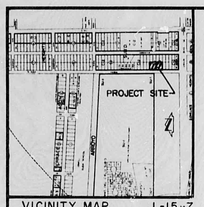
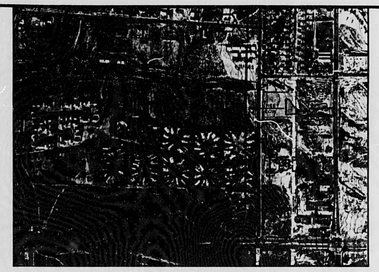
PUBLIC WORKS/HYDROLOGY

L15/D19



VICINITY MAP L-15-Z
SCALE: 1" = 800'



Supplemental Information

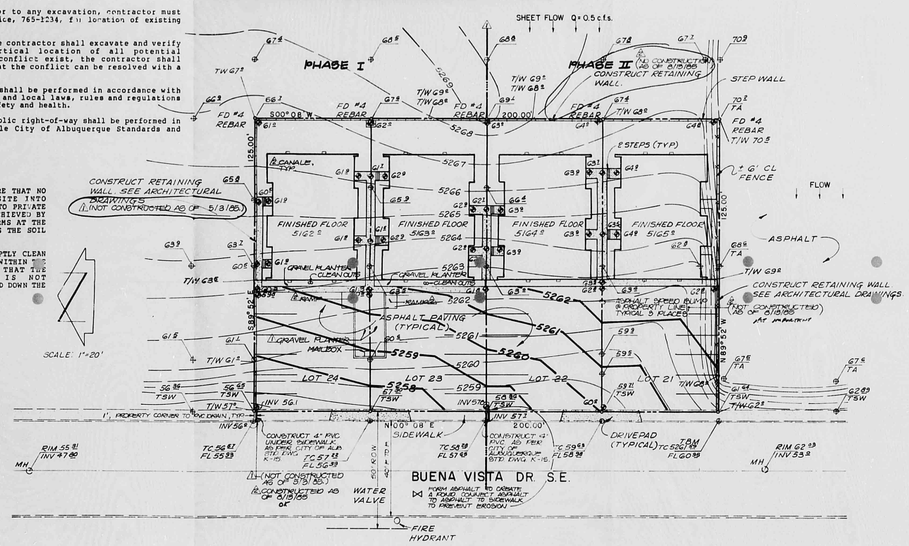
1. The arroyo is approximately 800 feet north of the project. The street has a capacity of 40 cfs at a slope of .1%. Only the east side of the street will contribute flow to the street. If flows are similar to Buena Vista Four Plexes on all contributing lands, the flow would be approximately 16 cfs, therefore, the street has the capacity to convey the flow to the arroyo.
2. The flow from the existing parking lot to the south will flow to the west into the street. The retaining wall will prevent flows from going north.
3. The 0.5 cfs of sheetflow entering the site from the east will be allowed to flow over the wall or through weep holes and pass through the site.

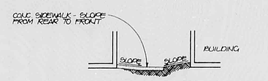
CONSTRUCTION NOTES

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.





TYPICAL SECTION BETWEEN BUILDINGS
NTS

PROJECT BENCHMARK = T.B.M.

ACS BENCHMARK N.M. Nº L-515 LOCATED ON NORTHSIDE OF GIBSON BLVD 36.0 25 MILES WEST OF THE INTERSECTION WITH YALE BLVD. THE STATION MARK IS A SQUARE'D', CHISELED ON TOP OF CONCRETE CURB. ELEVATION = 5152.588 (M.S.L.D.).

LEGEND

- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- 5260 EXISTING CONTOUR
- 5260 PROPOSED CONTOUR
- PROPOSED CONCRETE
- PROPOSED ASPHALT
- MANHOLE
- PHASE LINE

DRAINAGE PLAN

The following items concerning the Buena Vista Four-Plexes Drainage Plan are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

The proposed improvements, as shown by the Vicinity Map, are located on the east side of Buena Vista Avenue just to the north of Gibson Boulevard. At present, the site is undeveloped. Only the parcel to the south is developed at this time.

