City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 24, 1991

Jeff Mortensen, P.E.
Jeff Mortensen & Associates, Inc.
6010-B Midway Park Boulevard, NE
Albuquerque, New Mexico 87109

RE: DRAINAGE PLAN FOR PHILLIPS 66 - LOMAS & TRAMWAY
(J-22/D59) ENGINEER'S STAMP DATED APRIL 12, 1991

Dear Mr. Mortensen:

Based on the information provided on your submittal of April 15, 1991, the above referenced plan is approved for Building Permit and S.O. #19.

Please attach a copy of this plan to the construction sets prior to sign-off by Hydrology. Also, because of the controlled discharge and ponding requirements, Engineer's Certification will be required prior to Certificate of Occupancy release.

A separate permit is required for construction within City right-of-way. A copy of this letter must be on hand when applying for the excavation permit.

If I can be of further assistance, please feel free to call me at 768-2650.

Cordially,

Bernie J. Montoya, C.E.
Engineering Assistant

xc: Darlene Saavedra
Alan Martinez

BJM/bsj
(WP+2616)

900931

DRAINAGE INFORMATION SHEET

PHILLIPS 66 -

PROJECT TITLE: LOMAS & TRAMWAY ZONE ATLAS/DRNG. FILE #: J-22/D59

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: TRACT P-1, PANORAMA HEIGHTS ADDITION

CITY ADDRESS: LOMAS BLVD NE

ENGINEERING FIRM: JEFF MORTENSEN & ASSOC. CONTACT: JEFF MORTENSEN

ADDRESS: 6010-B MIDWAY PARK BLVD NE PHONE: 345-4250

OWNER: PHILLIPS 66 CONTACT: JOHN T. HITWOOD

ADDRESS: 8055 E. TUFTS AVE PKWY DENVER CO PHONE: 303-850-4982

ARCHITECT: WICKHAM & ASSOC. CONTACT: BOB GUSTAFSON

ADDRESS: 2310 E. PROSPECT, SUITE C FT. COLLINS, CO PHONE: 303-493-2025

SURVEYOR: JEFF MORTENSEN & ASSOC CONTACT: JEFF MORTENSEN

ADDRESS: 6010-B MIDWAY PARK BLVD NE PHONE: 345-4250

CONTRACTOR: NOT SELECTED CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- ____ DRAINAGE REPORT
- X DRAINAGE PLAN
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- X GRADING PLAN
- ____ EROSION CONTROL PLAN
- ____ ENGINEER'S CERTIFICATION
- ____ OTHER

PRE-DESIGN MEETING:

- X YES
- ____ NO
- ____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

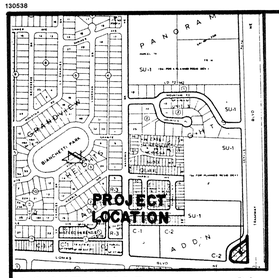
- ____ SKETCH PLAT APPROVAL
- ____ PRELIMINARY PLAT APPROVAL
- ____ S. DEV. PLAN FOR SUB'D. APPROVAL
- ____ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ____ SECTOR PLAN APPROVAL
- ____ FINAL PLAT APPROVAL
- ____ FOUNDATION PERMIT APPROVAL
- X BUILDING PERMIT APPROVAL
- ____ CERTIFICATE OF OCCUPANCY APPROVAL
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ S.A.D. DRAINAGE REPORT
- ____ DRAINAGE REQUIREMENTS
- X OTHER 50#19 (SPECIFY)

RECEIVED
APR 15 1991
HYDROLOGY DIVISION

DATE SUBMITTED: 04-15-91

BY: JEFF MORTENSEN

130538



VICINITY MAP J-22
SCALE: 1" = 800'

PROJECT BENCHMARK = T.B.M.

