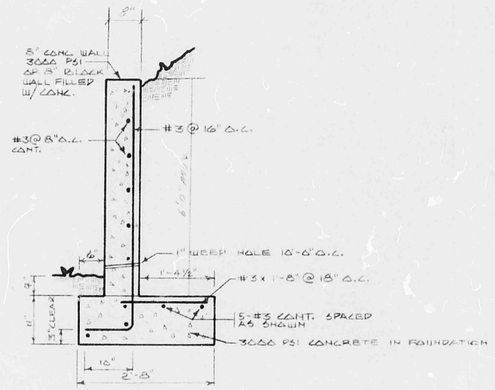
HYDROLOGY

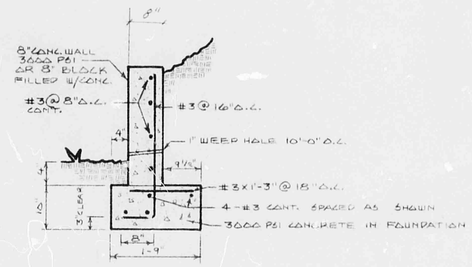
L23/D8
TWO PLANS

L23/D8

2 PLANS



4' To 6' High Conc. Wall



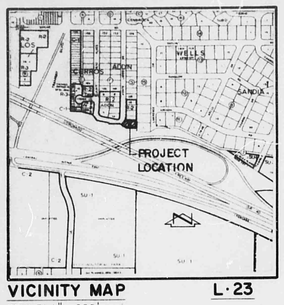
24" To 36" High Conc. Wall

RECEIVED
DEC 18 '981
ENGINEERING

L23/D8

Concrete Retaining Wall

Ray Harrison & Associates



VICINITY MAP L-23

SCALE 1" = 800'

LEGEND

- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- 5826 — EXISTING CONTOUR
- 26 — PROPOSED CONTOUR
- SWALE
- T.C. 69.51 — TOP OF CURB ELEVATION
- F.L. 69.01 — FLOW LINE ELEVATION
- EXISTING CONCRETE
- PROPOSED CONCRETE

SCALE: 1" = 10'

M.H. ELEV. = 44.09
INV. = 38.28

PROJECT BENCHMARK:

A SQUARE, Ø, CHISELED ON TOP OF CONCRETE CURB AT THE EDE CURB RETURN, IN THE SOUTHEAST QUADRANT OF THE INTERSECTION OF SKYLINE RD. N.E. AND LAWRENCE RD. N.E. B.M. NO. 2-L23.
ELEVATION = 5756.82 FEET (M.S.L.D.)

T.B.M.:

A POINT LOCATED ON THE TOP OF CURB AT THE PROJECTION OF THE NW CORNER OF THE LOT.
ELEVATION: 5742.51 FEET.

DRAINAGE PLAN

The following items concerning Lot 14, Orona Addition Drainage Plan are contained hereon:

1. Vicinity Map 2. Grading Plan 3. Calculations

The proposed improvements, as shown by the Vicinity Map, are located at the southeast corner of the intersection of Monte Largo Drive N.E and Monte Largo Place N.E. The project is more particularly described as Lot 14 of the Orona Addition Subdivision. Directly north of the site lies an existing four-plex. Directly east of the site is a PNM utility station. Directly south of the site is an undeveloped area from which there are no offsite flows expected to contribute to the proposed improvements because that land is topographically lower. To the northeast of the site is an undeveloped area from which offsite flows contained in a gulley are generated. These offsite flows are discussed below.

As shown by Panel 37 of the current Flood Boundary and Floodway Maps, the site lies within a designated Flood Hazard Zone. We believe that the FHBM and FIRM Maps do not adequately show the prevailing conditions; therefore, we have requested a Map Amendment concerning the Flood Hazard Zone. The existing drainage pattern of the area is one in which runoff flows from the northeast to the southwest. The runoff generated by the proposed improvements will follow an east to west drainage pattern and will be discharged to Monte Largo Drive N.E.

