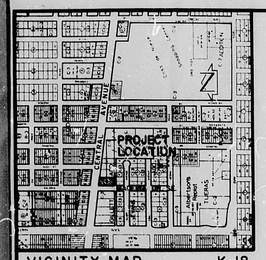
HYDROLOGY K18/D11 1 PLAN

K18/D11

1 Plan

CITY OF ALBUQUERQUE



VICINITY MAP K-18

SCALE 1" = 800'

LEGEND

- 5205 — EXISTING CONTOUR
- EXISTING SPOT ELEVATION
- EXISTING FENCE
- EXISTING BLOCK WALL
- SWALE
- PROPOSED SPOT ELEVATION
- 5264 — PROPOSED CONTOUR
- PROPOSED ASPHALT PAVEMENT
- PROPOSED CONCRETE

TEMPORARY BENCHMARK

A SQUARE "D" CHISELED ON TOP OF CONCRETE CURB @ THE ESE CURB RETURN ON EAST CENTRAL AVENUE & MADEIRA DRIVE N.E., AS SHOWN ON DRAWING.
ELEVATION = 5263.20 FEET (M.S.L.D.)

PROJECT BENCHMARK

ACS BENCHMARK "UNM-A57" A 3/4" BRASS CAP SET IN TOP OF CONCRETE CURB, STAMPED "A-57, 5266.64", LOCATED ON THE NORTH SIDE OF EAST CENTRAL AVENUE, 63'± WEST OF LAGUNA DRIVE
ELEVATION = 5266.52 FEET (M.S.L.D.)

LEGAL DESCRIPTION

LOT 6, GILLETT ADDITION

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.
5. IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE MANNER ONLY, AND SUCH LINES MAY EXIST WHERE NONE ARE SHOWN. IF ANY SUCH EXISTING LINES ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE OWNER OF SAID UTILITY, AND THE INFORMATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME CONSTRUCTION COMMENCES. THE ENGINEER HAS UNDERTAKEN NO FIELD VERIFICATION OF THE LOCATION, DEPTH, SIZE, OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES, MAKES NO REPRESENTATION PERTAINING THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFOR. THE CONTRACTOR SHALL INFORM ITSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE, OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK IN ADVANCE OF AND DURING EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES, AND UNDERGROUND UTILITY LINES. IN PLANNING AND CONDUCTING EXCAVATION, THE CONTRACTOR SHALL COMPLY WITH STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES.

DRAINAGE PLAN

The following items concerning the Central Madeira Office Complex Drainage Plan are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

The proposed improvements as shown by the Vicinity Map, are located on the southeast quadrant of the intersection of Central Avenue and Madeira Drive S.E. At present, the site is developed. Much of the surrounding area is currently developed, thereby making this an infill site. As shown by Plate K-18 of the Albuquerque Master Drainage Study, this site does not lie within a designated Flood Hazard Zone. No offsite flows enter this site along the east property line since there is an existing block wall which keeps flows from entering the site. No offsite flows enter the site along the south property line since the adjacent alley is graded in a manner which will route flows away from the site.

The Grading Plan shows 1) existing and proposed grades indicated by 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 removal of existing buildings along with adjacent paving and the construction of a new office building along with adjacent paving and landscaping. Flows generated by this site will be routed from south to north onto Central Avenue. This pattern is consistent with existing site drainage based upon the fact that this site is an infill site and no change of runoff is generated by the proposed improvements and the proximity of downstream improvements, the free discharge of runoff from this site is appropriate.

The Calculations which appear hereon analyze both the existing and developed conditions for the 100-year, 6-hour rainfall event. The Rational Method and SCS Method has been used for this analysis in accordance with City of Albuquerque Development Process Manual, Volume II. As shown by these Calculations, the proposed improvements will result in no change in the peak discharge.

CALCULATIONS

Ground Cover Information

From SCS Bernalillo County Soil Survey, Web-Wink-Embudo Complex
Plate: 31
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)

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

$P_6 = 2.3$ in. (DPM Plate 22.2 D-1)

Rational Method

Discharge: $Q_r = CIA$

where C varies
$I = P_6\ (6.84)\ T_C^{-0.51} = 4.86$ in/hr
$P_6 = 2.3$ 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

