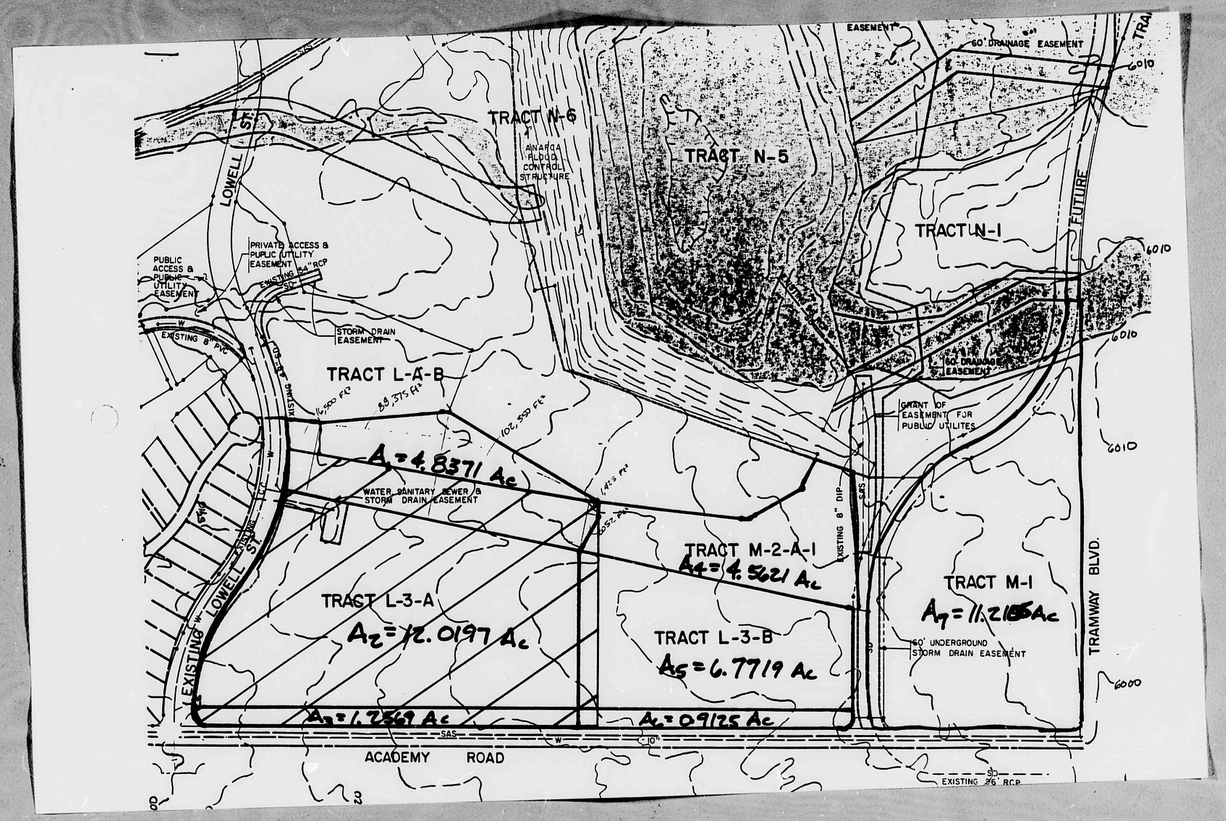
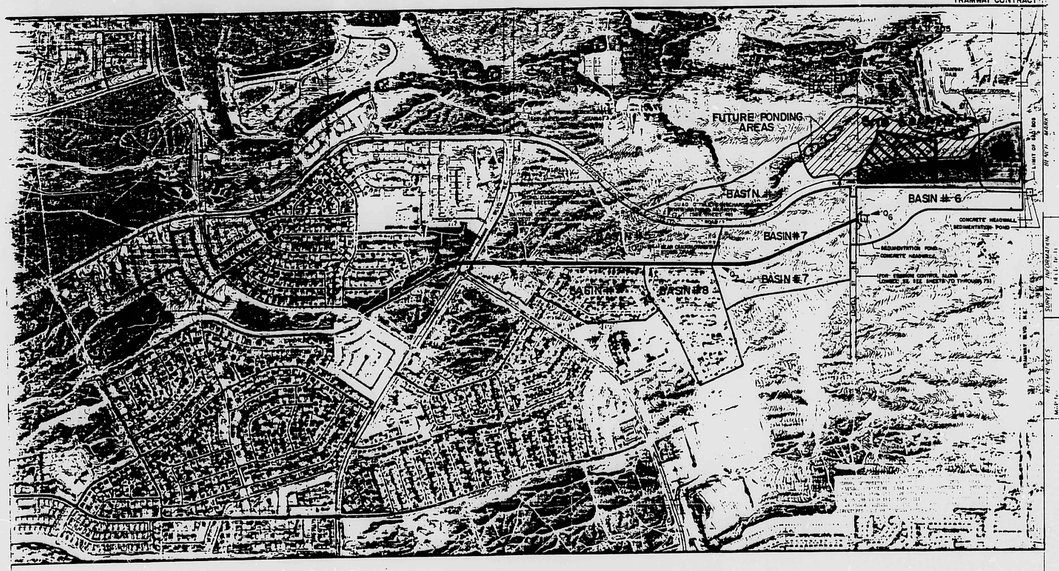
HYDROLOGY

