DRAINAGE CALCULATIONS:

EXISTING CONDITIONS:

The site is located on the north side of Rio Grande Boulevard N.W. approximately 320' South of Indian School Road. Rio Grande Boulevard is paved with curb and gutter and storm drainage system. There is an existing block wall at the east end of the site. there is some development along the north and south sides. The slope in Rio Grande Boulevard is from south to north and there is a curb inlet at the SSW curb return of the intersection of Rice Avenue and Rio Grande Boulevard.

PROPOSED CONDITIONS:

It is proposed to construct a new office building on the site as shown on the plan. Grading of the site will be from East to West. Low retaining walls will be required on the North, East, and South property lines. Two sidewalk culverts will drain the site into Rio Grande Boulevard where it will flow in the gutter a short distance North to the curb inlet. The site is an infill site and the increase in runoff due to development is relatively minor, less than 0.5 cfs.

DRAINAGE CRITERIA:

The calculations shown on this plan were prepared in accordance with Section 22.2, Hydrology, of the Development Process Manual, Volume 2, Design Criteria, for the City of Albuquerque in cooperation with Bernalillo County, New Mexico and the Metropolitan Arroyo Flood Control Authority, January, 1993.

PRECIPITATION ZONE:

The site is between the Rio Grande River and San Mateo Blvd. and is, therefore, in Precipitation Zone 2.

LAND TREATMENT AREAS, EXCESS PRECIPITATION AND UNIT PEAK DISCHARGE:

The peak discharge per acre and excess precipitation are shown for the four land treatments in Zone 2 in the table below, and the values shown are from the City of Albuquerque D.P.M. Also shown are the existing and proposed land treatment areas.

LAND	q(cfs/ac)		E (in)		Existing Site Areas			Developed Site Areas		
TREAT.	100-yr.	10-yr.	100-yr.	10-yr.	%	Sq.Ft.	Acres	%	Sq.Ft.	Acres
A	1.56	0.38	0.53	0.13	0.0	0	0.0000	0.0	0	0.0000
B	2.28	0.95	0.78	0.28	0.0	0	0.0000	26.4	5,500	0.1263
C	3.14	1.71	1.13	0.52	100.0	20,860	0.4789	0.0	0	0.0000
D	4.70	3.14	2.12	1.34	0.0	0	0.0000	73.6	15,360	0.3526
Totals					100.0	20,860	0.4789	100.0	20,860	0.4789

PEAK DISCHARGE:

EXISTING CONDITIONS:

Q100 = 0.4789 * 3.14 = 1.50 cfs
Q10 = 0.4789 * 1.71 = 0.82 cfs

DEVELOPED CONDITIONS:

Q100 = 0.1263 * 2.28 + 0.3526 * 4.70 = 1.95 cfs
Q10 = 0.1263 * 0.95 + 0.3526 * 3.14 = 1.23 cfs

VOLUME, 100-YEAR AND 10-YEAR, 6-HOUR:

EXISTING CONDITIONS:

V100 = (20,860 * 1.13) / 12 = 1,964 cf
V10 = (20,860 * 0.52) / 12 = 904 cf

DEVELOPED CONDITIONS:

V100 = (5,500 * 0.78 + 15,360 * 2.12)/12 = 3,118 cf

V10 = (5,500 * 0.28 + 15,360 * 1.34)/ 12 = 1,844 cf

SUMMARY OF ON-SITE VOLUMES AND PEAK DISCHARGE RATES:

