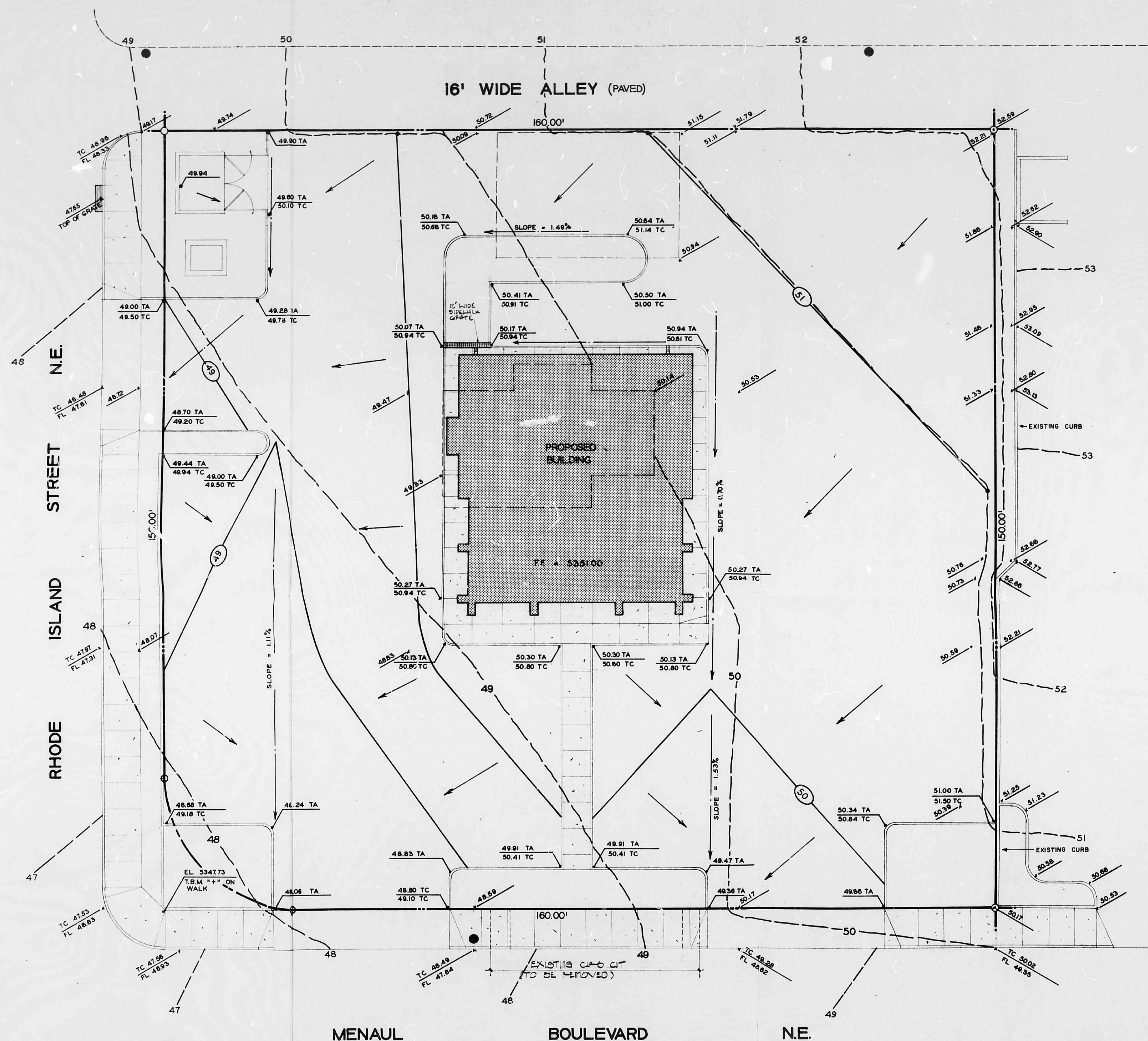




GRADING AND DRAINAGE PLAN

0 5 10 20 30
1" = 10.0'

NR

DRAINAGE CALCULATIONS LOT 8, BLOCK 2 SOMBRA DEL MONTE SUBDIVISION

I. References

- City of Albuquerque, Development Process Manual (DPM) Volume 2, Design Criteria, Chapter 22, Drainage, Flood Control and Erosion Control.
- Soil Survey of Bernalillo County and parts of Sandoval and Valencia Counties, New Mexico, US Soil Conservation Service, Sheet 31 Issued June 1977.