E22/D7C
FIVE PLANS

E 22/ D 7C

5 PLANS


TRACT N-6
ANARGA FLOOD CONTROL STRUCTURE
TRACT N-5
TRACT N-1
LOWELL ST.
PUBLIC ACCESS & PUBLIC UTILITY EASEMENT
PRIVATE ACCESS & PUBLIC UTILITY EASEMENT
EXISTING 84" RCP
EXISTING 8" PVC
STORM DRAIN EASEMENT
TRACT L-A-B
A1 = 4.8371 Ac
WATER SANITARY SEWER & STORM DRAIN EASEMENT
TRACT L-3-A
A2 = 12.0197 Ac
TRACT M-2-A-1
A4 = 4.5621 Ac
TRACT L-3-B
A5 = 6.7719 Ac
TRACT M-1
A7 = 11.2165 Ac
50' UNDERGROUND STORM DRAIN EASEMENT
GRANT OF EASEMENT FOR PUBLIC UTILITES
50' DRAINAGE EASEMENT
EXISTING 8" DIP
FUTURE
TRAMWAY BLVD.
A3 = 1.2569 Ac
A6 = 0.9125 Ac
ACADEMY ROAD
EXISTING 36" RCP
6010
6000



BASIN	AREA	DEVELOPED	Tp
		65	14

FUTURE DEVELOPED DRAINAGE BASINS
FOR SIZING OF
BEAR CANYON TRIBUTARY
BETWEEN
EUBANK BLVD & LOWELL ST.

SCALE 1"=100'

APPROVED FOR CONSTRUCTION

PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

FUTURE DEVELOPED DRAINAGE BASINS

1721

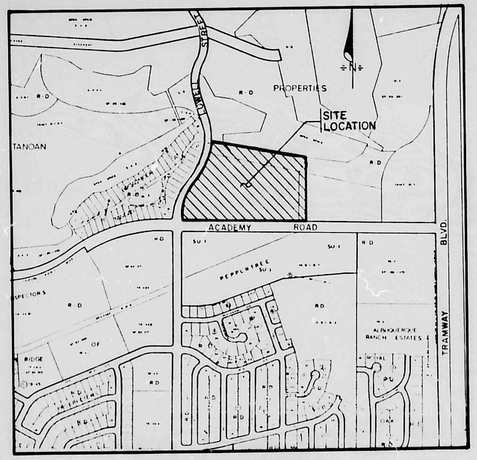
48 8

DRAINAGE REPORT FOR LA COSTA

ALBUQUERQUE, NEW MEXICO

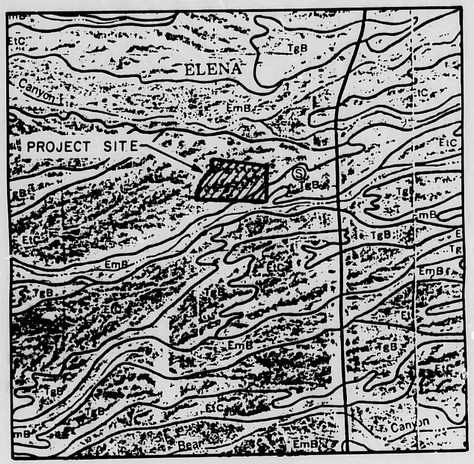
PREPARED BY

BOHANNAN — HUSTON INC.



