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City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

June 19, 1986

Jeff Mortensen
Tom-Mann & Associates
811 Dallas NE
Albuquerque, NM 87110

RE: DRAINAGE PLAN FOR PHILLIPS PETROLEUM @ 8400 MONTGOMERY BLVD., NE (G20-D23) ENGINEER'S STAMP DATED 6/9/86

Dear Jeff:

Based on the information provided on your June 10, 1986 submittal, the above referenced drianage plan is approved for Building Permit.

Please attach a copy of this approved drainage plan to the construction sets before Hydrology will sign-off.

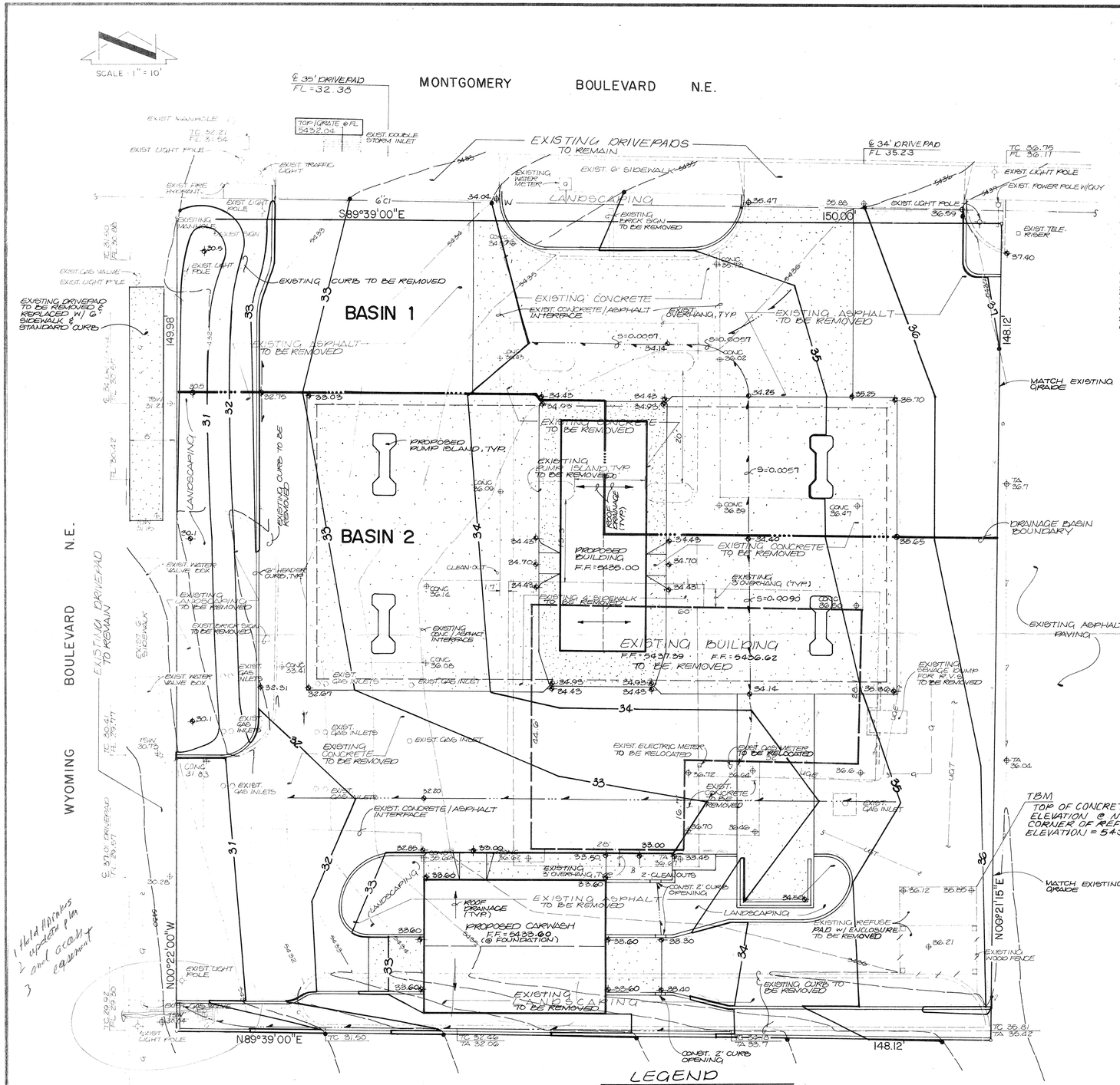
If I can be of further assistance, please feel free to contact me at 766-7644.

