MASTER DRAINAGE PLAN
ELDORADO PARK SUBDIVISION

AND

REVISED DRAINAGE REPORT
FOR UNIT 1

Drainage File L9/D7
DRB No. 97-13

Prepared for

TOWER WEST JOINT VENTURE
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Prepared by

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July 1999
Revised February 2000

A. DRAINAGE SUMMARY

The proposed development site, named Eldorado Park, is located on Tract A-1A (21.9 ac.) of the Tower West Joint Venture and Tract 27A (5.2 ac.), Unit 2 of the Town of Atrisco Grant. A copy of the proposed plat is attached. The site will be developed in four phases, Units 1 through 4, as shown on Sheet 1 of 3 of the Grading and Drainage Plan. The site is currently undeveloped with a cover of native shrubs and grass, with dumped refuse located over portions of the site.

The site is bounded by 98th Street on the west which collects local runoff and diverts this drainage to the existing arroyo located on the south side of the site. This runoff is conveyed to the arroyo by drainage swales on both sides of the roadway. No runoff from 98th Street or the area west of 98th Street currently flows onto the site, except into the arroyo.

Approximately 1000 feet west of 98th Street, Snow Vista Channel intercepts all runoff into the arroyo and diverts it to the southeast and out of the watershed. Because of the significantly reduced drainage area, the arroyo will be replaced by storm drains in 98th Street and Tower Road as planned in Special Assessment District 222 and described below.

The existing FEMA map No. 35001C0328 D, September 20, 1996, shows a narrow floodplain along the arroyo banks and extending onto the project site, into Unit 3 (see Sheet 1 of 3). This part of Unit 3 will not be developed until a CLOMR is submitted to remove the floodplain for the reach north of Tower Road. The floodplain along Tower Road is expected to be addressed in SAD 222.

The entire project area is included within SAD 222 which provides for future storm drains as follows:

A 54-inch storm drain draining south along 98th Street to Tower Road and by-passing the existing on-site arroyo (see Figure B);
A 54-inch storm drain draining east along Tower Road;
A 36-inch and 42-inch storm drain draining south along 94th Street to the Tower Road storm drain.

These three proposed storm drains are also shown on Sheet 1 of 3, and preliminary plan and profile sheets from the SAD 222 project are included as Figures A through F.

- Consequently, there is no off-site flow under existing and future conditions. The 94th Street storm drain, which will be constructed with Unit 2 of this project will be the ultimate outfall for the entire project. However, until the Tower Road storm drain is constructed, the 94th Street storm drain will drain to temporary retention ponds, as shown on this plan.

B. MASTER DRAINAGE PLAN

To facilitate the drainage analysis, the project area was divided into 4 basins numbered 101 through 104. Basin 101, with Tristani Road at its center, is the development area in Unit 1 (51 lots). Under undeveloped conditions Basin 101 drains overland to the east; when developed Basin 101 runoff will be collected in Tristani Road and drain east down Tristani and south on Dean Drive to its intersection with Rowen Road where all runoff is collected in a storm drain going east along Rowen Road and then south along future 94th Street. When SAD 222 is completed this storm drain will connect with the Tower Road storm drain.

Basin 102 consists of a small area (2.22 ac.) on the north side of Basin 101 that naturally flows overland across Basin 101 in a southeast direction. Unit 1 will be constructed so that Basin 102 runoff is collected in a swale along the rear of the lots on the north side of Tristani Road. The swale will discharge it's undeveloped condition flows into future 94th Street as shown on Sheet 2 of 3, until Unit 4 is constructed. With the future construction of Unit 4, the adjacent lots to the north of Unit 1 will be graded so that these lots will drain north to Eucariz Avenue.

Basin 103, which lies east of Basin 101, extends over future Unit 2 of this subdivision and is centered along 94th Street. Undeveloped condition runoff from Basin 103 consists of overland drainage to the southeast out of the proposed subdivision. With Unit 2 development, the storm drain in 94th Street from Rowen Road to Tower Road constructed with Unit 1 development) will be extended north to a battery of inlets in 94th Street north of its intersection with Eucariz Avenue. This system of inlets and the 94th Street storm drain was initially developed in SAD 222, and this plan fully complies with the overall SAD 222 drainage scheme.

Basin 104 is located south of Basin 101 and under undeveloped conditions is characterized by two existing flow paths - the northern part of Basin 104 drains eastwards overland into a broad swale which crosses future 94th Street and continues east; the southern part of Basin 104 is the existing arroyo previously discussed in this report. This arroyo drains east to the intersection of Tower Road and 94th Street and then continues east in Tower Road. As previously described, the flows in this arroyo have been significantly reduced with the construction of Snow Vista Channel west of 98th Street.

When developed, Basin 104 will be centered in Weems Avenue which will carry all drainage east and then north along Dean Drive to the storm drain inlets at the Dean Drive/Rowen Road intersection. After approval of a CLOMR, the arroyo will be filled in and the lots constructed over this area will drain north to Weems Avenue. SAD 222 originally proposed elimination of this arroyo by construction of storm drains in 98th Street and Tower Road as previously described.

For analytical convenience, the south half of Basin 103 (south of Rowen Road) was included in Basin 104 for developed conditions only. This was done to more accurately represent developed condition flows in the 94th Street storm drain north of Rowen Road.

Basins 103 and 104 represent drainage areas from which undeveloped condition runoff will not be impacted by development of Unit 1. Basins 103 and 104 will be developed in future phases of Eldorado Park and the runoff from these basins will ultimately be managed using the 94th Street storm drain, as described on the plan.

C. RUNOFF TO RETENTION PONDS

INTERIM

Unit I involves an 8.28-acre interior development of 51 lots as shown on Sheet 2 of 3. The remaining phases are also shown on the plan. Drainage from the proposed development will be retained in a temporary retention pond (Pond A) located east of 94th Street in a drainage easement (see Sheet 1 of 3). Consequently, with development of Unit 1 only, the 100-yr peak flow in the 94th Street storm drain will be 30.2 cfs (Basins 101F and 102); and with full development of the site, the 100-yr peak flow will be 88.5 cfs. However, the south end of the pipe will be temporarily plugged until the Tower Road storm drain is constructed under SAD 222. A temporary 48-inch CMP diversion pipe will be directed east from the last manhole (see Sheet 1 of 3) to daylight into Pond A.

The permanent 42-inch RCP storm drain in 94th Street, and temporary 48-inch CMP storm drain will convey runoff to Pond A as shown on Sheet 1 of 3. The pond is sized to retain the full 100-yr; 10-day runoff volume (1.43 ac-ft) generated by development of Basin 101, compared to the pond volume of 2.46 ac.ft. The CMP storm drain and pond are located on Tracts 24, 25, and 26 of Unit 2, Town of Atrisco Grant; consequently, a temporary drainage easement is provided. A copy of this easement is attached.

D. FUTURE DEVELOPMENT PHASES

To develop Unit 2 of Eldorado Park, located on both sides of 94th Street, the 94th Street storm drain will be extended to the north property line of Unit 2 where it will be temporarily plugged and extended further north under SAD 222 in the future. The 94th Street storm drain system will also serve Units 3 and 4 of Eldorado Park; the 100-yr; 10-day runoff amounts to 4.61 ac.ft. for full development of the entire site. Consequently, a second pond, Pond B, identical to Pond A, will be constructed east of Pond A (see Sheet 1of 3). Total storage volume for both ponds is 4.92 ac.ft.

Development of Unit 3 will require submittal of a ~~CLOMR or~~ LOMR to remove the Zone AE designation along the arroyo. Because of the Snow Vista Diversion and the 98th Street storm drain, elimination of the Zone AE area is appropriate.

E. UNIT 1 DEVELOPMENT

Sheet 2 of 3 shows the grading plan for Unit 1. Demi Road will have a crest in its' centerline profile to exclude drainage from the valley gutter on 98th Street. Therefore, no runoff onto Unit 1 is expected from 98th Street or areas west of 98th Street.

Standard roll curb and gutter will be used for Demi Road, Hartman Drive, and the west part of Tristani Road. At Sta. 14+90 of Tristani Road there is a 10-foot transition to standard curb and gutter which extends east along Tristani Road, south along Dean Drive and east along Rowen Road to 94th Street. Similarly, the west end of Rowen Road (west of Dean Drive) will be roll curb and gutter.

Type A and single and double Type C inlets will be located on both sides of Dean Drive and Rowen Road at their intersection, as shown on Sheet 2 of 3. These inlets will drain to a 42-inch storm drain in Rowen Road which outfalls into the 42-inch storm drain in 94th Street. Sheet 3 of 3 provides details on the inlet locations, connector pipes and their respective elevations and capacities.

Table 1 provides hydrologic data for the major drainage subareas (basins) within the development for existing, Unit 1 development only, and full development conditions. In order to design the storm drain system at the intersection of Dean Drive and Rowen Road, and in 94th Street, individual street flows are computed in Tables 2A through 2D. These total computed flows for each street were divided between each side of the respective street based on approximate contributory area to that side of the street. These splits are listed on Table 3.

The computed flows and street capacities at a curb depth of 0.6 ft. are compared in Table 3 which also includes number of inlets determination using Type A and C inlets and a flow depth over the grate of 0.7 ft.

Table 4 lists the connector pipe lengths, flow requirements and computed pipe sizes. A 42-inch diameter storm drain in Rowen Road from Dean Drive to 94th Street is selected based on $Q_{100} = 67.8$ cfs (Basins 101F and 104F only), S = 1%, and n = 0.015. The storm drain in 94th Street was designed in SAD 222 (See Figures C and D), except that the 36-inch diameter pipe specified in the SAD was enlarged to 42-inch diameter from Rowen Road to Tower Road.

The lots south of Tristani Road, east of Hartman Drive and Dean Drive are all higher than the existing grade so that temporary slope grading is required but all runoff from these lots drains to the street in the front of these lots.

F. SUPPLEMENTARY MATERIALS

Other materials submitted with this report include:

A copy of the plat of the proposed subdivision

A copy of the temporary drainage easement on Tracts 23, 24, 25, and 26, Town of Atrisco Grant

TABLE 1

EXISTING CONDITION HYDROLOGY

Basin	Area (ac)	Land Treatment				Q-Peak (cfs)		Volume (ac-ft)		
						10-yr	100-yr	10-yr	100-yr	100-yr
		%A	%B	%C	%D	6-hr		6-hr		10-day
101	8.28	100	0	0	0	2.0	10.7	.055	.304	.304
102	2.22	100	0	0	0	0.5	2.9	.015	.081	.081
103	.78	100	0	0	0	.2	1.0	.005	.029	.029
104	6.12	100	0	0	0	1.5	7.9	.041	.224	.224
TOTAL						4.2	22.5	.116	.638	.638

INTERIM ~~FUTURE~~ CONDITION HYDROLOGY - ONLY UNIT 1 DEVELOPED

Basin	Area (ac)	Land Treatment				Q-Peak (cfs)		Volume (ac-ft)		
						10-yr	100-yr	10-yr	100-yr	100-yr
		%A	%B	%C	%D	6-hr		6-hr		10-day
101F	8.28	0	35	16	49	15.9	27.4	.521	.937	1.430
102	2.20	100	0	0	0	0.5	2.8	.015	.081	.081
103	0.78	100	0	0	0	.2	1.0	.005	.029	.029
104	6.12	90	0	10	0	1.5	7.9	.041	.224	.224
TOTAL						18.1	39.1	.582	1.271	1.764

FUTURE CONDITION HYDROLOGY - FULL DEVELOPMENT

Basin*	Area (ac)	Land Treatment				Q-Peak (cfs)		Volume (ac-ft)		
						10-yr	100-yr	10-yr	100-yr	100-yr
		%A	%B	%C	%D	6-hr		6-hr		10-day
101F	8.28	0	35	16	49	15.9	27.4	.521	0.937	1.430
102F	0.47	100	0	0	0	7.2	12.8	.235	0.435	0.656
	3.69	0	35	16	49					
103F	2.38	0	35	16	49	4.6	7.9	.150	.269	.412
104F	12.21	0	35	16	49	23.5	40.4	.768	1.382	2.115
TOTAL						51.2	88.5	1.674	3.023	4.613

*see Sheet 2 for basin boundaries

TABLE 2A

PROJECT: Tower West--Estimated Street Flows
BASIN : Flow from Hartman to Weems Ave to Dean Dr
CONDITION: Developed

Part A -- Procedure for 40 Acre and Smaller Basins*

Input

zone (x)	area (acres)	land treatment (%)	
1	6.7000	A	
2		B	35.00
3		C	16.00
4		D	49.00

Output

			(ac-ft)			(cfs)
Volume	2-YR	6-hr	0.273	Q-Peak	2-YR	8.026
		24-hr	0.410		10-YR	16.064
		4-day	0.506		100-YR	26.276
		10-day	0.533			
	10-YR	6-hr	0.536			
		24-hr	0.673			
		4-day	0.769			
		10-day	0.796			
	100-YR	6-hr	0.941			
		24-hr	1.077			
		4-day	1.310			
		10-day	1.570			

* City of Albuquerque Development Process Manual, Volume 1, 1997 Revision, pages 22-7 to 22-16.