LOCATION MAP

ZONE ATLAS PAGE E-22-Z



SOILS MAP

SOURCE: SCS SOILS SURVEY
SHEET 22

FLOOD INSURANCE MAP

SOURCE: FLOODWAY MAP
SHEET 18

Purpose:

The purpose of this report is to outline the drainage management plan for the development of approximately 17 acres called La Costa, owned by Centex Homes Corporation.

Chapter 22 of the Development Process Manual (DPM) has been used as a guide in development of this plan. All of the discharge rates given in this report are for the 6-hour, 100-year storm, except where otherwise stated.

Proposed drainage patterns will be established in order not-to-exceed the capacities of existing downstream facilities as computed by previously approved drainage analysis.

Site Location and Description:

La Costa Subdivision consists of Tract L-3-A, and portions of Tracts L-4-B, M-2-A-1, and L-3-B of the Tanoan Properties. The site is located at the northeast corner of the intersection of Lowell Street and Academy Road, N.E. (see vicinity map this sheet). The property is zoned R-D, although a zone change request has been submitted to the EPC to designate the site SU-1 for a Planned Residential Development.

Existing Conditions:

The site is located within the Bear Tributary Arroyo Watershed immediately south of the high ridge separating the Bear Tributary Arroyo from the Pino Arroyo Watershed.

The drainage analysis for SAD-205 indicated that a large portion of the site would be allowed free discharge to Academy Road, while a large portion of the site would be directed toward the Pino Arroyo by a diversion through the Broadmoor Subdivision.

In late 1985, a 48" storm sewer was constructed within Lowell Street to divert runoff from east of Lowell generated within the site north into the Pino Arroyo. This existing storm sewer currently ends within a desiltation basin located on the northwest corner of the site. Its design capacity is in excess of 150 cfs.

The discharge allowed directly to Academy Road from the lands east of Lowell Street and north of Academy was computed to be 78 cfs by the SAD-205 drainage report.

Off-site runoff currently enters the site from the Tanoan Golf Course to the north (approximately 5 cfs) and from Tracts L-3-B and M-2-A-1 (approximately 8 cfs undeveloped) to the east.

Proposed Conditions:

Site grading shall be performed to more or less approximate the existing terrain, and to direct runoff to the northwest corner of the site. On-site runoff will be collected on internal streets and discharged into the existing storm sewer within Lowell Street at the northwest corner of the site. A portion of the lots adjacent to Academy Road will discharge directly to Academy Road along the southerly boundary of the site. Additional off-site runoff from the north and from the east will continue to be accepted and collected within the site and conveyed to the existing storm sewer within Lowell Street.

Roll type curb and gutter will be used throughout the site, except on the northwest corner of the project where standard curb and gutter will be constructed adjacent to the proposed storm sewer inlets. All streets and surface drainageways will be private, to be maintained by the Homeowner's Association. All underground storm sewers will be public, to be maintained by the City of Albuquerque.

The central common area will be utilized to convey collected runoff from one of the cul-de-sac areas and from roof drains and rear yard areas to other streets where it will be collected and conveyed to the proposed inlets at the northwest corner of the project.

Flow Computations:

The hydraulic analysis yielding peak runoff rates has been performed utilizing the rational method. The rainfall intensity has been computed from DPM Plates 22.2 D-1 and D-2 as follows:

1. 6-hour rainfall volume I = 2.5' [DPM Plate 22.2, D-1].
2. Dimensionless rainfall intensity:

$$i = (I)(6.84)(T_c)^{-0.51} = 5.28 \text{ [DPM Plate 22.2, D-2].}$$

~~The minimum time of concentration T_c = 10 minutes.~~

The rational method 'C' factor for the site has been determined using DPM Plate 22.2 C-1 65% impervious and soil group B gives a 'C' factor of 0.66.

No. use composite "C value"

eliminated

The flow for each basin was then computed using:

$$Q = ciA$$

Where A is the area of the basin in acres. See drainage map for flow values.

The previous storm sewer analysis indicates a capacity within the Lowell Street storm sewer of 145 cfs. The peak discharge collected on-site and conveyed from off-site basins has been computed to be 72.7 cfs. Storm sewer hydraulic computations are included on page 3 of 3.