Sincerely,

/Bernie J. Montoya

Bernie J. Montoya, CE
Engineering Assistant

BJM/bsj



LEGAL DESCRIPTION

A PORTION OF TRACT 4 CLIFFORD-MULLINS BUSINESS ADDITION

PROJECT BENCHMARK

A SQUARE, Ø, CHISELED ON TOP OF CONCRETE CURBS AT THE ESE RETURN OF THE INTERSECTION OF MONTGOMERY BLVD. & WYOMING BLVD.
ELEVATION = 5432.34 FEET (M.S.L.D.)

LEGEND

- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- 5G — PROPOSED CONTOUR
- 5550 — EXISTING CONTOUR
- SWALE
- PROPERTY LINE
- DRAINAGE BASIN BOUNDARY
- CONCRETE
- PROPOSED ASPHALT
- PROPOSED FENCE
- x—x EXISTING FENCE
- T.C. 02.00 TOP OF CURB
- FL. 01.65 FLOW LINE

DRAINAGE PLAN

The following items concerning the Phillips Petroleum 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 southeast corner of Montgomery Boulevard N.E. and Wyoming Boulevard N.E. The site drains from northeast to southwest into Montgomery Boulevard and Wyoming Boulevard. No ponding currently exists on the site. The site is located within an infill area. No offsite flows enter the site based upon the review of the existing topography.

The Grading Plan shows 1) existing and proposed grades indicated by spot elevations and contours at 1'0" intervals, 2) continuity between existing and proposed elevations, 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 proposed improvements consist of a new service station and car wash with associated paving and landscaping. The proposed construction is essentially identical with what currently exists on the site with the exception that there will be more landscaping.

As shown on Plate G-20 of the Albuquerque Master Drainage Study, the site does not lie within a designated Flood Hazard Zone. However, flooding does occur in both Montgomery Boulevard and Wyoming Boulevard at Comanche Road. There is an existing 36" storm drain pipe and a series of inlets at the Wyoming/Montgomery intersection which does not adequately remove the runoff from the streets. As shown by the Grading Plan, the runoff from Basin 1 will enter the storm drain system. The runoff from Basin 2 will enter Wyoming Boulevard. In conclusion, the proposed improvements will not worsen existing conditions, and will have negligible impact downstream due to the small size of the site.

The Calculations which appear hereon analyze both the existing and developed conditions for the 100-year, 6-hour rainfall event. The SCS Method has been utilized for volume analysis and the Rational Method has been chosen for discharge rate analysis in accordance with the City of Albuquerque Development Process Manual, Volume II. As shown by these calculations, the proposed improvements will result in slightly less discharge from the site. Therefore, no ponding is proposed. There was no pre-design conference since the improvements do not constitute a substantial change from the existing improvements.

CALCULATIONS

Ground Cover Information

From SCS Bernalillo County Soil Survey, Tgb (Tijeras series) and Etc (Embudo Tijeras complex)
Plate: 21 Hydrologic Soil Group: B
Existing Pervious CN = 69 (DPM Plate 22.2 C-2)
Lawns - fair condition)
Developed Pervious CN = 69 (DPM Plate 22.2 C-2)

Time of Concentration/Time to Peak

$T_c = 0.0078\ L^{0.77}/S^{0.385}$ (Kirpich Equation)

$T_p = T_c = 10$ min.