TABLE 2B

PROJECT: Tower West–Estimated Street Flows
BASIN : Flow down 94th Street to Rowen Road
CONDITION: Developed

Part A -- Procedure for 40 Acre and Smaller Basins*

Input

zone (x)		area (acres)	land treatment (%)	
1	[redacted]	32000	A	[redacted]
2	[redacted]		B	3500
3	X		C	1600
4	[redacted]		D	4900

Output

			(ac-ft)			(cfs)
Volume	2-YR	6-hr	0.130	Q-Peak	2-YR	3833
		24-hr	0.196		10-YR	7672
		4-day	0.241		100-YR	12550
		10-day	0.255			
	10-YR	6-hr	0.256			
		24-hr	0.321			
		4-day	0.367			
		10-day	0.380			
	100-YR	6-hr	0.449			
		24-hr	0.515			
		4-day	0.626			
		10-day	0.750			

* City of Albuquerque Development Process Manual, Volume 1, 1997 Revision, pages 22-7 to 22-16.

TABLE 2C

PROJECT: Tower West--Estimated Street Flows
BASIN : Flow down Rowen Road 156750ft^2
CONDITION: Developed

Part A -- Procedure for 40 Acre and Smaller Basins*

Input

zone (x)		area (acres)	land treatment (%)	
1		3.6000	A	
2			B	35.00
3	X		C	16.00
4			D	49.00

Output

			(ac-ft)			(cfs)
Volume	2-YR	6-hr	0.147	Q-Peak	2-YR	4.312
		24-hr	0.220		10-YR	8.631
		4-day	0.272		100-YR	14.118
		10-day	0.286			
	10-YR	6-hr	0.288			
		24-hr	0.362			
		4-day	0.413			
		10-day	0.428			
	100-YR	6-hr	0.505			
		24-hr	0.579			
		4-day	0.704			
		10-day	0.844			

* City of Albuquerque Development Process Manual, Volume 1, 1997 Revision, pages 22-7 to 22-16.

TABLE 2D

PROJECT: Tower West--Estimated Street Flows

BASIN : Flow down 94th Street from Rowen Road to Tower 156750ft^2

CONDITION: Developed

Part A -- Procedure for 40 Acre and Smaller Basins*

Input

zone (x)		area (acres)	land treatment (%)	
1		3.6000	A	
2			B	35.00
3	X		C	16.00
4			D	49.00

Output

			(ac-ft)			(cfs)
Volume	2-YR	6-hr	0.147	Q-Peak	2-YR	4.312
		24-hr	0.220		10-YR	8.631
		4-day	0.272		100-YR	14.118
		10-day	0.286			
	10-YR	6-hr	0.288			
		24-hr	0.362			
		4-day	0.413			
		10-day	0.428			
	100-YR	6-hr	0.505			
		24-hr	0.579			
		4-day	0.704			
		10-day	0.844			

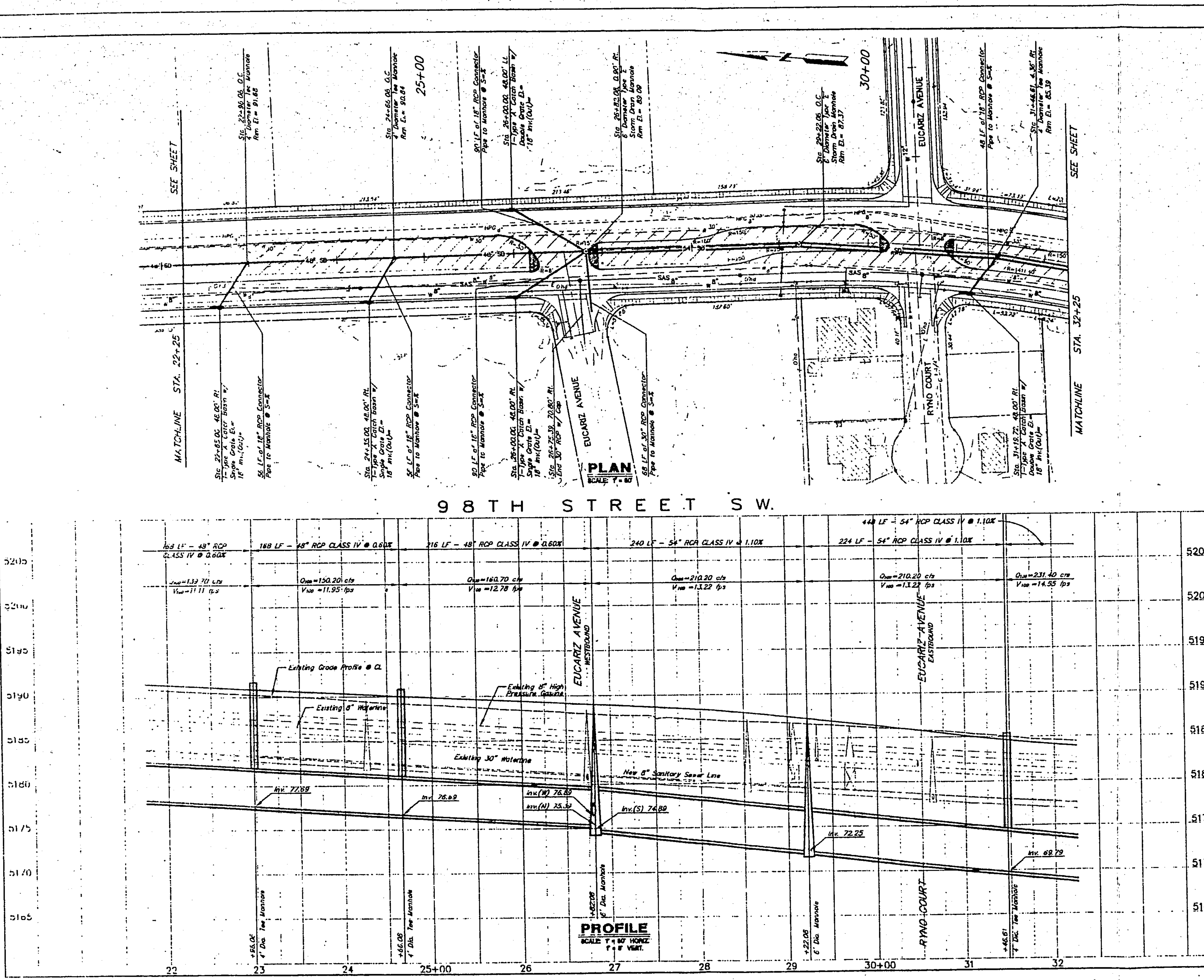
* City of Albuquerque Development Process Manual, Volume 1, 1997 Revision, pages 22-7 to 22-16.

TABLE 3

STREET AND INLET CAPACITIES

Street	Total Flow	Right Curb Flow	Left Curb Flow	Street Slope	Half Street Capacity (1)	100-Yr Flow Depth (2)	Inlet Capacity (3)	No. of Inlets Required
	cfs	cfs	cfs	%	cfs	ft	cfs	
Dean Drive - North								
Total	25.3			1.74				
Right Gutter		12.6			32	0.43	5.5	1 - Type "A"
							6.8	1 - Double Type "C"
Left Gutter			12.6		32	0.43	5.5	1 - Type "A"
							6.8	1 - Double Type "C"
Dean Drive - South								
Total	26.3			0.66				
Right Gutter		13.5			20	0.52	5.5	1 - Type "A"
							7.4	1 - Double Type "C"
Left Gutter			13.5		20	0.52	5.5	1 - Type "A"
							7.4	1 - Double Type "C"
Rowen Road - West								
Total	14.1			2.45				
Right Gutter		7			38	0.36	4.5	1 - Single Type "A"
							4.5	1 - Single Type "C"
Left Gutter			7		38	0.36	4.5	1 - Single Type "A"
							4.5	1 - Single Type "C"

(1) Based on Plate 22.3 D-1 for 32 ft. street; d = 0.6 ft (0.67 ft. available)
(2) From Plate 22.3 D-1 for 32' Street
(3) Based on Plate 22.3 D-5 for single "A" or "C" inlet or Plate 22.3 D-6 for double "C" inlets



PLAN ORIENTATION MAP

AS BUILT INFORMATION

MICRO-FILM INFORMATION

BENCH MARKS

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE
1		
2		
3		
4		
5		
6		
7		

ENGINEER'S SEAL

PRELIMINARY

DO NOT USE FOR CONSTRUCTION

JUN - 6 1999

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REVISIONS

NO	DATE	REMARKS	BY
1			
2			
3			
4			

DESIGN
DESIGNED BY: Scott M. Dawson DATE: AUG. 1997
DRAWN BY: Michael J. Pardon DATE: AUG. 1997
CHECKED BY: John Andrews DATE: AUG. 1997

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

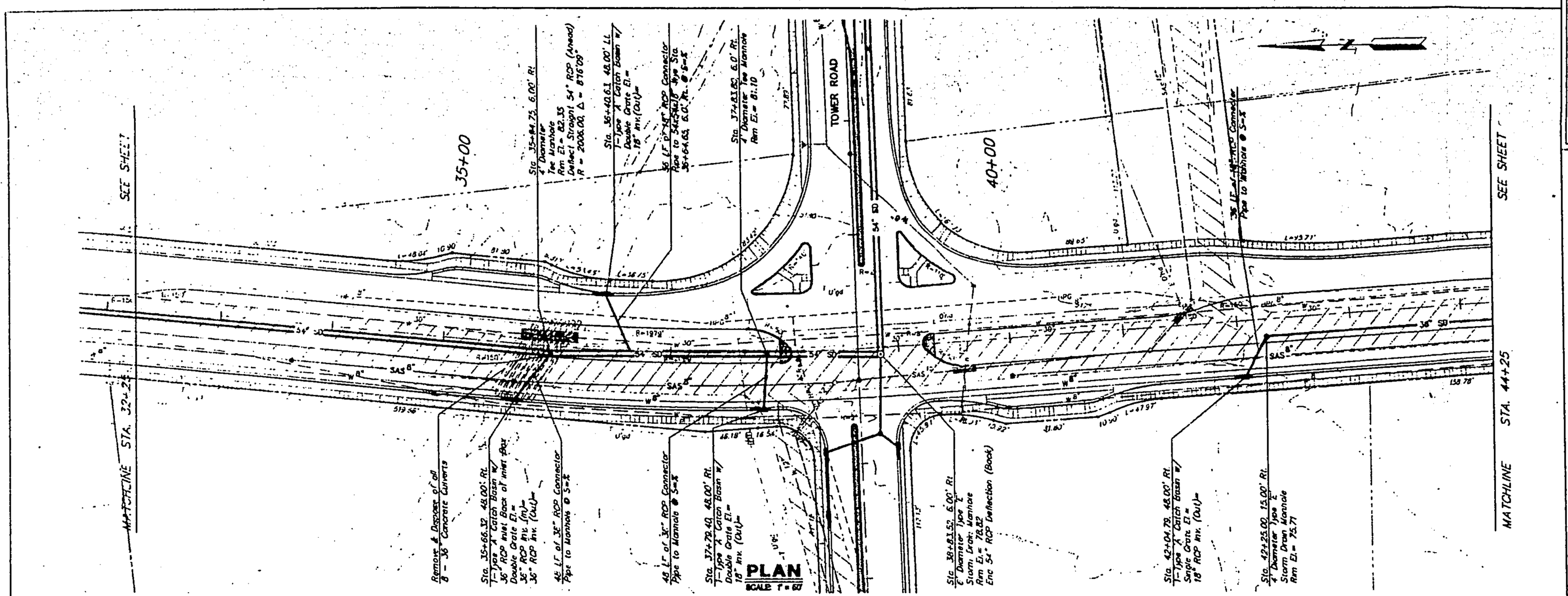
TITLE: SPECIAL ASSESSMENT DISTRICT 222
98TH STREET SW.
STORM DRAIN PLAN & PROFILE

Design Review Committee | City Engineer Approval | Mo./Day/Yr. | Mo./Day/Yr.

