ALBUQUERQUE
≜
NEW MEXICO
1706

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

July 26, 1984

Mr. Richard Hall
Hall Engineering Co. Inc.
337 Eubank NE, Suite 103
Albuquerque, New Mexico   87123

REF:: DRAINAGE REPORT FOR GLYN GILES APARTMENTS (J-20 D-17)
      RECEIVED JULY 16, 1984.

Dear Richard,

The above referenced plan, dated July 16, 1984, is approved.

Please attach a copy of this approved plan along with the appropriately
approved "Drainage Facilities Within City Right-of-Way" document to the
construction set prior to release of the building permit.

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

Sincerely,

Carlos Montoya
Civil Engineer/Hydrology

CM/cl

INFORMATION SHEET

J20-D17
3rd Submittal
DRAINAGE REPORT

PROJECT TITLE ___GLYN GILES APARTMENTS___ TYPE OF SUBMITTAL

ZONE ATLAS PAGE NO. J-20 D17 CITY ADDRESS ___N/A___

LEGAL DESCRIPTION Lot C, Block 42, Mesa Village Addition

ENGINEERING FIRM HALL ENGINEERING CO., INC. CONTACT ___RICHARD HALL___

    ADDRESS ___337 Eubank NE Ste. 103___ PHONE ___292-1115/292-1116___

OWNER ___Glyn Giles & Associates___ CONTACT ___Glyn Giles___

    ADDRESS ___253 Wyoming Blvd___ PHONE ___253-8648___

ARCHITECT ___Bill Buckley Architect___ CONTACT ___Bill Buckley___

    ADDRESS ___740 San Mateo NE___ PHONE ___255-9196___

SURVEYOR ___Hall Engineering Co., Inc.___ CONTACT ___Richard Hall___

    ADDRESS ___337 Eubank NE Ste. 103___ PHONE ___292-1115/292-1116___

CONTRACTOR ___N/A___ CONTACT ___N/A___

    ADDRESS _____ PHONE _____

PRE-DESIGN MEETING:

X YES
__ NO
X COPY OF CONFERENCE RECAP SHEET PROVIDED

PLEASE CHECK TYPE OF APPROVAL EXPECTED WITH THIS SUBMITTAL:

__ SKETCH PLAT APPROVAL
__ PRELIMINARY PLAT APPROVAL
__ SITE DEVELOPMENT PLAN APPROVAL
__ FINAL PLAT APPROVAL
X BUILDING PERMIT APPROVAL
__ CERTIFICATE OF OCCUPANCY APPROVAL
__ ROUGH GRADING PERMIT APPROVAL
__ GRADING/PAVING PERMIT APPROVAL
__ OTHER _____ (SPECIFY)

DATE SUBMITTED: ___July 16, 1984___

BY: Richard Hall, PE
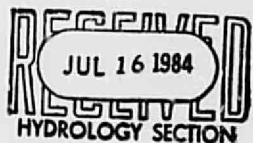
HALL ENGINEERING COMPANY INC.

337 EUBANK N.E., SUITE 103
ALBUQUERQUE, NEW MEXICO 87123
Phones: (505) 292-1115 & 292-1116

July 13, 1984

Mr. Carlos Montoya, P.E.
Civil Engineering, Hydrology
Design Hydrology Section
123 Central Avenue NW
Albuquerque, New Mexico 87102

RE: Glynn Giles Apartments Drainage Plan (J20-D17)

Dear Carlos:

Regarding our meeting of July 12, 1984, the following is in response to
your hand-written and verbal comments:

1. During our discussion you indicated that the 100-year discharge quan-
   tities listed on Page 7B-6 of the Albuquerque Master Drainage Study,
   could be used in lieu of the quantities calculated on Page 5 of the
   report. Since this results in a radical reduction in flow quantities,
   the street and storm sewer can handle the increased flow resulting
   from development of the site. The attached calculations show that
   capacity exists and should replace Pages 5 through 10 of the report.
   Pages 1 through 4 should remain unchanged.

2. Items 1 and 2 of your hand-written comments have been addressed in the
   attached calculations. The flow depth will be below the curb height
   in all cases. The finished floors along Marron Circle have been raised
   to be at least 1 foot above flow line.

3. The slope of the storm sewer in Sellers Drive is shown correctly as per
   actual field elevations. The slope in the report was taken from the
   Storm Drain maps.

4. Items 4 and 5 of your comments are answered in item F of the revised
   calculations.

5. A plat of Sellers Drive vacation is attached. The plat has not been
   filed since the purchase of the vacated street has not been completed
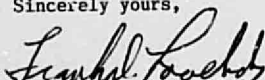   to-date.
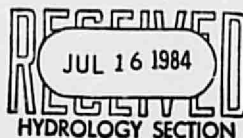
(con't.)
page 2

6. A copy of the S. O. 19 form is attached. This will be submitted to the City Engineer's office for approval.

If you have any questions regarding the updated report and plan, please do not hesitate to contact me.

Sincerely yours,

Frank D. Lovelady, P.E.

bct
cc: file

IV CAPACITY OF DOWNSTREAM FACILITIES

A. Check capacity of storm sewer, Marron Circle. See Albuquerque Master drainage study Page 7B-6. At 60' E. of Sellers drive, Q_{100} is 62 cfs. Capacity of storm sewer is 118 cfs. Therefore, the storm sewer has adequate capacity for the 100 year flow.

B. Check depth of flow in Marron Circle upstream of storm sewer inlets. Slope = 0.02. From Plate 22.3 D-1 the depth of flow for 62 cfs is approximately 0.58' which is below curb line.
When developed on-site Area A is added, 2.1 cfs, the depth for 64.1 cfs is still only 0.59 feet.
Therefore, flow in Marron Circle is below curb height and no water should enter the complex from the street.

C. Check capacity in Sellers Drive at 260' South of Luthy Circle. Q_{100} is 62 cfs. The storm sewer is 81 cfs. The storm sewer has adequate capacity.

D. Check depth in Sellers Drive at 320' South of Luthy Circle. Q_{100} is 124 cfs. Capacity is 109 cfs. Therefore, 15 cfs will remain in Sellers Drive. Add 2.1 cfs from on-site Area A and 16.6 cfs from on-site Area B Total 33.7 cfs. From Plate 22.3 D-1, for Q = 17 cfs. Half-street and slope 0.005 '/, , depth is 0.6 feet.

E. Check capacity of paved alley paralleling I-40. The alley is paved with concrete inverted crown and 8" curb and gutter. Assume flow depth of 0.5' and assume flat bottom.

