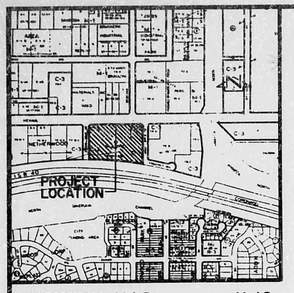
HYDROLOGY

H16/D78
1 PLAN

H16/D78

1 PLAN



VICINITY MAP H-16
SCALE: 1" = 800'

LEGEND

- 5080 — EXISTING CONTOUR
- EXISTING SPOT ELEVATION
- EXISTING CHAINLINK FENCE
- POWER POLE WITH GUY
- EXISTING WALL
- PROPOSED SPOT ELEVATION
- 88 — PROPOSED CONTOUR
- PROPOSED CONCRETE
- PROPOSED ASPHALT
- SWALE

LEGAL DESCRIPTION

TRACT E, F & G, NETHERWOOD PARK

SCALE: 1" = 40'

T.B.M. #1

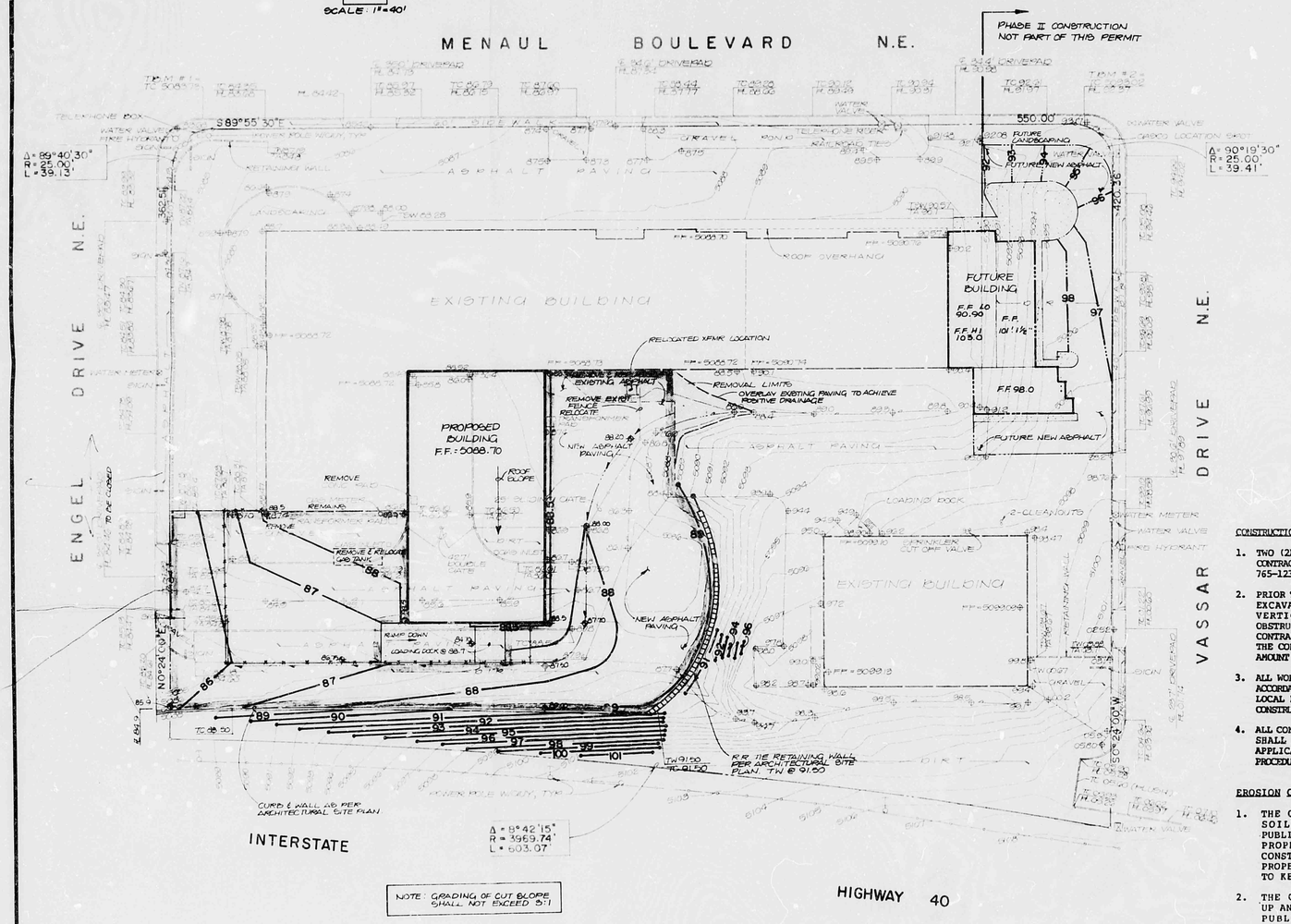
TOP OF CURB @ THE EOE CURB RETURN @ THE INTERSECTION OF ENGEL DRIVE N.E. & MENAUL BLVD. NE, AS SHOWN.
ELEVATION = 5088.78 FEET (M&LID)