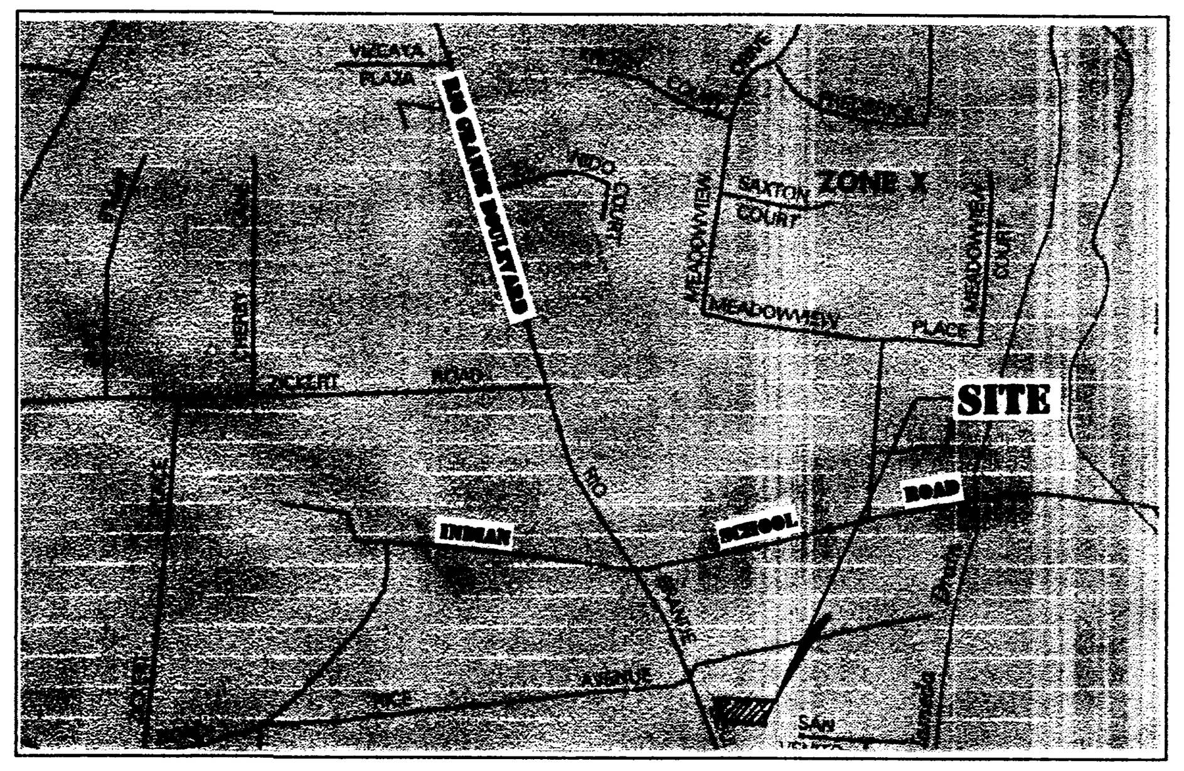
	V100(CF)	V10(CF)	Q100(CFS)	Q10(CFS)
DEVELOPED	3,118	1,844	1.95	1.23
EXISTING	1,964	904	1.50	0.82
INCREASE	1,154	940	0.45	0.41

LEGEND:

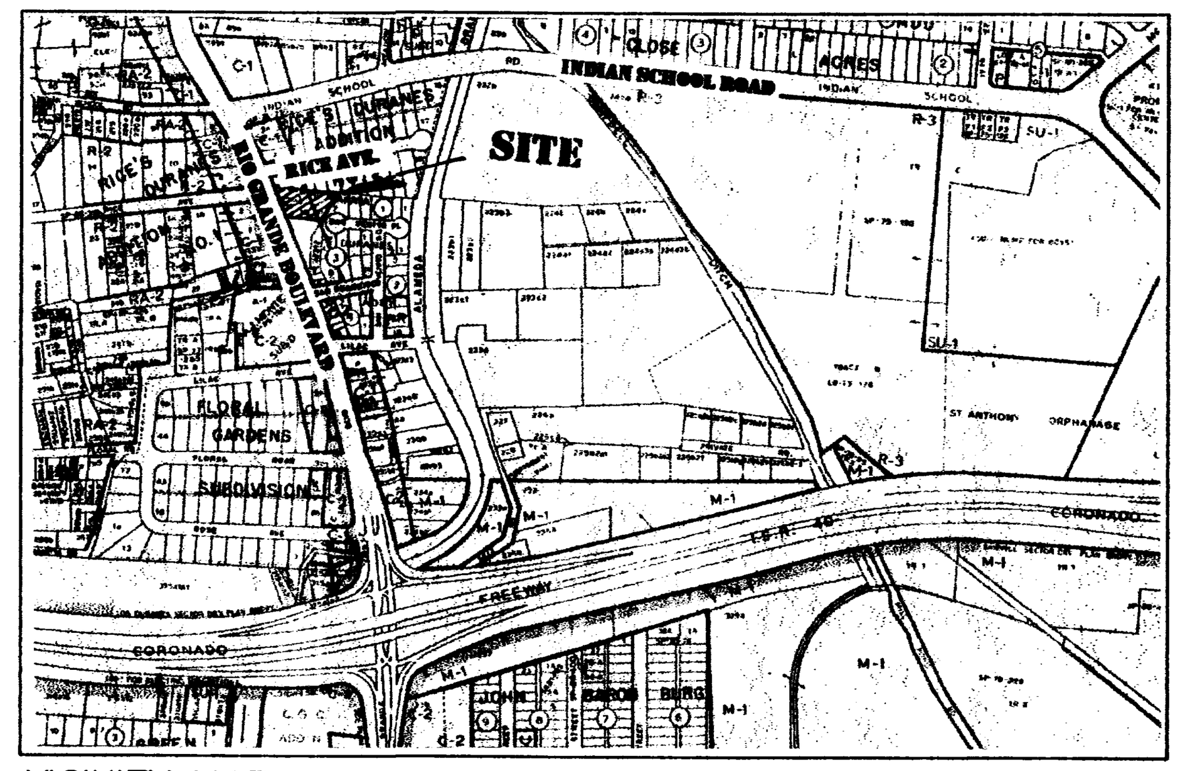
● Found Boundary Cor.	▦ Storm Drain Catch Basin
ppO Utility Pole	Light Pole
Overhead Lines	Fence
c□ CATV Pedestal	Arroyo or watercourse
e□ Electric Pedestal	Fire Hydrant
t□ Telephone Pedestal	Exist. Spot Elev.
g□ Gas Meter	New Spot Elevation
em◇ Electric Meter	4950.5 EXISTING CONTOUR
wm◇ Water Meter	50 NEW CONTOUR
w◇ Water Valve	FLOW DIRECTION
g◇ Gas Valve	ROOF SLOPE
(S) Sanitary Sewer MH	
(W) Storm Sewer Manhole	

FLOOD STATEMENT:

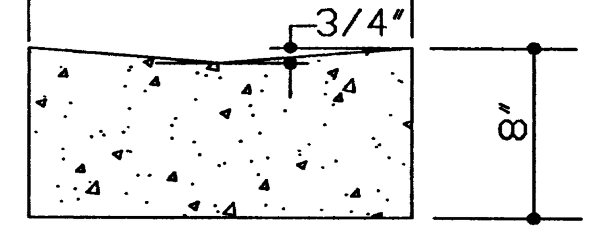
The site is located on Flood Insurance Rate Map No. 35001C0331 D (inset at right.) The site does not lie within or adjacent to any 100-year flood plan.



FLOOD INSURANCE RATE MAP   MAP NO. 35001C0331 D



VICINITY MAP   ZONE ATLAS NO. H – 13 – Z



VALLEY GUTTER DETAIL
NTS

ANALYSIS OF DOWNSTREAM CAPACITY:

THE STORM DRAIN SYSTEM IN RIO GRANDE BOULEVARD FLOWS SOUTH TO INDIAN SCHOOL ROAD AND THEN EAST TO THE ALAMEDA DRAIN. THERE IS A DROP INLET IN RIO GRANDE BOULEVARD APPROXIMATELY 30' NORTH OF THE NW CORNER OF THE SITE. THE INLET IS ACTUALLY AT THE SSW CURB RETURN OF RIO GRANDE BOULEVARD AND RICE AVENUE. THE SYSTEM TO WHICH THE INLET IS CONNECTED IS A RELATIVELY SMALL SYSTEM EXTENDING APPROXIMATELY 600 FEET SOUTH OF THE SITE AND 800 FEET NORTH OF THE SITE ON RIO GRANDE BOULEVARD AND 300 FEET WEST ON INDIAN SCHOOL ROAD. FROM THE JUNCTION IN INDIAN SCHOOL ROAD AND RIO GRANDE BOULEVARD, THE SYSTEM FLOWS EAST IN INDIAN SCHOOL ROAD TO AN OUTFALL INTO THE ALAMEDA DRAIN. FROM THAT POINT THE ALAMEDA DRAIN FLOWS SOUTHWARD 1.44 MILES MILES TO CENTRAL AVENUE WHERE IT CROSSES UNDER THE STREET IN A 8' X 5' CONCRETE BOX STRUCTURE. FROM THE END OF THE STRUCTURE TO THE OUTFALL INTO THE RIO GRANDE RIVER IS APPROXIMATELY 1,000 FEET.