The drainage report for SAD-205 indicated a maximum allowable discharge into Academy Road from east of Lowell Street and north of Academy Road to be 73 cfs. These hydrologic computations indicate that 11.9 cfs will be discharged from this development, which leaves 66.1 cfs to be discharged from all lands to the east into Academy Road.

How much per acre?

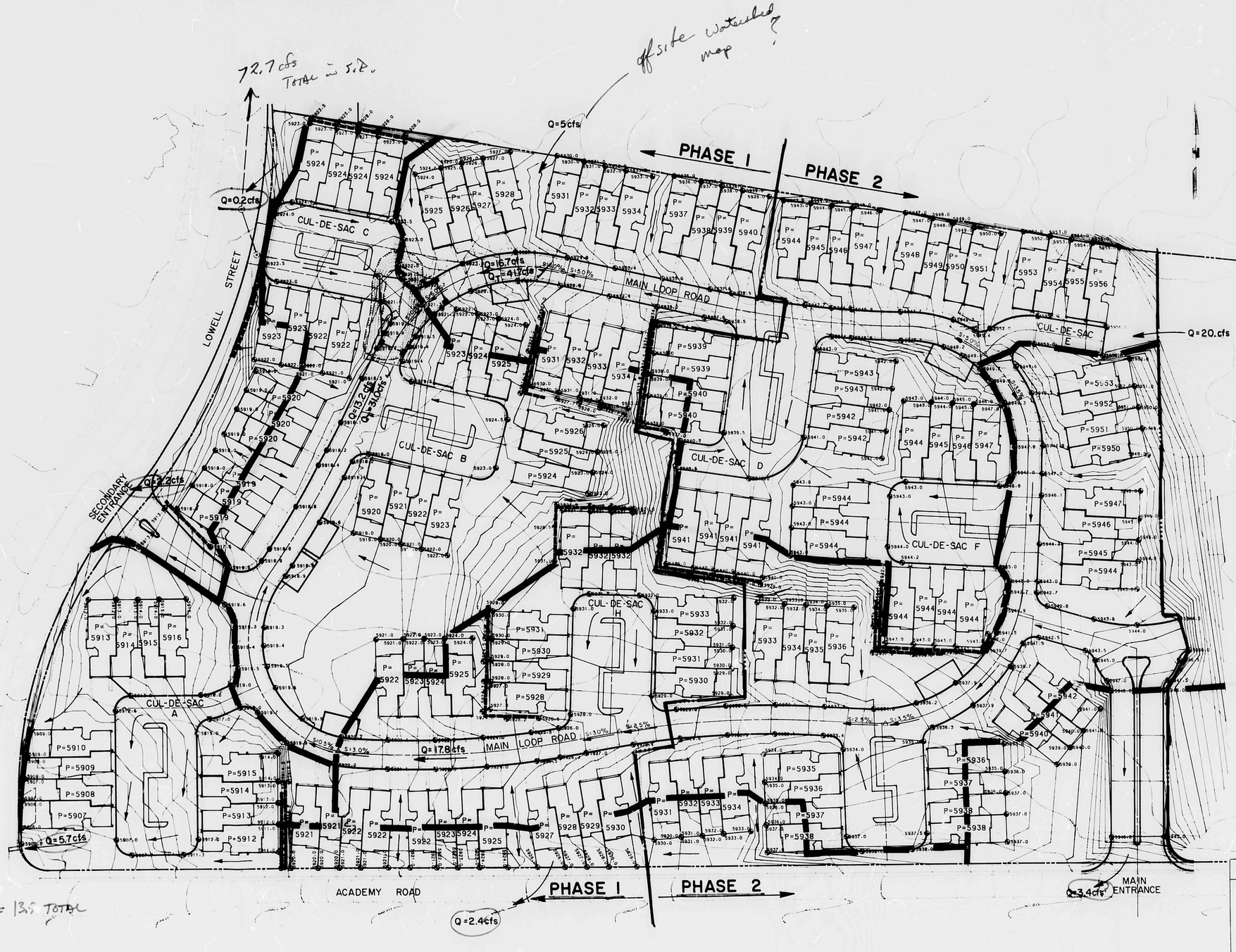
13.9

RECEIVED APR 1 1987 HYDROLOGY SECTION

Date / Revision / By	LA COSTA	
Project No	DRAINAGE REPORT	
Seal		
Job No 71446	Sheet 1 Of 3	
Drawn By LAD	Date 4/87	
Checked By KLD	Scale AS SHOWN	

