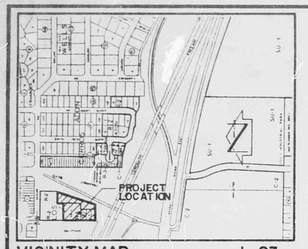
HYDROLOGY

L23/D9
TWO PLANS

L23/D9

2 PLANS




VICINITY MAP L-23

SCALE 1" = 800'

LEGEND

- EXIST. SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- EXIST. CONTOUR
- PROPOSED CONTOUR
- PROPERTY LINE
- SWALE
- PROPOSED CONCRETE
- PROPOSED ASPHALT PAVING
- PHASE LINE

PROJECT BENCHMARK = T.B.M.
FINISH FLOOR OF EXIST. BUILDING
C. ELEVATION @ 5697.32 FEET (M.S.L.D.)

STREET ADDRESS:
12500 SKYLINE DRIVE N.E.

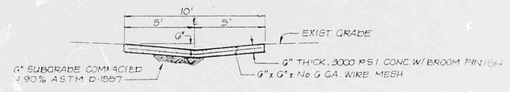
NOTE
THIS PLAN IS AN UPDATE TO PREVIOUS PLAN (L-23-D-9). DRAINAGE CONCEPTS ARE UNCHANGED. PLAN HAS BEEN MODIFIED TO RECONFIGURE BUILDING 'B' & REGRADE ADJACENT AREAS AS REQUIRED.

CONSTRUCTION NOTES:

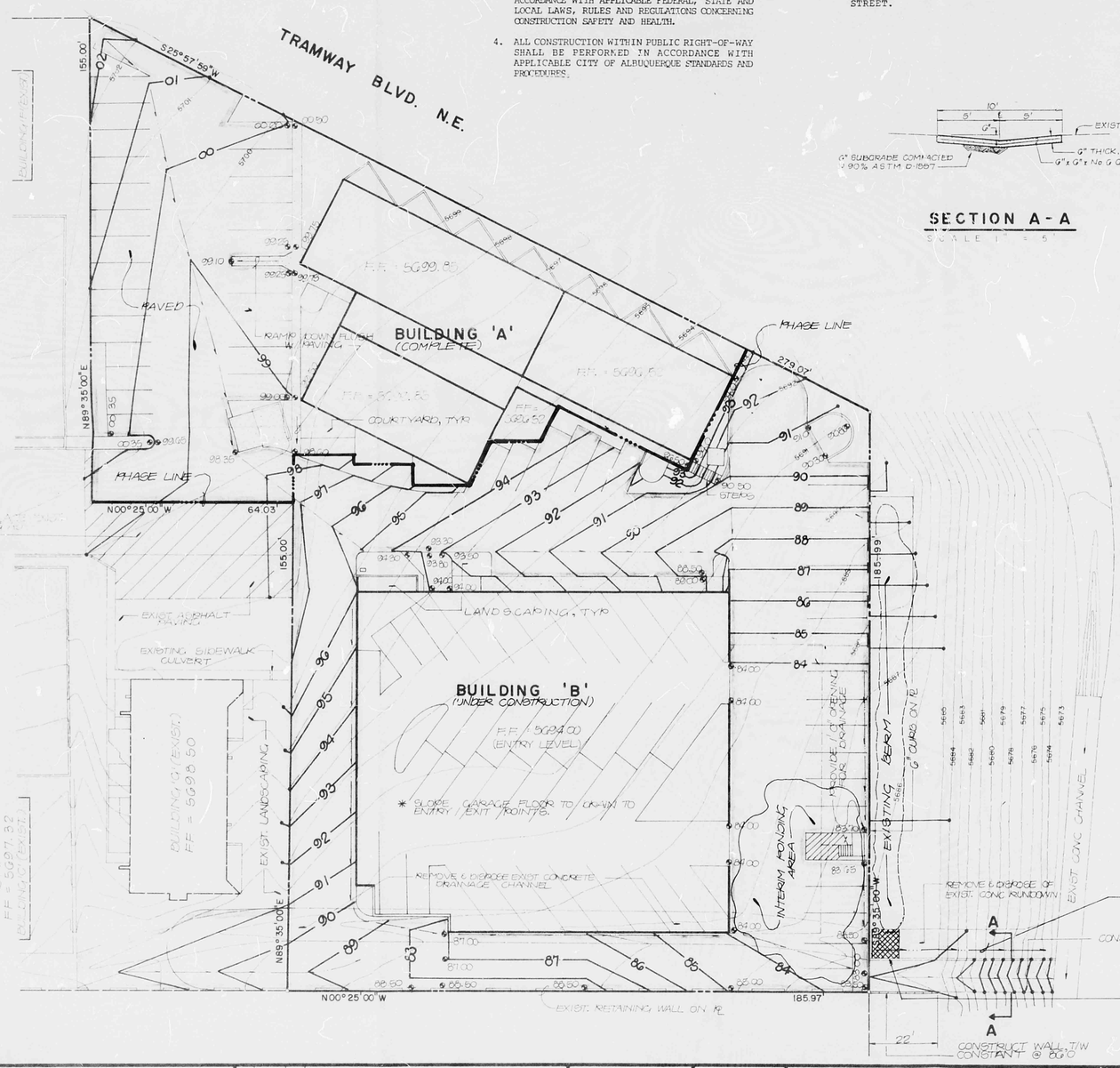
1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE 765-1234, FOR LOCATION OF EXISTING UTILITIES.
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, 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.