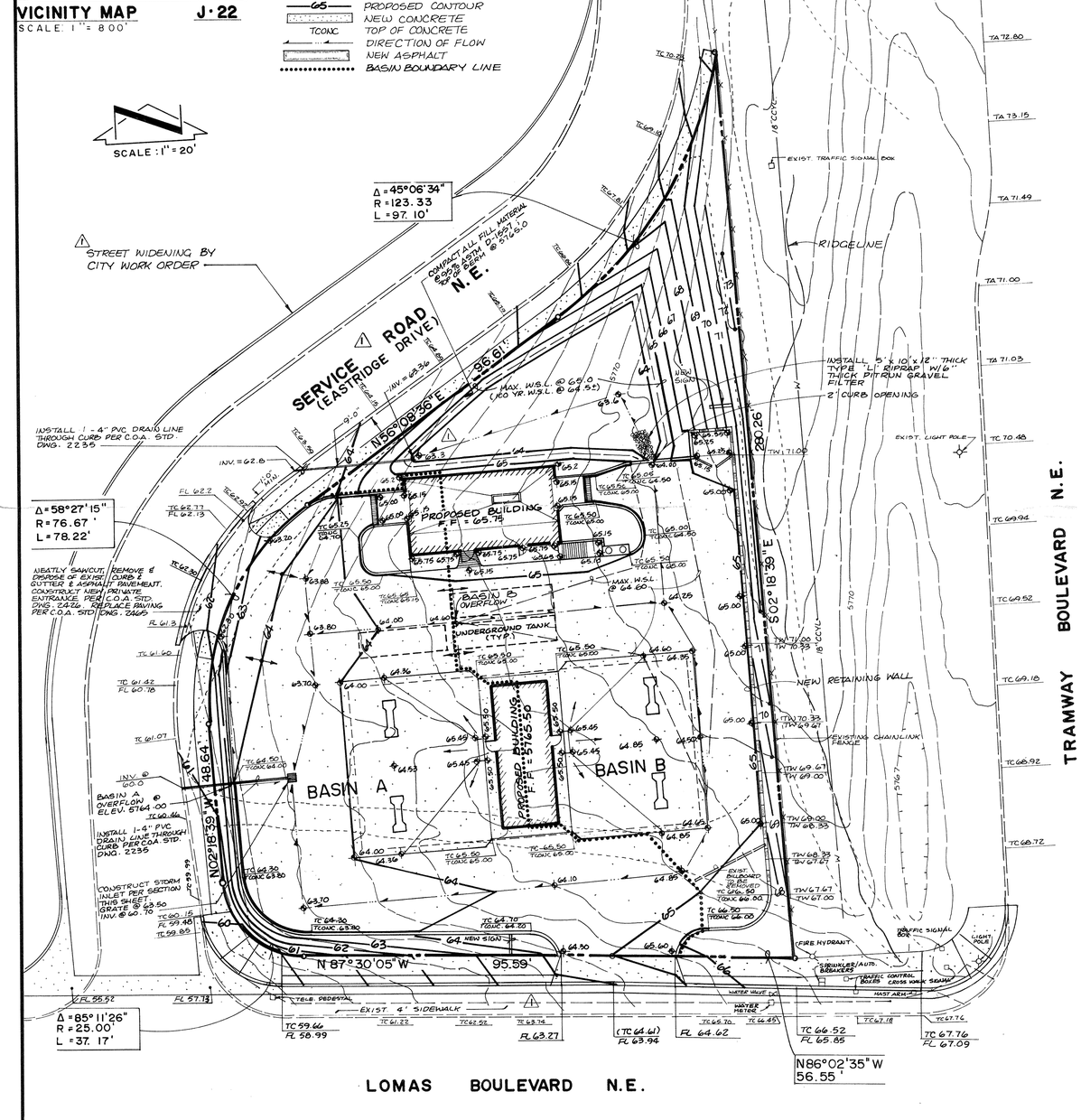
ACS BRASS TABLET STAMPED "2-J23:1982", LOCATED IN NORTH MEDIAN NOSE OF TRAMWAY BOULEVARD N.E. @ LOMAS BOULEVARD N.E. AS SHOWN ON THE DRAWING BELOW.
ELEVATION = 5769.25 FEET (M.S.L.D.)

LEGAL DESCRIPTION

TRACT "P", PANORAMA HEIGHTS ADDITION

LEGEND

- 5765 — EXISTING CONTOUR
- EXISTING DIRT ROAD
- PROPERTY LINE
- TA — TOP OF ASPHALT
- TC — TOP OF CURB
- HIGH POINT
- 65 — PROPOSED CONTOUR
- NEW CONCRETE
- TCONC — TOP OF CONCRETE
- DIRECTION OF FLOW
- NEW ASPHALT
- BASIN BOUNDARY LINE



Construction Notes

1. Two (2) working days prior to any excavation, contractor must contact New Mexico One Call System 260-1990, 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 in writing 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 conducted only preliminary investigation of the location, depth, size, or type of existing utility lines, pipelines, or underground utility lines. This investigation is not conclusive, and may not be complete, therefore, 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.
6. An Excavation/Construction Permit will be required before beginning any work within City right-of-way. An approved copy of these plans must be submitted at the time of application for this permit.
7. Backfill compaction shall be according to ARTERIAL street use.
8. Maintenance of these facilities shall be the responsibility of the owner of the property served.
9. The design of planters and landscaped areas is not part of this plan. All planters and landscaped areas adjacent to the building(s) shall be provided with positive drainage to avoid any ponding adjacent to the structure. For construction details, refer to landscaping plan.

