume: $V = 3630(DRO)\ A$

Where DRO = Direct runoff in inches
A = area, acres

Existing Condition

$A_{total} = 20{,}931$ sf $= 0.48$ Ac
$C = 0.40$ (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CiA = (0.40)(4.65)(0.48) = 0.9$ cfs
$A_{imp} = -0-$ sf; % impervious = -0-%
Composite CN = 70 (DPM Plate 22.2 C-3)
DRO = 0.4 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)A = 700$ cf

Developed Condition

$A_{total} = 20{,}931$ sf $= 0.48$ Ac
Roof area = 5,540 sf (0.26)
Paved area = 13,591 sf (0.65)
Landscaped area = 1,800 sf (0.09)
$C = 0.87$ (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CiA = (0.87)(4.65)(0.48) = 1.8$ cfs
$A_{imp} = 19{,}131$ sf; % impervious = 91 %
Composite CN = 95 (DPM Plate 22.2 C-3)
DRO = 1.7 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)\ A = 2{,}960$ cf

Offsite Flows

$A_{total} = 21{,}780$ sf $= 0.50$ Ac (ESTIMATED FROM MASTER PLAN)
$C = 0.40$ (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CiA = (0.40)(4.65)(0.5) = 0.9$ cfs
$A_{imp} = -0-$ sf; % impervious = -0-%
Composite CN = 70 (DPM Plate 22.2 C-3)
DRO = 0.4 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)A = 726$ cf

Comparison

$\Delta Q_{100} = 1.9 - 0.9 = 1.0$ cfs (increase)
$\Delta V_{100} = 2960 - 700 = 2260$ cf (increase)

RECEIVED
OCT 14 1986
HYDROLOGY SECTION

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 MATERIALS 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.

JEFFREY C. MORTENSEN
NEW MEXICO
5547
REGISTERED PROFESSIONAL ENGINEER
10-14-86

MORTENSEN/ASSOCIATES INC.
811 DALLAS, N.E. - ALBUQUERQUE - NEW MEXICO - 87110
ENGINEERS

NO.	DATE	BY	REVISIONS
1	10-86	L.P.U.	REVISE CURB HEIGHTS ALONG EAST & NORTH-EAST PROPERTY LINES

DESIGNED BY L.P.U.
DRAWN BY T.M.A.
APPROVED J.C.M.

JOB NO. 61222
DATE 09-86

GRADING & DRAINAGE PLAN
CHISEL SMITH OFFICE/WAREHOUSE NO. 2

FILE NO.
SHEET 1 OF 1