HYDROLOGY M15/D5 3 PLANS

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A

M15/D5

3 Plans

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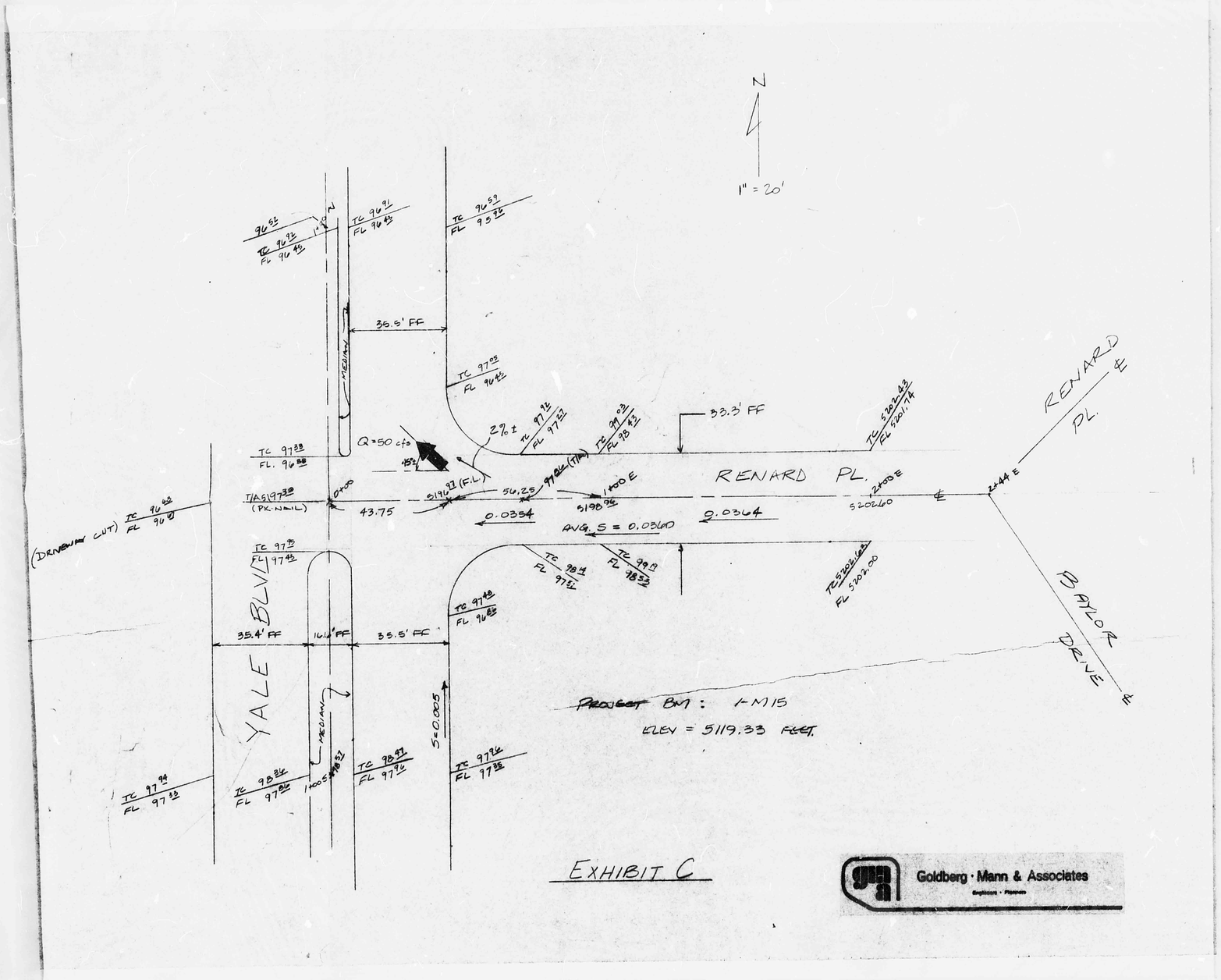
CITY OF ALBUQUERQUE

C



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ORIGINAL DOCUMENT

DRAINAGE CERTIFICATION

The plan contained hereon shows (1) design grades indicated by spot elevations and contours, (2) as-built spot elevations at key locations, and (3) future street grades.