4-15-87

BRUNING 64256



LEGEND

- PROJECT BOUNDARY
- EXISTING CONTOUR
- PROPOSED CONTOUR
- 5946.0 PROPOSED SPOT ELEVATION
- P=5944 PAD ELEVATION
- △ CHANGE IN STREET SLOPE
- DIRECTION OF FLOW
- DRAINAGE BASIN BOUNDARY
- PHASE LINE
- EXISTING STORM DRAIN LINE
- EXISTING STORM DRAIN MANHOLE
- PROPOSED STORM DRAIN LINE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED INLETS

Date	Revision	By

LA COSTA

GRADING / DRAINAGE PLAN

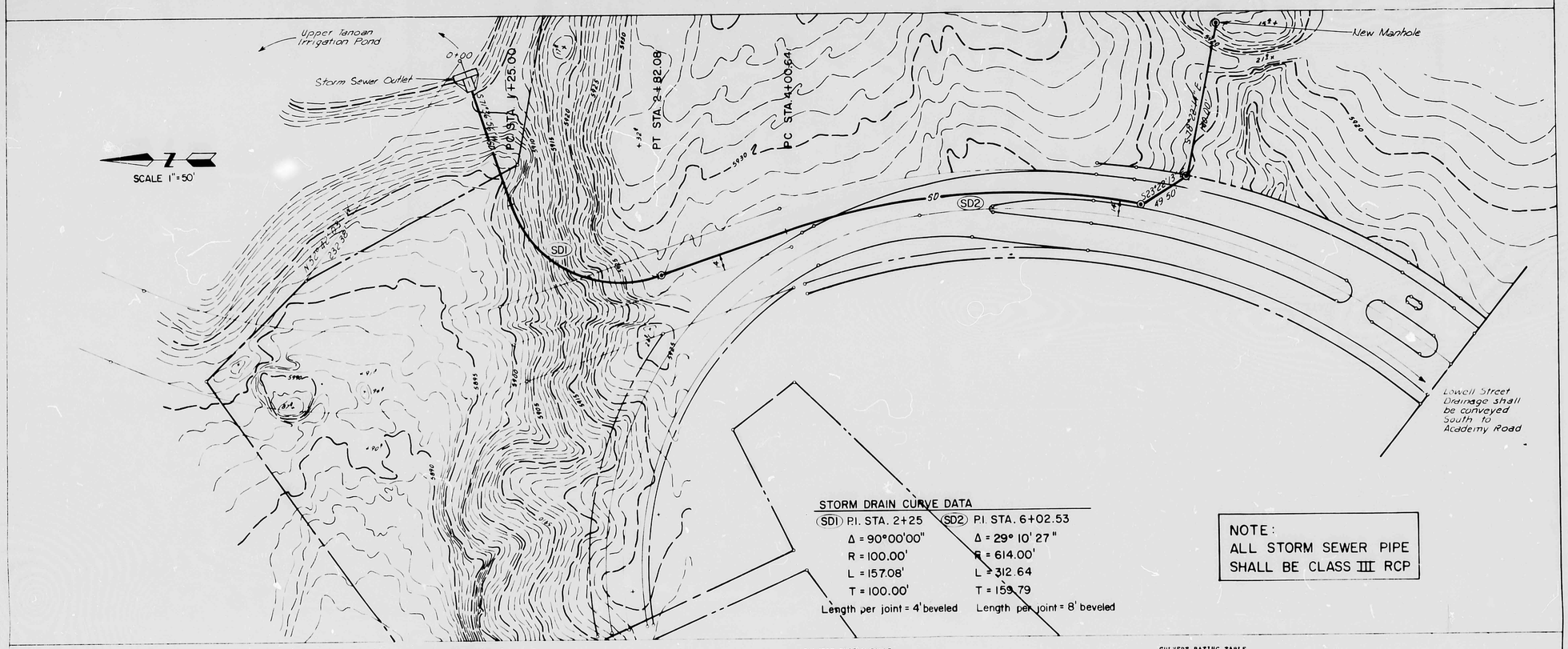
Project No.