ANALYSIS OF OFF-SITE FLOW:

THIS SITE HAS NO OFF-SITE FLOW ASSOCIATED WITH IT.

SIDEWALK CULVERT CAPACITY:

Use Weir Equation, $Q = CLH^{3/2}$ Q = 1.00 cfs   C = 3.0   H = 0.667 ft.

$L = Q / (C H^{3/2}) = 1.00 / (3.0 \times 0.667^{3/2}) = 0.61$ ft. Use 1,0' wide sidewalk culvert.

DRAINAGE BASIN RUNOFF QUANTITIES:

LAND TREAT.	BASIN "A"	BASIN "B"
B	2,986 (0.0685)	2,514 (0.6577)
D	7,800 (0.1791)	7,560 (0.1736)

PEAK DISCHARGE – BASIN 'A':

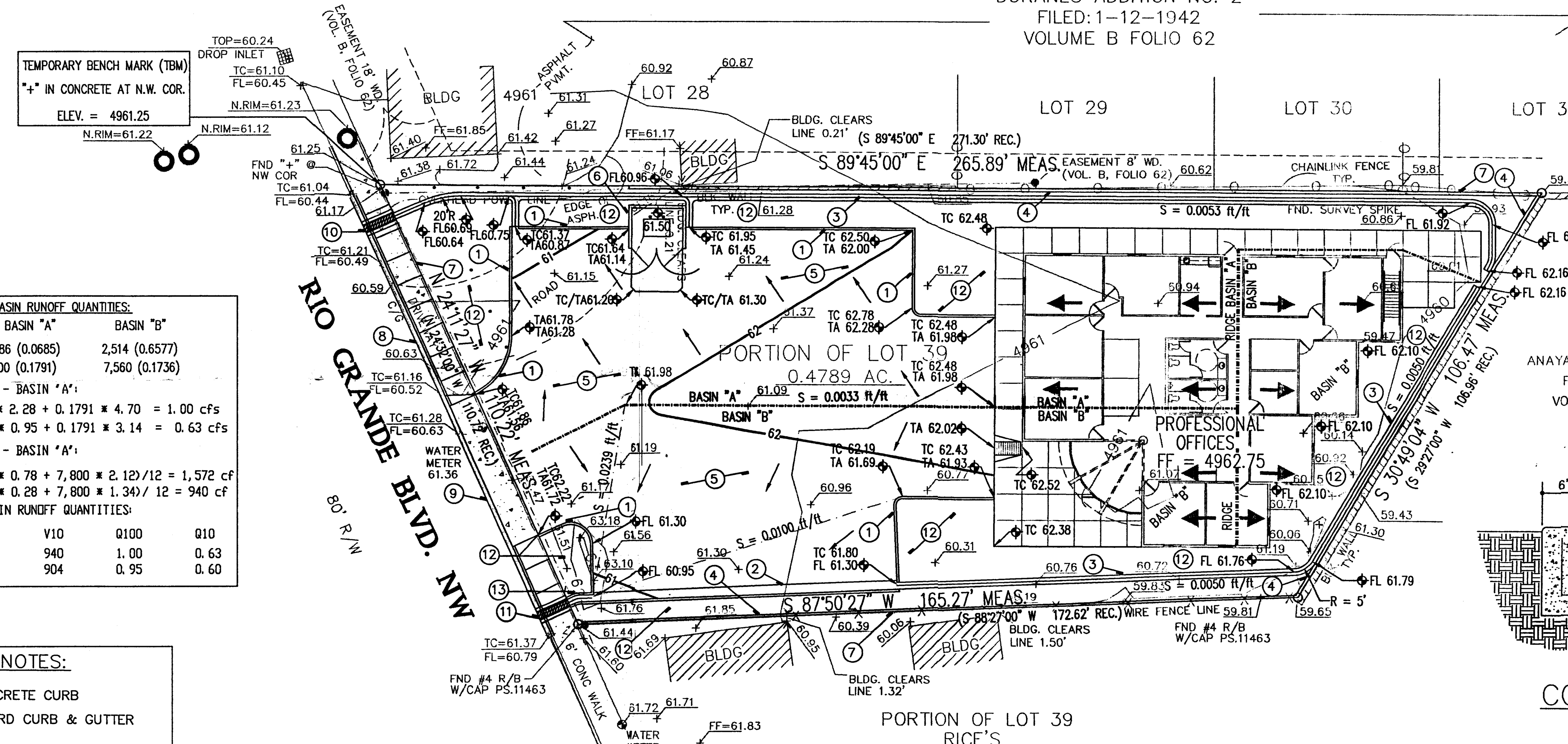
Q100 = 0.0685 * 2.28 + 0.1791 * 4.70 = 1.00 cfs
Q10 = 0.0685 * 0.95 + 0.1791 * 3.14 = 0.63 cfs