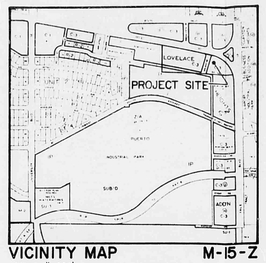
The as-built conditions of the project are in substantial compliance with the approved drainage plan. This has been determined by field visits and survey information. The building finish floor elevation is approximately 0.10 feet lower than designed, however this does not present a problem. The survey information is the basis for the as-built spot elevations shown on this plan. Furthermore, the as-built conditions are compatible with the approved drainage plan, adjacent property and the street grades. As indicated by this plan, the adjoining site to the west, Office Building 7, is currently under construction. It is based on this information that a Certificate of Occupancy is hereby requested for Craddock Office Building 6.

REGISTERED PROFESSIONAL ENGINEER STATE OF NEW MEXICO THOMAS J. MANK JR. 3782 LAND SURVEYOR

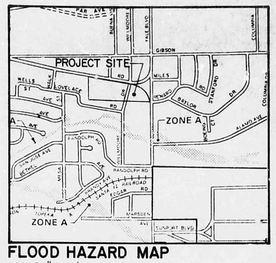
2/17/83

⚠ CONSTRUCTION NOTES:

1. All construction shall comply with The New Mexico Standard Specifications for Public Works Construction, 1979 Edition and the City of Albuquerque Contract Documents for City-Wide Utilities and Cash Paving, No. 30.
2. The Contractor shall provide a temporary water delive / system to irrigate seeded areas in accordance with the watering schedule. The water shall be free of oil, acid, salt or other substances harmful to vegetation.
3. Trucks with or without spray systems shall not be driven on seeded areas, and the water force shall not be of such volume or pressure to cause movement of the mulch or the erosion of the seed and soil.



VICINITY MAP M-15-Z
SCALE 1" = 800'