Seal

4-15-87

Job No.	71446	Sheet	2 Of 3
Drawn By	TG	Date	4/87
Checked By	KLD	Scale	1" = 50'

BRUNING



STORM DRAIN CURVE DATA

(SD1) P.I. STA. 2+25	(SD2) P.I. STA. 6+02.53
Δ = 90°00'00"	Δ = 29° 10' 27"
R = 100.00'	R = 614.00'
L = 157.08'	L = 312.64
T = 100.00'	T = 159.79
Length per joint = 4' beveled	Length per joint = 8' beveled

NOTE:
ALL STORM SEWER PIPE SHALL BE CLASS III RCP

CULVERT RATING TABLE
54. INCH DIAMETER PIPE
S=0.005 '/FT

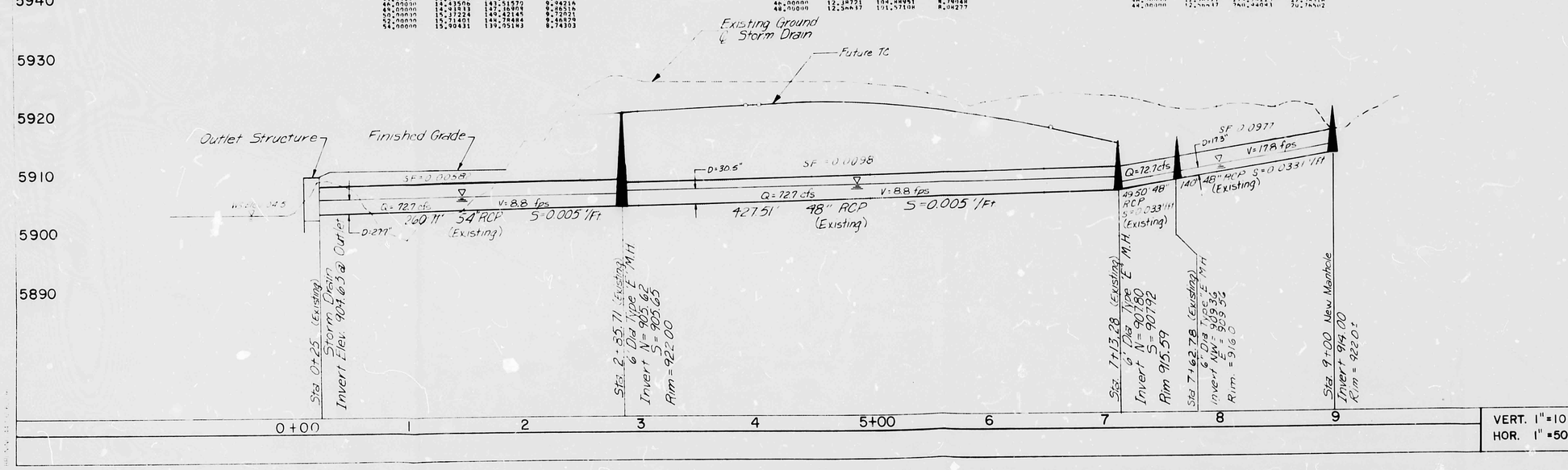
FLOW DEPTH INCHES	FLOW AREA SQ. FT.	DISCHARGE CFS	VELOCITY FPS.
2.00000	0.18029	0.35135	1.84638
4.00000	0.51204	1.51090	2.89608
6.00000	0.94597	3.62045	3.74852
8.00000	1.44924	6.58796	4.48191
10.00000	2.02785	10.41458	5.13578
12.00000	2.67164	15.05886	5.72223
14.00000	3.37367	20.44848	6.25437
16.00000	4.14629	26.50295	6.73941
18.00000	4.98974	33.13503	7.18314
20.00000	5.85686	40.45160	7.58870
22.00000	6.68792	48.45415	7.95906
24.00000	7.52927	56.65910	8.29627
26.00000	8.32721	65.17746	8.60180
28.00000	9.12706	73.81617	8.87669
30.00000	9.87483	82.77681	9.12158
32.00000	10.61136	91.65308	9.33675
34.00000	10.54744	100.43401	9.52212
36.00000	11.26357	109.00011	9.67723
38.00000	11.96007	117.22231	9.80118
40.00000	12.63163	124.95836	9.89260
42.00000	13.27266	132.04419	9.94897
44.00000	13.87446	138.31003	9.96725
46.00000	14.43506	143.51570	9.94216
48.00000	14.93133	147.36908	9.86516
50.00000	15.37224	149.42145	9.72021
52.00000	15.71401	149.78484	9.46829
54.00000	15.90431	139.05183	8.74303