Last Design Update

City Project No. XXXX | Zone Map No. L & M-9 | Sheet 8-3 of

FIGURE A



PLAN ORIENTATION MAP

AS BUILT INFORMATION

CONTRACTOR

	NAME	DATE
STAKED BY		
INSPECTED BY		
FIELD CHECKED BY		
COMPUTATION BY		
CHECKED BY		

MICRO-FILM INFORMATION

MICROFILMED BY		DATE
RECORDED BY		DATE
RECORDED BY		DATE

BENCH MARKS

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE
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NO.	DATE	REVISIONS	BY
1		DESIGN	
2		DESIGNED BY: Scott M. Beeson	DATE: AUG. 1997
3		DRAWN BY: Michael J. Riordan	DATE: AUG. 1997
4		CHECKED BY: John Andrews	DATE: AUG. 1997

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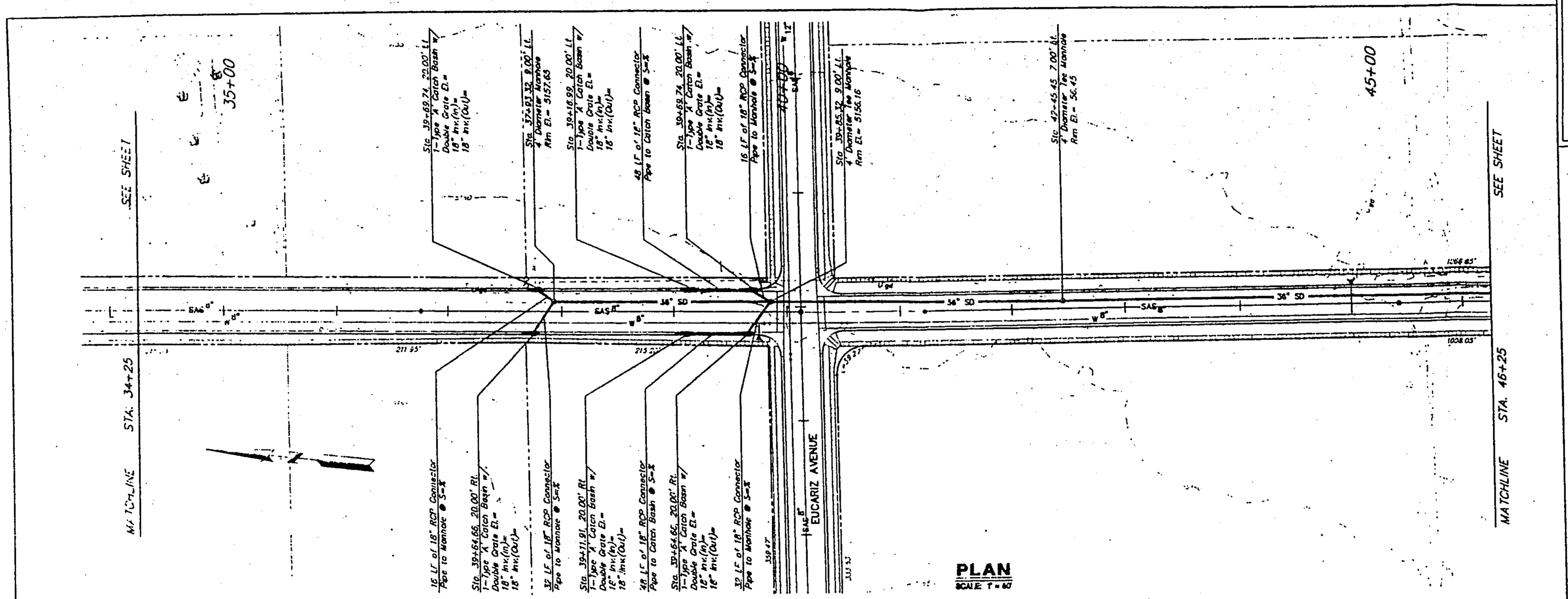
City Project No. XXXX | Zone Map No. L & M-9 | Sheet 8-4 Of

FIGURE B



PLAN ORIENTATION MAP

AS BUILT INFORMATION

CONTRACTOR

	BY	DATE
SURVEYED BY		
DRAWINGS BY		
FIELD VERIFICATION BY		
DRAWINGS BY		
CHECKED BY		

MICRO-FILM INFORMATION

	BY	DATE
APPROVED BY		
RECORDED BY		
INDEXED BY		

BENCH MARKS

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE
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PRELIMINARY

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NO.	DATE	REMARKS	BY
1	AUG. 1997	DESIGN	
2	AUG. 1997	DESIGNED BY: Scott M. Benson	
3	AUG. 1997	DRAWN BY: Michael J. Riordan	
4	AUG. 1997	CHECKED BY: John Andrews	

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TITLE. SPECIAL ASSESSMENT DISTRICT 222
94TH STREET SW.
STORM DRAIN PLAN & PROFILE

Design Review Committee	City Engineer Approval	Last Design Update	Mo./Day/Yr.	Mo./Day/Yr.

City Project No. XXXX | Zone Map No. L & M-9 | Sheet 8-10 Of

FIGURE C


94TH STREET SW.
PLAN
SCALE: 1" = 60'
PROFILE
SCALE: 1" = 60' HORIZ.
1" = 6' VERT.
TOWER ROAD
MATCHLINE STA. 46+25 SEE SHEET
MATCHLINE STA. 56+25 SEE SHEET
50+00
55+00
400 LF - 36" RCP CLASS IV @ 0.70%
450 LF - 36" RCP CLASS IV @ 0.70%
83.58 LF - 54" RCP CLASS IV @ 0.70%
Q100=91.60 cfs
V100=12.96 fps
Q100=187.00 cfs
V100=11.76 fps
Finished Grade Profile @ Top of Curb LL & RL
Existing Grade Profile @ CL
New 8" Waterline
New 8" Sanitary Sewer
Existing 12" Waterline
Existing 8" Sanitary Sewer
36" Inv.(N) 36.72
54" Inv.(S) 35.22
54" Inv. In(N) 34.61
54" Inv. In(W) 34.61
60" Inv. Out(E) 34.13
5170
5165
5160
5155
5150
5145
5140
5135
5130
46
47
48
49
50+00
51
52
53
54
55+00
56
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City Project No.
XXXX
Zone Map No.
L & M-9
Sheet
8-11
Of

FIGURE D

PLAN
TOWER ROAD SW.
98th STREET
97th STREET
OLD TOWER ROAD
MATCHLINE
SEE SHEET
STA. 18+25
15+00
10+00
PROFILE
69.21 LF 36" RCP @ 2.15%
267.85 LF - 54" RCP CLASS IV @ 2.15%
329.63 LF - 54" RCP CLASS IV @ 2.15%
213.76 LF - 54" RCP CLASS IV @ 2.15%
Q100 = 231.00 cfs
V100 = 14.52 fps
Existing 4" High Pressure Gasline
Existing Grade Profile @ CL
Finished Grade Profile @ Top of Curb Lt. & Rt.
Existing 12" Sanitary Sewer
Existing 12" waterline
New 15" Sanitary Sewer Line
Inv. (W) 63.83
Inv. (N) 62.83
Inv. (E) 62.33
Inv. 56.57
Inv. 48.48
Inv. 44.89
PRELIMINARY
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ENGINEERING GROUP
TITLE: SPECIAL ASSESSMENT DISTRICT 222
TOWER ROAD SW.
STORM DRAIN PLAN & PROFILE
City Project No. XXXX
Zone Map No. L & M-9
Sheet 8-17
AS BUILT INFORMATION
MICRO-FILM INFORMATION
BENCH MARKS
SURVEY INFORMATION
FIELD NOTES
ENGINEER'S SEAL
PLAN ORIENTATION MAP
REVISIONS

FIGURE E

PLAN ORIENTATION MAP
AS BUILT INFORMATION
MICRO-FILM INFORMATION
BENCH MARKS
SURVEY INFORMATION
FIELD NOTES
NO. BY DATE
ENGINEER'S SEAL
REVISIONS
NO. DATE REMARKS BY
DESIGN
DESIGNED BY: Scott M. Bessen DATE: AUG. 1997
DRAWN BY: Michael J. Bearden DATE: AUG. 1997
CHECKED BY: John Andrews DATE: AUG. 1997
PRELIMINARY
DO NOT USE FOR CONSTRUCTION
JUN - 6 1999
ANDREWS, ASBURY & ROBERT, INC.
CONSULTING ENGINEERS
149 JACKSON ST. NE.
ALBUQUERQUE, NEW MEXICO 87108
TELEPHONE 505 265-6831
FAX 505 266-8112
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP
TITLE: SPECIAL ASSESSMENT DISTRICT 222
TOWER ROAD SW.
STORM DRAIN PLAN & PROFILE
Design Review Committee
City Engineer Approval
City Project No. XXXX
Zone Map No. L & M-9
Sheet 8-18
TOWER ROAD SW.
PLAN
SCALE: 1" = 60'
94th STREET
OLD TOWER ROAD
SEE SHEET
MATCHLINE STA. 18+25
MATCHLINE STA. 28+25
20+00
25+00
54" SD
60" SD
W 12"
Sta 22+81.63, 20.00' Rt
6' Diameter Type E
Storm Drain Manhole
End Deflect Straight
Rim El. = 50.30
Sta 26+31.25, 20.00' Rt
4' Diameter Tee Manhole
Rim El. = 41.84
PROFILE
SCALE: 1" = 60' HORIZ.
1" = 6' VERT.
417.06 LF - 54" RCP CLASS IV @ 2.15%
150 LF - 60" RCP CLASS IV @ 2.00%
338 LF - 60" RCP CLASS IV @ 2.10%
Q100 = 231.00 cfs
V100 = 14.52 fps
Q100 = 442.40 cfs
V100 = 22.53 fps
Existing Grade Profile @ CL
Finished Grade Profile @ Top of Curb Lt. & Rt.
Existing 8" Waterline
New 8" Waterline
To 98th Street
New 15" Sanitary Sewer Line
New 12" Waterline
Existing 15" Sanitary Sewer
54" Inv.(W) 34.51
60" Inv.(E) 34.13
54" Inv.(N) 34.63
Inv. 44.67
Inv. 27.12
+81.63
6' Dia. Manhole
+31.25
4' Dia. Tee Manhole
4' Dia. Tee Manhole
5165
5160
5155
5150
5145
5140
5135
5130
5125
18
19
20+00
21
22
23
24
25+00
26
27
28

FIGURE F

EXHIBIT

LEGAL DESCRIPTION – TEMPORARY DRAINAGE EASEMENT

A certain tract of land, reserved as a Temporary Drainage Easement, being and comprising a portion of Tract A–1A, TOWER WEST, as the same is shown and designated on the plat thereof, filed in the office of the County Clerk of Bernalillo County, New Mexico on May 27, 1999 in Bk. 99C, Pg. 125 and being Ten feet (10') on either side of the following described centerline:

BEGINNING at the most easterly point of said tract herein described, a point on the westerly right–of–way line of 94th Street S.W., whence a capped rebar monumenting a point of curvature on 94th Street S.W. bears S 05°59'34" E, 514.02 feet distant; thence, from said point of beginning S 84°00'26" W, 116.94 feet to the terminus point of said tract herein described, containing 2338.80 square feet, more or less (0.0537 acres, more or less).

LEGAL DESCRIPTION – TEMPORARY DRAINAGE EASEMENT

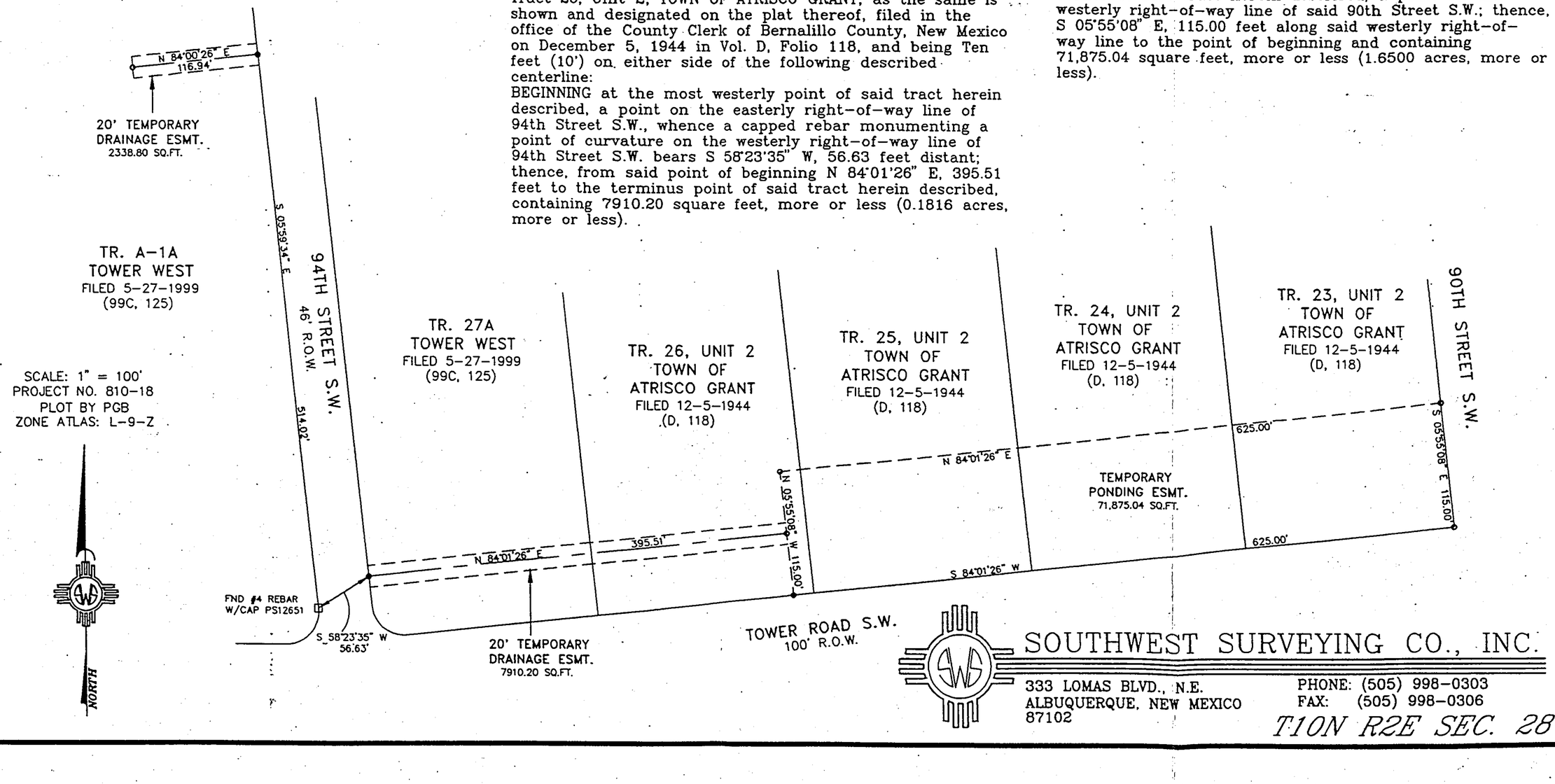
A certain tract of land, reserved as a Temporary Drainage Easement, being and comprising a portion of Tract 27A, TOWER WEST, as the same is shown and designated on the plat thereof, filed in the office of the County Clerk of Bernalillo County, New Mexico on May 27, 1999 in Bk. 99C, Pg. 125; TOGETHER WITH a portion of Tract 26, Unit 2, TOWN OF ATRISCO GRANT, as the same is shown and designated on the plat thereof, filed in the office of the County Clerk of Bernalillo County, New Mexico on December 5, 1944 in Vol. D, Folio 118, and being Ten feet (10') on either side of the following described centerline:

BEGINNING at the most westerly point of said tract herein described, a point on the easterly right–of–way line of 94th Street S.W., whence a capped rebar monumenting a point of curvature on the westerly right–of–way line of 94th Street S.W. bears S 58°23'35" W, 56.63 feet distant; thence, from said point of beginning N 84°01'26" E, 395.51 feet to the terminus point of said tract herein described, containing 7910.20 square feet, more or less (0.1816 acres, more or less).