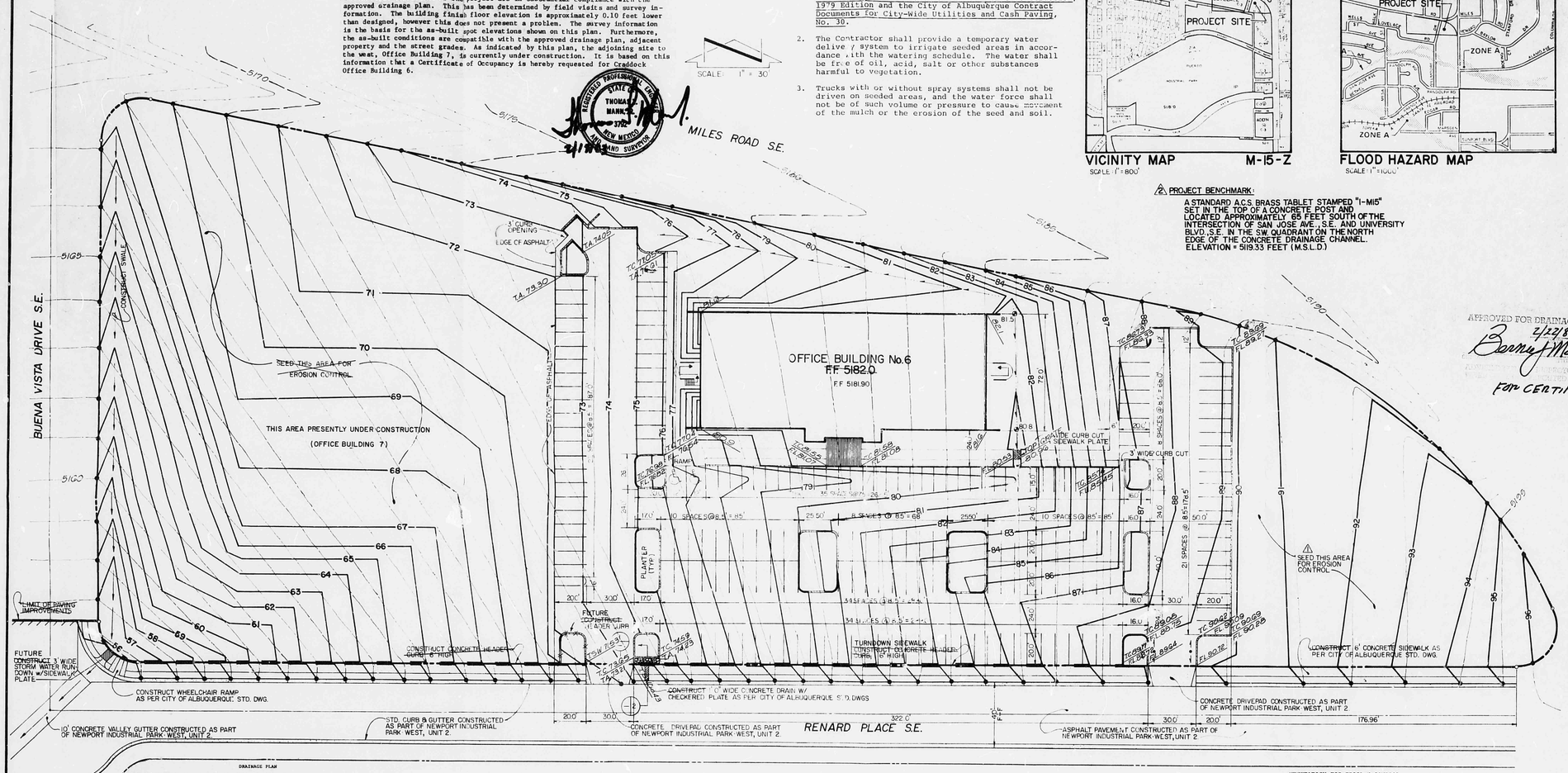


FLOOD HAZARD MAP
SCALE 1" = 1000'

⚠ PROJECT BENCHMARK:

A STANDARD A.C.S. BRASS TABLET STAMPED "I-M15" SET IN THE TOP OF A CONCRETE POST AND LOCATED APPROXIMATELY 65 FEET SOUTH OF THE INTERSECTION OF SAN JOSE AVE., S.E. AND UNIVERSITY BLVD.,S.E. IN THE SW QUADRANT ON THE NORTH EDGE OF THE CONCRETE DRAINAGE CHANNEL. ELEVATION = 5119.33 FEET (M.S.L.D.)

APPROVED FOR DRAINAGE
2/22/83
Barney J. Montoya
CITY ENGINEER
FOR CERTIFICATION



DRAINAGE PLAN

The following items concerning the Office Building No. 6 Drainage Plan are contained hereon:

1. Vicinity Map
2. Flood Hazard Map
3. Grading Plan
4. Calculations
5. Erosion Control Specifications

The proposed improvements, as shown by the Vicinity Map, are located in Tract 1 of the Newport Industrial Park - West, Unit 2. At present the site is undeveloped. No offsite flows enter the site as determined by the Drainage Report for the Newport Industrial Park - West, Unit 2, site improvements and all subsequent revisions to that Drainage report.

The site does not lie in a designated flood hazard zone as shown by the Flood Hazard map. The finish floor elevation of the proposed office building has been determined to avoid flooding.