CULVERT RATING TABLE
48. INCH DIAMETER PIPE
S=0.005 '/FT

FLOW DEPTH INCHES	FLOW AREA SQ. FT.	DISCHARGE CFS	VELOCITY FPS.
2.00000	0.17915	0.33030	1.84365
4.00000	0.50817	1.44412	2.84727
6.00000	0.90442	3.18293	3.52091
8.00000	1.37865	6.13301	4.45011
10.00000	1.89866	9.95945	5.24811
12.00000	2.44613	15.41135	5.64335
14.00000	3.04898	21.61282	6.17676
16.00000	3.66675	28.24873	6.60068
18.00000	4.30421	35.38838	7.06015
20.00000	4.95604	42.86881	7.43876
22.00000	5.61729	50.69709	7.77904
24.00000	6.27314	58.73548	8.08277
26.00000	6.94907	66.91215	8.35106
28.00000	7.61811	75.31073	8.58450
30.00000	8.25215	83.56744	8.78112
32.00000	8.90361	91.74961	8.94642
34.00000	9.51738	99.35454	9.07325
36.00000	10.10963	106.52016	9.16140
38.00000	10.66970	113.25001	9.20832
40.00000	11.19471	119.28873	9.20235
42.00000	11.65974	124.72390	9.15119
44.00000	12.06619	129.41067	9.02421
46.00000	12.38721	132.88951	8.78048
48.00000	12.58417	135.57108	8.48277

CULVERT RATING TABLE
48. INCH DIAMETER PIPE
S=0.033 '/FT

FLOW DEPTH INCHES	FLOW AREA SQ. FT.	DISCHARGE CFS	VELOCITY FPS.
2.00000	0.17914	0.8894	4.96642
4.00000	0.50817	3.71032	7.30154
6.00000	0.90442	8.70500	9.62754
8.00000	1.37865	15.05999	10.92514
10.00000	1.89866	22.55509	11.88514
12.00000	2.44613	30.79404	12.58941
14.00000	3.04898	39.55433	13.09021
16.00000	3.66675	48.57775	13.24777
18.00000	4.30421	57.71255	13.41051
20.00000	4.95604	66.91779	13.50114
22.00000	5.61729	76.12444	13.55277
24.00000	6.27314	85.27548	13.59427
26.00000	6.94907	94.31215	13.57196
28.00000	7.61811	103.17173	13.54148
30.00000	8.25215	111.67929	13.53257
32.00000	8.90361	119.78549	13.45493
34.00000	9.51738	127.43743	13.39148
36.00000	10.10963	134.60154	13.31215
38.00000	10.66970	141.24601	13.23659
40.00000	11.19471	147.34024	13.16179
42.00000	11.65974	152.84601	13.10464
44.00000	12.06619	157.69486	13.06061
46.00000	12.38721	161.71111	13.05068
48.00000	12.58417	164.17471	13.05198
50.00000	12.71619	166.42050	13.10045
52.00000	12.78721	167.7225	13.18416
54.00000	12.80447	168.44843	13.16502



VERT. 1" = 10
HOR. 1" = 50

AS BUILT INFORMATION
NTGS "A"
WORK PERFORMED BY — DATE
FIELD CHECK BY — DATE
FIELD VERIFICATION BY — DATE
DRAWINGS CORRECTED BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE
NO

BENCH MARKS
ACS BRASS CAP "6 E22"
LOCATION IS 1.2 MILES EAST OF THE INTERSECTION OF ACADEMY ROAD N.E. AND EUBANK BLVD. N.E.
STATION IS, THEN 375' SOUTH ON THE SOUTH RIM OF THE BEAR CANYON TRIBUTARY
ELEV. = 5934.53

SURVEY INFORMATION
FIELD NOTES

NO	BY	DATE

ENGINEER'S SEAL

NO	DATE	REVISIONS	BY

REMARKS
DESIGN
DESIGNED BY MLD DATE 6/65
DRAWN BY DATE 8/85

APR 1 1967 HYDROLOGY SECTION

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT

TITLE:
LA COSTA
EXISTING STORM DRAIN ANALYSIS

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer			Liquid Waste		
A C E - Design			Traffic		
ACE - Hydrology		9/11/85	Water		

DRAWING NO
MAP NO E-22
SHEET 3 OF 3