SECTION A-A
SCALE 1" = 5'




SCALE 1" = 20'

PHASING PLAN

As of December 19, 1985, the construction of Building A is substantially complete. The Building A parking lot is paved and appears to drain in accordance with the approved plan. Runoff has been drained from a portion of the roofs into the backyards, and as a result the backyards have been graded and sodded to route that runoff to the Building A parking lot and the future Building B paving. Building B is under construction and is scheduled for completion within the next sixty days. Because of this, the Building B paving is not complete. The rough grading, however, is complete. Runoff leaves the Building A area and flows across the Building B future paving to reach the southwest corner, which is the discharge point for the site. As an interim solution, the southwest corner of the site will be used as an interim pond until such time as the Building B paving can be completed and the concrete rundown to the existing concrete channel can be reconstructed to accept the runoff from the site; this area is already depressed and permits ponding to approximately 3 feet in depth. This currently overflows and has eroded a portion of the existing slope. Erosion is only a concern along the existing rundown. This phase requires the recompaction of the embankment at this point to contain the runoff onsite and halt the present erosion process. Lastly, the issue of a permanent Certificate of Occupancy for Building A is requested based upon the updated information hereon. It should also be noted that both buildings lie within a single tract of land and that separate building permits have been issued for the buildings. The present legal description is Tract B, Los Cerros.

DRAINAGE PLAN

The following items concerning the Skyline Apartments 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 northwest corner of the intersection of Tramway Boulevard N.E. and Interstate Highway 40. At present, the site is partially developed. This plan proposes the construction of two apartment buildings. The existing dwellings on the site are seven four-plex units which lie to the north of the proposed apartment buildings.

This site does not lie within a designated flood hazard zone as indicated by Plate L-23 of the Albuquerque Master Drainage Study. This plate, along with the adjoining plates, illustrates a downstream facility does exist. This facility, as previously recognized, is a drainage channel which lies along the north side of Interstate 40. In addition, there is an existing concrete sweale which conveys runoff from the site to the aforementioned channel. This plan proposes merely to relocated that sweale and maintain the same pattern of discharge from the site. Hydrology file number L-23-D9 is a cross reference for the previous work.

The Grading Plan shows 1) existing and proposed grades as indicated by spot elevations and contours at 1' 0" intervals, 2) continuity between proposed and exising grades, 3) the limit and character of the existing improvements, and 4) the limit and character of the proposed improvements. As shown by this plan, the runoff from the proposed improvements will be directed along with the existing runoff from the north to the existing drainage channel. Runoff will be conveyed over paved surfaces to the southwest corner of the site. At this point, the runoff will be conveyed via a newly constructed concrete rundown to the outfall channel.