Point Rainfall

$P_6 = 2.40$ in. (DPM Plate 22.2 D-1)

Rational Method

Discharge: $Q = CiA$

where C varies:
$i = P_6\ (6.84)\ T_c^{-0.51} = 5.18$ in/hr
$P_6 = 2.45$ in (DPM Plate 22.2D-1)
$T_c = 10$ min (minimum)
A = area, acres

SCS Method

Volume: $V = 3630(DRO)\ A$

Where DRO = Direct runoff in inches
A = area, acres

Existing Condition - Site

A_{total} = 22,200 sf = 0.51 Ac
Roof area = 2,130 sf (0.90)
Paved area = 17,780 sf (0.90)
Landscaped area = 2,290 sf (0.40)
C = 0.85 (Weighted average per Emergency Rule, 1/14/86)

$Q_{100} = CiA = 0.85(5.18)0.51 = 2.2$ cfs
Aimp = 19,910 sf; % impervious = 90%
Composite CN = 95 (DPM Plate 22.2 C-3)
DRO = 2.1 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)A = 3890$ cf

Developed Condition - Site

A_{total} = 22,200 sf = 0.51 Ac
Roof area = 1,450 sf = (0.90)
Paved area = 17,895 sf = (0.90)
Landscaped area = 2,855 sf = (0.40)
C = 0.83 (Weighted average per Emergency Rule, 1/14/86)

$Q_{100} = CiA = 0.83(5.18)0.51 = 2.2$ cfs
Aimp = 19,145 sf; % impervious = 86 %
Composite CN = 94 (DPM Plate 22.2 C-3)
DRO = 1.85 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)\ A = 3,425$ cf

Comparison

$\Delta Q_{100} = 2.2 - 2.2 = 0$ cfs (no change)
$\Delta V_{100} = 3890 - 3425 = 465$ cf (decrease)

Developed Condition - Basin 1

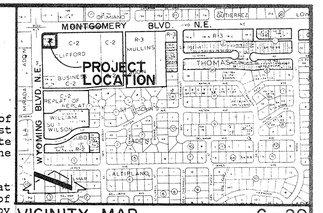
A_{total} = 6,500 sf = 0.15 Ac
Roof area = 170 sf = (0.90)
Paved area = 6,105 sf = (0.90)
Landscaped area = 225 sf = (0.40)
C = 0.88 (Weighted average per Emergency Rule, 1/14/86)

$Q_{100} = CiA = 0.88(5.18)0.15 = 0.68$ cfs
Aimp = 6,275 sf; % impervious = 97 %
Composite CN = 97 (DPM Plate 22.2 C-3)
DRO = 2.10 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)\ A = 1,140$ cf

Developed Condition - Basin 2

A_{total} = 15,700 sf = 0.36 Ac
Roof area = 1,280 sf = (0.90)
Paved area = 11,790 sf = (0.90)
Landscaped area = 2,630 sf = (0.40)
C = 0.82 (Weighted average per Emergency Rule, 1/14/86)

$Q_{100} = CiA = 0.82(5.18)0.36 = 1.53$ cfs
Aimp = 13,070 sf; % impervious = 83 %
Composite CN = 93 (DPM Plate 22.2 C-3)
DRO = 1.8 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)\ A = 2,350$ cf



VICINITY MAP G-20
SCALE : 1" = 800'

RECEIVED
JUN 10 1986
HYDROLOGY SECTION

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.
5. IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE MANNER ONLY, AND SUCH LINES MAY EXIST WHERE NONE ARE SHOWN. IF ANY SUCH EXISTING LINES ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE OWNER OF SAID UTILITY, AND THE INFORMATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME CONSTRUCTION COMMENCES. THE ENGINEER HAS UNDERTAKEN NO FIELD VERIFICATION OF THE LOCATION, DEPTH, SIZE, OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES, MAKES NO REPRESENTATION PERTAINING THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFOR. THE CONTRACTOR SHALL INFORM ITSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE, OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK IN ADVANCE OF AND DURING EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES, AND UNDERGROUND UTILITY LINES. IN PLANNING AND CONDUCTING EXCAVATION, THE CONTRACTOR SHALL COMPLY WITH STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES.

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.

JEFFREY G. MORTENSEN
NEW MEXICO
No. 8647
REGISTERED PROFESSIONAL ENGINEER

06-09-86

NO	DATE	BY	REVISIONS

DESIGNED BY S.K.S
DRAWN BY S.G.H
APPROVED J.G.M
JOB NO 60501
DATE 4 · 86

GRADING AND DRAINAGE PLAN
PHILLIPS PETROLEUM
8400 MONTGOMERY BOULEVARD N.E.

FILE NO
SHEET 1 OF 1