LEGAL DESCRIPTION – TEMPORARY PONDING EASEMENT

A certain tract of land, reserved as a Temporary Ponding Easement, being and comprising a portion of Tracts 23, 24, 25 & 26, Unit 2, TOWN OF ATRISCO GRANT, as the same is shown and designated on the plat thereof, filed in the office of the County Clerk of Bernalillo County, New Mexico on December 5, 1944 in Volume D, Folio 118 and being more particularly described as follows:

BEGINNING at the southeast corner of said tract herein described, the northwesterly point of intersection between 90th Street S.W. and Tower Road S.W., being the southeast corner of said Tract 23; thence, from said point of beginning S 84°01'26" W, 625.00 feet along the northerly right–of–way line of said Tower Road S.W. to the southwest corner of said tract herein described; thence, leaving said northerly right–of–way line, N 05°55'08" W, 115.00 feet to the northwest corner of said tract herein described; thence, N 84°01'26" E, 625.00 feet to the northeast corner of said tract herein described, a point on the westerly right–of–way line of said 90th Street S.W.; thence, S 05°55'08" E, 115.00 feet along said westerly right–of–way line to the point of beginning and containing 71,875.04 square feet, more or less (1.6500 acres, more or less).



SOUTHWEST SURVEYING CO., INC.
333 LOMAS BLVD., N.E.
ALBUQUERQUE, NEW MEXICO
87102
PHONE: (505) 998–0303
FAX: (505) 998–0306

T10N R2E SEC. 28

R-71 Copy

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

January 25, 2002

June Page, P.E.
Resource Technology, Inc.
1720-B Randolph Rd SE
Albuquerque, New Mexico 87106

RE: **ELDORADO PARK SUBD UNIT 3** **(L-9/D7)**
Engineers Certification For Release of Financial Guaranty
Engineers Stamp dated 6/21/2001
Engineer's Certification dated 1/23/2002

Dear Ms. Page:

Based upon the information provided in your submittal dated 1/24/2002, the above referenced plan is adequate to satisfy the Grading and Drainage Certification requirements for release of financial guaranty for the above mentioned project.

As noted in the Engineers Certification, due to the construction of SAD 222 along Tower Rd and 98th St., the drainage swale and rip-rap called out on the drawings for the above mentioned project will not require construction.

If you have any questions, please call me at 924-3981.

Sincerely,

Teresa A. Martin
Hydrology Plan Checker
Public Works Department
BLB

C: Arlene Portillo, PWD – #665381
File

DRAINAGE INFORMATION SHEET
(REV. 11/01/2001)

L-9/D7

PROJECT TITLE: Eldorado Unit 3
DRB #: _____ EPC#: _____ ZONE MAP/DRG. FILE #: _____
WORK ORDER#: _____

LEGAL DESCRIPTION: _____
CITY ADDRESS: _____

ENGINEERING FIRM: Resource Technology CONTACT: Dave Page
ADDRESS: _____ PHONE: 243-7360
CITY, STATE: _____ ZIP CODE: _____

OWNER: Tower West Ltd Ps CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

ARCHITECT: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: _____ CONTACT: _____
ADDRESS _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:
- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- ____ GRADING PLAN
- ✓ EROSION CONTROL PLAN
- ____ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ____ CLOMR/LOMR
- ____ TRAFFIC CIRCULATION LAYOUT (TCL)
- ____ ENGINEERS CERTIFICATION (TCL)
- ____ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ____ OTHER

CHECK TYPE OF APPROVAL SOUGHT:
- ____ SIA / FINANCIAL GUARANTEE RELEASE
- ____ 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
- ____ BUILDING PERMIT APPROVAL
- ____ CERTIFICATE OF OCCUPANCY (PERM.)
- ____ CERTIFICATE OF OCCUPANCY (TEMP.)
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ WORK ORDER APPROVAL
- ____ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:
- ____ YES
- ____ NO
- ____ COPY PROVIDED

RECEIVED
JAN 24 2002
HYDROLOGY SECTION

DATE SUBMITTED: 1/24/02 BY: _____

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature , location and scope ot the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5)
3. **Drainage Report**: Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

May 30, 2001

June Page, PE
Resource Technology, Inc.
1720-B Randolph SE
Albuquerque, NM 87106

Re: Eldorado Park Subdivision, Unit 3 & 4 Grading and Drainage Plan
Engineer's Stamp 5-25-01, (L9/D7)

Dear Ms. Page,

Based on your information contained in your resubmittal dated 5-29-01, the above referenced plan is approved for Preliminary Plat action by the DRB.

Prior to Final Plat sign-off, the Subdivision Improvements Agreement must be recorded. Please be advised that the Grading and Drainage Certification is required prior to release of the SIA for this project.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham

Bradley L. Bingham, PE
Sr. Engineer, Hydrology

C: file

RECEIVED
JAN 2 4 2002
HYDROLOGY SECTION

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

March 6, 2002

June Page, P.E.
Resource Technology
5501 Jefferson NE Suite 200
Albuquerque, New Mexico 87109

RE: **ELDORADO PARK SUBD UNIT 4** **(L-9/D7)**
Engineers Certification For Release of Financial Guaranty
Engineers Stamp dated 9/4/2001
Engineers Certification dated 2/28/2002 & 3/5/2002

Dear Ms. Page:

Based upon the information provided in your Engineers Certification dated 2/28/2002 and 3/5/2002, the above referenced plan is adequate to satisfy the Grading and Drainage Certification for Release of Financial Guaranty for the above referenced project.

If you have any questions, please call me at 924-3981.

Sincerely,

Teresa A. Martin
Hydrology Plan Checker
Public Works Department

BLB

C: Arlene Portillo, PWD – #665481
File

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(REV. 1/11/2002)

L-9/07

PROJECT TITLE: Eldorado Park Subdivision Unit 4
DRB #: _____ EPC#: _____ ZONE MAP/DRG. FILE #: D-9
WORK ORDER#: _____

LEGAL DESCRIPTION: _____
CITY ADDRESS: _____

ENGINEERING FIRM: Resource Technology Inc — CONTACT: June Page
ADDRESS: 5501 Jefferson NE Ste 200 — PHONE: 243-7300
CITY, STATE: ABQ NM 87109 — ZIP CODE: _____

OWNER: Tower West Ltd Partnership — CONTACT: Frank Wilson
ADDRESS: 333 Lomas NE — PHONE: 998-0305
CITY, STATE: ABQ NM 87102 — ZIP CODE: _____

ARCHITECT: N/A — CONTACT: _____
ADDRESS: _____ — PHONE: _____
CITY, STATE: _____ — ZIP CODE: _____

SURVEYOR: Surveys Southwest — CONTACT: Dan Graney
ADDRESS 333 Lomas NE — PHONE: 842-0303
CITY, STATE: ABQ NM 87102 — ZIP CODE: _____

CONTRACTOR: New Concepts Inc — CONTACT: Burr Dickinson
ADDRESS: P.O. Box 9355 — PHONE: 452-8910
CITY, STATE: ABQ NM 87119 — ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:
- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- ____ GRADING PLAN
- ✓ EROSION CONTROL PLAN
- ____ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ____ CLOMR/LOMR
- ____ TRAFFIC CIRCULATION LAYOUT (TCL)
- ____ ENGINEERS CERTIFICATION (TCL)
- ____ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ____ OTHER

CHECK TYPE OF APPROVAL SOUGHT:
- ✓ SIA / FINANCIAL GUARANTEE RELEASE
- ____ 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
- ____ BUILDING PERMIT APPROVAL
- ____ CERTIFICATE OF OCCUPANCY (PERM.)
- ____ CERTIFICATE OF OCCUPANCY (TEMP.)
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ WORK ORDER APPROVAL
- ____ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:
- ____ YES
- ____ NO
- ____ COPY PROVIDED N/A

DATE SUBMITTED: 3/1/02 BY: Franklin E Wilson

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature , location and scope ot the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5)
3. **Drainage Report:** Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or

TOWER WEST LTD. PARTNERSHIP
333 Lomas Blvd., N.E.
Albuquerque, NM 87102
(505) 998-0305 / Fax 998-7974

March 1, 2002

Terri Martin
City of Albuquerque
Plaza Del Sol Bldg. 2nd Floor
Albuquerque, NM 87102

Re : Eldorado Park Subdivision, Unit 4 / #6654.81

Dear Terri:

Attached please find the Drainage and Transportation Information Sheet for Eldorado Park Subdivision, Unit 4. Please prepare the acceptance/approval letter for release of financial guarantee as soon as possible. Your letter is the final item required to enable us to submit the close out package to Public Works.

If you have any questions, please give me a call.

Respectfully,

Franklin E. Wilson
General Partner

TOWER WEST LTD. PARTNERSHIP
333 Lomas Blvd., N.E.
Albuquerque, NM 87102
(505) 998-0305 / Fax 998-7974

March 5, 2002

Terri Martin
City of Albuquerque
Plaza Del Sol Bldg. 2nd Floor
Albuquerque, NM 87102

Re : Eldorado Park Subdivision, Unit 4 / #6654.81

Dear Terri:

Attached please find page 10, the Details sheet for Eldorado Park Subdivision, Unit 4 reflecting the engineers certification. Please prepare the acceptance/approval letter for release of financial guarantee as soon as possible.

If you have any questions, please give me a call.

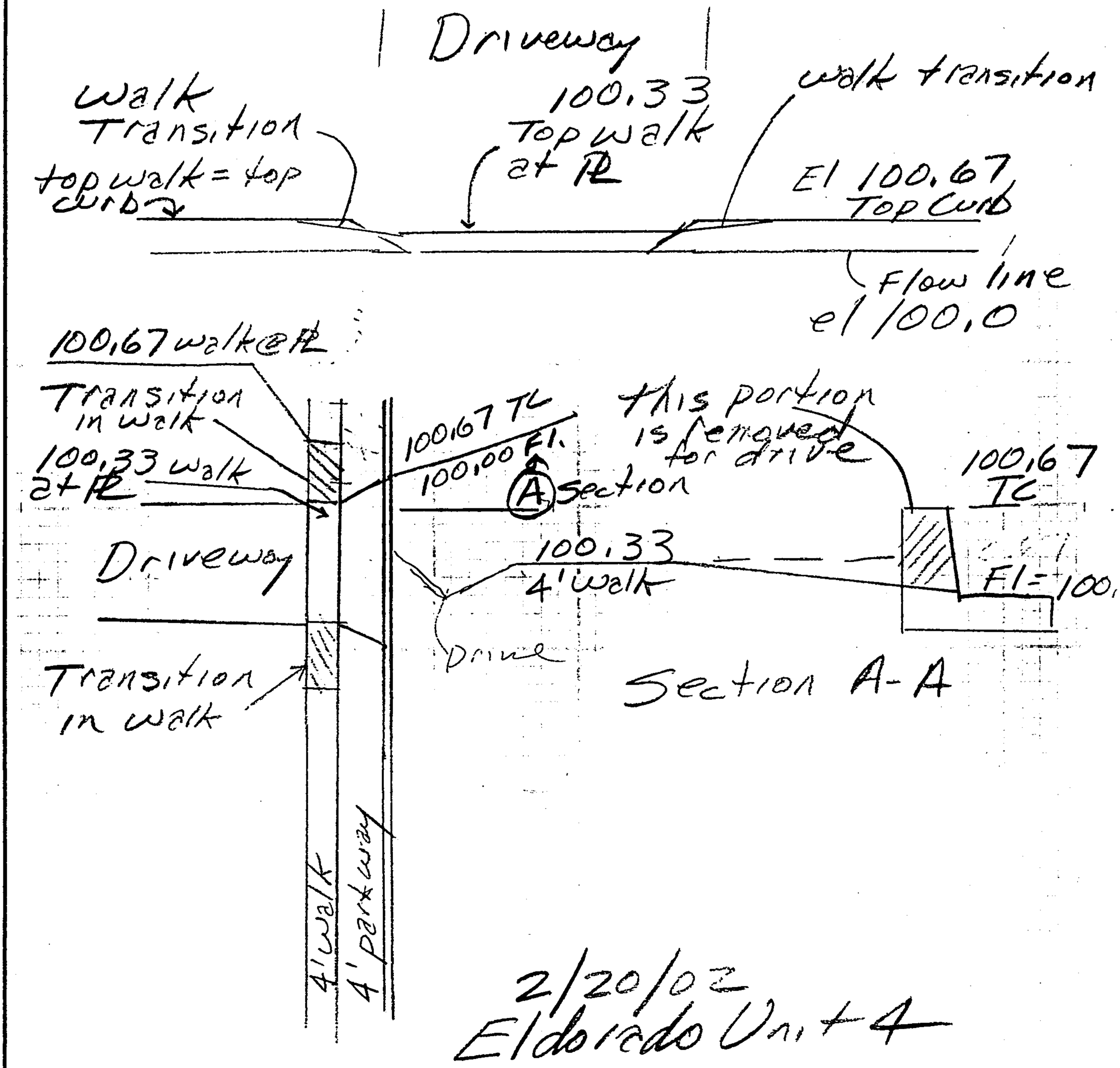
Respectfully,

Cristin R Hanes for

Franklin E. Wilson
General Partner

RECEIVED
MAR 05 2002
HYDROLOGY SECTION

NCI Metal Depot · 4900 2nd Street, N.W. · Albuquerque, N.M. 87107 · (505) 344-8141 · Fax (505) 345-7413



2/20/02
Eldorado Unit 4

Customer Frank Wilson
Date Sketch for Bonded
Address BRAD BINGHAM PE
Phone

th
80'
100'
EXIST. SWALE
EXIST. EDGE OF PAVEMENT
98 STREET
CL OF EXIST. PAVEMENT
10+00
30+57.37± 98TH
10+05.75± EUCAR
EXISTING TEMP. PAVEMENT
TW 5185.33
EXISTING RETAINING
WALL TOP
TO BE CONSTRUCTED BY OTHERS
5185.2
5185.11 TC
5184.44 FL
151–P1
5185.5
152–P1
5183.3
5182.6
5182.78 TC
5182.11 FL
153–P1
5180.6
5180.5
5180.20 TC
5179.53 FL
5180.1
12+00
11+00
TC BE CONSTRUCTED BY OTHERS
4.56%
154–P1
5178.15
5177.64 TC
5176.97 FL
13+00
5174.95 TC
5174.28 FL
155–P1
5176.5
5172.4
RET. 5183.3 TW EXIST.
GARDEN
5181.73 TW
EXIST.
GARDEN WALL TOP
5176.99 TW
5176.30 TF
5180.6 TW
5175.7
5178.4 TW
5175.3
5174.7
5175.8 TW
5175.2
5173.0
3–P1
4–P1
5–P1
6–P1
7–P1
8–P1
9–P1
5180'
5175
TEMP.