The calculations which appear below analyze the existing and developed conditions for the 100-year, 6 hour rainfall event. The Rational Method has been used for this analysis in accordance with the City of Albuquerque Development Process Manual, Volume II. As demonstrated by these calculations, the newly constructed facilities have the ability to convey all of the runoff generated on this parcel along with the additional flows from the north to the outfall channel. This analysis has been performed using the Manning Equation.

CALCULATIONS

Ground Cover Information

1. From SCS Bernalillo County Soil Survey, Plate 32:
   EtC Embudo-Tijeras Complex
   Hydrologic Soil Group B
2. Existing Condition

   $A_{total}$ = 52,060 sf = 1.20 Ac
   $A_{imp}$ = 0, % impervious = 0%
   $C_{EXIST}$ = 0.34 (DPM Plate 22.2C-1)
3. Developed Condition

   $A_{total}$ = 52,060 sf = 1.20 Ac
   $A_{imp}$ = 46,920, % impervious = 90%
   $C_{DEV}$ = 0.86 (DPM Plate 22.2C-1)

Rational Method

1. Discharge: $Q = CiA$
   where C varies
   $i = P_6 (6.84) T_c^{-0.51} = 5.28$ in/hr
   $P_6$ = 2.5 in (DPM Plate 22.2D-1)
   $T_c$ = 10 min (minimum)
   A = area, acres
2. Volume: $V = CP_6A(1/12)$
   where C varies
   $P_6$ = 2.5 in (DPM Plate 22.2D-1)
   A = area, sf

Existing Condition

$Q_{100} = CiA = 0.34\ (5.28)\ (1.20) = 2.2$ cfs
$V_{100} = CP_6A = 0.34\ (2.5/12)\ (52,060) = 3690$ cf

Developed Condition

$Q_{100} = CiA = 0.86\ (5.28)\ (1.20) = 5.4$ cfs
$V_{100} = CP_6A = 0.86\ (2.5/12)\ (52,060) = 9330$ cf

Offsite Condition

As determined by previous report for "Skyline South Phase 2" (L23-D9), the total offsite contribution is approximately 5 cfs.

Hydraulic Analysis

1. Section A-A
   $Q = (1.49/n)\ A\ R^{2/3} s^{1/2}$ (Manning Equation)
   where n = 0.017 (asphalt)
   s = 1/45 = 0.022 (minimum)
   A & R = f (w,m,d)
   w = bottom width = 0'
   m = side slope = 5/0.5 = 10
   d = depth - 0.5'
   $Q_{capacity}$ = 12.8 cfs
   @ Q = 5.4 + 5 = 10.4 cfs, d = 0.47' and v = 4.9 fps

Comparison

$\Delta Q_{100}$ = 2.2 - 5.4 = 3.2 cfs (increase)
$\Delta V_{100}$ = 3690 - 9330 = 5640 cf (increase)

RECEIVED
DEC 20 1985
HYDROLOGY SECTION

REGISTERED PROFESSIONAL ENGINEER
STATE OF NEW MEXICO
THOMAS T. MANN JR.
3847
REGISTERED PROFESSIONAL SURVEYOR
STATE OF NEW MEXICO
8/30/84

| NO. | DATE | BY | REVISIONS |
|---|---|---|---|
| 1 | 12/85 | JGM | PHASING PLAN FOR BLDG. 'A' C.O. |

Tom Mann Associates, Inc.
811 DALLAS N.E. · ALBUQUERQUE · NEW MEXICO · 87110
ENGINEERS