The Grading Plan shows (1) existing contours at 1'-0" intervals, (2) proposed grades indicated by spot elevations and contours, (3) swales and (4) continuity between proposed and existing grades. Also shown on the plan are limits of paving improvements. The construction of Renard Place will occur either before or concurrently with the construction of Office Building 6.

Those portions of Tract 1 adjacent to Office Building 6 will remain undeveloped at this time. The portion of Tract 1 to the west of Office Building 6 will be seeded as per the specifications contained hereon to control soil erosion. Additional technical specifications will be available from the Engineer at the time of construction.

In January 1980 an agreement was reached between the City of Albuquerque and Craddock Development Company resolving the drainage requirements for portions of the Newport Industrial Park - West. Tract 1 of the Newport Industrial Park - West, Unit 2 is included in this agreement. The agreement provides for the direct discharge of runoff from the site. This runoff will be conveyed through Renard Place and a drainage channel connecting Renard Place and the existing concrete-lined channel. The construction of Renard Place and the connecting drainage channel will be complete prior to the completion of Office Building No. 6.

As mentioned above, the runoff from the project site will discharge directly offsite to a downstream storm water facility. Because of this, no interim ponding will be provided. A gravel drain, however, has been provided at the southwest corner of the parking lot. The provision of this drain will prevent the majority of "nuisance" water resulting from the irrigation of landscape areas from trickling across the driveway opening and into Renard Place.

CALCULATIONS

Area of the site = 230,415.8 sf = 5.30 Acs
Impervious area (proposed) = 80,600 sf = 1.85 Acs
Pervious area (proposed) = 149,800 sf = 3.45 Acs

Composite C = $\frac{1.85}{5.30}(0.95) + \frac{3.45}{5.30}(0.40) = \underline{0.59}$

L = 900', Δ elev = 96-56 = 40', s = $\frac{40}{900}$ = 0.0444

$t_c = 0.0013 \frac{L^{0.77}}{s^{0.385}}$ = 0.81 hrs. = 4.9 min.

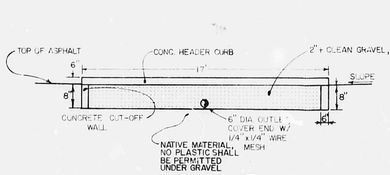
Let t_c = 10 min. ∴ i = 5.4 in/hr.

By Rational formula, Q = CiA,

(a) Q_{100}, undeveloped = 0.40(5.4)(5.3) = 11.4 cfs

(b) Q_{100}, developed = 0.59(5.4)(5.3) = 16.9 cfs

ΔQ = 16.9 - 11.4 = 5.5 cfs (increase)



⚠ SECTION 1
SCALE: 1/4" = 1'-0"

⚠ SECTION 2
SCALE: 1/4" = 1'-0"

VEGETATION FOR EROS. & CONTROL

1. SEED RATE:

Species	Pure Live Seed (lbs/acre)*
Annual Rye Grass	8.0
Giant Dropseed	2.0
Sand Dropseed	1.0
Indian Ricegrass	4.0
Sideoats Grama	6.0
Total	21.0

*Rates apply to drilled seed. Double rates listed if seed is broadcast.

2. FERTILIZER

200 bulk lbs. 0-20-0 Super Phosphate per acre
150 bulk lbs. 45-0-0 Urea per acre

3. MULCH

5,000 lbs. hay mulch per acre

4. WATERING SCHEDULE

WEEK NO.	1	2	3	4	5	6	Total
IN/ACRE	1.0/1.0*	2.0	1.0	1.0	0.5	0.5	7.0

*Two (2) applications three (3) days apart are required the first week.

REGISTERED PROFESSIONAL ENGINEER STATE OF NEW MEXICO THOMAS J. MANK JR. 3782 LAND SURVEYOR

CITY OF ALBUQUERQUE
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NO.	DATE	BY	REVISIONS
1	6/25	JM	REVISE SECTIONS, INCREASE SEEDED AREA, ADD NOTES
2	7/6	JM	ADD PROJECT BENCHMARK; RELATE F.F. TO M.S.L.D.
3	2/83	JM	ADD AS-BUILT SPOT ELEVATIONS

RIDALLS N.E. · ALBUQUERQUE · NEW MEXICO · 87110
ENGINEERS

DESIGNED BY J.M.
DRAWN BY P.O.
APPROVED T.M.