RECEIVED MAY 16 2001

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

May 14, 2001

June Page, PE
Resource Technology, Inc.
1720-B Randolph SE
Albuquerque, NM 87106

Re: Eldorado Park Subdivision, Unit 3 & 4 Grading and Drainage Plan
Engineer's Stamp not dated, (L9/D7)

Dear Ms. Page,

Based on your information contained in your submittal dated 4-13-01, the above referenced plan cannot be approved for Preliminary Plat until the following comments are addressed.

- The Work Order plans from Unit 2 show a 48" RCP in 94th but your report states that a 36" RCP is in 94th St. Please clarify this.

- You mention that you are adjusting the rainfall amount to Zone 1 and increasing the density. Does this make the runoff increase or decrease from the original report? If it increases, you will need to verify capacity downstream.

- Tower Rd is a minor arterial. Draining backyards across the sidewalk and into the roadway is not prudent for a facility of that designation. Please provide agreement that allows for this (as stated on the grading plan).

- On the Units 3&4 plans, please show the existing pad elevations from Units 1& 2 and any slope or wall needed to fit with these lots. All side yard retaining walls must be CMU or equal (not railroad ties). There appears to be a 4' bust at the return. Please add elevations from the SAD (at 100' intervals) for Tower and 98th on these grading plans.

- Please add spot elevations at all four corners (and extensions to the R/W) of each lot and applicable slope or retaining wall symbols to the unit-specific grading plans.

- Please add a date to the report and grading plans.

- By diverting the arroyo as proposed, the remaining three lots from Unit 2 can be developed. It would be prudent to include these in your plan as well. Please show actual grading of the arroyo and how it will fit in with the ultimate grades of the subdivision.

- Sheets 1 of 3 and 2 of 3 were difficult to read. Please resubmit these readable.

If you have any questions about my comments, you can contact me at 924-3986.

Sincerely,

Bradley L Bingham

Bradley L. Bingham, PE
Sr. Engineer, Hydrology

C: file

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

May 30, 2001

June Page, PE
Resource Technology, Inc.
1720-B Randolph SE
Albuquerque, NM 87106

Re: Eldorado Park Subdivision, Unit 3 & 4 Grading and Drainage Plan
Engineer's Stamp 5-25-01, (L9/D7)

Dear Ms. Page,

Based on your information contained in your resubmittal dated 5-29-01, the above referenced plan is approved for Preliminary Plat action by the DRB.

Prior to Final Plat sign-off, the Subdivision Improvements Agreement must be recorded. Please be advised that the Grading and Drainage Certification is required prior to release of the SIA for this project.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham

Bradley L. Bingham, PE
Sr. Engineer, Hydrology

C: file

DRAINAGE INFORMATION SHEET

PROJECT TITLE: EL DORADO L-9 ZONE MAP/DRG. FILE #: (?) 665381
DRB #: _____ EPC#: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: _____
CITY ADDRESS: _____

ENGINEERING FIRM: RESOURCE TECHNOLOGY CONTACT: JUNE PALE
ADDRESS: 1720-B RANDOLPH RD SE PHONE: 243 7300
CITY, STATE: ALBQ ZIP CODE: _____

OWNER: Frank Wilson CONTACT: _____
ADDRESS: _____ PHONE: 610-3303
CITY, STATE: _____ ZIP CODE: _____

ARCHITECT: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: _____ CONTACT: _____
ADDRESS _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

TYPE OF SUBMITTAL:
_____ DRAINAGE REPORT
_____ DRAINAGE PLAN
_____ CONCEPTUAL GRADING & DRAINAGE PLAN
_____ GRADING PLAN
_____ EROSION CONTROL PLAN
_____ ENGINEER'S CERTIFICATION
_____ CLOMR/LOMR
_____ OTHER

WAS A PRE-DESIGN CONFERENCE ATTENDED:
_____ YES
_____ NO
_____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:
_____ SIA / FINANCIAL GUARANTEE RELEASE
_____ 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
_____ BUILDING PERMIT APPROVAL
_____ CERTIFICATE OF OCCUPANCY APPROVAL
_____ GRADING PERMIT APPROVAL
_____ PAVING PERMIT APPROVAL
_____ WORK ORDER APPROVAL
_____ OTHER (SPECIFY)

DATE SUBMITTED: _____ BY: _____

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature , location and scope ot the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report**: Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

5/24 Response to G+D issues

RECEIVED
MAY 29 2001
HYDROLOGY SECTION

Resource Technology, Inc.
1720 - B Randolph Rd. SE Albuquerque, NM 87106
Telephone: (505) 243-7300
FAX: (505) 243-7400
E-Mail: rti@nm.net

May 25, 2001

Bradley L. Bingham, P.E.
Senior Engineer, Hydrology
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

RE: Eldorado Park Subdivision, Unit 3 & 4 Grading and Drainage Plan, your letter dated: May 14, 2001

Dear Mr. Bingham:

Thank you, for your review. In response to your comments, we are sending corrected plans herewith. Addressing each issue of your letter:

- The RCP in 94th has been corrected to be 48" in diameter.
- The net result of adjusting the rainfall to Zone 1 (reducing rainfall) and increasing the density to more closely represent the planned land use was a slight reduction in the 100-year flow values. The most significant of which was runoff from Dean Drive. The flows from Dean, south of Rowen, decreased from 26 cfs in the 100-year storm to 23 cfs.
- Weems has been lowered as much as practical and yet, there are a few places where the back yards have to drain to Tower. This had been agreed to in a meeting with Fred Aguirre and Elvidio Diniz, while Mr. Aguirre was still the head of hydrology at the City. Mr. Diniz was under the impression that you had been aware of this. Mr. Aguirre and Mr. Diniz had agreed that this is the most practical alternative. As you'll see on the plans, back-yard drainage to Tower Road has been kept to a minimum.
- We have provided spot elevations and the cross section detail of the pads, side to side, as you had requested. All slopes between lots are 3H to 1V or flatter. It is typical of the side lot slopes to start at 3:1 at the back of the lot and end up close to the slope of the street at the front. We say these slopes vary, maximum of 3:1.
- I have re-stamped these plans and put the date on them. Thanks!
- The grading for the last 2 lots in Unit 2 are now shown. As we discussed, no new retaining walls are needed there.

- I am sorry the reference plans from Units 1 & 2 were difficult to read. Blue lines were all that I had inherited. We are supplying black-line prints of those approved drawings (from the Units 1 & 2 drainage report) for sheets 1 and 2 of 3. You mentioned that sheet 3 was ok (because the lettering is so large).

You will notice that the grades have changed in the central part of the plans. And we have incorporated ideas from the DRC meeting, by tightening the knuckles. A hammerhead configuration at Dean and Weems would not work.

Thank you for your assistance.

Sincerely,

RESOURCE TECHNOLOGY, INC.

June Page

June Page, P.E., CFM
JP:tew

Encl: Sheets 1 & 2 of 3 of Units 1 & 2 Drainage Report
Sheets 1 thru 5 of 5 of Units 3 & 4 Drainage Report, corrected, stamped and dated

Tower West Ltd. Partnership / Ten West L.L.C.
333 Lomas Blvd., N.E.
Albuquerque, New Mexico 87102
(505) 998-0303 / Fax 998-0306

April 3, 2000

Mr. Fred Aguirre, PE
City Engineer / City of Albuquerque
Plaza Del Sol Blvd. 2nd Floor
Albuquerque, NM 87102
HAND DELIVER

L9/D7

Re : Eldorado Park / Temporary Drainage

Dear Fred:

Thank you and Susan Calongne for meeting with me last week. As I understand, your concern is that the ultimate solution for conveyance of the storm water be guaranteed by either Tower West or the City. In the case of the Eldorado Park Arroyo, the ultimate solution is placing the runoff into the Special Assessment District 222 Storm Drainage System. Given the high cost of a financial guarantee for the storm sewer in Tower Road, the most practical approach for Eldorado Park Subdivision is the following:

1. Resource Technology Inc. does the design of Unit 3, Eldorado Park Subdivision and shows the Eldorado Park Arroyo shifted into a temporary drainage channel within the Tower right-of-way. After the Special Assessment District Engineer has submitted the entire project to DRC then Resource Technology Inc. will submit the plans for review and request approval subject to the developer guaranteeing the temporary channel and the Special Assessment District 222 guaranteeing final storm drainage system.
2. The City Council passes Resolution 5 for Special Assessment District 222.
3. Tower West builds Unit 3 and a temporary drainage channel in the Tower right-of-way. A guarantee would not be needed for construction because Resolution 5 is passed. Eldorado Park Subdivision would maintain the temporary channel.
4. Construction begins on Special Assessment District 222 which is scheduled to be complete within 18 months from start. The temporary channel is eliminated and all drainage is placed in Special Assessment District 222 storm sewer.

This is set out to present an overview which should be adequate for now. I will present more detail as Special Assessment District 222 progresses through the approval process.

Respectfully,

Franklin E. Wilson
General Partner

crh/enc.
c:\tower\aguirre

RECEIVED
APR 05 2000
HYDROLOGY SECTION

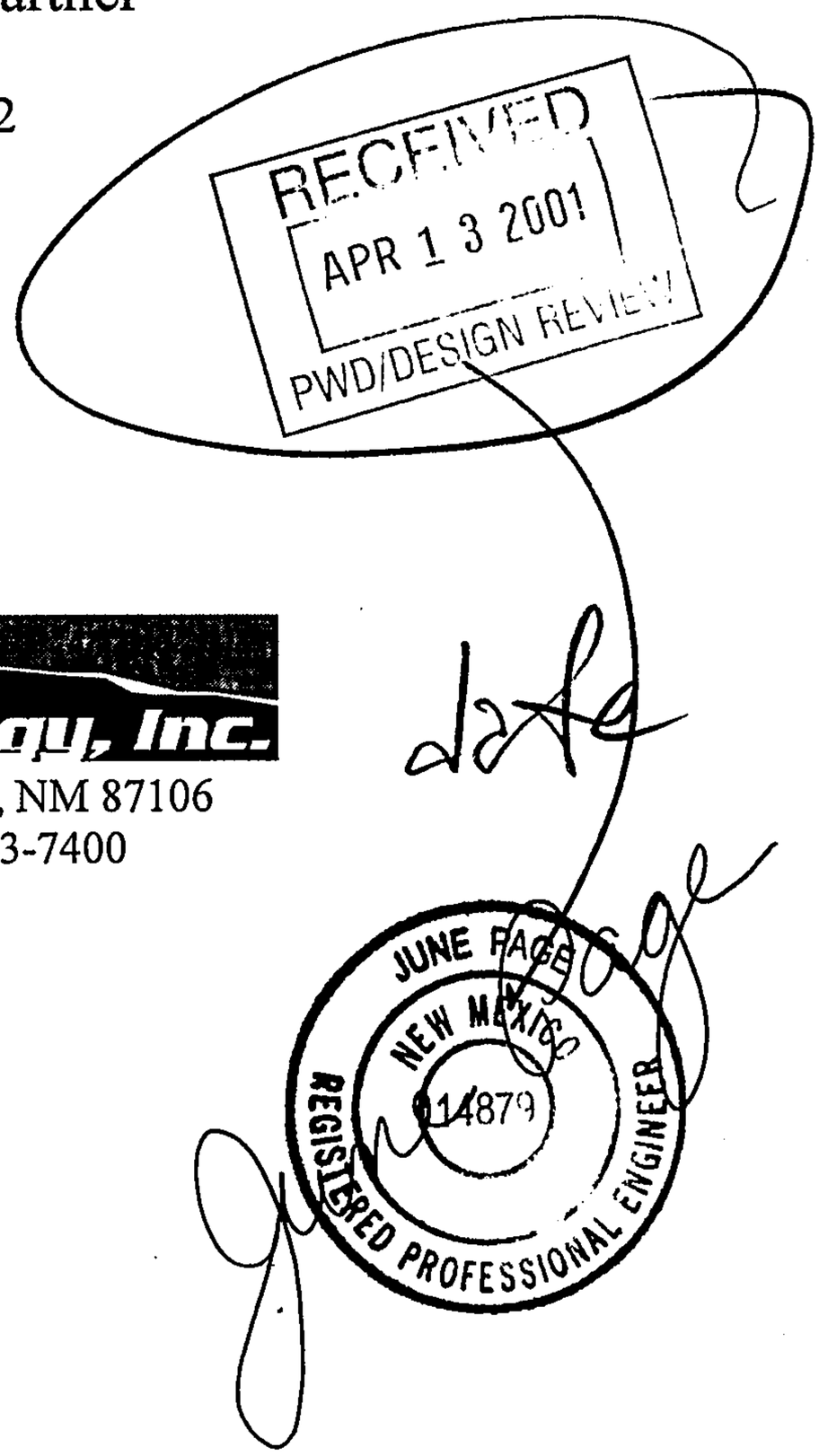
MASTER DRAINAGE PLAN
ELDORADO PARK SUBDIVISION

