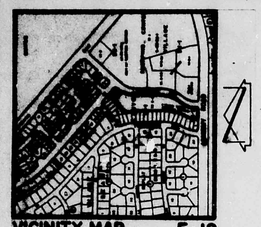
HYDROLOGY

E19/D22
1 PLAN

E19/D22

1 Plan



VICINITY MAP E-19
SCALE: 1" = 800'

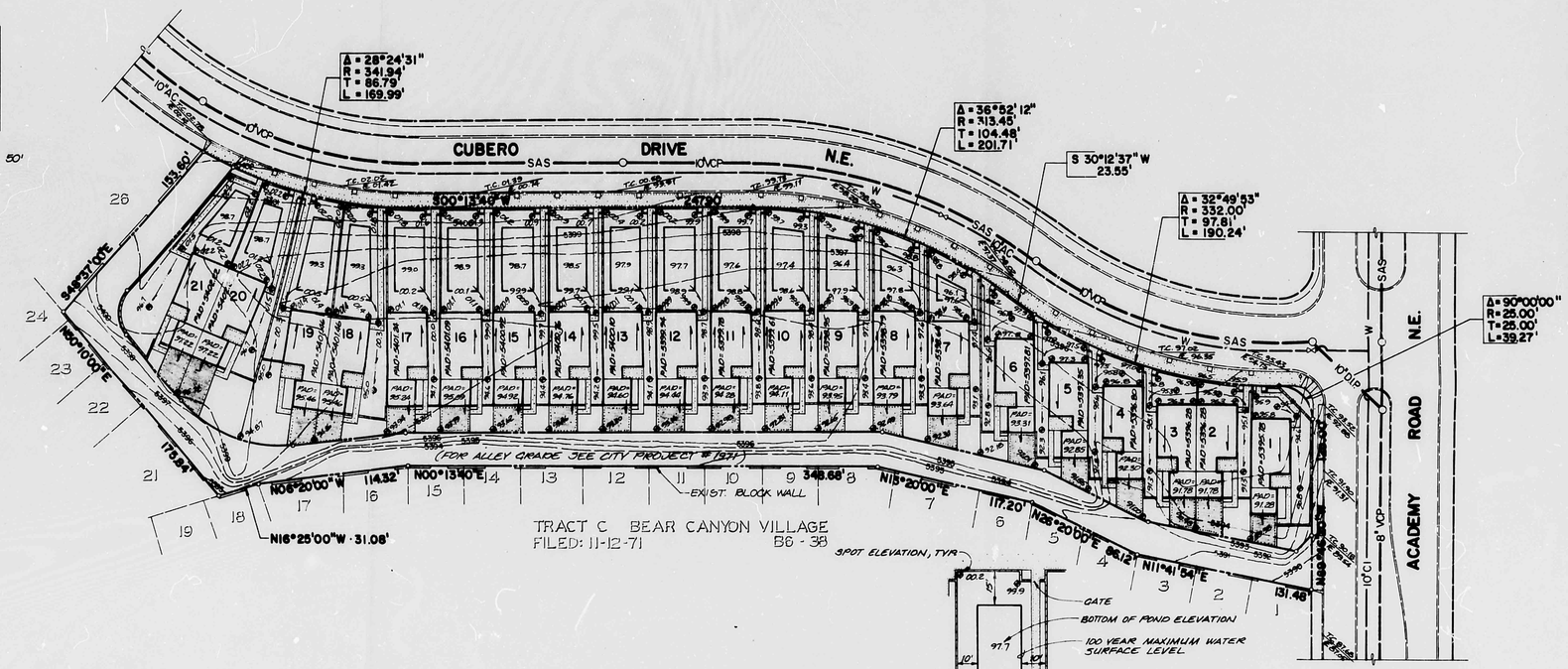
## • LEGEND •

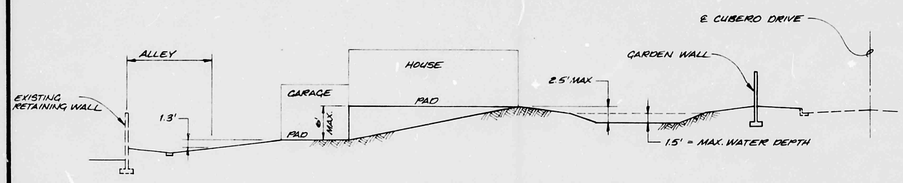
| | |
|---|---|
| 80.1 | EXISTING SPOT ELEVATION |
| 83.2 | PROPOSED SPOT ELEVATION |
| 5280 | EXISTING CONTOUR |
| 82 | PROPOSED CONTOUR |
| | SWALE |
| T.C. 82.51 | TOP OF CURB ELEVATION |
| F.E. 81.52 | FLOW LINE ELEVATION |
| | CONCRETE |
| | ASPHALT PAVEMENT |