$A = 0.5 \times 18 = 9$ SF   Wetted Perimeter (P) $= 0.5 \times 2 + 18 = 19$ LF
$R = A/P = 9/19 = 0.4737$
$V = 1.486/0.015 \ (0.4737)^{2/3} \ (0.018)^{1/2} = 8.07$
$Q = AV = 9 \times 8.07 = 72.6$ cfs
$Q_{100} = 124 + 16.9$ (on-site flow) $= 140.9$ Less storm sewer capacity 99.
$140.9 - 99 = 41.9 < 72.6$. Therefore, the alley has adequate capacity.

F. Description of flow down Sellers Drive.
Sellers Drive has a slope of 0.005 '/, resulting in sub-critical flow. Between Marron Circle and the first driveway, the depth of flow will be approximately 0.48 feet, well below curb height. At inlet 1, the flow coming from Area B will merge with the flow in Sellers Drive. The flow downstream from this point will be approximately 0.6 feet deep. Therefore, the depth of backwater in the parking lot should be approximately 0.6 feet above the flowline elevation in Sellers Drive at the center of the driveway entrance, approximately 77.75 feet.
At the end of Sellers Drive, the paved alley has a much greater capacity and steeper slope so it will reduce the depth in Sellers Drive to compensate for the incoming flow from Area C. The depth of flow in the alley for 41.9 cfs will be only 0.36 feet and the velocity will be about 6.5 cfs.
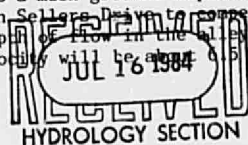
The depth of backwater in the second driveway should not be more than 0.6 feet above flowline in Sellers Drive or 76.95 which is less than curb height. Therefore, at the 100 year flows there will be temporary backwater in the driveways. For the 10 year flow, all flow will be contained in the storm sewer.

INFORMATION SHEET

J20-D17
2nd Submittal

PROJECT TITLE GLYN GILES APARTMENTS +   TYPE OF SUBMITTAL DRAINAGE REPORT

ZONE ATLAS PAGE NO. J-20 D17 CITY ADDRESS N/A

LEGAL DESCRIPTION Lot C, Block 42, Mesa Village Addition

ENGINEERING FIRM HALL ENGINEERING   CONTACT RICHARD HALL

    ADDRESS 2625 Pennsylvania   PHONE 884-6444 — 2921115

OWNER Giles Glyn & Associates   CONTACT Glyn Giles

    ADDRESS 253 Wyoming Blvd   PHONE 253-8648

ARCHITECT Bill Buckley Architect   CONTACT Bill Buckley

    ADDRESS 740 San Mateo NE   PHONE 255-9196

SURVEYOR Hall Engineering Co.   CONTACT Richard Hall

    ADDRESS 2625 Pennsylvania   .   PHONE 884-6200. 884-6444

CONTRACTOR N/A   CONTACT N/A

    ADDRESS   PHONE
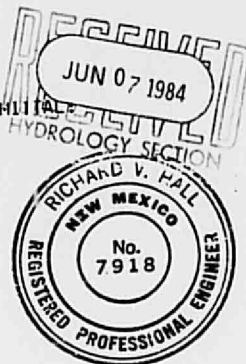
PRE-DESIGN MEETING:

X YES
   NO
X COPY OF CONFERENCE RECAP SHEET PROVIDED

PLEASE CHECK TYPE OF APPROVAL EXPECTED WITH THIS SUBMITTAL

   SKETCH PLAT APPROVAL
   PRELIMINARY PLAT APPROVAL
   SITE DEVELOPMENT PLAN APPROVAL
   FINAL PLAT APPROVAL
X BUILDING PERMIT APPROVAL
   CERTIFICATE OF OCCUPANCY APPROVAL
   ROUGH GRADING PERMIT APPROVAL
   GRADING/PAVING PERMIT APPROVAL
   OTHER _____ (SPECIFY)

DATE SUBMITTED: June 7, 1984

    BY: Frank D. Lovelady, PE

RECEIVED
JUN 07 1984
HYDROLOGY SECTION

RICHARD V. HALL
NEW MEXICO
No. 7918
REGISTERED PROFESSIONAL ENGINEER

HALL ENGINEERING CO
2625 Pennsylvania Ave., N.E.
Suite 350
Albuquerque, New Mexico 87110

HALL ENGINEERING & SURVEYING CO.

2625 Pennsylvania Ave. N.E., Suite 350
Albuquerque, New Mexico 87110
Phones:(505) 884-6200 & 884-6444

June 6, 1984

Mr. Billy J. Goolsby, PE
City/County Flood Plain Administrator
Design Hydrology Section
123 Central Ave. N.W.
Albuquerque, New Mexico 87102

REF: GLYN GILES APARTMENTS DRAINAGE PLAN (J20-D17)

Dear Billy:

This letter is in response to John Armstrongs letter of
March 16, 1984 to Richard Hall. The five comments contained
in that letter are answered in the same order as follows:

1. The calculations in the report have been revised to be
consistent with the procedures in the DPM.

2. Free discharge from the site has been justified.

   a. Hydrographs have been prepared which show that the
      discharge from thesite "beats the peak" of the
      hydrograph for the areas served by the storm sewer.

   b. Water not picked up by the storm drain will conti ue
      south down Sellers Drive (now vacated) and then west
      in a paved alley to a collection basin adjacent the
      I-40 R.O.W. From this basin it is discharged into the
      I-40 median channel via 2-60 inch concrete culverts.
      The report calculations show that these have more than
      adequate capacity to accept the additional discharge
      created by developing the site.

3. Both entry points into the storm drain system have been
   analyzed to show that the catch basin lead pipes are large
   enough to accomodate the design flows.

   Regarding the possibility of backflow into the site due
   to the hydraulic grade line in the storm sewer being above
   the catch basin grade, limited backflow may occur but
   it will be contained in the parking lot and will be of short
   duration.

4. More detail has been added to the plan.

Billy J. Goolsby, PE

    a. The location of Sellers Drive R.O.W. has been shown as
        well as where existing improvements are.

    b. Regarding grades in fromt of buildings being higher
        than the finished floor we find no places where this
        occurs. The sidewalk is higher at one point near the
        eastern dumpster but the grade adjacent to the building
        is lower than finished floor.

5. Regarding "Drainage Facilities within City Right-of-Way"
    documents, Sellers Drive has been vacated and the owner
    either has purchased or is in the process of purchasing
    the property for access to the apartment complex.
    Therefore, the documents will not be required.

If you have any questions regarding the updated report and plan,
please do not hesitate to contact me.

Sincerely yours,

Frank D. Lovelady, PE

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

HYDROLOGY SECTION PROJ. NO. _H-T-20_ DATE: _1/17/84_

PLANNING DIVISION NO. _____

CONFERENCE RECAP

SUBJECT: H   _Glyn Giles Apartments_

	WHO	REPRESENTING
ATTENDANCE:	Richard Hall	
	Billy Goolsby	

FINDINGS:
① Drainage Report per DPM
② Free discharge if shown downstream capacity exists
③ Approved "Construction within Public R/w" document required or construction plans for storm sewer connection.
④ ~~Said~~ Drainage to Marron Circle is acceptable

The undersigned agrees that the above findings are summarized accurately and are only subject to change if further investigation reveals that they are not reasonable or that they are based on inaccurate information.