As shown by Plate L15 of the Albuquerque Master Drainage Study, the site does not lie within a designated Flood Hazard Zone. Further study of this plate reveals that downstream from the site an arroyo does exist that will allow free discharge into a drainage system. As indicated by the grading plan, flows could enter the site from the east and south. The flows from the south will be minimal since they are just from the embankment of an earthfill for a parking lot. That embankment will be removed with the construction of this project and a retaining wall will contain the flows on the asphalt. The land to the east will provide some sheetflow to the site. This flow can overtop a retaining wall that will be built with the project and therefore enter the site and pass through the system. The land to the north is parallel with the site and does not contribute flows while the street to the west is lower than the project site, therefore, any offsite flows could be sheetflows and will be less than 1 cfs.

The Grading Plan shows 1) existing and proposed grades indicated by spot elevations and contours at 1' 0" intervals, 2) continuity between the existing and proposed elevations, 3) the limit and character of existing improvements, and 4) the limit and character of proposed improvements. As shown by this plan, the proposed improvements consist of the construction of the proposed buildings, asphalt paving, and retaining walls on three sides of the site. All sites will be graded to drain from east to west, from the buildings area onto the paved parking areas. Each parking area is shaped so that the flows will exit either through a driveway cut or through a 4-inch PVC pipe constructed under the sidewalk. The proposed construction does not alter the basic flow of the existing runoff. Each site will drain into the street prior to draining onto adjoining lands. The driveway cuts have the capacity to handle all flows whereas the 4-inch PVC pipe is slightly undersized for the 100-year flood. However, the flood flows can overtop during that flooding across a concrete sidewalk and enter the street system. The street drains to the north and enters an arroyo system via inlets and a spillway section at the arroyo.

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. As shown by these calculations, the proposed improvements will result in an increase in the runoff discharged from the site. This pattern of runoff is consistent with pre-designed conference recap which accompanies this submittal.

CALCULATIONS ✓

Ground Cover Information

From SCS Bernalillo County Soil Survey, Plate 31:
BkD - Bluepoint Kokan Tijeras sandy fine sandy loam
Hydrologic Soil Group A

Rational Method

Discharge: $Q = CiA$
where C varies
$i = P_6 (6.84) T_c^{-0.51} = 5.28$ in/hr
P_6 = 2.3 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 = 2.3 in (DPM Plate 22.2 D-1)
A = area, sf

Existing Condition

A_{total} = 25,000 sf = 0.57 Ac
A_{imp} = 0 sf; % impervious = 0%
C = 0.16 (DPM Plate 22.2 C-1)
$Q_{100} = CiA = 0.16\ (5.28)\ 0.57 = 0.5$ cfs
$V_{100} = CP_6A = 0.16\ (2.3/12)\ 25{,}000 = 767$ cf

Developed Condition

A_{total} = 25,000 sf = 0.57 Ac
A_{imp} = 19,200 sf; % impervious = 77%
C = 0.61 (DPM Plate 22.2 C-1)
$Q_{100} = CiA = 0.61\ (5.28)\ 0.57 = 1.8$ cfs
$V_{100} = CP_6A = 0.61\ (2.3/12)\ 25{,}000 = 2923$ cf

Outlet Capacity

$Q = CA\sqrt{2gh}$
where C = 0.8
A = 0.0873 sf (4")
g = 32.2 ft/sec²
h = 0.5 ft
$Q = 0.8\ (0.0873)\sqrt{2(32.2)0.5} = 0.40$ cfs
discharge per lot = 1.8/4 = .045 cfs

RECEIVED AUG 14 1985 HYDROLOGY SECTION

NOTE THIS DRAWING AMMENDED 5/3/85 TO REFLECT PHASED CONSTRUCTION AND ADDITION OF PLANTER

REGISTERED PROFESSIONAL ENGINEER TIMOTHY T. MARTINEZ NEW MEXICO

5/3/85 8/16/85 6/28/84 7/16/84

NO.	DATE	BY	REVISIONS
1A	7/16/85	TM	ADDED PHASE LINE & ITEMS NOT CONSTRUCTED
1B	8/16/85	TM	4" PVC DRAIN IN LOT 24 CONSTRUCTED, SHOWED SIDEWALKS RATHER THAN ROOM DRAINS.