AND

REVISED DRAINAGE REPORT
FOR UNITS 3 &4

Prepared for

TOWER WEST JOINT VENTURE
Frank Wilson, Managing Partner
333 Lomas NE
Albuquerque, NM 87102



Prepared by

Resource Technology, Inc.
1720-B Randolph Rd. SE Albuquerque, NM 87106
Phone (505)243-7300 Fax (505)243-7400
e-mail: rti@nm.net

April 2001

Resource Technology, Inc.
1720 - B Randolph Rd. SE Albuquerque, NM 87106
Telephone: (505) 243-7300
FAX: (505) 243-7400

TRANSMITTAL

TO: BRAD BINGHAM
CITY OF Albuquerque
Plaza del Sol

FROM: June Paiz, PE, CFM

DATE: 29 May 01

ATTN:

RE: EL DORADO

OUR PROJECT NO.: 98 260 3&4

WE TRANSMIT THE FOLLOWING:

- ☐ SHOP DRAWINGS
- ☑ PRINTS
- ☐ SPECIFICATIONS
- ☐ COPY OF LETTER
- ☐ DOCUMENTS
- ☐ CHANGE ORDER
- ☐ UNDER SEPARATE COVER VIA _____
- ☐ _____

FOR YOUR:

- ☐ APPROVAL
- ☐ REVIEW & COMMENT
- ☐ USE
- ☐ DISTRIBUTION TO PARTIES
- ☐ RECORD
- ☐ INFORMATION

IF MATERIAL RECEIVED IS NOT AS LISTED, PLEASE NOTIFY US AT ONCE.

COPIES	DATE	ITEM DESCRIPTION
1	29 MAY 01	Sheet 3 of 5. Unit 4 GRADING
1	14 May	Your letter -

RECEIVED
MAY 29 2001

REMARKS:
Brad, please substitute this letter print - smaller Boundaries - more read-able. Thanks.

COPY TO:

TABLE OF CONTENTS

Location

The proposed development sites are Unit 3 and Unit 4 of the Eldorado Park Subdivision. The subdivision is located between the proposed intersection of Tower Road S. W. and Eucariz Avenue on the east side of 98th Street S. W. on the south half of Tract A-1A (21.9 acres) of the Tower West Joint Venture.

Units 1 and 2 of this subdivision have been developed. Unit 3 is currently undeveloped and partially disturbed. Unit 4 is undeveloped with a cover of native shrubs and grass.

Hydrology

Unit 3

Storm flow values for Unit 3 were developed in the Drainage Report for Eldorado Park Subdivision, Unit 1, prepared for Tower West Joint Venture, by Resource Technology, Inc. dated July 1999. The proposed Unit 3 grading and drainage remain in essence the same as presented in the July 1999 report. "ELDORADO PARK SUBDIVISION UNIT 1, GRADING AND DRAINAGE PLAN" Sheets 1, 2, and 3 from that report are included in the appendix of this report for reference and are referred to as Sheets A.1, A.2 and A.3 in this report. Two changes to the 1999 report are necessary; the lot density in Unit 3 has increased to 6.2 units/acre, and Zone 3 rainfall was used although the area is located in Zone 1 The runoff from Unit 3 was revised in this report to reflect Zone 1 rainfall and the higher lot density.

As discussed in the Unit 1 report, this site will receive no off-site drainage. Approximately 1000 feet west of 98th Street, Snow Vista Channel intercepts all runoff into the unnamed arroyo that cuts through the south side of this project. The Snow Vista Channel diverts drainage to the southeast and out of the watershed. 98th Street intercepts and delivers a small remaining amount of runoff to the existing arroyo. It is proposed to install a temporary diversion swale around Unit 3 as part of the grading and drainage plans.

SAD 222 includes the construction of a 54 in. storm drain along 98th Street, (southerly) to Tower Road. The 54 in. storm drain continues easterly along Tower Road. Under SAD 222 the need for drainage into this arroyo will be eliminated. The temporary swale will not be needed after the construction of the 54 in. storm drain.

The Amole-Hubbell Drainage Master Plan Prepared for AMAFCA and dated July 22, 1999 identifies Subbasin A3-D as the tributary area to this unnamed arroyo. That report's AHYMO analysis for 100-year, 24 hour storm with sediment indicates a peak flow of 94.8 cubic feet per second (cfs) for the arroyo. The subbasins north of A3-D will be intercepted by the proposed 54 in. storm drain to be placed in 98th street. However in the watershed's current condition that drainage spills to the east on the north side of Eldorado Park Subdivision and only the drainage from Subbasin A3-D will reach the existing unnamed arroyo or the temporary interceptor swale.

48" in 99th

The 24 in. storm drain in Dean Drive was constructed with Unit 1 up to the division between Units 1 and 3. Unit 1 construction included the inlets and connections to this storm drain. Storm water goes from the Dean Drive 24 in. storm drain to a 42 in. storm drain in Rowen Road and 94th Street. These storm drains were constructed with Unit 1 of this project. Table A presents the runoff calculations for storm water flowing north on Dean Drive from Unit 3. This is identified as Basin A.

This storm drain system also receives runoff from the western part of Rowen Road. This is identified as Basin B on Table A and on the Revised Grading and Drainage Plan.

Until the Tower Road storm drain is constructed, the 94th Street storm drain discharges into two temporary retention ponds as shown on the Master Grading and Drainage plan (Sheet 1) included in a pocket in the back of this report. These ponds are existing and had been built with Units 1 and 2 of this subdivision. The 1999 drainage report for Unit 1 presents the design calculations that demonstrate the ponds' capacity to accept the 100-year, 10-day runoff from the fully developed units 1, 2, 3, and 4.

Unit 4

At the northern side of the subdivision is Eucariz Avenue, S. E. The south half of Eucariz Avenue will be built with Unit 4. Basin C is comprised of Unit 4 and the south half of Eucariz Avenue. Until the north half of Eucariz Avenue is built, a small (0.6 acre) triangle of existing ground, called C-Temp, will drain onto the south half just east of 98th Street. See Table A.

The combination of C-Temp and C were used to check the street capacity and size of the inlets which will drain into the 36 in. storm drain which was placed with Unit 2 in 94th Street. See Table B.

48"

Hydraulics

Inlets and storm drains sizes were calculated and presented in the above referenced July 1999 report. The Unit 3 Dean Drive and Rowen Road West street and inlet capacities are included in this report on Table B. The inlet connector pipe capacities are included in Table C. These calculations plan for all of the flow from Unit 3 (except offsite flows into the arroyo) to be picked up by inlets at the intersection of Rowen Road and Dean Drive. Details of this intersection are presented on Sheet 5 of 5 in the pockets in the back of this report. Dean Drive at Rowen Road is the point of concentration is at the northern boundary of Unit 3.

Arroyo

The existing FEMA Map No. 35001C0328D, dated September 20, 1996, shows a narrow floodplain along the banks of an unnamed arroyo that extends into Unit 3. See Sheet 1 of 5, the Master Grading and Drainage plan in the pocket in the back of this report. As mentioned above, the 54 in. storm drain along 98th and Tower Road will convey the storm water now reaching that arroyo. The CLOMR and LOMR to remove the FEMA flood plain along this arroyo will be submitted by the SAD 222 engineer. Until the Tower Road storm drain is completed, all flows reaching the arroyo from areas west of 98th street will be diverted into a shallow swale along the proposed Tower Road alignment as shown on Sheets 1 and 2 of 5. The proposed Tower Road alignment is new and currently undeveloped. Existing Tower Road is located further south from this alignment.

Until the time that the 54 in. storm drain is constructed, an earth swale will divert the arroyo flow around this project. The swale will have the dimensions of 12 feet bottom width, a minimum depth of one and a quarter feet at a minimum slope of one percent or a minimum depth of one foot at a minimum slope of two percent. This is based upon the 95 cubic feet per second as described in the hydrology section of this report. Design calculations are presented on Table D-1 and D-2 of this report.

Unit 3 and 4 Development

The storm drain system in Units 1 and 2 was designed to accept storm water from Unit 3 and 4. The design calculations for the now-existing storm drain system were presented in the July 1999 Drainage Report, Eldorado Park Subdivision Unit 1, prepared for Tower West Joint Venture by Resource Technology, Inc. A copy of that table is presented in this report as Table C.

Standard curb and gutter will be used for Dean Drive in Unit 3. The computed flows and street capacities at a curb depth of 0.6 ft. were presented in the July 1999 report. Table A and B of this report are copied out of that report. Plate 1 is a reproduction of the street capacity curves from Albuquerque DMP. Standard roll curb and gutter will be used for the rest of the project.

Sheet 2 of 5 shows the grading plan for Unit 3. The inlets at the northern boundary of Unit 3 on both sides of Dean Drive and Rowen Road were designed to intercept all of the 100-year flow from this unit. This is the point of concentration for the unit, with the exception of some back yard drainage to Tower Road from several lots along the southern boundary of the project. No other surface runoff is expected from the Unit 3.

Retention Ponds A and B, built with Units 1 and 2 were designed to hold the 100-year, 10-day storm amount of 4.75 acre feet from all 4 units in developed condition. The total volume of storage for Ponds A and B is 4.92 acre-feet.

TABLE A

FUTURE CONDITION HYDROLOGY, Units 3 & 4
Basin A, B, & C at time of DEVELOPMENT zone 1

How does this compare to master plan

Basin	Area (ac)	Land Treatment	Land Treatment	Land Treatment	Land Treatment	Qpeak (cfs)	Qpeak (cfs)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)
		%A	%B	%C	%D	10-yr	100-yr	10-yr	100-yr	100-yr
						6-hr	6-hr	6-hr	6-hr	10-day
A	6.70	0	29	13	58	14.0	23.4	0.469	0.818	1.294
B	1.40	0	29	13	58	2.9	4.9	0.098	0.171	0.270
C-future	2.90	0	32	15	53	5.4	9.9	0.179	0.317	0.492
C-temp	0.62	100	0	0	0	0.1	0.8	0.004	0.023	0.023
C-Unit 4	3.52						10.7			

* City of Albuquerque Development Process Manual, Volume 1, 1997 Revision, Pages 22-7 to 22-16

where does this come from

DRAINAGE INFORMATION SHEET

L-9/D7

PROJECT TITLE: Eldorado Park Units 3 & 4 ZONE ATLAS/DRNG. FILE #: _____

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

LEGAL DESCRIPTION: Tract A-1A, Tower West Joint Venture

CITY ADDRESS: 94th St. and Tower Rd. NW

ENGINEERING FIRM: Resource Technology, Inc. CONTACT: June Page, P.E.

