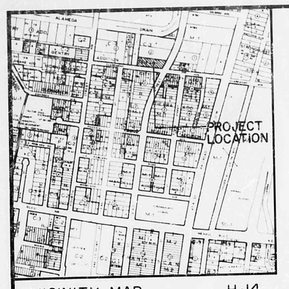
HYDROLOGY

H14/D34
1 PLAN

H14/D34

1 Plan



VICINITY MAP H-14

SCALE 1" = 800'

LEGEND

- EXISTING SPOT ELEVATION
- EXISTING CONTOUR
- EXISTING CONCRETE
- EXISTING CHAINLINK FENCE
- EXISTING BLOCK WALL
- PROPERTY LINE

T.B.M.:

TOP OF CORNER OF EXISTING CONCRETE SIDEWALK AS SHOWN.
ELEVATION 4965.94 FEET (MSLD)

PROJECT BENCHMARK:

THE STATION, A STANDARD NGS/HIG BRASS TABLET, STAMPED "STA NM47-11," SET IN TOP OF A CONCRETE POST FLUSH WITH THE GROUND, IS LOCATED 3 MILES NORTH OF LOMA TOWN, ALBUQUERQUE IN THE CENTER OF THE MEDIAN STRIP IN THE 8200 BLOCK OF SECOND ST. N.W. TO REACH THE STATION FROM THE INTERSECTION OF CENTRAL AVE & SECOND ST., GO NORTH ON SECOND ST. 2.2 MILES TO THE STATION ON THE LEFT.
ELEVATION 4968.53 FEET (MSLD)

DRAINAGE PLAN

The following items concerning the Bob Statkus Warehouse Project are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

The proposed improvements, as shown by the Vicinity Map, are located on the west side of Second Street N.W. just north of Claremont Avenue N.W. The site is presently developed as is much of the surrounding area.

As shown Plate H-14 of the Albuquerque Master Drainage Study, this site does not lie within a designated Flood Hazard Zone. Downstream flooding has been identified, however, as a result of the predesign conference with the Hydrology Section. Because of this, the runoff from this site will be routed through a landscaped area and discharged at a controlled rate to Second Street N.W. This proposed drainage pattern is in accordance with the aforementioned predesign conference.

The Grading Plan shows 1) existing and proposed grades indicated by spot elevations and contours at 1' 0" intervals, 2) the limit and character of the existing improvements, 3) the limit and character of the proposed improvements, and 4) continuity between existing and proposed grades. As shown by this plan, the site drains from west to east and discharges its runoff to Second Street N.W. Developed runoff from the site will be handled in the manner discussed above. Because the site is surrounded on three sides by an existing block wall, no offsite flows are anticipated. In addition, no flooding has been identified in Second Street N.W.

The Calculations which appear hereon 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 analysis of the pond release rate is based upon the Orifice Equation. The analysis of pond volume is based upon the Average End-Area Method.

CALCULATIONS

Ground Cover Information
From SCS Bernalillo County Soil Survey, Plate 20:
Gb Gila Loam
Hydrologic Soil Group B

Rational Method
Discharge: $Q = CiA$
where C varies
$i = P_6 (6.84)\ T_c^{-0.51} = 4.65$ in/hr
$P_6 = 2.2$ in (DPM Plate 22.2D-1)
$T_c = 10$ min (minimum)
A = area, acres

Volume: $V = CP_6A(1/12)$
where C varies
$P_6 = 2.2$ in (DPM Plate 22.2D-1)
A = area, sf

