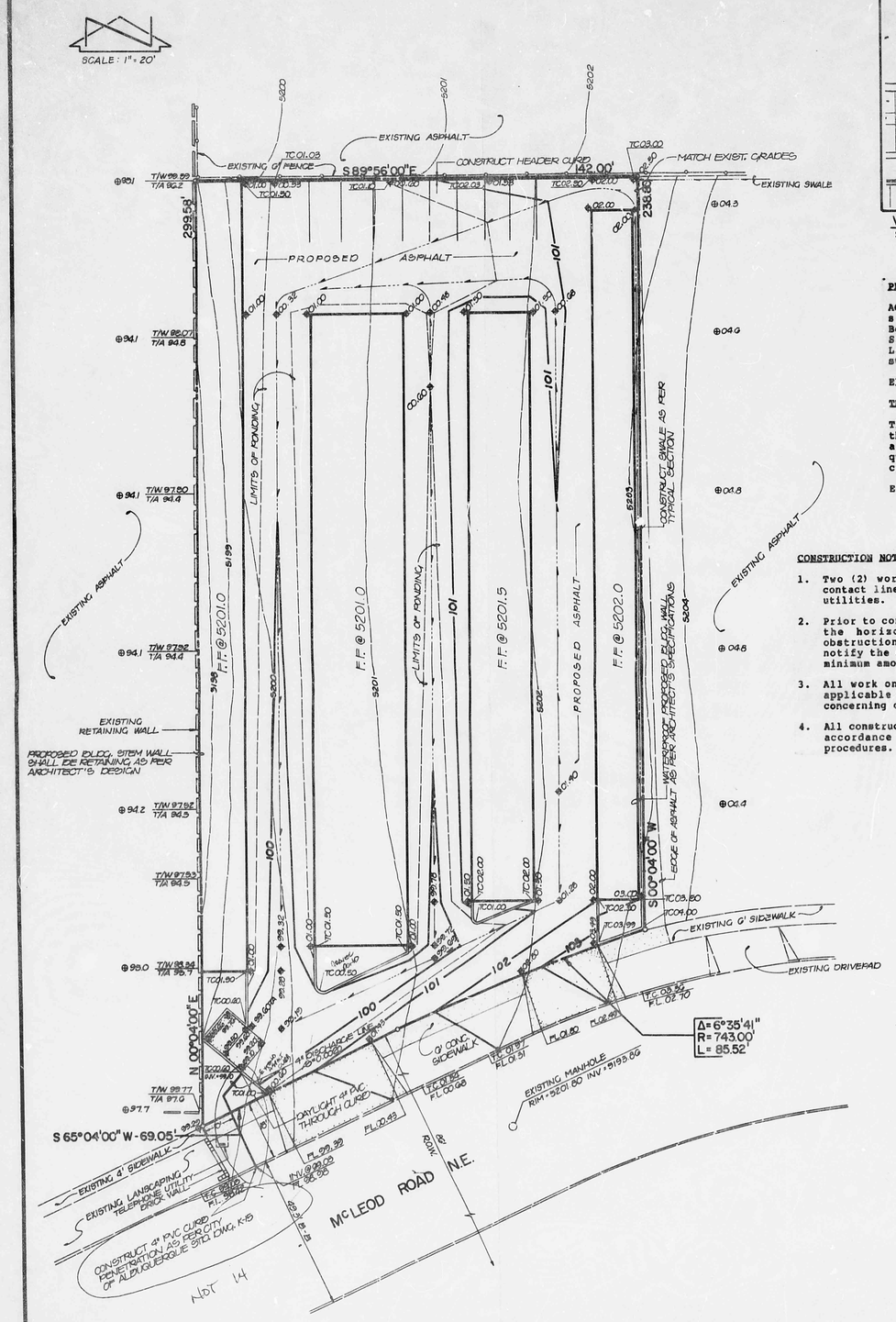
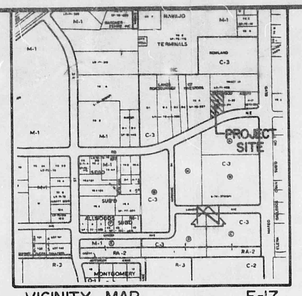
HYDROLOGY

F17/D37
ONE PLAN

F 17/D37

1 PLAN





VICINITY MAP F-17
SCALE: 1" = 800'

PROJECT BENCH MARK

ACS Bench Mark 8-F17 located in the west side of the median in San Mateo Boulevard N.E. at the intersection of San Mateo Boulevard and San Mateo Lane N.E. A standard brass tablet stamped '8-F17'.

Elevation = 5209.15 feet (MSLD)

TBM

The temporary bench mark is located at the intersection of San Mateo Boulevard and McLeod Road N.E. in the S.E. quadrant of the intersection at the SSE curb return.

Elevation = 5213.37 feet. (MSLD)

CONSTRUCTION NOTES

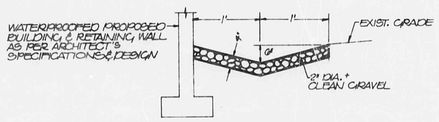
1. Two (2) working days prior to any excavation, contractor must contact line locating service, 765-1234, for location of existing utilities.
2. Prior to construction, the contractor shall excavate and verify the horizontal and vertical location of all potential obstructions. Should a conflict exist, 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.

