HYDROLOGY K14/D27 1 PLAN

K14/D27

1 PLAN

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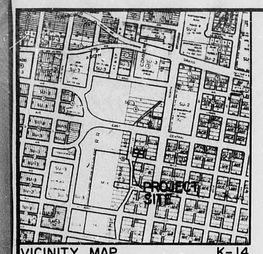
CITY OF ALBUQUERQUE

C D



VICINITY MAP K-14

SCALE: 1" = 800'

PROJECT BENCHMARK

A STANDARD CITY OF ALBUQUERQUE DISK SET IN A DRILLED HOLE IN THE SIDEWALK STATION IS MARKED "2-K14" DESC. THE STATION IS LOCATED IN DOWNTOWN ALBUQUERQUE AT 3rd & COPPER AVE. N.W. IN THE N.W. QUADRANT OF THE INTERSECTION, 7.5 FT. WEST OF THE BACK OF CURB, 0.1 3rd St. AND 7.5 FT. NORTH OF THE BACK OF CURB ON COPPER AVE.
ELEVATION = 4952.810 FEET (M.R.L.D.)

T.B.M.

TOP OF EAST TRANSFORMER PAD LOCATED @ THE SOUTH-EAST CORNER OF LOT 4A AS SHOWN ON THE DRAWING BELOW.
ELEVATION = 4962.42 FEET (M.R.L.D.)

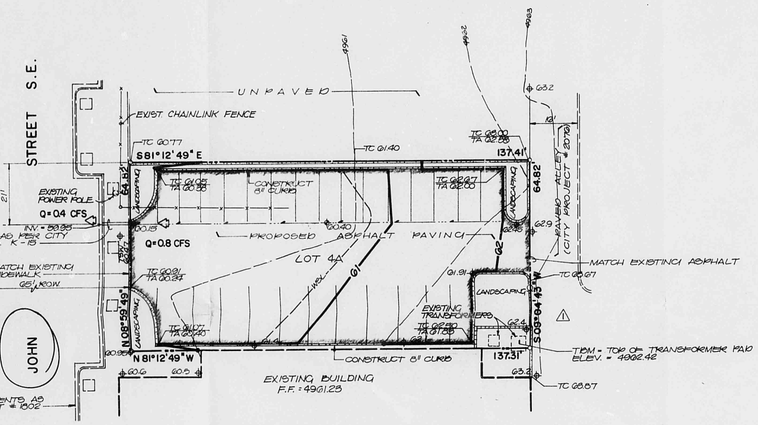
LEGAL DESCRIPTION

LOT 4A, BLOCK 2, HUNING'S HIGHLAND ADDITION

LEGEND

◆	PROPOSED SPOT ELEVATION
◆	EXISTING SPOT ELEVATION
5G	PROPOSED CONTOUR
5885G	EXISTING CONTOUR
	SWALE
	PROPERTY LINE
	CONCRETE
	PROPOSED ASPHALT
	PROPOSED FENCE
—x—x—	EXISTING FENCE
T.C. 02.00	TOP OF CURB
FL. 01.65	FLOW LINE

SCALE: 1" = 20'



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.

⚠ NOTE:

1. CONTRACTOR SHALL CONTACT CITY HYDROLOGY FOR FINAL INSPECTION.

DRAINAGE PLAN

The following items concerning the Shufflebarger Parking Area Drainage Plan are contained hereon:

1. Vicinity Map 2. Grading Plan 3. Calculations

The proposed improvements, as shown by the Vicinity Map, are located just north of the northeast corner of John Street S.E. and Gold Avenue S.E. and just east of the Atchison, Topeka and Santa Fe Railroad. At present, the site is undeveloped.