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

DESIGNED BY T.T.M.
DRAWN BY R.S.
APPROVED T.T.M.

JOB NO. 40592
DATE 4-84

GRADING & DRAINAGE PLAN
BUENA VISTA FOUR PLEXES

FILE NO.
SHEET 1 OF 1

R: RR DATE 3-5-02 OP: EJP

CITY OF ALBUQUERQUE

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DIRECTOR

PLAN SHOT TWICE ONCE ON LIGHT ONCE ON DARK

NOTARY PUBLIC
OFFICIAL SEAL Roberta Duran NOTARY PUBLIC STATE OF NEW MEXICO MY COMMISSION EXPIRES 07/07/2004

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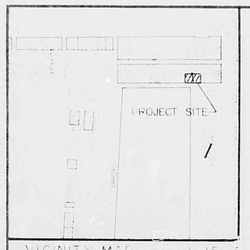
PLANS/PLATS ON FILE

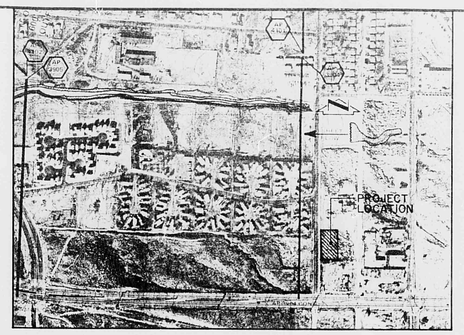
FILE DESC: L15/D19

PLANS/PLATS 1

E 30 D 24 C 20 B 16 A 12 CITY OF ALBUQUERQUE C D F



VICINITY MAP L-15 2



Supplemental Information

1. The arroyo is approximately 800 feet north of the project. The street has a capacity of 40 cfs at a slope of .4%. Only the east side of the street will contribute flow to the street. If flows are similar to Buena Vista Four Plexes on all contributing lands, the flow would be approximately 16 cfs, therefore, the street has the capacity to convey the flow to the arroyo.

2. The flow from the existing parking lot to the south will flow to the west into the street. The retaining wall will prevent flows from going north.

3. [illegible] flow entering the site on the east will be blocked by flow over the wall or the sub-wall holes and pass through the site.

DRAINAGE PLAN

The following items concerning the Buena Vista Four-Plexes Drainage Plan are contained herein:

1. Vicinity Map
2. Grading Plan
3. Calculations

The proposed improvements, as shown in the Vicinity Map, are located on the east side of Buena Vista Avenue just to the north of Gibson Boulevard. At present, the site is undeveloped. Only the parcel to the south is developed at this time.

As shown by Plate 11 of the Albuquerque Master Drainage Study, the site does not lie within a designated Flood Hazard Zone. Further study of this plate reveals that downstream from the site an arroyo does exist that will allow free discharge into a drainage system. As indicated by the drainage plan, flows may enter the site from the east and south. The flows from the south will be minimal since they are just from the embankment of an earthfill for a parking lot. That embankment will be removed with the construction of this project and a retaining wall will contain the flows on the asphalt. The land to the east will provide some sheetflow to the site. This flow can overtop a retaining wall that will be built with the project and therefore enter the site and pass through the system. The land to the north is paralleling with the site and does not contribute flows while the street to the west is lower than the project site, therefore, any offsite flows could be sheetflows and will be less than 1 cfs.

The Grading Plan shows 1) existing and proposed grades indicated by spot elevations and contours at 2' intervals on a compact, between the existing and proposed elevations, 3) the limit and character of existing improvements, and 4) the limit and character of proposed improvements. As shown by this plan, the proposed improvements consist of the construction of the proposed two buildings, a full paving, and retaining walls on three sides of the site. All these will be graded to drain from east to west, from the buildings area onto the paved parking areas. Each parking area is sloped so that the flows will exit either to a driveway cut or through a 4-inch PVC pipe installed under the sidewalk. The proposed construction does not alter the basic flow of the existing runoff. Each site will drain into the street prior to draining onto adjacent lands. The driveway cuts have the capacity to handle all flows, whereas the 4 inch PVC pipe is slightly undersized for the 100-year flood. However, the flood flows can overtop during that flooding across a concrete sidewalk and enter the street system. The street drains to the north and enters an arroyo system via inlets and a spillway section at the arroyo.

