



CROSS-SECTION OF FLOOD PLAIN/CHANNEL

SCALE: 1" = 20'-0"

Elevation of Arroyo is approximately 8' below Lot 25.

Energy Grade Line

LEGAL DESCRIPTION

Lot numbered Twenty-five (25), Block numbered Twelve (12) of TRACT 1, UNIT 3, NORTH ALBUQUERQUE ACRES, Albuquerque, Bernalillo County, New Mexico, as the same as is shown and designated on the Plat thereof, filed in the Office of the County Clerk of Bernalillo County, New Mexico on March 23, 1931 in Volume D, folio 132.

DRAINAGE CALCULATIONS

Precipitation Zone = 3
100 Yr. Storm Depth, P 360 = 2.60 in.

Land Treatment Area:	Existing	Proposed
Roof (Type "D")	0 AC	0.108 AC
Unpaved Roadway (Type "C")	0 AC	0.462 AC
Undeveloped (Type "A")	0.89 AC	0.320 AC
Total	0.89 AC	0.89 AC

Excess Precipitation, E:	0.66 (0.89)/0.89	[0.66(0.32)+1.29(0.462)+2.36(0.108)]/0.89
V100	0.66 in.	1.20 in.
V10, 0.667 (V100)	2120 CF	3843 CF
Q100	1421 CF	2575 CF
Q10, 0.667 (Q100)	1.65 CFS	2.73 CFS
	1.11 CFS	1.83 CFS

OFFSITE DRAINAGE BASINS (ACRES = 0.391)

Land Treatment	Basin A
Type A	0.168 AC
Type B	0.078 AC
Type C	0.078 AC
Type D	0.067 AC
TOTAL	0.391 AC
V100	1602 CF
Q100	1.12 CFS

OFFSITE FLOWS (NATURAL CHANNEL)

FLOOD PLAIN AS SHOWN ON FLOOD MAP ABOVE

$$Q = \frac{1.486}{n} AR^{0.66} S^{0.5}$$

ASSUMPTIONS

where $Q = 1120$ cfs, from Final North Albuquerque Acres Moter Drainage Plan
 $n = 0.035$, $b = 200$ ft, from Flood Plain Map
 $S = 0.04$ ft/ft, from Flood Plain Map

therefore depth ~ 1.00 ft
velocity $= 5.6$ fps
froude $= 0.988$
energy $= 1.00 + 5.6^2/2g = 1.49$ ft

EROSION SET BACK

$Q_d = 0.2 (Q_{100}) = 0.2 (1120) = 224$ cfs
 $S_c = 0.037 Q_d^{-0.133}$
 $S_c = 0.018 S > S_c$
 $\Delta_{max} = ((0.92 + 4.6 \log(Q_d)) Q_d)^{0.4}$, for $200 \text{ cfs} < Q_d < 2000$ cfs
 $\Delta_{max} = 102'$ (FROM TOE OF EMBANKMENT)
 $W_d = 4.6 Q_d^{0.4} = 40$ FEET
SET BACK $= 102' + W_d/2$ FROM Q OF ARROYO $= 122'$
OR ESB FROM RTI INFORMATION $= 118'$ FROM Q OF ARROYO
USE 122' FROM Q OF ARROYO.

DESIGN NARRATIVE

The residence is to be built in North Albuquerque Acres as shown. The present condition of the lot is unimproved. The new construction will include a new home and access to Modesto Avenue. Historical drainage from this lot as well as a small offsite runoff flows from the SE to the SW corner where it exits the property. Future grading will not alter the general flow pattern.

Topography dictates how flows are introduced to the site. Flow volumes are determined directly from the tributary area ratios. See above drainage basin.

Presently, the site is bounded on the east and west by improved lots and were developed under Bernalillo County rules prior to City annexation. The lots immediately to the south, across Modesto Ave. are improved. To the north of the property is Camino Arroyo. Currently Modesto is an unimproved City roadway situated within a 60 foot right-of-way. The site generally falls from east to west at approximately 6 percent. Off-site drainage flows enter the site at the southeast corner of the property. The flow of 1.12 cfs (Q100) is directed in around the residence by a swale. The off site flows are quantified on the plan. The proposed residence is located on the south side of Lot 25, south of Camino Arroyo. See plan for calculation for erosion setback.

The new drainage plan will not alter this existing flow pattern of the property.

The site is not located in a designated 100 year flood hazard area per FEMA FIRM Panel 133 of 825, dated September 20, 1996. Site surfaces disturbed in the construction process will be either formally landscaped or seeded in accordance with City of Albuquerque Standard Specification no. 1012, Native grass seeding.

LEGEND

- EXISTING CONTOUR
- 29.1 NEW SPOT ELEVATION
- NEW CONTOUR
- FLOW LINE
- WELL LOCATION
- SEPTIC/LEACH FIELD LOCATION
- DRIVEWAY/SIDEWALK
- EROSION SET BACK
- ENERGY GRADE LINE
- 225' DISTANCE FROM NORTH PROP LINE

BENCHMARK

A.C.S. 1-B20
Elevation = 5474.51

ENGINEERS STATEMENT

I, the Engineer of record, certify that I have personally visited the site and the existing grades and contours depicted on this plan match what presently exists at the present location

RONI BOOTH, NMPE # 5853