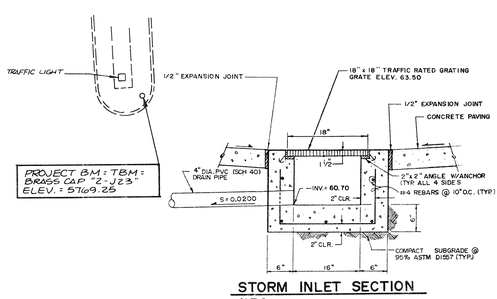
Erosion Control Measures

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.

APPROVALS	NAME	DATE
A.C.E. / DESIGN		
INSPECTOR		
A.C.E. / FIELD		

JEFFREY G. MORTENSEN — NEW MEXICO — 8547 — REGISTERED PROFESSIONAL ENGINEER

12-06-90
04-12-91



STORM INLET SECTION
N.T.S.

⚠ DRAINAGE PLAN

The following items concerning the Tramway/Lomas Phillips 66 Drainage Plan are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

As shown by the Vicinity Map, the site is located in the northwest quadrant of the intersection of Lomas Boulevard N.E. and Tramway Boulevard N.E. At present, the site is undeveloped. As shown by Panel 31 of the National Flood Insurance Program Flood Boundary and Floodway Maps for the City of Albuquerque, New Mexico, this site does not lie within a designated flood hazard zone. Downstream flooding exists at Lomas Boulevard N.E. and Juan Tabo Boulevard N.E., therefore, a controlled discharge from the site will be necessary. At present, runoff generated by the site drains from east to west.

No offsite flows are anticipated from the north, west or south because the curbs and gutters of the existing streets divert runoff away from the project site. No appreciable offsite flows are anticipated from the east because a ridgeline is situated along that property line.

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 proposed improvements, and 3) continuity between existing and proposed grades. As shown by this Plan, the proposed improvements consist of the construction of a new service station along with adjacent paving and landscaping and street widening improvements to both Lomas Boulevard N.E. and Eastridge (Service) Drive N.E. Runoff generated by the proposed improvements will drain into two detention ponds on the site. Discharge from the site will be controlled due to the downstream flooding referenced above. The street improvements will be constructed by City Work Order. Design drawings will be submitted for City (DRC) review and comment upon approval of this grading and drainage plan.

The Calculations which appear hereon analyze both the existing and developed conditions for the 100-year, 6-hour rainfall event. The peak rate of discharge has been calculated based upon the Rational Method while the volume of runoff generated is based upon the SCS Method. Both Methods have been used in accordance with the City of Albuquerque Development Process Manual, Volume II, coupled with the Mayor's Emergency Rule dated January 14, 1986. As shown by these calculations, minor changes in runoff flow rate and volume are anticipated in response to the proposed site improvements. The detention pond volumes have been estimated using the Average End Area Method and the controlled discharge rates have been analyzed using the orifice equation. As shown by these calculations, the controlled release rate from the site is less than the existing condition.

⚠ CALCULATIONS

Ground Cover Information

From SCS Bernalillo County Soil Survey,
Plate 32: EtC Embudo-Tijeras Complex
Hydrologic Soil Group: B
Existing Pervious CN = 70 (DPM Plate 22.2 C-2
Pasture or Range Land: fair condition)
Developed Pervious CN = 61 (DPM Plate 22.2 C-2
Open Space: good condition)

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

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

Rational Method

Discharge: $Q = CiA$

where C varies
$i = P_6\,(6.84)\ T_c^{-0.51} = 5.28$ in/hr
$P_6 = 2.5$ 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

Atotal = 30,800 sf = 0.71 Ac
C = 0.40 (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CiA = 0.40(5.28)(0.71) = 1.5$ cfs
Composite CN = 70 (DPM Plate 22.2 C-2)
DRO = 0.5 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)A = 1290$ cf

Developed Condition

1. Basin A
Atotal = 11,600 sf = 0.27 Ac
Roof area = 3085 sf (0.26)
Paved area = 6905 sf (0.60)
Landscaped area = 1610 sf (0.14)
C = 0.84 (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CiA = 0.84(5.28)(0.27) = 1.2$ cfs
% impervious = 86 %
Composite CN = 93 (DPM Plate 22.2 C-2)
DRO = 1.8 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)A = 1760$ cf