The Grading Plan shows 1) existing and proposed grades indicated by spot elevations and contours at 1' 0" intervals, and 2) the limit and character of proposed improvements within the site. As shown by this plan, the proposed improvements include the construction of a four-plex apartment building, asphalt paving for access and parking, and landscaping. All runoff generated by this site will be discharged via sidewalk culvert to Monte Largo Drive N.E. Offsite flows will be routed through the proposed improvements and also discharged into Monte Largo Drive N.E.

The Calculations which appear below analyze both existing and developed conditions for the 100-year, 6-hour rainfall event. The Rational Method has been used for the analysis in accordance with the City of Albuquerque Development Process Manual, Volume II. The calculations demonstrate that a minor increase in the peak discharge of runoff and the total volume of runoff from the site will be realized due to the proposed construction.

CALCULATIONS

Ground Cover Information

From SCS Bernalillo County Soil Survey, Plate 32:
TgB Tijeras Gravelly Fine Sandy Loam and
ESC Embudo-Tijeras Complex
Hydrologic Soil Group B

Rational Method

Discharge: $Q = CiA$

where C varies
$i = P_6(6.84)T_c^{-0.51} = 5.31$ in/hr
$P_6 = 2.51$ in (DPM Plate 22.2 D-1)
$T_c = 10$ min (minimum)
A = area, acres

Volume: $V = CP_6A(1/12)$

where C varies
$P_6 = 2.51$ in (DPM Plate 22.2 D-1)
A = area, sf

Existing Condition

$A_{total} = 9590$ sf = 0.22 Ac
$A_{imp} = 0$ sf; % impervious = 0%
$C = 0.34$ (DPM Plate 22.2 C-1)
$Q_{100} = CiA = 0.34(5.31)(0.22) = 0.4$ cfs
$V_{100} = CP_6A = 0.34(2.51/12)(9590) = 680$ cf

Developed Condition

$A_{total} = 9590$ sf = 0.22 Ac
$A_{imp} = 5480$ sf; % impervious = 57%
$C = 0.61$ (DPM Plate 22.2 C-1)
$Q_{100} = CiA = 0.61(5.31)(0.22) = 0.7$ cfs
$V_{100} = CP_6 = 0.61(2.51/12)(9590) = 1225$ cf

Comparison

$\Delta Q_{100} = 0.7 - 0.4 = 0.3$ cfs (increase)
$\Delta V_{100} = 1225 - 680 = 545$ cf (increase)