JOB NO. 9-101
DATE 6/81

CRADDOCK DEVELOPMENT

OFFICE BUILDING No.6 DRAINAGE PLAN

FILE NO.
SHEET 1 OF 1

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CITY OF ALBUQUERQUE

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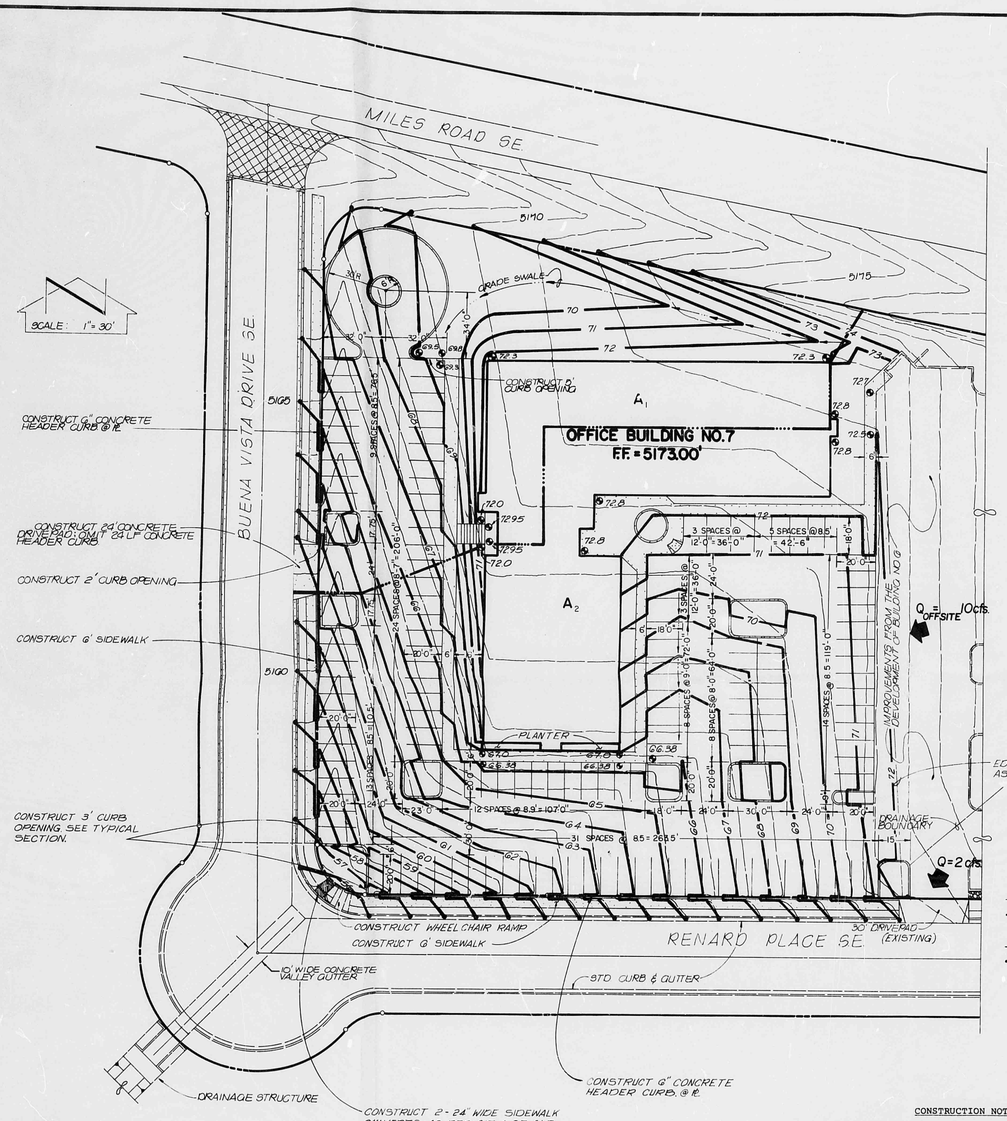
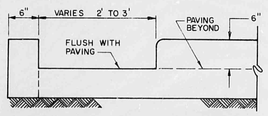
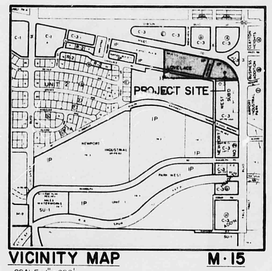