T.B.M. #2

TOP OF CURB @ THE WOW CURB RETURN @ THE INTERSECTION OF VASSAR DRIVE N.E. & MENAUL BLVD. NE, AS SHOWN.
ELEVATION = 5088.02 FEET (M&LID)

PROJECT BENCHMARK

A STANDARD NM&HC BRASS TABLET, STAMPED "STA. I-40-12," SET IN TOP OF A CONCRETE POST FLUSH WITH THE GROUND IN THE CENTER OF THE MEDIAN OF MENAUL BLVD. NE @ THE CROSSING OF THE AMAFCA NORTH DIVERSION CHANNEL. TO REACH THE STATION FROM THE INTERSECTION OF CENTRAL AVE. & SECOND ST., GO NORTH ON SECOND ST. 1.0 MILES TO MENAUL BLVD. NE, THEN GO EAST ON MENAUL BLVD 1.6 MILES TO THE CROSSING OF THE NORTH DIVERSION CHANNEL. THE STATION IS ON THE LEFT.
ELEVATION = 5114.549 FEET (M&LID)



DRAINAGE PLAN

The following items concerning the Korber Development Drainage Plan are contained hereon:

1. Vicinity Map 2. Grading Plan 3. Calculations

As shown by the Vicinity Map, this site is located on the south side of Menaul Boulevard N.E. between Engel Drive N.E. and Vassar Drive N.E. At present, the site is developed commercially. The proposed improvements include the removal of existing asphalt paving and the construction of a building addition and some new asphalt paving. In addition, Phase II construction is shown for information purposes only and will not be a part of this permit.

This site lies within Basin 102 as defined by the City of Albuquerque Watershed Cell Maps. This basin contributes its runoff to the intersection of Princeton Drive N.E. and Phoenix Avenue N.E. At this point, runoff from the street is collected by a large cattleguard-type inlet which connects to an existing 72-inch RCP storm drain which discharges ultimately to the Menaul School Detention Pond. Connecting to this 72-inch storm drain at the intersection of Princeton Drive N.E. and Phoenix Avenue N.E. are several branches of the existing public storm drain system. One branch enters from the south and carries that runoff which is intercepted at AP 103, as designated by the Albuquerque Master Drainage Study. Another line, which has extensive catch basins within the street, extends from this intersection east to Vassar Drive N.E. The third branch of this system extends north in Princeton Drive N.E. to the intersection of Claremont Avenue N.E. Portions of this system have been previously analyzed by Mr. Richard Hall from Hall Engineering, and found to have sufficient capacity to remove the runoff from the street. In addition, this system has been analyzed with respect to the capacity of the 72-inch RCP by this office in conjunction with the grading and drainage plan for Prime Rate Motel (H15-D30), and found to have adequate capacity to convey that runoff generated upstream. Because of this, it appears that runoff generated by Basin 102 is intercepted by the subject storm drain system prior to reaching the intersection of Menaul Boulevard N.E. and University Boulevard N.E. Furthermore, review of Analysis Point (AP) 103 as shown on Plate H-16 of the Albuquerque Master Drainage Study indicates that all runoff is removed from Menaul Boulevard N.E. just downstream from the intersection with Princeton Drive N.E. Stormwater flowing within Menaul Boulevard just east of this intersection is largely collected by the existing storm drain system with the remainder of the surface flow turning to the north and flowing within Princeton Drive N.E. Lastly, it is worthy to note that the subject storm drain system referenced above did not appear on the AMDS maps which were probably used to analyze existing flooding conditions shown at the intersection of Menaul Boulevard N.E. and University Boulevard N.E. Because of this, the flooding situation at the intersection of Menaul Boulevard N.E. and University Boulevard N.E. is probably not as severe as initially perceived per the AMDS. With this information in mind, the free discharge of runoff from this previously developed infill site is appropriate.