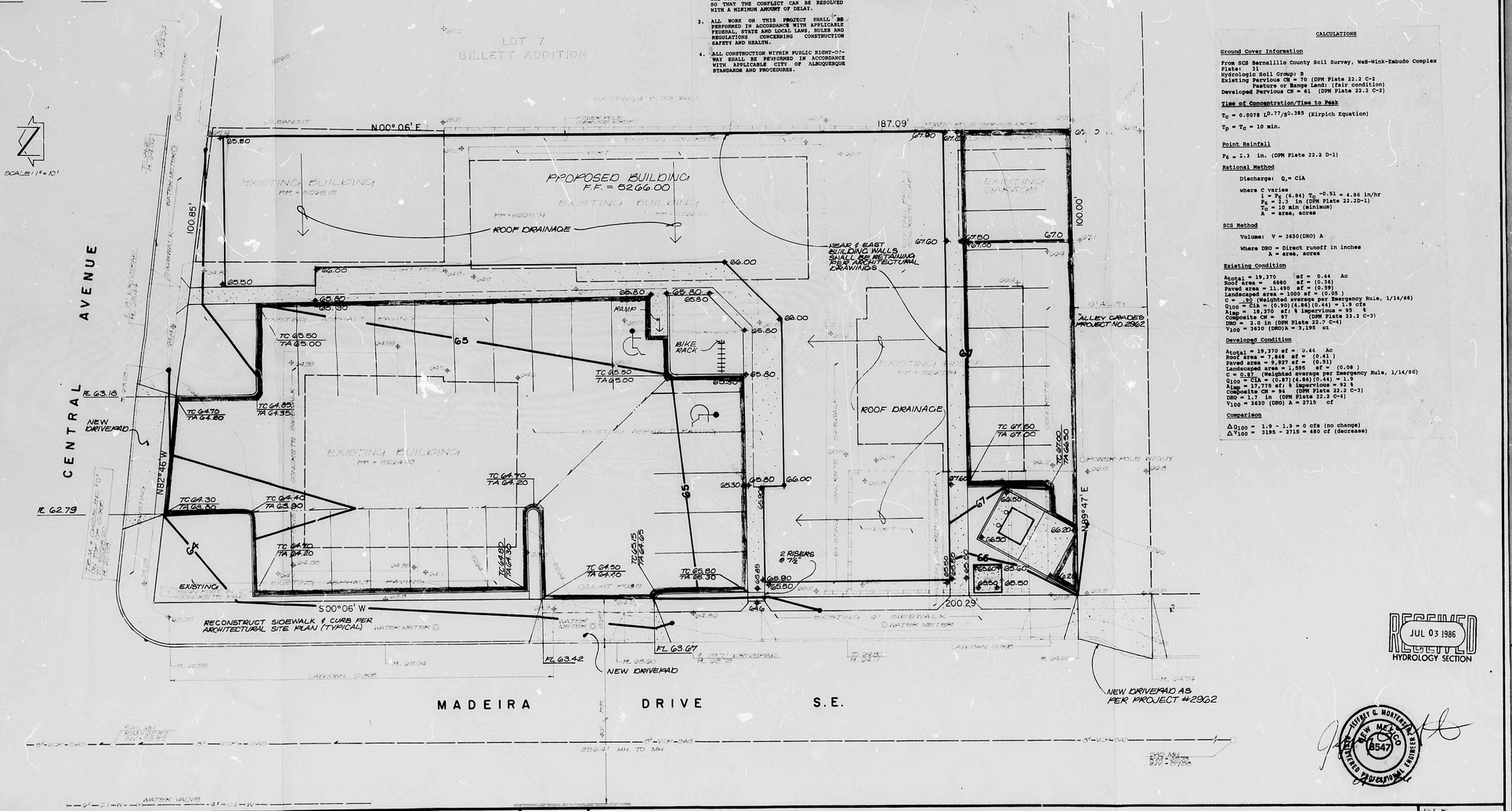
$A_{total} = 19,370$ sf = 0.44 Ac
Roof area = 6880 sf = (0.36)
Paved area = 11,490 sf = (0.59)
Landscaped area = 1000 sf = (0.05)
C = .80 (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CIA = (0.80)(4.86)(0.44) = 1.9$ cfs
Aimp = 18,370 sf; % impervious = 95 %
Composite CN = 97 (DPM Plate 22.2 C-3)
DRO = 2.9 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)A = 3,195$ cf

Developed Condition

$A_{total} = 19,370$ sf = 0.44 Ac
Roof area = 7,848 sf = (0.41)
Paved area = 9,927 sf = (0.51)
Landscaped area = 1,595 sf = (0.08)
C = 0.87 (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CIA = (0.87)(4.86)(0.44) = 1.9$
Aimp = 17,775 sf; % impervious = 92 %
Composite CN = 94 (DPM Plate 22.2 C-3)
DRO = 1.7 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)\ A = 2715$ cf

Comparison

$\Delta Q_{100} = 1.9 - 1.9 = 0$ cfs (no change)
$\Delta V_{100} = 3195 - 2715 = 480$ cf (decrease)



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BOHNHOFF MONTOYA ASSOCIATES ENGINEERS, 811 DALLAS N.E. • ALBUQUERQUE • NEW MEXICO • 87110	NO. / DATE / BY / REVISIONS	DESIGNED BY L.R.U. DRAWN BY L.B.B. APPROVED T.T.M.	JOB NO 60902 DATE 6·86

GRADING & DRAINAGE PLAN

CENTRAL MADEIRA OFFICE COMPLEX

FILE NO. SHEET 1 OF 1

CITY OF ALBUQUERQUE
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