SIGNED: _Billy Goolsby_   SIGNED: _Richard Hall_
TITLE: _CE Hydrology_   TITLE: _PE_
DATE: _1/19/84_   DATE: _1/19/84_

City of Albuquerque

P.O. BOX 1293   ALBUQUERQUE, NEW MEXICO 87103

March 16, 1984

Mr. Richard V. Hall, P.E.
Hall Engineering
2625 Pennsylvania NE
Albuquerque, New Mexico   87110

RE: GLYN GILES APARTMENTS DRAINAGE PLAN (J20-D17)

Dear Richard:

These are my comments on the obove mentioned plan dated February 22, 1984.

1. The calculations in your report are not consistant. Please use the procedures in the DPM for selection of a "C" factor and intensities.

2. You have not justified free discharge from the site:

    a. Show that the storm drain can handle the flows or that the flows from your site will sufficiently "beat the peak" and that these flows can be conveyed to the ultimate discharge point without aggravating any existing problem.

    b. Where does water go if not picked up in storm drain?

3. Analyze the entry points into the storm drain system and show that they can handle the design flow and that the hydraulic grade line will not be such that water is entering your site from the public facility.

4. Plan needs more detail:

    a. It is not clear where the right-of-way for Sellers Drive is and where the existing improvements are.

    b. It appears that grades in front of some buildings are higher than finished floor. Will water run back into the building?

Mr. Richard V. Hall
March 16, 1984
Page -2-

        c. In general, the plan needs more grade detail.

    5. "Drainage Facilities within City Right-of-Way" documents
       will be required prior to release of a building permit.

If you have any questions on the above, please feel free to call me
at 766-7644.

Thank you,

John Armstrong, P.E.
Civil Engineer/Hydrology

JA/ca

DRAINAGE CALCULATIONS
GILES APARTMENTS
TRACT A MESA VILLAGE BLOCK 42

I. EXISTING CONDITIONS, ON-SITE FLOWS

A. Area – Vacant land with Sellers Drive recently vacated.

Area of Original lot	4.963 Acres
Added area along Maron Circle N.E. 10,000 SF	0.230 "
Added area Sellers Drive 15,134 SF	0.347 "
Total area, Tract A	5.540 Acres

B. Imperviousness

Area of Paving, Existing Sellers Drive 12,045 SF   0.277 Ac

Area of Existing concrete sidewalks

3.5' wide × 697 feet = 2439.5 SF   0.056 Ac

Total impervious area   0.333 ac

Percent impervious = (0.333/5.54) × 100 = 6% impervious

C. Soil Type   "Etc" Soil Group "B". From Plate 22.2 C-1

The "C" Factor is   0.36 ✓

D. Time of Concentration $L=1000$ $S=0.02\%$. From Kirpich Eq.

$T_c = 0.0078(L^{0.77}/S^{0.385}) = 0.0078(1000^{0.77}/0.020^{0.385}) = 7.18$ use 10 min.

E. Intensity From Plate 22.2 D-1, The 6 hour, 100 year precipitation is 2.4 inches.

$I = 6$ hr. rain × $6.84 × T_c^{-0.51} = 2.4 × 6.84 × 10^{-0.51} = 5.07$ inches

F. Discharge $Q = CIA$ $Q = 0.36 × 5.07 × 5.54$ cfs

$= 10.1 \text{ cfs}$

II. Existing Conditions, Off-site Flows

    A. All off-site flows are accepted. They come from 0.35 Acres on the east side of the development and behind the existing gas station; and, the right-of-way along Lomas Blvd. which slopes into Tract "A" along the whole South Side containing 1.1 acres.

        1. South R-O-W Area 1.1 acres

$$Q = 0.34 \times 5.07 \times 1.1 = 1.90 \text{ cfs}$$

        2. East portion of Blk. 42 0.35 Acres

$$Q = 0.34 \times 5.07 \times 0.35 = 0.60 \text{ cfs}$$

    Total off-site flow   2.50 cfs.

III On-site Drainage Calculations

    A. Drainage Area A : This area flows into Marron Circle NE. Through the drivepad as shown on the Grading & Drainage Plan. Tc <10 minutes — Use 10 minutes

$$I = 2.4 \times 6.84 \times 10^{-0.51} = 5.07 \text{ inches per hour.}$$

Discharge. Developed Conditions:

Building 2x Building "A" @ 4,352 sq. Ft.

$$(8704/43560) \, 5.07 \times 1.0 = \qquad\qquad 1.01 \text{ cfs}$$

Sidewalk 500 LF @ 4' wide
           20 LF @ 10' wide

$$(2,200/43560) \, 5.07 \times 1.0 = \qquad\qquad 0.26$$

Asphalt Paving $(6080/43560) \, 5.07 \times 0.9 = 0.64$

Landscaping $(5741/43560) \, 5.07 \times 0.34 = 0.73$

Totals Area   22,725 sq. Ft   Total Q = 2.14 cfs

B. Drainage Area B: This area flows west to a new catch basin and 24" RCP at Gellers Drive NE. See Grading and Drainage Plan for exact location

Discharge, Developed Conditions

Building
11 x Bldg. "A" @ 4.352 sq. ft.
1 x Bldg. "B" @ 5,690 sq. ft.
1/2 x Bldg. "C" @ 3,384 sq. ft.
1/2 x Bldg "D" @ 3,744 sq. ft.

$57,126/43560 \times 5.07 \times 1.0 = 6.65$ cfs

Sidewalk 3365 LF @ 4 ft. wide
177 LF @ 9 ft. wide

$15,053/43560 \times 5.07 \times 1.0 = 1.75$ cfs

Asphalt paving $(58,265/43560) 5.07 \times 0.9 = 6.10$ cfs

Landscape $(52,562/43560) 5.07 \times 0.34 = 2.08$ cfs

Total Area   183,006 SF   Total Q $= 16.58$ cfs ✓

The total discharge from Area B, 16.58 cfs will exit directly in a 48" storm sewer thru a 24" RCP.

Top of pipe Elev = 74.98   Top of Grate is 77.10

Assume HGL is at top of pipe and that water surface in catch basin is at Grate. $H = 77.10 - 74.98 = 2.12$ feet.

length of pipe is approximately 25 feet. From Page 7B of DPM, $H = 2.12$ $Q = 16.6$ 24" Pipe is adequate.

See Construction Documents for Detail of 24" Pipe Connection.