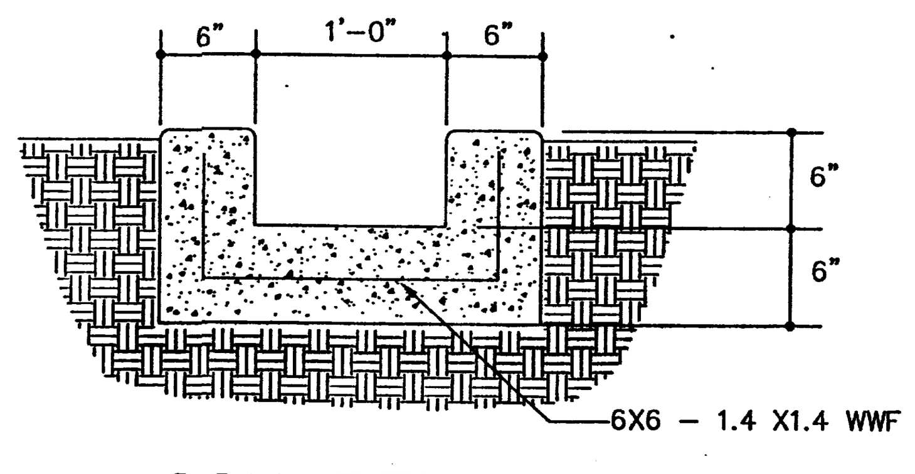
PEAK DISCHARGE – BASIN 'A':

V100 = (2,986 * 0.78 + 7,800 * 2.12)/12 = 1,572 cf
V10 = (2,986 * 0.28 + 7,800 * 1.34)/ 12 = 940 cf

SUMMARY OF BASIN RUNOFF QUANTITIES:

BASIN	V100	V10	Q100	Q10
A	1,572	940	1.00	0.63
B	1,546	904	0.95	0.60





CONCRETE CHANNEL
1" = 1'–0"

KEYED NOTES:

1. 6" CONCRETE CURB
2. STANDARD CURB & GUTTER
3. CONCRETE VALLEY GUTTER
4. NEW RETAINING WALL AT P.L.
5. NEW ASPHALT PAVEMENT
6. REFUSE ENCLOSURE
7. PROPERTY LINE
8. EXIST. DRIVEPAD. REMOVE & REPLACE W/ STD. C&G AND SW.
9. NEW 35' DRIVEPAD
10. CONST. 1 EA. 1' X 7.5' SW CULVERT PER C.O.A. STD. DWG. 2236
    SEE S.O. 19 THIS SHEET
    INV. IN = 60.60
    INV. OUT = 60.46
11. CONST. 1 EA. 1' X 7.5' SW CULVERT PER C.O.A. STD. DWG. 2236
    SEE S.O. 19 THIS SHEET
    INV. IN = 60.92
    INV. OUT = 60.77
12. LANDSCAPE AREAS
13. CONC. CHANNEL, SEE DETAIL THIS SHEET.

GRADING AND DRAINAGE PLAN

Scale: 1" = 20'

0 5 10 20 40

North

CITY OF ALBUQUERQUE
DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY (S.O. 19)
NOTICE TO CONTRACTORS

1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY. AN APPROVED COPY OF THESE PLANS MUST BE SUBMITTED AT THE TIME OF APPLICATION FOR THIS PERMIT.
2. ALL WORK DETAILED ON THIS PLAN TO BE PERFORMED UNDER CONTRACT, EXCEPT AS OTHERWISE STATED OR PROVIDED FOR HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1986, AS UPDATED THROUGH REVISION NO. 6.
3. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM, INC., 260-1990, FOR LOCATION OF EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
5. BACKFILL COMPACTION SHALL BE ACCORDING TO ARTERIAL STREET USE.
6. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
7. THE ADDRESS OF THE PROPERTY SERVED IS 1422 RIO GRANDE BOULEVARD, N.W.