As shown by Panel 28 of 50 of the National Flood Insurance Program Flood Boundary and Floodway Maps for the City of Albuquerque, New Mexico, this site does not lie within a designated Flood Hazard Zone. At present, the site drains from east to west and discharges its runoff into John Street S.E. The runoff then flows in a northerly direction to Central Avenue where it turns and flows in a westerly direction to the underpass at the Atchison, Topeka and Santa Fe Railroad track where it is removed from the street by an existing public storm drain facility, part of System 132-01D. An existing paved alley lies along the property line of the site. Offsite flows from the east are intercepted by this alley (City Project No. 2076). The alley drains north to Central Avenue which drains to the previously mentioned railroad underpass.

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 proposed improvements, and 3) continuity between existing and proposed grades. As shown by this plan, the proposed improvements include pavement and landscaped areas. In the developed condition, runoff will be routed from east to west across the new paving and discharged under the sidewalk via a 4" PVC curb penetration. From this point the runoff will flow north in John Street as discussed above. Due to the presence of the downstream public storm drain system, the fact that this site is located at the bottom of the watershed, and the negligible increase in runoff shown by the calculations, the free discharge of runoff from this infill 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 has been used for this analysis in accordance with the City of Albuquerque Development Process Manual, Volume II. As shown by these calculations, the proposed improvements will result in a very slight increase in the amount of runoff discharged from the site.

CALCULATIONS

Ground Cover Information

From SCS Bernalillo County Soil Survey, Plate 30:
Cu - Cut and Fill land
Hydrologic Soil Group B

Rational Method

Discharge: $Q = CiA$
where C varies
$i = P_6 (6.84)\, T_c^{-0.51} = 4.86$ in./hr
$P_6 = 2.3$ in (DPM Plate 22.2 D-1)
$T_c = 10$ min (minimum)
A = area, acres

Volume: $V = CP_6A(1/12)$
where C varies
$P_6 = 2.3$ in (DPM Plate 22.2 D-1)
A = area, acres

Existing Condition

$A_{total} = 8{,}905$ sf = 0.20 Ac
$A_{imp} = 0$ sf; % impervious = 0%
$C = 0.34$ (DPM Plate 22.2 C-1)
$Q_{100} = CiA = 0.34(4.86)(0.20) = 0.3$ cfs
$V_{100} = CP_6A = 0.34(2.3/12)(8{,}905) = 580$ cf

Developed Condition

$A_{total} = 8{,}905$ sf = 0.20 Ac
$A_{imp} = 7{,}610$ sf; % impervious = 85%
$C = 0.81$ (DPM Plate 22.2 C-1)
$Q_{100} = CiA = 0.81(4.86)(0.20) = 0.8$ cfs
$V_{100} = CP_6A = 0.81(2.3/12)(8{,}905) = 1{,}380$ cf
Volume of Pond = 1/2[($A_{60.82}$ + $A_{60.15}$)(60.82 - 60.15)]
= 1/2[(3,375 + 0)(0.67)]
= 1,330 cf

Hydraulic Analysis of 4" Pipe:

$Q_{release} = CA\sqrt{2gh}$
C = 0.8
A = 0.0873 ft^2
g = 32.2 ft/sec^2
h = 60.82 - 60.15 - 1/2(0.33) = 0.50
$Q_{release} = 0.4$ cfs > $Q_{existing}$
$V_{required} = 348$ cf < 1,330 cf

Comparison

$\Delta Q_{100} = \overset{0.8}{\cancel{0.4}} - \overset{0.5}{\cancel{0.1}} = 0.3$ cfs (increase) ⚠
$\Delta V_{100} = 1{,}380 - 580 = 800$ cf (increase)

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JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER 09-27-85

811 DALLAS, N.E. • ALBUQUERQUE • NEW MEXICO • 87110 ENGINEERS	NO. / DATE / BY / REVISIONS: ⚠1 10/1/85 TM REVISIONS PER LETTER DATED 9/23/85.	DESIGNED BY K.B. DRAWN BY B.C.H./L.B.D. APPROVED J.G.M.	JOB NO. 30484 DATE 7·85	GRADING & DRAINAGE PLAN SHUFFLEBARGER PARKING AREA	FILE NO. SHEET 1 OF 1

CITY OF ALBUQUERQUE
THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT

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