ADDRESS: 1720-B Randolph Rd. SE Albuq. NM 87106 PHONE: (505) 243-7300

OWNER: Tower West Joint Venture CONTACT: Frank Wilson

ADDRESS: 333 Lomas NE Albuq. NM 87102 PHONE: (505)998-0305

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: Survey Southwest CONTACT: Dan Graney

ADDRESS: 333 Lomas NE Albuq. NM 87102 PHONE: (505)998-0305

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

_x_ DRAINAGE REPORT

_X_ DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

_X_ GRADING PLAN

___ EROSION CONTROL PLAN

ENGINEER'S CERTIFICATION

___ OTHER _____

PRE-DESIGN MEETING:

___ YES

___ NO

___ COPY PROVIDED

RECEIVED
APR 13 2001
PWD/DESIGN REVIEW

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

_x_ PRELIMINARY PLAT APPROVAL

___ S. DEV. PLAN FOR SUB'D. APPROVAL

___ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL

___ SECTOR PLAN APPROVAL

___ FINAL PLAN APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ BUILDING PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

_X_ GRADING PERMIT APPROVAL

___ PAVING PERMIT APPROVAL

___ S.A.D. DRAINAGE REPORT

___ DRAINAGE REQUIREMENTS

___ SUBDIVISION CERTIFICATION

___ OTHER _____ (SPECIFY)

DATE SUBMITTED: April 12, 2001

BY: June Page

Received 4:37 PM

Resource Technology, Inc.
1720 - B Randolph Rd. SE Albuquerque, NM 87106
Telephone: (505) 243-7300
FAX: (505) 243-7400

TRANSMITTAL

TO: Brad Bingham

FROM: June Page

DATE: April 13, 2001

ATTN:

RE: ELDORADO UNITS 3 & 4

OUR PROJECT NO.: 98-260.30
& 98-260.40

WE TRANSMIT THE FOLLOWING:

- ☐ SHOP DRAWINGS
- ☐ SPECIFICATIONS
- ☐ CHANGE ORDER
- ☑ PRINTS
- ☐ COPY OF LETTER
- ☐ UNDER SEPARATE COVER VIA _____
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COPIES	DATE	ITEM DESCRIPTION
1	4-12	Revised Drainage Report & Grading & Drainage Plan

RECEIVED
APR 13 2001
PWD/DESIGN REVIEW

REMARKS:

COPY TO:

A \TRANSMIT FRM

Show: $\frac{v^2}{2g}$ + depth

TABLE B

STREET AND INLET CAPACITIES

Street	South Side 100-yr. Flow	Right Curb Flow	Left Curb Flow	Street Slope	Half Street Capacity (1)	100-Yr Flow Depth (2)	Inlet Capacity (3)	No. of Inlets Required
	cfs	cfs	cfs	%	cfs	ft	cfs	
Eucariz Road, South half, Unit 4								
Total				2.9				
	10.7	10.7			41	0.46	7.5	1 - Type A
						0.39	4.2	1 - Single Type C
Dean Drive – Unit 3 Inlet design from Unit 1. Flows were revised for more lots and corrected for Zone 1 rain.								
Total	23.4			0.66				
Right Gutter		11.7			20	0.56	5.5	1 - Type A
							7.4	1 - Double Type C
Left Gutter			11.7		20	0.56	5.5	1 - Type A
							7.4	1 - Double Type C
Rowen Road – West Unit 1 and 3 as presented in the Unit 1 Drainage Report, of which, Basin B is a part								
Total	14.1			2.45				
Right Gutter		7			38	0.36	4.5	1 - Single Type A
							4.5	1 - Single Type C
Left Gutter			7		38	0.36	4.5	1 - Single Type A
							4.5	1 - Single Type C

(1) Based on Plate 22.3 D-1 for 32 ft. street; d = 0.6 ft (0.67 ft. available). See Plate 1 of this report.
(2) From Plate 22.3 D-1 for 32' Street See Plate 1.
(3) Based on Plate 22.3 D-5 for single AA@ or AC@ inlet (See Plate 2.) or Plate 22.3 D-6 for double AC@ inlets (See Plate 3.).

TABLE C

PRESENTED AS TABLE 4 IN THE UNIT 1 REPORT

CONNECTOR PIPE CAPACITIES

Street	Line	Flow	Length	Dia. Required[1]
		cfs	ft.	in.
Dean Drive - North	A-1	14	28	18
	A-2	28	65	27
Dean Drive - South	B-1	27	50	24
	B-2	20	40	21
	B-3	7	40	18
Rowen Road	C-1	7	25	18
	C-2	14	65	21

(1) Based on Plate 22.3 D-8; H = 2.0 ft.

UNIT 4

CONNECTOR PIPE CAPACITIES

Street	Line	Flow	Length	Dia. Required[2]
		cfs	ft.	in.
Eurcariz Road	D-1	8	40	18
	D-2	4	24	18

(2) Based on Plate 22.3 D-8; H = 2.0 ft.

TOWER ROAD DIVERSION SWALE AT 1%
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\projects\eldoradounit3\eldorado.fm2
Worksheet	tower road arroyo
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.030	
Channel Slope	0.010000	ft/ft
Left Side Slope	3.000000	H : V
Right Side Slope	3.000000	H : V
Bottom Width	12.00	ft
Discharge	95.00	cfs

Results		
Depth	1.24	ft
Flow Area	19.43	ft²
Wetted Perimeter	19.82	ft
Top Width	19.42	ft
Critical Depth	1.13	ft
Critical Slope	0.013804	ft/ft
Velocity	4.89	ft/s
Velocity Head	0.37	ft
Specific Energy	1.61	ft
Froude Number	0.86	
Flow is subcritical.		

TOWER ROAD DIVERSION SWALE AT 2%
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\projects\eldoradounit3\eldorado.fm2
Worksheet	tower road arroyo
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.030	
Channel Slope	0.020000	ft/ft
Left Side Slope	5.000000	H : V
Right Side Slope	5.000000	H : V
Bottom Width	12.00	ft
Discharge	95.00	cfs

Results		
Depth	0.97	ft
Flow Area	16.44	ft²
Wetted Perimeter	21.94	ft
Top Width	21.74	ft
Critical Depth	1.07	ft
Critical Slope	0.014204	ft/ft
Velocity	5.78	ft/s
Velocity Head	0.52	ft
Specific Energy	1.49	ft
Froude Number	1.17	
Flow is supercritical.		

PLATES

Plate 1. Street Capacity Graph from the DPM, City of Albuquerque Plate 22.3 D-1
Plates 2 & 3. Grating Capacities for Type A, C, and D From DPM Plates 22.3 D-5 & 6

STREET CAPACITY

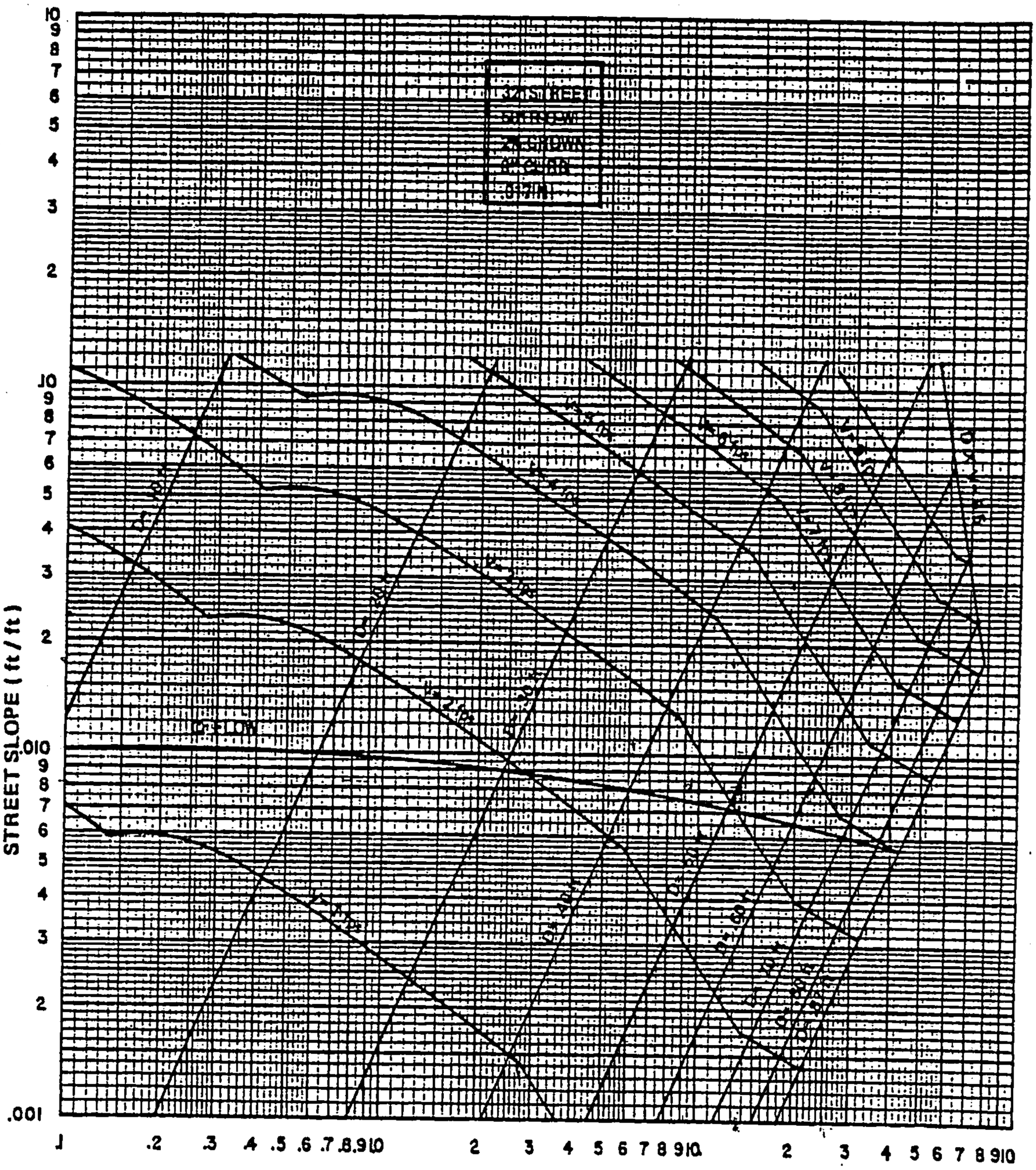
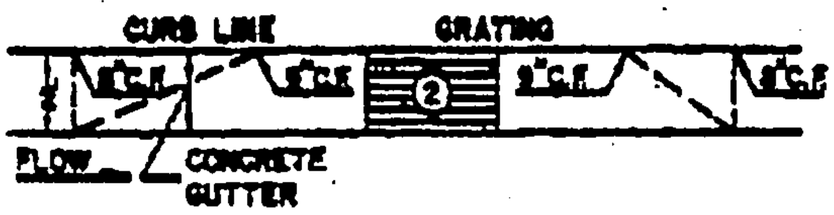


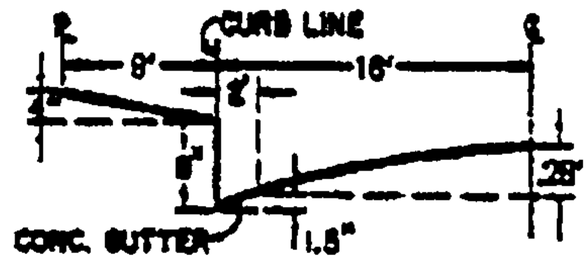
PLATE 22.3 D-1

PLATE 1

GRATING CAPACITIES FOR TYPE 'A' , 'C' and 'D'



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)

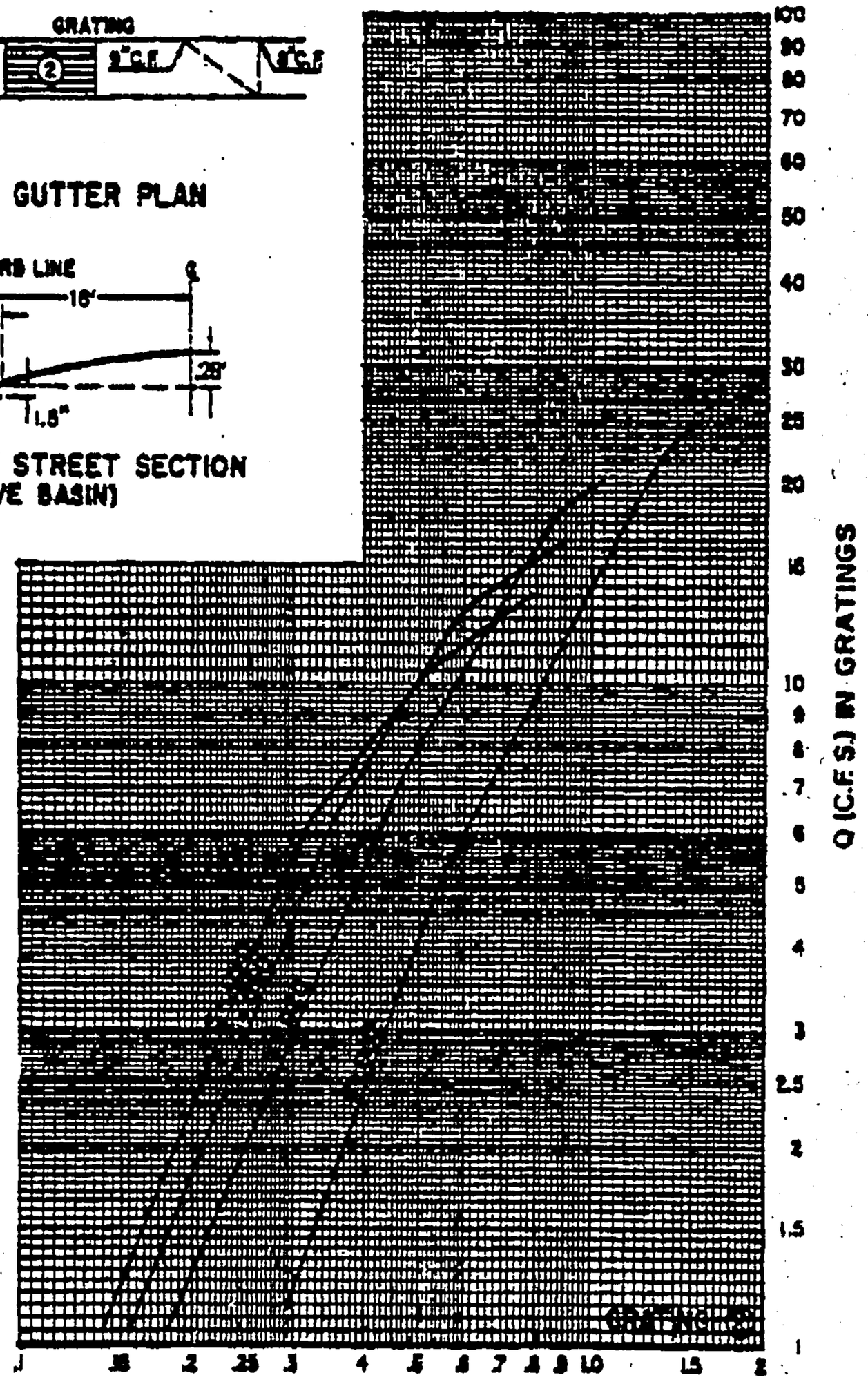
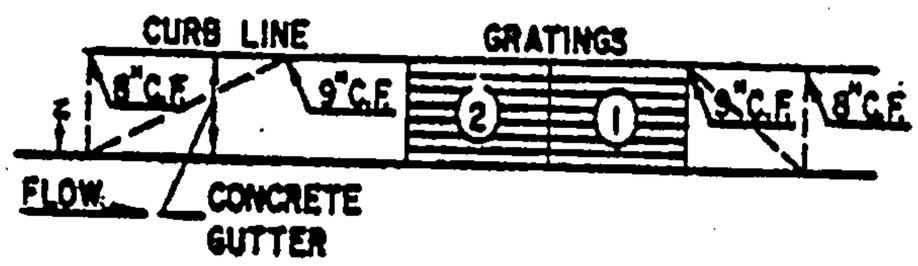