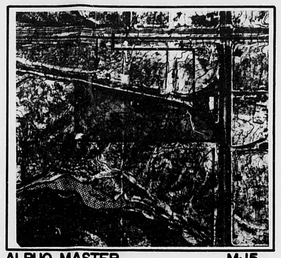
TYPICAL CURB OPENING SECTION

SCALE 1" = 1'-0"



VICINITY MAP M·15

SCALE 1" = 800'



ALBUQ. MASTER DRAINAGE STUDY M·15

SCALE 1" = 400'

PROJECT BENCHMARK:

A STANDARD A.C.S. BRASS TABLET STAMPED "I-M15" SET IN THE TOP OF A CONCRETE POST AND LOCATED APPROXIMATELY 65 FEET SOUTH OF THE INTERSECTION OF SAN JOSE AVE., S.E. AND UNIVERSITY BLVD., S.E. IN THE S.W. QUADRANT ON THE NORTH EDGE OF THE CONCRETE DRAINAGE CHANNEL. ELEVATION = 5119.33 FEET (M.S.L.D.)

OFFICE BUILDING NO 6
DRAINAGE PLAN APPROVED
JULY 16 1981

RECEIVED OCT 1982

DRAINAGE PLAN (NO CHANGE)

The following items concerning the Office Building No. 7 Drainage Plan are contained hereon:

1. Vicinity Map
2. Flood Hazard Map
3. Grading Plan
4. Calculations

The proposed improvements, as shown by the Vicinity Map, are located in Tract 1 of the Newport Industrial Park-West, Unit 2. At present, the site of the proposed Office Building No. 7 is undeveloped. Office Building No. 6 lies directly east of the site. Renard Place S.E. lies to the south, Buena Vista Drive S.E. lies to the west and Miles Road S.E. lies to the north. Renard Place S.E. is being constructed in conjunction with Office Building No. 6. Buena Vista Drive S.E. will be constructed in conjunction with Office Building No. 7. Miles Road S.E. is an existing improved street in a state of disrepair.

No offsite flows enter the site as previously stated in the drainage plan for Office Building No. 6, prepared by Tom Mann & Associates and approved by the City of Albuquerque Hydrology Division on July 16, 1981. A discharge of 10 cfs is anticipated to enter the site of the proposed Office Building No. 7 from the adjoining parking lot of Office Building No. 6.

The site does not lie in a designated flood hazard zone as shown by the Flood Hazard Map. The finished floor elevation of the proposed office building has been determined to avoid flooding.

The grading plan shows (1) existing contours at 1'0" intervals, (2) proposed grades indicated by spot elevations and contours, (3) swales and (4) continuity between proposed and existing elevations. Also shown on the plan are limits of paving improvements. The portion of Buena Vista Drive S.E. lying between Renard Place S.E. and Miles Road S.E. will be constructed in conjunction with Office Building No. 7.