LEGEND

- EXIST. SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- EXIST. CONTOUR
- PROPOSED CONTOUR
- PROPERTY LINE
- PROPOSED CONCRETE
- SWALE

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.



TYPICAL SWALE SECTION
NO SCALE

DRAINAGE PLAN

The following items concerning the McLeod Self-Storage Drainage Plan are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

The proposed improvements, as shown by the Vicinity Map, are located in the northwest quadrant of the intersection of San Mateo Boulevard N.E. and McLeod Road N.E. The self-storage facility is more particularly described as Tract A-23 of the Sanbusco Addition Subdivision. Directly north of the site lies an existing self-storage facility. Directly west of the site lies a Bag & Save Food Warehouse Store. The Safari Club, a youth-type establishment, lies directly east of the site.

As shown by Plate F-17 of the Albuquerque Master Drainage Study, the site does not lie within a designated Flood Hazard Zone. The potential for downstream flooding does exist, therefore, the runoff generated by the proposed improvements will be routed through a positive discharge pond in accordance with the approved conceptual drainage plan. The existing drainage pattern of the area is one in which runoff flows from northeast to southwest. Offsite flows in the form of sheet flow impact the site from the east. These offsite flows will be accepted and routed through the proposed improvements into McLeod Road 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 the proposed improvements within the site. As shown by this plan, the proposed improvements include the construction of four self-storage building units, asphalt paving for access and parking, and landscaping. All runoff generated by the site will be routed through a positive discharge pond located at the southwest corner of the project.

The Calculations which appear below analyze both 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. The evaluation of the pond release rate is based upon the Orifice Equation. The pond volume has been determined based upon the average end-area method. These calculations demonstrate that a decrease in the peak discharge of runoff from the site will be realized due to the proposed construction. The total volume of runoff is expected to increase; however, adequate ponding has been provided based on hydrograph analysis.

Calculations

Ground Cover Information

From SCS Bernalillo County Soil Survey, Plate 21:
TgB Tijeras Gravelly Fine Sandy Loam
Hydrologic Soil Group B

Rational Method

Discharge: $Q = CiA$

where C varies

$i = P_6(6.84)^{-0.51} = 4.65$ in/hr

$P_6 = 2.20$ in (DPM Plate 22.2 D-1)

$T_c = 10$ min (minimum)

A = area, acres

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

where C varies

$P_6 = 2.20$ in (DPM Plate 22.2 D-1)

A = area, sf

Existing Condition

a. Site

$A_{total} = 38{,}050$ sf = 0.87 Ac

$A_{imp} = 0$ sf; % impervious = 0%

'C' = 0.34 (DPM Plate 22.2 C-1)

$Q_{100} = CiA = 0.34(4.65)(0.87) = 1.4$ cfs

$V_{100} = CP_6A = 0.34(2.2/12)(38{,}050) = 2400$ cf

b. Offsite

$A_{total} = 15{,}100$ sf = 0.35 Ac

$A_{imp} = 15{,}100$ sf; % impervious = 100%

'C' = 1.00 (DPM Plate 22.2 C-1)

$Q_{100} = CiA = 1.00(4.65)(0.35) = 1.6$ cfs

$V_{100} = CP_6A = 1.00\ (2.2/12)(15{,}100) = 2770$ cf

Developed Condition

a. Site

$A_{total} = 38{,}050$ sf = 0.87 Ac

$A_{imp} = 36{,}565$ sf; % impervious = 96%

'C' = 0.93 (DPM Plate 22.2 C-1)

$Q_{100} = CiA = 0.93(4.65)(0.87) = 3.8$ cfs

$V_{100} = CP_6A = 0.93(2.2/12)(38{,}050) = 6500$ cf

$Q_{release} = CA\sqrt{2gh} = 0.65$ cfs

where C = 0.8

$A = \pi(d^2)/4 = 0.0873$ sf

$g = 32.2$ ft/sec^2

$h = 100.60 - 99.10 + 2/12 = 1.33'$

By hydrograph Analysis, $V_{required} = 4500$ sf

By Average End-Area Method, $V_{pond} = 4410$ cf

$V_{pond} = \frac{1}{2}(A_{99.10} + A_{99.60})(99.60 - 99.10) + \frac{1}{2}(A_{99.60} + A_{100.60})(100.600 - 99.60) = 4410$ cf

$V_{pond} = V_{required}$

b. Offsite (No change)

$Q_{100} = 1.6$ cfs

$V_{100} = 2770$ cf

Comparison

$Q_{100} = 1.4 - 0.65 = 0.8$ cfs (decrease)

$V_{100} = 6500 - 2400 = 4100$ cf (increase)

MAR 07 1984
HYDROLOGY SECTION

REGISTERED PROFESSIONAL ENGINEER
STATE OF NEW MEXICO
THOMAS T. MANN, J.R.
3792
AND LAND SURVEYOR
3/6/84

811 DALLAS N.E. · ALBUQUERQUE · NEW MEXICO · 87110
ENGINEERS

NO.	DATE	BY	REVISIONS

DESIGNED BY: JGM, JTO
DRAWN BY: C.G.C.
APPROVED: T.T.M., JGM

JOB NO. 4-0061
DATE 2/84

GRADING AND DRAINAGE PLAN
McLEOD SELF-STORAGE

FILE NO.
SHEET 1 OF 1