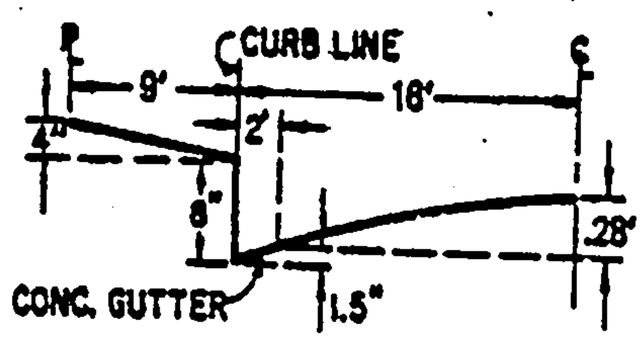
PLATE 22.3 D-5

PLATE 2

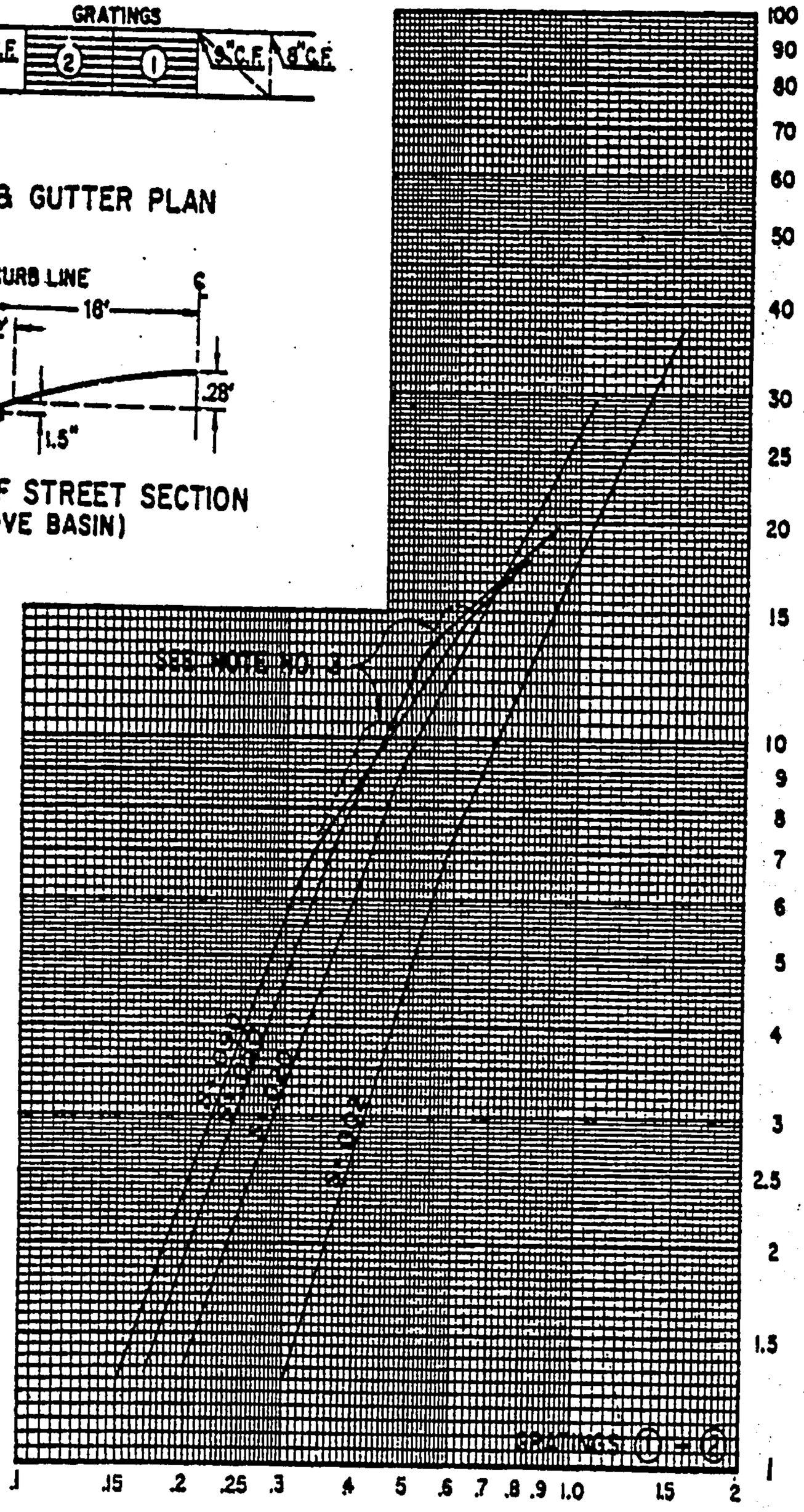
GRATING CAPACITIES FOR TYPE DOUBLE "C," AND "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)

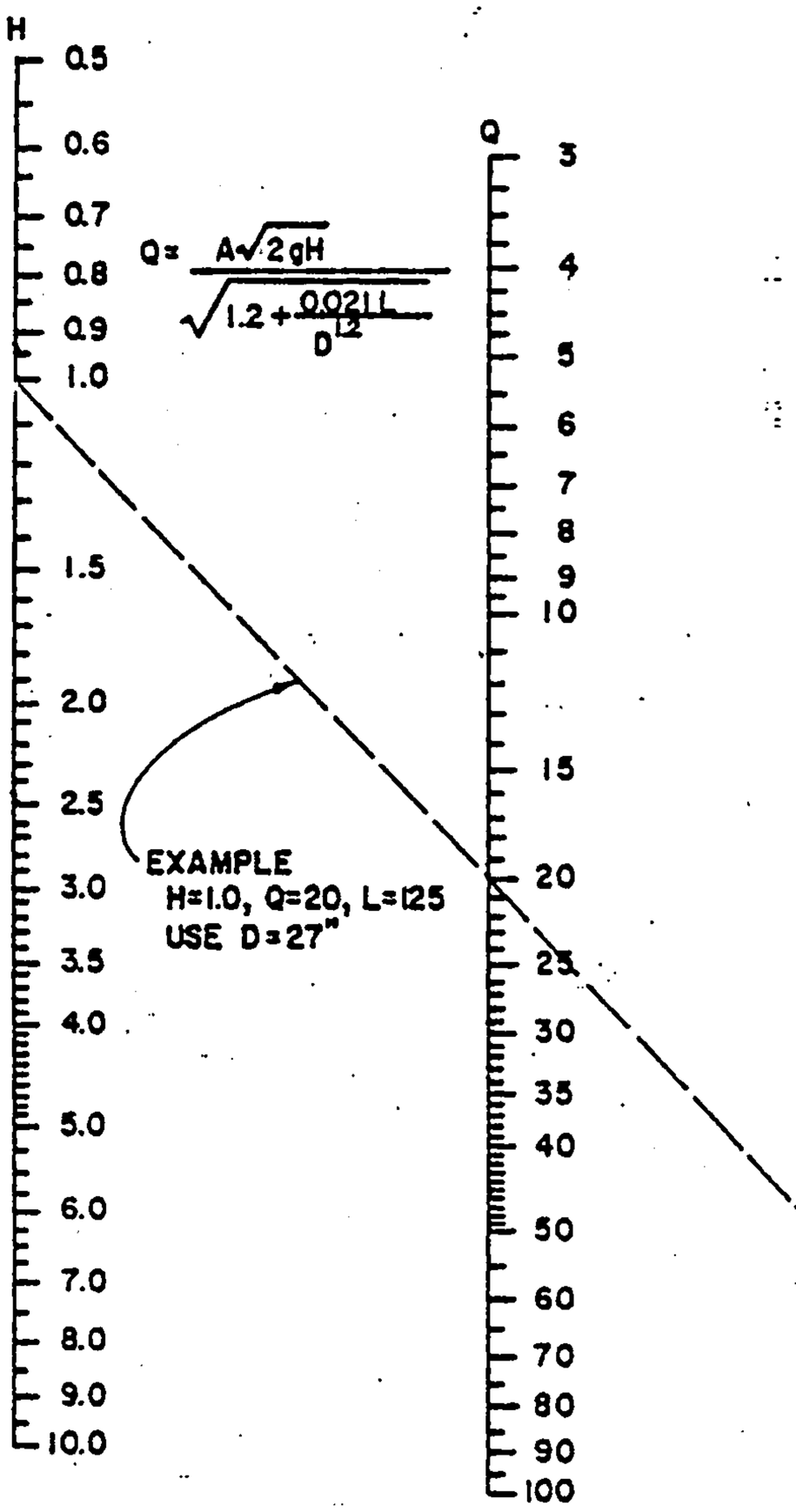


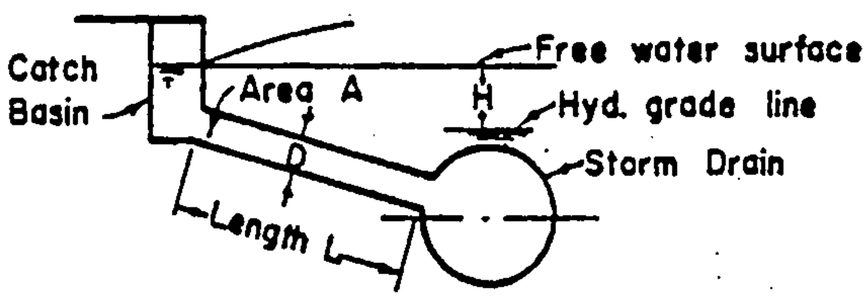
D = DEPTH OF FLOW (FT.) ABOVE NORMAL GUTTER GRADE

PLATE 22.3 D-6

PLATE 3

DESIGN OF SPUN CONCRETE CONNECTOR PIPES FLOWING FULL





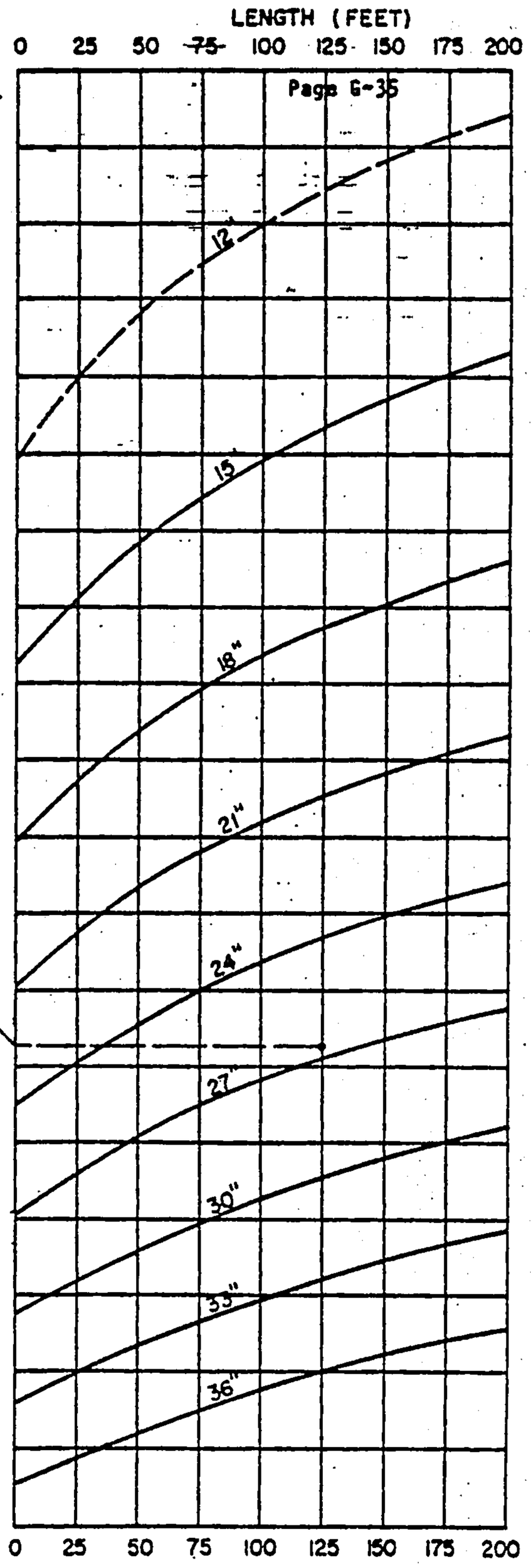


PLATE 22.3 D-8

PLATE 4

APPENDIX
(In folders)

ELDORADO PARK SUBDIVISION UNIT 1, GRADING AND DRAINAGE PLAN
Sheets 1, 2, and 3