C. Drainage Area C: This Area drains to the west to a new catch basin and 12" RCP at the south end of Sellers Drive N.E.

Discharge, Developed Conditions:

Building 1½ x Building "C" @ 5076
1½ x Building "D" @ 5616

$(16,038/43560) 5.07 \times 1.0$ = 1.87 cfs

Sidewalks 690' @ 4 ft wide

$(2,760/43560) 5.07 \times 1.0$ = 0.32 cfs

Asphalt Paving

$(12,470/43560) 5.07 \times 0.9$ = 1.31 cfs

Landscape

$(4,498/43560) 5.07 \times 0.34$ = 0.18 cfs

Total Area   35,766   Total Q   = 3.68 cfs ✓

The total discharge from Area C, 3.68 cfs will exit the site via a catch basin and 12" RCP pipe to the existing 48" storm sewer. This connection will be into a manhole, Inv. Elev. 69.99.

Crown of pipe is 69.99 + 4.0 = 73.99 Assume HGL is 1' above crown of pipe 74.99 say 75.00

Grate Elev. = 76.30   H = 76.30 - 75.00 = 1.30

From Page 78 a 12" pipe is adequate

See Construction Documents for details. ✓

IV Analysis of downstream conditions:

A. Off-site Area A (72.55 Acres) See Attached Orthophoto map.

1. Time of Concentration: By Kirpich Equation

$$T = 0.0078 \, L^{0.77}/S^{0.385}$$

$$= 0.0078 \, (4200)^{0.77}/(0.0195)^{0.385} = 21.89 \text{ minutes}$$

2. "C" Factor

Type of Soil = Embudo (Etc) Hydrologic Soil Group B.

Assume 75% Impervious as an average for the area.

From Plate 22.2 C-1 "C" Factor = 0.73

3. Intensity in inches per hour.

$$I = (6\text{-hour rain}) \, 6.84 \, (T_c)^{-0.51} \quad \text{From Plate 22.2 D-1,}$$

The 6-hour 100-year rainfall is 2.4 inches

$$I = 2.4 \times 6.84 \, (21.89)^{-0.51} = 3.4 \text{ inches per hour.}$$

4. Peak Flow: By rational Equation $Q = CIA$

$$Q_p = 0.73 \times 3.40 \times 72.55 = 180.1 \text{ cfs.}$$

5. Hydrograph - See hydrograph computation worksheet.

B. Off-side Area B. (55.6 Acres)

1. Time of Concentration $L = 3100 \quad S = 50/3100 = 0.016$

$$T_c = 0.0078 \, (3100^{0.77}/0.016^{0.385}) = 18.70 \text{ minutes.}$$

2. Intensity $I = 2.4 \times 6.84 \times 18.7^{-0.51} = 3.69 \text{ inches per hour.}$

3. "C" Factor - Estimated percent impervious = 50%

From Plate 22.2 C-1. The "c" Factor is 0.42

4. Peak Flow $Q = 0.42 \times 3.69 \times 55.6 = 86.2 \text{ cfs}$

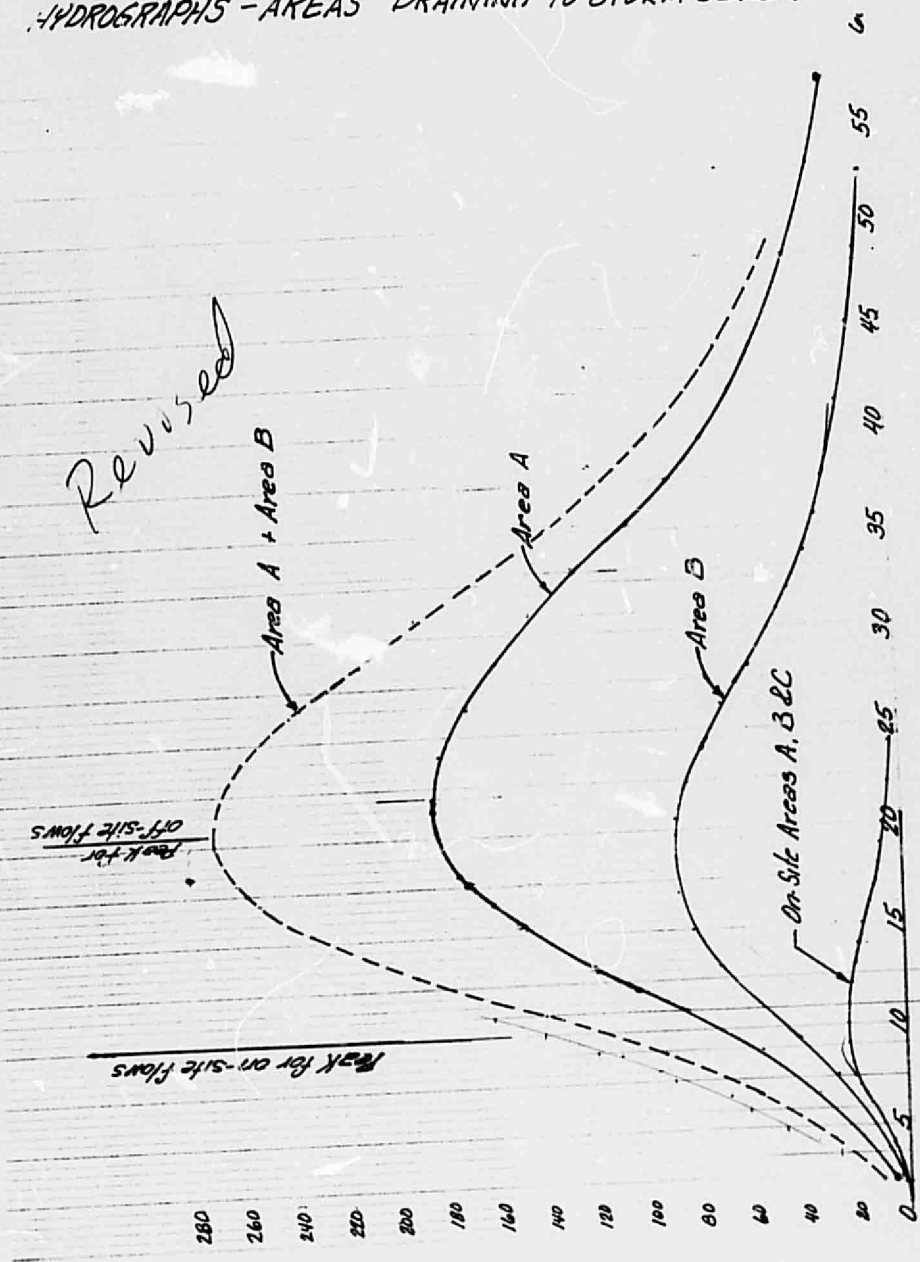5. Hydrograph - See Hydrograph Computations Worksheet.