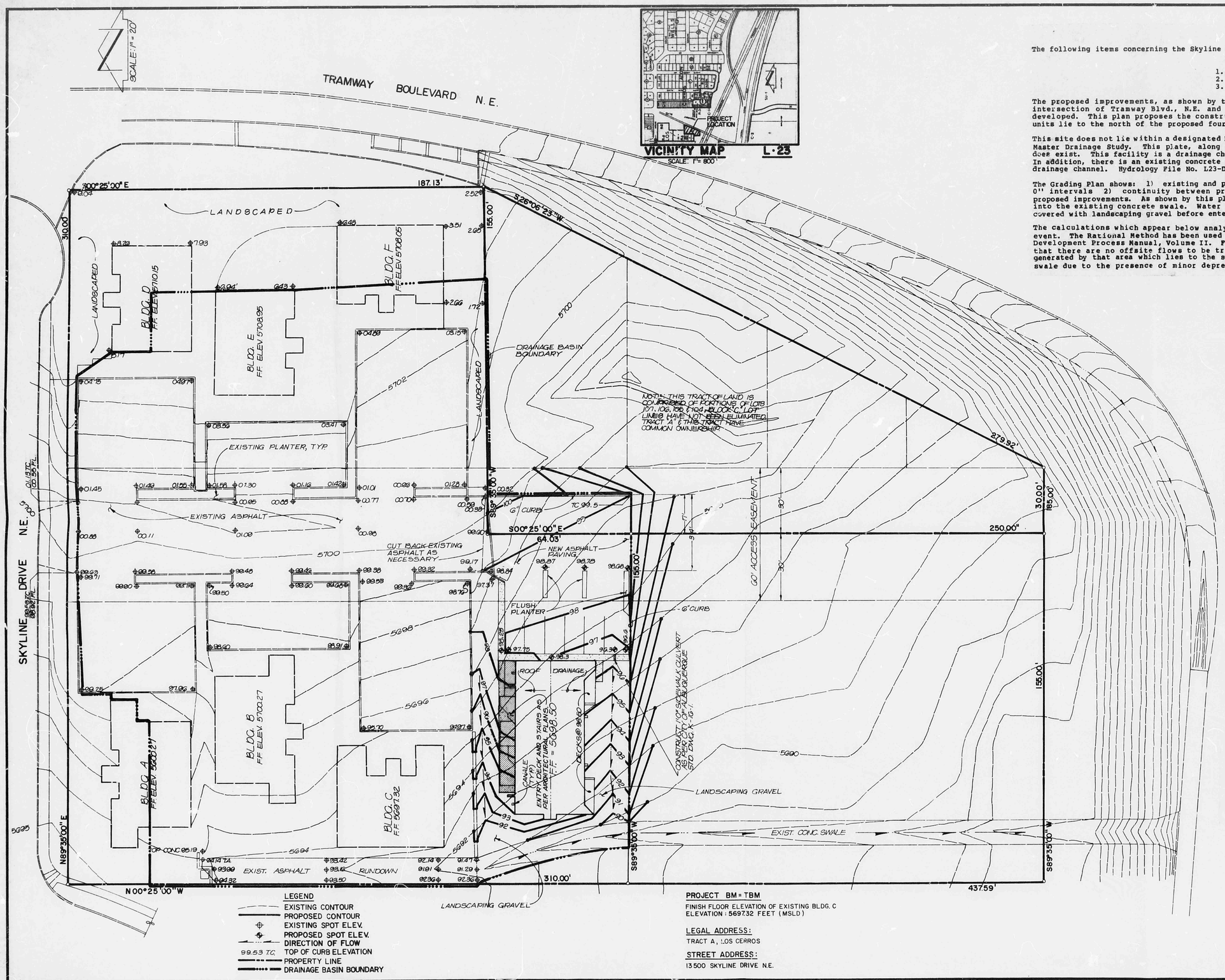
DESIGNED BY JGM
DRAWN BY JMC
APPROVED T.T.M.

JOB NO. 30172
DATE 8/84

**PHASING PLAN &**
**GRADING & DRAINAGE PLAN UPDATE**
SKYLINE APARTMENTS

L23/D9

FILE NO.
SHEET 1 OF 1




PROJECT BM = TBM
FINISH FLOOR ELEVATION OF EXISTING BLDG. C
ELEVATION: 5697.32 FEET (MSLD)

LEGAL ADDRESS:
TRACT A, LOS CERROS

STREET ADDRESS:
13500 SKYLINE DRIVE N.E.