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. At present, this site drains from east to west and discharges largely into Engel Drive N.E. Engel Drive is a very short street which begins at Menaul Boulevard N.E. at the northwest corner of this project and terminates at the Interstate Highway No. 40 right-of-way at the southwest corner of this project. Once the runoff enters Engel Drive N.E. it flows to the north where it enters Menaul Boulevard N.E. From this point, the runoff flows in a westerly direction and is intercepted at the intersection of Princeton Drive N.E. and Menaul Boulevard N.E. as per the previous discussion. This pattern of runoff will be maintained with the proposed Phase I improvements draining to a new drivepad located at the southwest corner of the site.

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. As shown by these calculations, the proposed Phase I and Phase II improvements will result in a relatively minor increase in peak runoff from the site. Due to the presence of downstream capacity, this increase will have a negligible affect on the downstream watershed. This projected increase of 2.3 cfs lends further support to the free discharge of runoff from this site.

CALCULATIONS

Ground Cover Information

From SCC Bernalillo County Soil Survey, Plate 31:
Cu - Cut and fill land
Hydrologic Soil Group A

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 22.2 D-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 22.2 D-1)
A = area, sf

Existing Condition

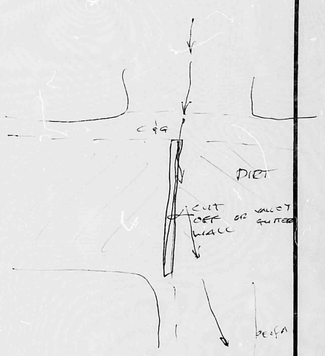
$A_{total} = 260{,}775$ sf = 5.99 Ac
$A_{imp} = 157{,}000$ sf; % impervious = 60%
'C' = 0.49 (DPM Plate 22.2 C-1)
$Q_{100} = CiA = (0.49)(4.65)(5.99) = 13.6$ cfs
$V_{100} = CP_6A = (0.49)(2.2/12)(260{,}775) = 23{,}426$ cf

Developed Condition

$A_{total} = 260{,}775$ sf = 5.99 Ac
$A_{imp} = 185{,}025$ sf; % impervious = 71%
'C' = 0.57 (DPM Plate 22.2 C-1)
$Q_{100} = CiA = (0.57)(4.65)(5.99) = 15.9$ cfs
$V_{100} = CP_6A = (0.57)(2.2/12)(260{,}775) = 27{,}250$ cf

Comparison

$\Delta Q_{100} = 15.9 - 13.6 = 2.3$ cfs
$\Delta V_{100} = 27{,}250 - 23{,}426 = 3{,}824$ cf



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.
3. THE CONTRACTOR SHALL SECURE "TOPSOIL DISTURBANCE PERMIT" PRIOR TO BEGINNING CONSTRUCTION.

RECEIVED
AUG 15 1985
HYDROLOGY SECTION

JEFFREY G. MORTENSEN NEW MEXICO 9547 REGISTERED PROFESSIONAL ENGINEER 8-15-85

NO	DATE	BY	REVISIONS

DESIGNED BY
DRAWN BY
APPROVED

JOB NO 91114
DATE 8-85

GRADING AND DRAINAGE PLAN
KORBER DEVELOPMENT

H16/D78

FILE NO.
SHEET 1 OF 1