## • PROJECT BENCH MARK = TBM •

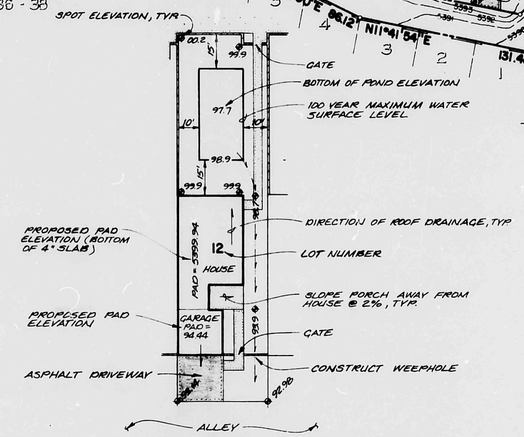
ACS BENCH MARK 2-F19 A STANDARD BRASS TABLET, STAMPED '2-F19', SET IN TOP OF A CONCRETE POST PROJECTING ABOUT 0.3 FT. LOCATED IN THE NORTHWEST QUADRANT OF THE INTERSECTION OF TORREON DR. AND ACADEMY ROAD NE.
ELEVATION = 5384.12 FEET (MSLD)

SCALE: 1" = 50'




TYPICAL LOT - PROFILE
NO SCALE




TYPICAL LOT - PLAN
SCALE 1" = 30'

## DRAINAGE PLAN

The following items concerning the Bear Canyon Estates Drainage Plan are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

The proposed improvements, as shown on the Vicinity Map, are located within Tract C-2, Bear Canyon Village. The proposed improvements consist of a paved alley, fifteen single-family detached dwellings, and six single-family attached dwellings and associated landscaping, including ponds.

No off-site flows enter the site. Flows to the east are contained within Cubero Drive N.E. Flows to the west are directed to the west. Flows to the north are directed to Cubero Drive; and flows to the south are contained within Academy Road N.E. Downstream facilities include the Bear Canyon Arroyo which has capacity for the magnitude of flow being discharged, however, it was first necessary to analyze the flows in Academy Road N.E. Capacity during the 100-year storm exists in Academy Road. "Velocity x depth" criteria is satisfied during the ten-year storm; however, it is not possible to keep one lane open during the ten-year storm, as per the Drainage Ordinance. Therefore, ponding is required. The site does not lie within a Flood Hazard Zone as indicated by Plate 17 of the Flood Hazard Boundary Maps prepared by the National Flood Insurance Program in August of 1982.

The Grading Plan shows 1) existing contours at 1' 0" intervals, 2) proposed grades indicated by spot elevations, and 3) limit and character of proposed improvements.

Calculations of runoff in the existing and developed states for the 100-year, 6-hour storm appear below using the Rational Method.

## CALCUALTIONS

**Ground Cover Information**

1. From SCS Bernalillo County Soil Survey, Plate 21:
   Embudo Tijeras Complex (Etc)
   Hydrologic Soil Group B
2. Existing Condition

   $A_{total}$ = 3.67 Acres

   $A_{imp}$ = 0

   % impervious = 0

   'C' = 0.34 (DPM Plate 22.2 C-1)
3. Developed Condition

   $A_{total}$ = 3.67 Acres

   $A_{imp}$ = 1.93

   % impervious = 52

   'C' = 0.58 (DPM PLate 22.2 C-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 22.2 D-1) - 100 year

   $T_c$ = 10 min (minimum)

   A = area
2. Volume: $V = CP_6A(1/12)$

   where C varies

   $P_6$ = 2.5 in (DPM Plate 22.2 D-1)

   A = area

**Existing Condition**

$Q_{100} = CiA = 6.6$ cfs

$V_{100} = CP_6A = 11{,}320$ cf

**Developed Condition**

$Q_{100} = CiA = 11.2$ cfs

$V_{100} = CP_6A = 19{,}320$ cf

$V_{ponded} = 7640$ cf

$Q_{release} = 6.7$ cfs

**Comparison**

$\Delta Q_{100} = +0.1$ cfs

$\Delta V_{100} = +360$ cf

REGISTERED PROFESSIONAL ENGINEER
STATE OF NEW MEXICO
THOMAS T. MANN
3982
NEW MEXICO LICENSED LAND SURVEYOR

RECEIVED
OCT 21 1983
ENGINEERING


TRUMAN MANN ASSOCIATES, INC.
811 DALLAS N.E. · ALBUQUERQUE · NEW MEXICO · 87110
ENGINEERS


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

DESIGNED BY SKS
DRAWN BY JMC / TXW
APPROVED T.T.M.
JOB NO 10079
DATE 10·83

GRADING & DRAINAGE PLAN
BEAR CANYON ESTATES

FILE NO.
SHEET 1 OF 1