Revised

Hydrograph Computation Worksheet
(See Plate 22.2 F-1)

Line No.	(t/Tp)	t (min.) Area A	Area B	y	Q cfs Area A	Area B
1	0.0			0		
2	0.1	2.2	1.9	0.03	5.4	2.6
3	0.2	4.4	3.7	0.10	18.0	8.6
4	0.3	6.6	5.6	0.190	34.2	16.4
5	0.4	8.8	7.5	0.310	55.8	26.7
6	0.5	11.0	9.4	0.470	84.6	40.5
7	0.6	13.2	11.2	0.660	118.86	56.9
8	0.7	15.4	13.1	0.820	147.7	70.7
9	0.8	17.6	15.0	0.930	167.5	80.2
10	0.9	19.8	16.8	0.990	178.3	85.3
11	1.0	22.0	18.7	1.00	180.1	86.2
12	1.1	24.2	20.6	0.990	178.3	85.3
13	1.2	26.4	22.4	0.930	167.5	80.2
14	1.3	28.6	24.31	0.860	154.9	74.1
15	1.4	30.8	26.18	0.780	140.5	67.2
16	1.5	33.0	28.1	0.680	122.5	58.6
17	1.6	35.2	29.9	0.560	100.9	54.3
18	1.7	37.4	31.8	0.460	82.8	39.7
19	1.8	39.6	33.7	0.390	70.2	33.6
20	1.9	41.8	35.5	0.330	59.4	28.4
21	2.0	44.0	37.4	0.280	50.4	24.1
22	2.2	48.4	41.1	0.207	37.3	17.8
23	2.4	52.8	44.9	0.147	26.5	12.7
24	2.6	57.2	48.6	0.107	19.3	9.2
25	2.8	61.6	52.4	0.077	13.9	6.6
26	3.0		56.1	0.055		4.3
27	3.2		59.8	0.040		3.4
28	3.4			0.029		
29	3.6			0.021		
30	3.8			0.015		
31	4.0			0.011		
32	4.5			0.005		
33	5.0			0.000		

Revised

⑥

HYDROGRAPHS - AREAS DRAINING TO STORM SEWER

Revised

Area A + Area B

Peak for off-site flows

Peak for on-site flows

Area A

Area B

On-site Areas A, B & C

280
260
240
220
200
180
160
140
120
100
80
60
40
20
0

5   10   15   20   25   30   35   40   45   50   55   5

100-YEAR FLOOD CONFINED TO CONSTRUCTED CHANNEL

Point of outfall into
Interstate 40 channel.

VI Analysis of Inlet Capacities at Intersection Marron & Sellers

    A. Flow in Marron Cir: $Q_{peak} = 180.1$ cfs

        From Plate 22.3 D-1 Half street flow of 90 cfs is above the curve off the curve i.e. at least 0.8' deep. Slope of the street is 0.019 ft/ft.

        gradient capacity

        From Plate 22.3 D-5 capacity of single D or C is 16 cfs.

        From Plate 22.3 D-6 capacity of double D or C is 19 cfs.

where   There exist 3 doubles on the south side of the street and 3 singles on the north side. $3 \times 16 + 3 \times 19 = 105$ cfs

                        75 cfs stays in street

    B. Flow in Sellers Drive $Q_{peak} = 86.2$

        Slope in street = 0.017 ft/ft. From Plate 22.3 D-1 the depth is 0.65.

        From Plate 22.3 D-5 capacity of single D or C is 10.5 cfs

Revised   From Plate 22.3 D-6 capacity of double D or C is 12.0 cfs

        There are 3 singles on the west side and 3 doubles on the east side $3 \times 10.5 + 3 \times 12 = 67.5$ cfs

                        18.7 cfs stays in street

    C. Capacity of 48" storm sewer south of intersection

        $n = 0.013$ $S = 0.0072$ $DIA = 48"$ using Amco sewer pipe Calculator, $Q = 120$ cfs = Capacity.

VII. CONCLUSIONS:

1. The proposed site is the last remaining undeveloped parcel in the drainage area which flows to the storm sewer in Sellers Drive

2. The hydrographs on page 7 shows that the peak for on-site flows which enter the storm drain occur about 10.5 minutes ahead of the peak for the off-site flows which come from as far away as the intersection of Glorieta Street and Constitution Avenue. Therefore, free discharge of site-drainage will not cause the capacity of the storm sewer to be exceeded.

3. There are no downstream flood hazard zones. The flood hazard zone on Jaffa Road has a different outfall than the outfall for this report, i.e., the two 60" pipes which discharge into the I-40 channel. The total discharge from this site will not cause the capacity of these pipes to be exceeded as shown in section I.

City of Albuquerque

P.O. BOX 1293   ALBUQUERQUE, NEW MEXICO 87103

March 16, 1984

Mr. Richard V. Hall, P.E.
Hall Engineering
2625 Pennsylvania NE
Albuquerque, New Mexico   87110

RE: GLYN GILES APARTMENTS DRAINAGE PLAN (J20-D17)

Dear Richard:

These are my comments on the obove mentioned plan dated February 22, 1984.

1. The calculations in your report are not consistant. Please use the procedures in the DPM for selection of a "C" factor and intensities.

2. You have no stified free discharge from the site:

   a. Show that the storm drain can handle the flows or that the flows from your site will sufficiently "beat the peak" and that these flows can be conveyed to the ultimate discharge point without aggravating any existing problem.

   b. Where does water go if not picked up in storm drain?

3. Analyze the entry points into the storm drain system and show that they can handle the design flow and that the hydraulic grade line will not be such that water is entering your site from the public facility.

4. Plan needs more detail:

   a. It is not clear where the right-of-way fⴜr Sellers Drive is and where the existing improvemeⴜts are.

   b. It appears that grades in front of some buildings are higher than finished floor. Will water run back into the building?

MUNICIPAL DEVELOPMENT DEPARTMENT

C. Dwayne Sheppard, P.E., City Engineer   ENGINEERING DIVISION   Telephone (505) 766-7467

       c. In general, the plan needs more grade detail.

   5. "Drainage Facilities within City Right-of-Way" documents
      will be required prior to release of a building permit.

If you have any questions on the above, please feel free to call me
at 766-7644.