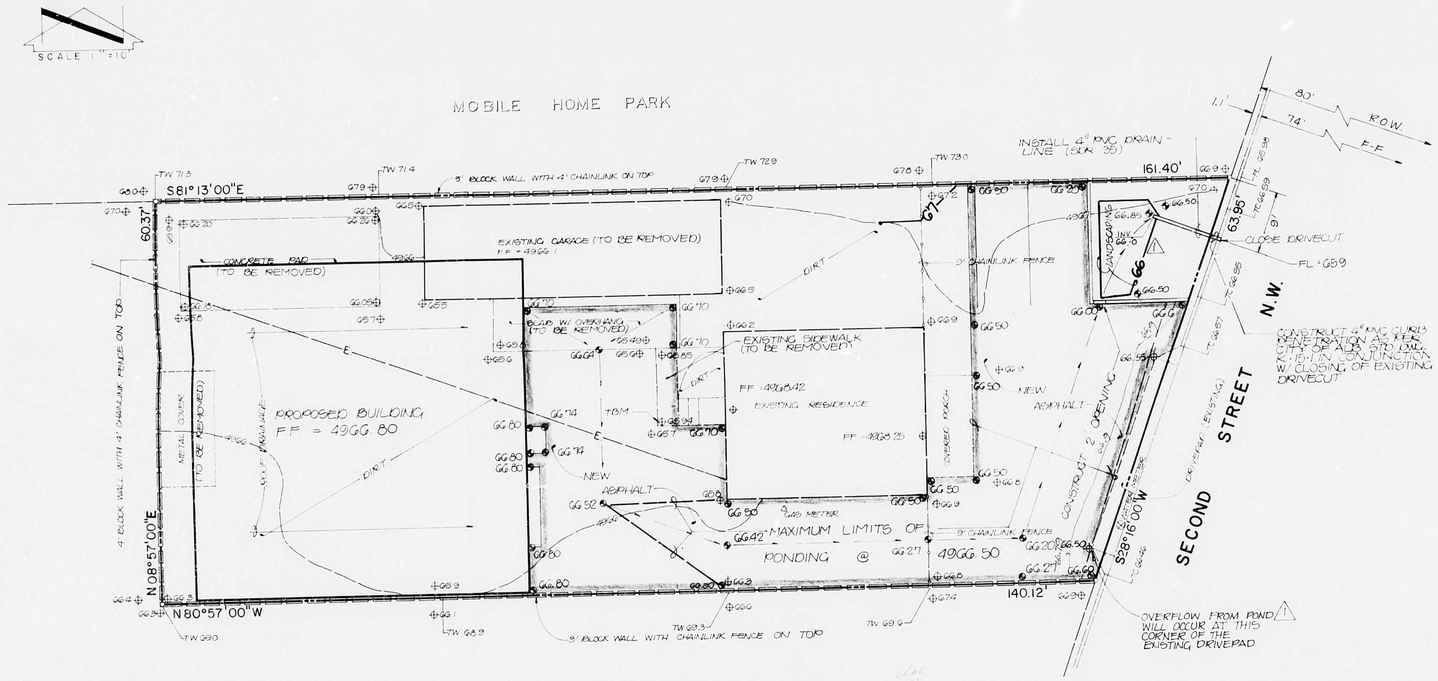
Existing Condition
$A_{total} = 9100$ sf $= 0.21$ Ac
$A_{imp} = 2275$ sf; % impervious = 25%
C = 0.45 (DPM Plate 22.2C-1)
$Q_{100} = CiA = 0.45\ (4.65)(0.21) = 0.4$ cfs
$V_{100} = CP_6A = 0.45\ (2.2/12)(9100) = 750$ cf

Developed Condition
$A_{total} = 9100$ sf $= 0.21$ Ac
$A_{imp} = 6435$ sf; % impervious = 71%
C = 0.70 (DPM Plate 22.2C-1)
$Q_{100} = CiA = 0.70\ (4.65)(0.21) = 0.7$ cfs
$V_{100} = CP_6A = 0.70\ (2.2/12)(9100) = 1170$ cf

$Q_{release} = CA\sqrt{2gh} = 0.2$ cfs
where C = 0.6
A = 0.0873 sf (4" dia pipe)
g = 32.2 ft/sec²
h = 66.5 - 66.0 - 0.17 = 0.33'

By Hydrograph Analysis, $V_{required} = 600$ cf
$V_{pond} = 1/2[(A_{65.85} + A_{66.0})(66.0 - 65.85) + (A_{66.0} + A_{66.5})(66.5 - 66.0)]$
$= 1/2[(0 + 80)(0.15) + (80 + 2240)(0.5)]$
$= 580$ cf $\simeq V_{required}$

Comparison
$Q_{100} = 0.4 - 0.2 = 0.2$ cfs (decrease)
$V_{100} = 1170 - 750 = 420$ cf (increase)



SCALE 1" = 10'

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.

APPROVED FOR DRAINAGE
DATE
SIGNATURE TITLE
ADVISE DRAINAGE INSPECTOR WHEN GRADING EXECUTED

RECEIVED OCT 03 1984 HYDROLOGY SECTION

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER
10/02/84

NO.	DATE	BY	REVISIONS
1	10/84	JGM	REVISE POND LIMITS

DESIGNED BY JGM
DRAWN BY L.B.D.
APPROVED T.T.M.

JOB NO. 40971
DATE 9-84

GRADING & DRAINAGE PLAN
BOB STATKUS WAREHOUSE

FILE NO.
SHEET 1 OF 1

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