II. General Information

- Site Location and Elevation Data
 - Legal Description: Lot 8, Block 2, Sombra Del Monte Subdivision, Albuquerque, New Mexico
 - Total Site Area: 24,000 square feet, 0.551 acres
 - City Address: 7701 Menaul Blvd. NE
 - City Benchmark: 2619A, Elevation = 5359.56 feet.
 - Temporary Benchmark: "X" on walk on SW property corner. Elevation = 5347.73 feet.

- Soil Type: reference B Embudo-Tijeras Complex (Hydrologic Soils Group B)

- 6-hour 100-year rainfall, $R_6 = 2.35$ inches Ref. A, Plate 22.2 D-1)

- Runoff Coefficient. ("C" Factor) See Reference A, Plate 22.2 C-1)

Undeveloped "C" Factor, Curve B is 0.34.
Developed "C" Factor, assume the following values:

Type of Surface	"C"	Area (SF)	CxA
Buildings	1.0	2,134	2134
Concrete	1.0	1,263	1263
Asphalt paving	0.9	18,584	16726
Landscaping or natural	0.34	2,029	690
Totals		24,000	20803

Weighted "C" Factor: $C = (C \times A) / 24000 = 0.87$

Type of Surface	"C"	Area (SF)	CxA
Buildings	1.0	2,134	2134
Concrete	1.0	1,263	1263
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Totals		24,000	20803

Weighted "C" = ("C" x A) = 20803 - 0.87
A 24000

- Time of Concentration

Watershed length, $L = 77$
Watershed change in elevation $h = 2.64$
Watershed slope $S = h/L = 0.0343$
by Kirpich equation $T = 0.0078 (L^{0.77}/S^{0.385})$
 $T = 1.53$ minutes
By overland flow velocity, Ref. 1, Plate 22.2 A-1
Velocity = 2.5
 $L/60V = 1.18$ minutes
The minimum T_c shall be 10 minutes.

- Intensity. (Reference A, Plate 22.2 D-2)
 $I = R_6 \times 6.84 \times T_c - 0.51 = 2.35 \times 6.84 \times (10) - 0.51$
 $I = 4.96$ inches per hour

- Off-Site Drainage
North - Existing paved alley drains to Rhode Island Street
East - Existing Churches Fried Chicken drains to Menaul - No off-site drainage.

IV. On-Site Drainage

- Peak Discharge. Use Rational Equation, $Q = CIA$
 $Q = 0.87 \times 4.96 \times 0.551 = 2.37$ cfs
- Volume. Resulting from 6-hour, 100-year rainfall, R_6 .
 $V = C \times (R_6/12) \times \text{Area (SF)}$
 $V = 0.87 \times (2.35/12) \times 24000 = 4,089$ cu.ft.

V. Conclusions

The site is presently totally paved with two small buildings. The proposed development will decrease runoff due to the landscaping proposed. Free discharge through the drive pads is proposed and will not adversely affect downstream conditions. The floodway maps do not show any flooding downstream from the site. Historically, no ponding has been recommended in this area.

LEGEND

- Existing contour
- Existing spot elevation
- Proposed spot elevation
- Proposed contour
- Swale
- T.C. Top of curb
- T.A. Top of asphalt
- F.F. Finished floor

Richard V. H.
REGISTERED PROFESSIONAL ENGINEER
Nov 16, 1984

GRADING AND DRAINAGE PLAN

BLAKE'S LOTABURGER
7701 MENAUL BLVD. NE
ALBUQUERQUE, NEW MEXICO

PREPARED
NOV 23 1984
HYDROLOGY SECTION

C-2

H19/427