               Thank you,

               John Armstrong, P.E.
               Civil Engineer/Hydrology

JA/ca

INFORMATION SHEET

PROJECT TITLE GLYN GILES APTS.   TYPE OF SUBMITTAL Grading and Drainage

ZONE ATLAS PAGE NO. J-20 -01 CITY ADDRESS N/A

LEGAL DESCRIPTION ~~Tract A,~~ LOT E Block 42, Mesa Village Addition

ENGINEERING FIRM HALL ENGINEERING   CONTACT Richard Hall

    ADDRESS 2625 Pennsylvania NE   PHONE 884-6200, 884-6444

OWNER Giles Glyn & Associates   CONTACT Glyn Giles

    ADDRESS 253 Wyoming Blvd   PHONE 253-8648

ARCHITECT Bill Buckley Architect   CONTACT Bill Buckley

    ADDRESS 740 San Mateo NE   PHONE   255-9196

SURVEYOR Hall Engineering Co.   CONTACT Richard Hall

    ADDRESS 2625 Pennsylvania NE   PHONE   884-6200, 884-6444

CONTRACTOR   N/A   CONTACT   N/A

    ADDRESS   N/A   PHONE   N/A

DATE SUBMITTED February 20 1984

BY Richard Hall

Use this Information Sheet when submitting the following:
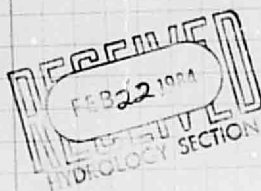
    Drainage report or plan, conceptual grading and drainage plan, engineer's
    certification plan, erosion plan and grading plan. Provide the
    information applicable to your submittal.

HALL ENGINEERING
2625 Pennsylvania Ave., N.E.
Suite 350
Albuquerque, New Mexico 87110

DRAINAGE REPORT
Glyn Giles Apartments
J-20

TRACT "A" BLK 42
MESA Village Addition

by Richard Hall
P.E. 7918

TRACT A   MESA VILLAGE   BLOCK 42

Existing Conditions

Vacant land with Sellers Drive recently vacated

AREA OF ORIGINAL LOT   4.963 AC

ADDED AREA At Marion Circle   10,000 SQ FT

ADDED AREA Sellers Drive   15,134 SQ FT

Total AREA Tract A   5.54 ACRES

AREA OF Paving Existing Sellers Drive
    12045 SQ FT   0.277 AC

AREA OF EXISTING Concrete Sidewalks
    3.5' WIDE × 697'   2,439.5 SQ FT   0.056 AC

Total impervious AREA   0.333 AC

% $\frac{0.333}{5.54}$ *100 = 6 % impervious

SCS Soil Type "EtC"   Soil Group "B"

"C" Factor   0.36   Plate 22.2 C-1

$S = 2\%$
$L = 1100'$

Velocity Average   22.2 B-1 $V = 0.85$ FT/sec

$T_c = \frac{L}{V \cdot 60} = \frac{1100}{0.85 \times 60} = 21.6$ min.

(2) 18   use DPM

$$I_{100} = \frac{189}{Tc+25} = \frac{189}{46.6} \qquad I = 4.1 \text{ "/He}$$

$$Q = CIA = 0.36 \times 4.1 \times 5.54 = 8.177 \text{ cfs}$$

Existing Conditions off site Flows

ALL OFFSITE FLOWS ACCEPTED THEY COME FROM 0.35 ACRES on the EAST SIDE of the developement. and behind the EXISTING gas STATION and the ROW along Lomas Blvd, NE slopes IN to TRACT "A" along the whole SOUTH SIDE containing 1.7 ACRES

South R-O-W- Area 1.1 AC
East Portion of BLK 42   0.35 Ac

$$Q_s = 0.34 \times 5.4 \times 1.1 = 2.0 \text{ cfs}$$

$$Q_E = 0.34 \times 5.4 \times 0.35 = 0.7 \text{ cfs}$$

Total offsite Flow   2.7 cfs

FEB 2 1994
HYDROLOGY SECTION
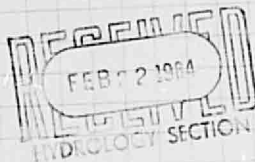
DRAINAGE CALCULATIONS FOR Area "A"

Drainage Area "A" Flows to Marron Circle NE.
THRU THE DRIVE PAO AS SHOWN ON THE Grading
& DRAINAGE PIAN

SEE ORTHO PHOTO FoL Area

Marron Circle has A contributing Drainage
AREA of Residential Developement
equal to 27 Acres. Using a C" FActr
of 0.67 we would exspect A Q =
0.67 X 5.4 x 27 = 98 cfs

Street slope ~ 2% AND 34' WIDE
WITH 8" CURB. ACCORDING to Plate
22.3 0-1, THIS WILL HANDLE
140 cfs FLOW IN THE STREET

Also A STORM SEWER HAS BEEN
PLACED IN Marron Circle with
3 Double "O" CATCH Basins PlACED
on the South Side of Marron Circle
AND 2 on the North Side.
ACCORDING TO PIATE 22.3 0-6
each will contribute 12 cfs from the
street for A total of 60 cfs
TO A 48" RCP storm Sewer

We will conlutut AN ADDITIONal 2.3
cfs (see CALCS DRAINAGE AREA A)

THE ExisTing STREET AND STORM System
can easily take this Amount.

(4)

DRAINAGE CALCULATIONS FOR AREA 'A'

Developed Conditions
  Building   2 x Bldg "A" @ 4,352 sq ft

$$\frac{8,704}{43,560} \times 5.4 \times 1.0 \quad = \quad 1.1 \text{ cfs}$$

Sidewalk   500LF @ 4 ft wide
             20LF @ 10 ft wide

$$\frac{2,200}{43,560} \times 5.4 \times 1.0 \quad = \quad 0.3 \text{ cfs}$$

Alphalt paving

$$\frac{6,080}{43,560} \times 5.4 \times 0.9 \quad = \quad 0.7 \text{ cfs}$$

Landscape

$$\frac{5,741}{43,560} \times 5.4 \times 0.34 \quad = \quad 0.2 \text{ cfs}$$

Total Area   22,725 sq. ft.   Total "Q" 2.3 cfs

DRAINAGE AREA "B"

THIS AREA DRAINS WEST TO A NEW
CATCH BASIN AND 24" RCP AT SELLERS
DRIVE NE. SEE GRADING AND DRAINAGE
PLAN FOR EXACT LOCATION.

17.7 cfs WILL EXIT DIRECTLY INTO A 48"
STORM SEWER THRU A 24" RCP.
ACCORDING TO Plate 22.3 Page 78 A 24"
IS sufficient

SEE Construction Documents for Detail
of 24" Pipe connection.