## DRAINAGE PLAN

The following items concerning the Skyline South, Phase II Grading and 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 northwest corner of the intersection of Tramway Blvd., N.E. and Interstate Highway 40. At present, the site is partially developed. This plan proposes the construction of one four-plex dwelling unit six existing four-plex units lie to the north of the proposed four-plex.

This site does not lie within a designated Flood Hazard Zone as indicated by Plate L-23 in the Albuquerque Master Drainage Study. This plate, along with adjoining plates, illustrates that a downstream facility does exist. This facility is a drainage channel which lies along the north side of Interstate Highway 40. In addition, there is an existing concrete swale which conveys runoff from the site to the aforementioned drainage channel. Hydrology File No. L23-D9 is a cross-reference for the previous construction.

The Grading Plan shows: 1) existing and proposed grades indicated by spot elevations and contours at 1'-0'' intervals 2) continuity between proposed and existing grades 3) the limit and character of proposed improvements. As shown by this plan, the runoff from the proposed improvements will be directed into the existing concrete swale. Water leaving the paved portions of the site will flow across areas covered with landscaping gravel before entering the concrete swale.

The calculations which appear below analyze the developed condition for the 100 year, 6 hour rainfall event. The Rational Method has been used for this analysis in accordance with the City of Albuquerque Development Process Manual, Volume II. Field inspection and previous study of this site have revealed that there are no offsite flows to be treated. In fact, it is not likely that any runoff presently generated by that area which lies to the south of the proposed four-plex will enter the existing concrete swale due to the presence of minor depressions throughout the area which collect and retain runoff.

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MAR 04 1983
ENGINEERING

### Calculations

**Ground Cover Information**

1. From SCS Bernalillo County Soil Survey, Plate 32: Etc Embudo Tijeras Complex (B Soil)
2. Site approximates 1/8 acre lots (residential). As per DPM Plate 22.2C-2, average % impervious = 65%. Let % impervious = 65%. Then, C = 0.66 (DPM Plate 22.2C-1).

**Rational Method**

1. Discharge: $Q = CiA$
   where $C = 0.66$
   $i = P_6(6.84)T_c^{-0.51} = 5.28$ in/hr
   $P_6 = 2.5$ in (DPM Plate 22.2D-1)
   $T_c = 10$ min (minimum)
   $A$ = area = 55,750 sf = 1.28 Ac±
2. Volume: $V = CP_6A\ (1/12)$
   where $C = 0.66$
   $P_6 = 2.5$ in (DPM Plate 22.2D-1)
   $A = 55{,}750$ sf

**Runoff**

$Q_{100} = 0.66(5.28)(1.28) = 4.5$ cfs
$V_{100} = 0.66(2.5/12)(55{,}750) = 7666$ cf

**Downstream Capacity** (Concrete Swale)

$Q = \frac{1.49}{n}AR^{2/3}S^{1/2}$ (Manning Eqn.)
where: $n = 0.015$
$A = 1/2(10)(1) = 5$ sf
$P = 10.2'$
$R = A/P = 0.49'$; $R^{2/3} = 0.62$
$S = S_{min.} = 1/90 = 0.011$

$Q = \frac{1.49}{0.015}(5)(0.62)(0.011)^{1/2} = 32$ cfs $>> Q_{100}$

∴ Downstream capacity exists.

3/4/83
Date

REGISTERED PROFESSIONAL ENGINEER
STATE OF NEW MEXICO
THOMAS T. MARTIN JR.
3792
AND LAND SURVEYOR

Martin Associates P.C.
811 DALLAS N.E. · ALBUQUERQUE · NEW MEXICO · 87110
ENGINEERS

| NO. | DATE | BY | REVISIONS |
|---|---|---|---|
| | | | |

DESIGNED BY J.G.M.
DRAWN BY JMC.
APPROVED T.T.M.

JOB NO. 3·0171
DATE 3 · 83

GRADING & DRAINAGE PLAN
SKYLINE SOUTH PHASE 2

L23-D9

FILE NO.
SHEET 1 OF 1