In January 1980 an agreement was reached between the City of Albuquerque and Craddock Development Co. resolving the drainage requirements for portions of the Newport Industrial Park West, Tract 1 of the Newport Industrial Park-West, Unit 2 is included in this agreement. The agreement provides for the direct discharge of runoff from the site. This runoff will be conveyed through Buena Vista Drive S.E. and Renard Place S.E. to a drainage channel connecting these streets with the existing concrete lined channel lying along the south boundary of Tract 3. The construction of Renard Place S.E., Buona Vista Drive S.E. and the connecting drainage channel will be complete prior to the completion of Office Building No. 7.

As mentioned above, the runoff from the project site will discharge directly offsite to a downstream stormwater facility. Because of this, no interim ponding will be provided. The calculations demonstrating existing and proposed rates of runoff have been performed using the Rational Formula for a 100-year frequency storm. The Rational Formula was used so that continuity would be maintained between this drainage plan and those previously submitted and approved for the Newport Industrial Park-West, Unit 2. As can be seen from the plan above, all runoff generated on the site and conveyed through the site will outlet via the stormwater rundown located at the southwest corner of Tract 1. From that point, the stormwater will be conveyed through the concrete valley gutter to the drainage channel and ultimately flow to the existing concrete lined drainage channel.

CALCULATIONS

NOTE: RUNOFF CALCULATIONS HAVE NOT BEEN CHANGED TO REFLECT DPM. HYDROLOGY PRESENTED HEREON IS MORE CONSERVATIVE

Rational Formula, $Q = CiA$

$C_{impervious} = 0.95$, $C_{pervious} = 0.40$

$i = 5.4$ in/hr (from Drainage Plan for Office Building 6)

$A = 2$ ac±

Area of proposed development = 2 Ac± = 87,120 sf±

Impervious area = 65,760 sf±

Pervious area = 21,360 sf±

Composite 'C' = $\frac{65,760}{87,120}(0.95) + \frac{21,360}{87,120}(0.40) = \underline{0.82}$

$Q_{100,\ Undeveloped} = 0.40(5.4)(2) = 4.3$ cfs

$Q_{100,\ Developed} = 0.82(5.4)(2) = 8.9$ cfs

$Q = 8.9 - 4.3 = 4.6$ cfs

$Q_{offsite} = 10$ cfs (determined from Drainage Plan for Office Building 6)

1. Area of A_1 = 32,000 sf±; $Q_{A_1,\ 100} = 0.82(5.4)(\frac{32,000}{43,560}) = 3.3$ cfs

   Area of A_2 = 55,120 sf±; $Q_{A_2,\ 100} = 0.82(5.4)(\frac{55,120}{43,560}) = 5.6$ cfs

   Discharge to sidewalk plate/rundown = 5.6 + 10 = 15.6 cfs.

2. Capacity of sidewalk plate/rundown: (REVISED)

   $Q = 2C_v\sqrt{2gh}\ (A) = 17.6$ cfs

   where $C_v = 0.82$

   $g = 32.2$ ft/sec^2

   $h = 1$ ft

   $A = 2\ (0.67) = 1.34$ sf

REGISTERED PROFESSIONAL ENGINEER STATE OF NEW MEXICO THOMAS A. MANN 3752 AND LAND SURVEYOR

10/6/82

CONSTRUCTION NOTES

1. All construction shall comply with the New Mexico Standard Specifications for Public Works Construction, 1979 Edition and the City of Albuquerque Contract Documents for City-Wide Utilities and Cash Paving No. 31.
2. This plan supersedes the erosion control requirements for the area to be occupied by Office Building No. 7 and its adjacent parking.

TOM MANN & ASSOCIATES, INC. 811 DALLAS N.E. · ALBUQUERQUE · NEW MEXICO · 87110 ENGINEERS	NO. DATE BY REVISIONS	DESIGNED BY J.G.M. DRAWN BY J.M.C. APPROVED T.T.M.	JOB NO. 9-1013 DATE 10-82	CRADDOCK DEVELOPMENT	REVISED OFFICE BUILDING NO.7 DRAINAGE PLAN	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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