SEE CALCS FOR DRAINAGE AREA "B"

DRAINAGE CALCULATIONS FOR AREA "B"

Developed Conditions
Buildings 11 x Bldg "A" @ 4,352 sq ft
          1 x Bldg "B" @ 5,690 sq.ft
          ½ x Bldg "C" @ 3,384 sq ft
          ½ x Bldg "D" @ 3,744 sq ft

$$\frac{57,137.5}{43,560.0} \times 5.4 \times 1.0 \ = \ 7.1 \ cfs$$

Sidewalk 3,365LF @ 4 ft wide
           177LF @ 9 ft wide

$$\frac{15,052}{43,560} \times 5.4 \times 1.0 \ = \ 1.9 \ cfs$$

Asphalt paving

$$\frac{58,265}{43,560} \times 5.4 \times 0.9 \ = \ 6.5 \ cfs$$

Landscape

$$\frac{52,562}{43,560} \times 5.4 \times 0.34 \ = \ 2.2 \ cfs$$

| Total Area | 183,016 sq.ft. | Total "Q" 17.7 cfs |

DRAINAGE AREA "C"

THIS AREA DRAINS TO THE WEST TO A
NEW CATCH BASIN AND 12" RCP AT THE
SOUTH END of Sellers DRIVE N.E.

3.9 cfs will EXIT DIRECTly INTO
A 12" RCP TO EXISTING 48"
STORM SEWER THIS connection
will be into A MANhole. SEE
Construction Documents for Details.

Calcs on Next Page.

⑨

DRAINAGE CALCULATIONS FOR AREA "C"

Developed Conditions
  Building   1½ x Bldg "C" @ 5076
              1½ x Bldg "D" @ 5616

$$\frac{16,038}{43,560} \times 5.4 \times 1.0 \quad = \quad 2.0 \text{ cfs}$$

Sidewalks 690 @ 4 ft. wide

$$\frac{2,760}{43,560} \times 5.4 \times 1.0 \quad = \quad 0.3 \text{ cfs}$$

Asphalt Pavings

$$\frac{12,470}{43,560} \times 5.4 \times 0.9 \quad = \quad 1.4 \text{ cfs}$$

Landscape

$$\frac{4,498}{43,560} \times 5.4 \times 0.34 \quad = \quad 0.2 \text{ cfs}$$

Total Area   35,766 sq. ft.   Total "Q" 3.9 cfs

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

HYDROLOGY SECTION PROJ. NO. J-20 DATE: 1/19/84

PLANNING DIVISION NO. _____

CONFERENCE RECAP

SUBJECT: _____ Glyn Giles Apartments _____

WHO	REPRESENTING
ATTENDANCE: Richard Hall	
Billy Goolsby	

FINDINGS:
① Drainage Report per DPM
② Free discharge if shown downstream capacity exists
③ Approved "Construction Within Public R/W" document required or construction plans for storm sewer connection.
④ Drainage to Marron Circle is acceptable

The undersigned agrees that the above findings are summarized accurately and are only subject to change if further investigation reveals that they are not reasonable or that they are based on inaccurate information.

SIGNED: Billy Goolsby   SIGNED: Richard Hall

TITLE: CE Hydrology   TITLE: PE
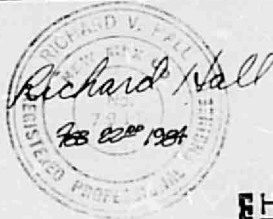
DATE: 1/19/84   DATE: 1/19/84

J-20-D-17

VICINITY MAP

J-20
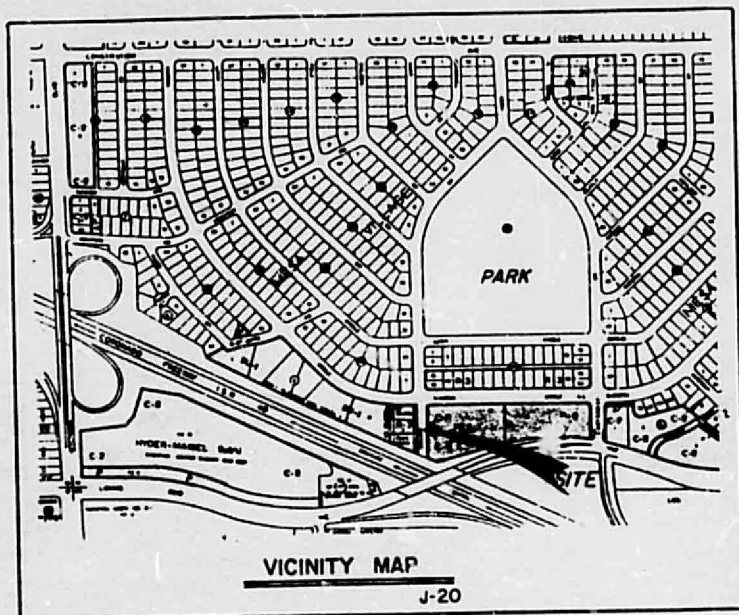
GILES GLYN & ASSOCIATES
253 WYOMING BLVD N.E
ALBUQUERQUE, N.M.

Richard Hall
FEB 22nd 1984

HALL ENGINEERING 8
2625 Pennsylvania Ave., N.E.
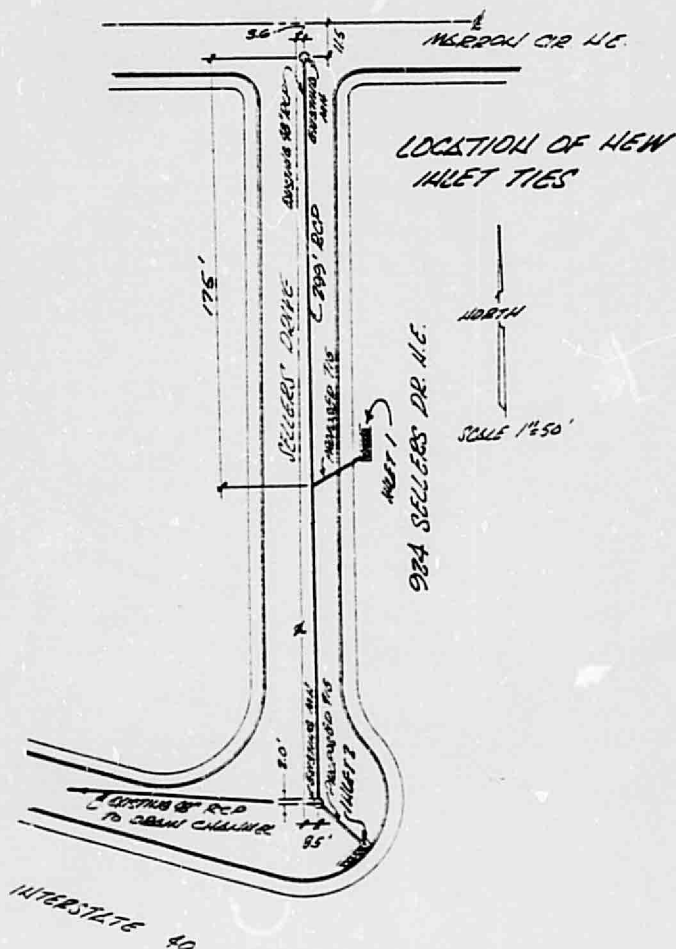Suite 350
Albuquerque, New Mexico 87110

NOTICE TO CONTRACTOR.