$Q_p = Q_{100} = 1.2$ cfs
$V_{100} = 1760$ cf
$V_1 = 1/2 Q_p T_c(60) = 360$ cf
$V_2 = V_{100} - V_1 = 1400$ cf
$V_2 = 1/2 T_R Q_p(60)$
$T_R = 2V_2/Q_p(60) = 39$ min
$q_r = CA\ (2gh)^{1/2}$
Where C = 0.60
A = 0.0873 sf (4" dia. pipe)
g = 32.2 ft/sec²
h = 64.0 - 60.7 - 0.33/2 = 3.1 ft.
$q_r = 0.7$ cfs
$V_{req'd} = 1/2(Q_p - q_r)(t)(60)$
$= 1/2(1.2 - 0.7)(22)(60) = 330$ cf

$V_{pond} = 1/2(A_{64} + A_{63.5})(64-63.5)$
$= 1/2(4080 + 0)(0.5) = 1020$ cf
$V_{pond} > V_{req}$

2. Basin B
$A_{total} = 19,200$ sf = 0.44 Ac
Roof area = 3635 sf (0.19)
Paved area = 8905 sf (0.46)
Landscaped area = 6660 sf (0.35)
C = 0.70 (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CiA = 0.70(5.28)(0.44) = 1.6$ cfs
% impervious = 65 %
Composite CN = 86 (DPM Plate 22.2 C-2)
DRO = 1.3 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)A = 2080$ cf

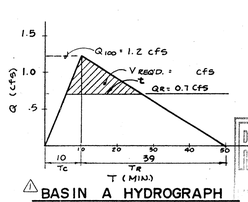
$Q_p = Q_{100} = 1.6$ cfs
$V_{100} = 2080$ cf
$V_1 = 1/2 Q_p T_c(60) = 480$ cf
$V_2 = V_{100} - V_1 = 1600$ cf
$T_R = 2V_2/Q_p(60) = 33$ min
$q_r = CA\ (2gh)^{1/2}$
Where C = 0.60
A = 0.0873 sf (4" dia. pipe)
g = 32.2 ft/sec²
h = 64.6 - 63.3 - 0.33/2 = 1.1 ft.
$q_r = 0.4$ cfs
$V_{req'd} = 1/2(Q_p - q_r)(t)(60)$
$= 1/2(1.6 - 0.4)(34)(60) = 1224$ cf

$V_{pond} = 1/2[(A_{64} + A_{63.3})(64-63.3) + (A_{64.5} - A_{64})(64.5-64)]$
$= 1/2[(1840 + 0)(0.7) + (2060 + 1840)(0.5)]$
$= 1/2(1288 + 1950) = 1619$ cf
$V_{pond} > V_{req}$

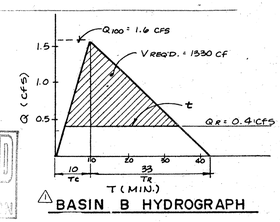
Comparison

$\Delta Q_{100} = 1.5 - (0.7 + 0.4) = 0.4$ cfs (decrease)
$\Delta V_{100} = (1760 + 2080) - 1290 = 2550$ cf (increase)

HYDROLOGY APPROVAL & INSPECTION
APPROVED FOR BUILDING PERMIT
ENGINEER Terry Mongan DATE 4/24/91
INSPECTION REQUESTED DATE
APPROVAL DATE DISAPPROVED
FIELD APPROVAL DATE
SURVEY DATE
HYDROLOGY BOOK NO./PAGE NO.
REVIEWED BY
COMMENTS



⚠ BASIN A HYDROGRAPH



⚠ BASIN B HYDROGRAPH

RECEIVED APR 15 1991

JEFF MORTENSEN & ASSOCIATES, INC.
6010-B MIDWAY PARK BLVD. N.E.
ALBUQUERQUE NEW MEXICO 87109
ENGINEERS (505) 345-4250

GRADING & DRAINAGE PLAN
PHILLIPS 66 — LOMAS AND TRAMWAY

DESIGNED BY J.G.M.
DRAWN BY S.G.H.
APPROVED BY J.G.M.

NO.	DATE	BY	REVISIONS
⚠	4/91	J.G.M.	REVISE PLAN FOR PROPOSED STREET IMPROVEMENTS

JOB NO. 900931
DATE 11-1990
SHEET 1 OF 1