APPROVALS:

HYDROLOGY______________________ NAME ______________ DATE

INSPECTOR______________________ NAME ______________ DATE

CONSTRUCTION___________________ NAME ______________ DATE

EROSION CONTROL REQUIREMENTS:

The Contractor shall be responsible for compliance with the following:

1. No sediment-bearing water shall be allowed to discharge from the site during construction.
2. During grading operations and until the project has been completed, all adjacent property rights-of-way, and easements shall be protected from flooding by runoff from the site.
3. Should the contractor fail to prevent sediment-bearing water from entering public right-of-way, he shall promptly remove from the public right-of-way any and all sedimentation originating from the site.
4. Control of sediment-bearing waters will be accomplished by use of a compacted earth berm of adequate height. The berm shall be located along the downstream perimeter of the property.

N.RIM=61.31

LEGAL DESCRIPTION:

A CERTAIN TRACT OF LAND BEING A PORTION OF LOT NUMBERED THIRTY-NINE (39) OF RICE'S DURANES ADDITION NO. 2, ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO, AS THE SAME IS SHOWN AND DESIGNATED ON THE PLAT OF SAID ADDITION, FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO ON JANUARY 12, 1942 IN VOLUME B, FOLIO 62, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF THE HEREIN DESCRIBED LOT, BEING THE NORTHEAST CORNER OF SAID LOT 39, RICE'S DURANES ADDITION NO. 2, RUNNING THENCE S. 30° 49' 04" W., A DISTANCE OF 108.47 FEET TO THE SOUTHEAST CORNER;
THENCE S. 87° 50' 27" W., A DISTANCE OF 165.27 FEET TO THE SOUTHWEST CORNER, BEING A POINT ON THE EASTERLY LINE OF RIO GRANDE BOULEVARD;
THENCE N. 24° 11' 27" W., ALONG THE EASTERLY LINE ON RIO GRANDE BOULEVARD, A DISTANCE OF 110.22 FEET TO THE NORTHWEST CORNER;
THENCE S. 89° 45' 00" E., A DISTANCE OF 265.89 FEET TO THE NORTHEAST CORNER AND PLACE OF BEGINNING CONTAINING 0.4789 ACRES MORE OR LESS.

GENERAL NOTES:

1. CONTOUR INTERVAL IS ONE (1) FOOT.
2. ELEVATIONS ARE BASED ON CITY OF ALBUQUERQUE CONTROL STATION '8-H13', HAVING AN ELEVATION OF 4960.533 FEET ABOVE SEA LEVEL.
3. UTILITIES SHOWN HEREON ARE IN THEIR APPROXIMATE LOCATION BASED ONLY ON ABOVE GROUND EVIDENCE FOUND IN THE FIELD AND AS-BUILT INFORMATION PROVIDED BY THE CLIENT. UTILITIES SHOWN HEREON, WHETHER INDICATED AS ABANDONED OR NOT, SHALL BE VERIFIED BY OTHERS FOR EXACT LOCATION AND/ OR DEPTH PRIOR TO EXCAVATION OR DESIGN CONSIDERATIONS.
4. THIS IS NOT A BOUNDARY SURVEY. BEARINGS AND DISTANCES SHOWN ON THIS SURVEY IS OUT FOR REFERENCE ONLY.

FRANK D. LOVELADY
NEW MEXICO
6512
REGISTERED PROFESSIONAL ENGINEER
7/19/99

Law Offices for William F. Riordan
RIO GRANDE BLVD. NW, ALBUQUERQUE, NEW MEXICO

KEN HOVEY, ARCHITECT
(505) 254-0083 * Fax (505) 254-1809 * 3808 SIMMS AVE. SE * Albuquerque, NM * 87108

JOB NO: 9836
DATE: 5 JULY 1999
REVISIONS

SHEET NO.
C-2

C:\AP\PROJ583\HOVEY\GRADING.DWG (JULY 16, 1999).