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. As shown by these calculations, the proposed improvements will result in an increase in the runoff discharged from the site. This pattern of runoff is consistent with pre-designed conference recap which accompanies this submittal.

CALCULATIONS

Ground Cover Information

From SCS Bernalillo County Soil Survey, Plate 14
DRP - Slope 1% from Figure 1 Swelly Fine Sand, Soil Hydrologic Soil Group A

Rational Method

Discharge: Q = CIA
where C varies
$t_c = K_n (L^3/H)^{0.385} = 0.61 \times 5.28$ in hr
$I_{100} = 2.3$ in IDFM Plate 22.2 D-1
K = 10 min (minimum)
A = area, acres

Volume: $V = CI_{100}A$ (12)
where C varies
$I_{100} = 2.3$ in IDFM Plate 22.2 D-1
A = area, ac

Existing Condition

$A_{total} = 25,000$ sf = 0.57 Ac
$A_{impervious} = 0$ SF x impervious = 0%
$C_{AVG} = 0.16$ IDFM Plate 22.2 C-1
$Q_{100} = CIA = 0.16 \times 5.28 \times 0.57 = 0.5$ cfs
$V_{100} = CI_{100}A = 0.16 \times 2.3/12 \times 25,000 = 767$ cf

Developed Condition

$A_{total} = 25,000$ sf = 0.57 Ac
$A_{AVG} = 19,200$ sf x impervious = 77%
$C_{AVG} = 0.61$ IDFM Plate 22.2 C-1
$Q_{100} = CIA = 0.61 \times 5.28 \times 0.57 = 1.8$ cfs
$V_{100} = CI_{100}A = 0.61 \times 2.3/12 \times 25,000 = 2,921$ cf

Inlet Capacity

$Q = CA\sqrt{2gh}$
where C = 0.8
A = 0.0873 sf (4")
g = 32.2 ft/sec²
h = 0.5 ft
$Q = 0.8 \times 0.0873 \sqrt{2 \times 32.2 \times 0.5} = 0.40$ cfs
discharge per lot = 1.8/4 = .45 cfs

PHASE I

PHASE II

SHEET FLOW

BUENA VISTA DR. S.E.

PROJECT BENCHMARK = T.B.M.

ACS BENCHMARK N.M. 23-F8 LOCATED ON NORTHSIDE OF GIBSON BLVD SE, 0.4 MILES WEST OF THE INTERSECTION WITH VALLE ROAD. THE STATION MARK IS A BRASS CAP STAMPED "23-F8" SET IN CONCRETE. ELEV. 5,312.46 (MSL)

LEGEND

- 5260 EXISTING SPOT ELEVATION
- 5260 PROPOSED SPOT ELEVATION
- 5260 EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED CONCRETE
- PROPOSED ASPHALT
- MANHOLE

TYPICAL SECTION BETWEEN BUILDINGS

NOTE: THIS PLAN IS INTENDED FOR PHASE I PHASED CONSTRUCTION AND ADDITION OF PLANTERS

5/5/85 6/13/85 6/25/1984

ENGINEERING ALBUQUERQUE, NEW MEXICO	NO. DATE BY REVISIONS	DESIGNED BY T.T.W. / DRAWN BY / APPROVED	JOB NO. 40592 / DWG. 4-84	GRADING & DRAINAGE PLAN BUENA VISTA FOUR PLEXES	FILE NO. / SHEET 1 OF 1

PLAN SHOT TWICE
ONCE ON LIGHT
ONCE ON DARK

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REF. 28 DATE 3/3/02 OP. [illegible]

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DIRECTOR

NOTARY PUBLIC

OFFICIAL SEAL
Roberta Duran
Notary Public
07/07/02

D24 C20 B16 A12

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