Offsite Flows

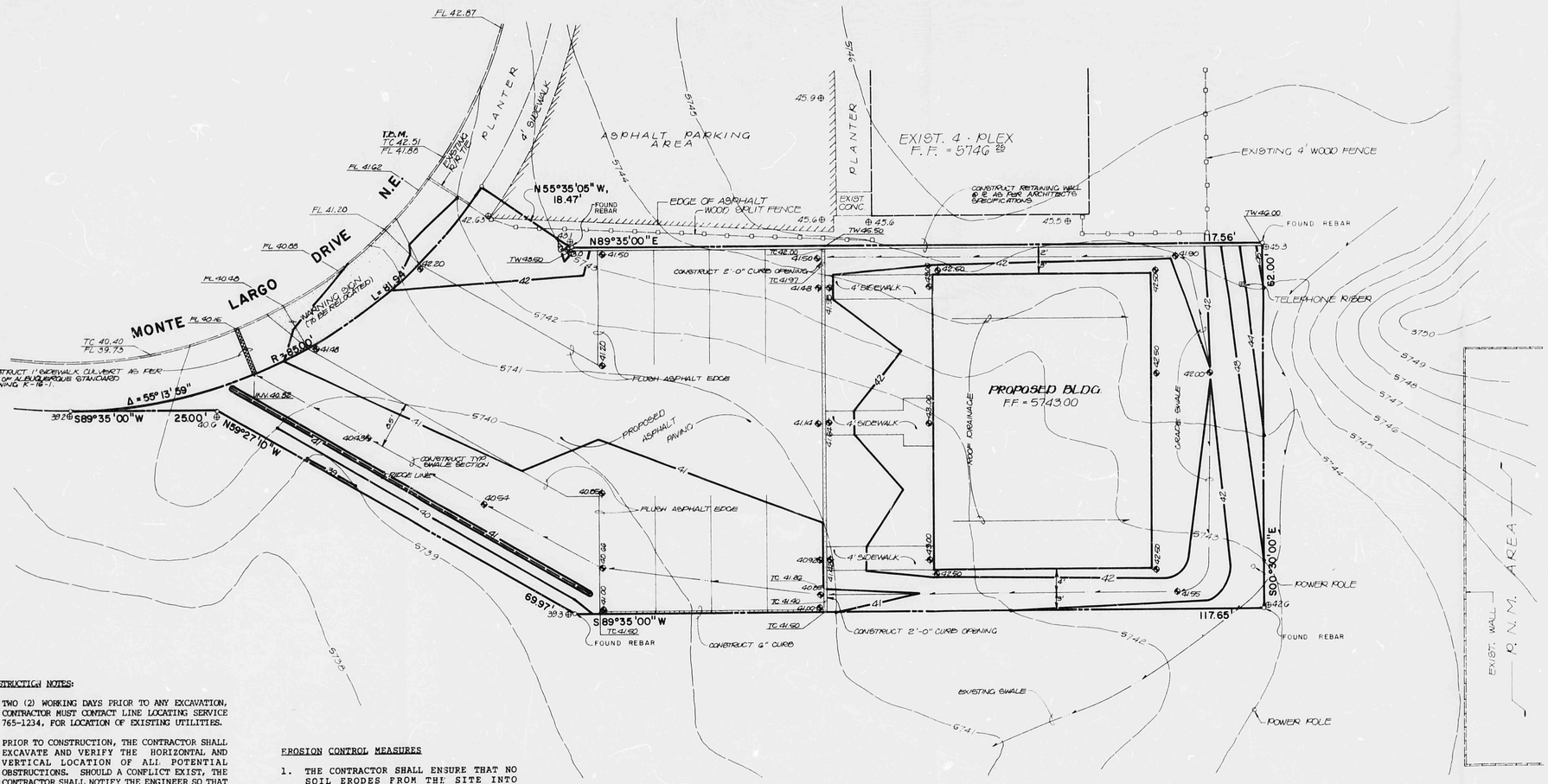
$A_{total} = 15{,}000$ sf = 0.34 Ac
$C = 0.34$ (0% impervious)
$Q_{100} = CiA = 0.34(5.31)(0.34) = 0.6$ cfs
$V_{100} = CP_6A = 0.34(2.51/12)(15{,}000) = 1100$ cf

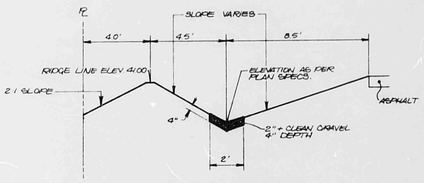
Sidewalk Culvert Capacity

Capacity $Q = CA\sqrt{2gh}$

where C = .80
A = .5' x 1' = .5 sf
g = 32.2 ft/sec²
h = .75' (estimated)

$Q = (.80)(.5)\sqrt{2(32.2)(.75)}$
$Q = 2.78$ cfs





TYPICAL SWALE SECTION
SCALE: 1" = 4'

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.

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.

RECEIVED JUL 24 1984 HYDROLOGY SECTION

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER
07/24/84

TOM, MORRIS & ASSOCIATES, INC.
811 DALLAS N.E. · ALBUQUERQUE · NEW MEXICO · 87110
ENGINEERS

NO.	DATE	BY	REVISIONS
1	07/24/84	JM	Resubmit and sign drawing

DESIGNED BY J.T.O.
DRAWN BY L.B.D.
APPROVED T.T.M., J.G.M.

JOB NO. 40021
DATE 2·84

L23 D8

GRADING & DRAINAGE PLAN
LOT 14 ORONA ADDITION

L23 D8

FILE NO.
SHEET 1 OF 1

N29563