1. 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.

2. All work detailed on these plans to be performed, except as otherwise stated or provided hereon, shall be constructed in accordance with " *PUBLIC WORKS CONTRACT NO. 84 – 1* "

3. Two working days prior to any excavation, contractor must contact Line Locating Service, 765-1234, for location of existing utilities.

4. Prior to construction, the contractor shall excavate and verify the horizontal and vertical locations of all obstructions. Should a conflict exist, the contractor shall notify the engineer so that the conflict can be resolved with a minimum amount of delay.

5. Backfill compaction shall be according to _____ *RESIDENTIAL* _____ street use.

APPROVALS	NAME	DATE	924 SELLERS DR NE	
A.C.E./DESIGN				
INSPECTOR	JUL 17 1984		PERMIT NO.	MAP
A.C.E./FIELD	HYDROLOGY SECTION		SHEET 1 OF 5	NO. J-20

CITY OF ALBUQUERQUE

DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY

LOCATION OF NEW
INLET TIES

NORTH

SCALE 1" = 50'

934 SELLERS DR. NE

INTERSTATE 40

2525 Pennsylvania Ave., N.E.
Suite 150
Albuquerque, New Mexico 87110

APPROVALS	NAME	DATE		924 SELLERS DR. NE	
A.C.E./DESIGN		JUL 17 1984			
INSPECTOR			PERMIT NO.		MAP NO. J-20
A.C.E./FIELD		HYDROLOGY SECTION	SHEET 2 OF 5		

CITY OF ALBUQUERQUE

DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY

INLET 1

TOP OF GRATING
ELEVATION 77.10
CATCH BASIN
TYP "D"

INV ELEV (PIPE)
72.10

EXISTING 18" RCP

PROPOSED 24" RCP
MIN SL= 0.02

30°

TIE INSTRUCTION SEE
NOTES THIS SHEET

NORTH

NO SCALE

SECTION A-A

TOP ELEV
55.10

ASPHALT

MIN COVER 36"

24" RCP

TYP "D" INLET
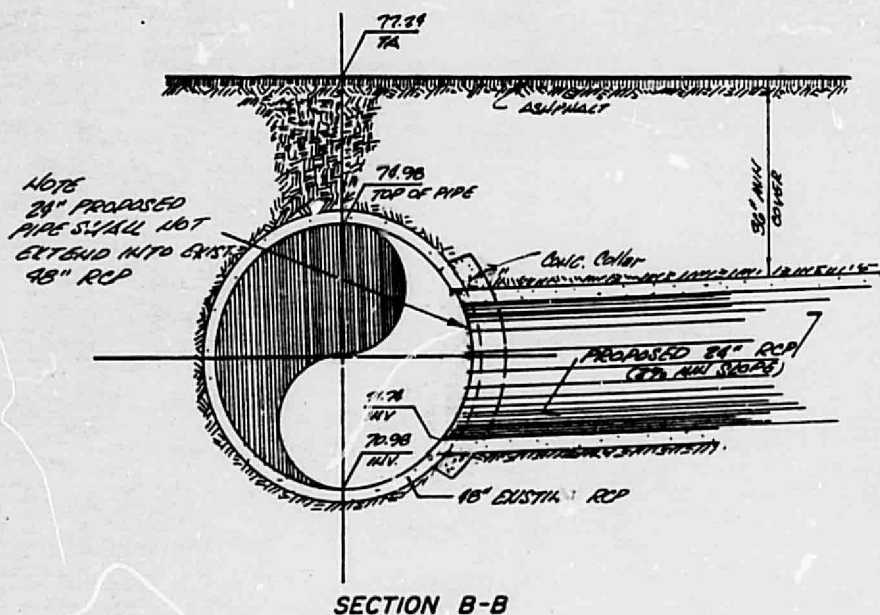PER CITY STAND-
ARD K-G-2
(INVERT 72.10)

NOTES:

1. _Round_ opening in main line pipe shall be cut within the limits shown normal to pipe surface without damaging steel.

2. Transverse reinforcement in pipe shall be cut in center of opening and bent to uniform distance from top and bottom of junction structure.

3. Main line pipe, beneath and to each side of _Round_ opening, shall be cradled in concrete as shown on the plan. Bottom of cradle shall be poured against undisturbed soil.

4. Concrete shall be 3000 psi.

5. Reinforcing steel shall be round, deformed, straight bars 1½" clear from face of concrete unless otherwise shown.

HALL ENGINEERING CO
2625 Pennsylvania Ave., N.E.
Suite 350
Albuquerque, New Mexico 87110

APPROVALS	NAME	DATE		
A.C.E./ DESIGN			924 SELLERS DR. N.E.	
INSPECTOR	JUL 1994		PERMIT NO.	MAP
A.C.E. / FIELD			SHEET 3 OF 5	NO. J-20

HYDROLOGY SEC...

77.24
TA

ASPHALT

NOTE
24" PROPOSED
PIPE SHALL NOT
EXTEND INTO EXIST.
48" RCP

74.98
TOP OF PIPE

36" MIN
COVER

Conc. Collar

PROPOSED 24" RCP
(SEE PLAN SHEETS)

71.74
INV.

70.98
INV.

48" EXISTING RCP

SECTION B-B

HALL ENGINEERING
2625 Pennsylvania Ave., N.E.
Suite 350
Albuquerque, New Mexico 87110

APPROVALS	NAME	DATE			
A.C.E./DESIGN			924 SELLERS DR NE		
INSPECTOR			PERMIT NO.	MAP	
A.C.E./FIELD			SHEET 4 OF 5	NO.	J-20

EXISTING MH RIM 76.59
INV 69.99

CONC COLLAR 45°

SEE NOTES ON SHT 3 OF 5 FOR THE INFORMATION

PROPOSED
18" RCP @ 2% SLOPE

NORTH

NO SCALE

TYPE "D" CATCH BASIN

18' R

C

TOP OF GRATING
ELEV 76.30
INV 73.30

INLET 2
11

ASPHALT PAVING

TOP OF GRATE ELEV 76.30

EXISTING MH RIM 76.59, INV 69.99
CONC COLLAR W/ON PROPOSED 18" RCP

5' MIN COVER

TOP OF GRATE ELEV 76.30

TYPE "D" INLET

INVERT ELEV 72.30

2% SLOPE

INV ELEV. C TIE 71.9

SECTION C-C

HALL ENGINEERING CO
2625 Pennsylvania Ave., N.E.
Suite 350
Albuquerque, New Mexico 87110

APPROVALS	NAME	DATE	
A.C.E./DESIGN			929 SELLERS DR NE
INSPECTOR			PERMIT NO.
A.C.E./FIELD			SHEET 5 OF 5

MAP NO. J-20