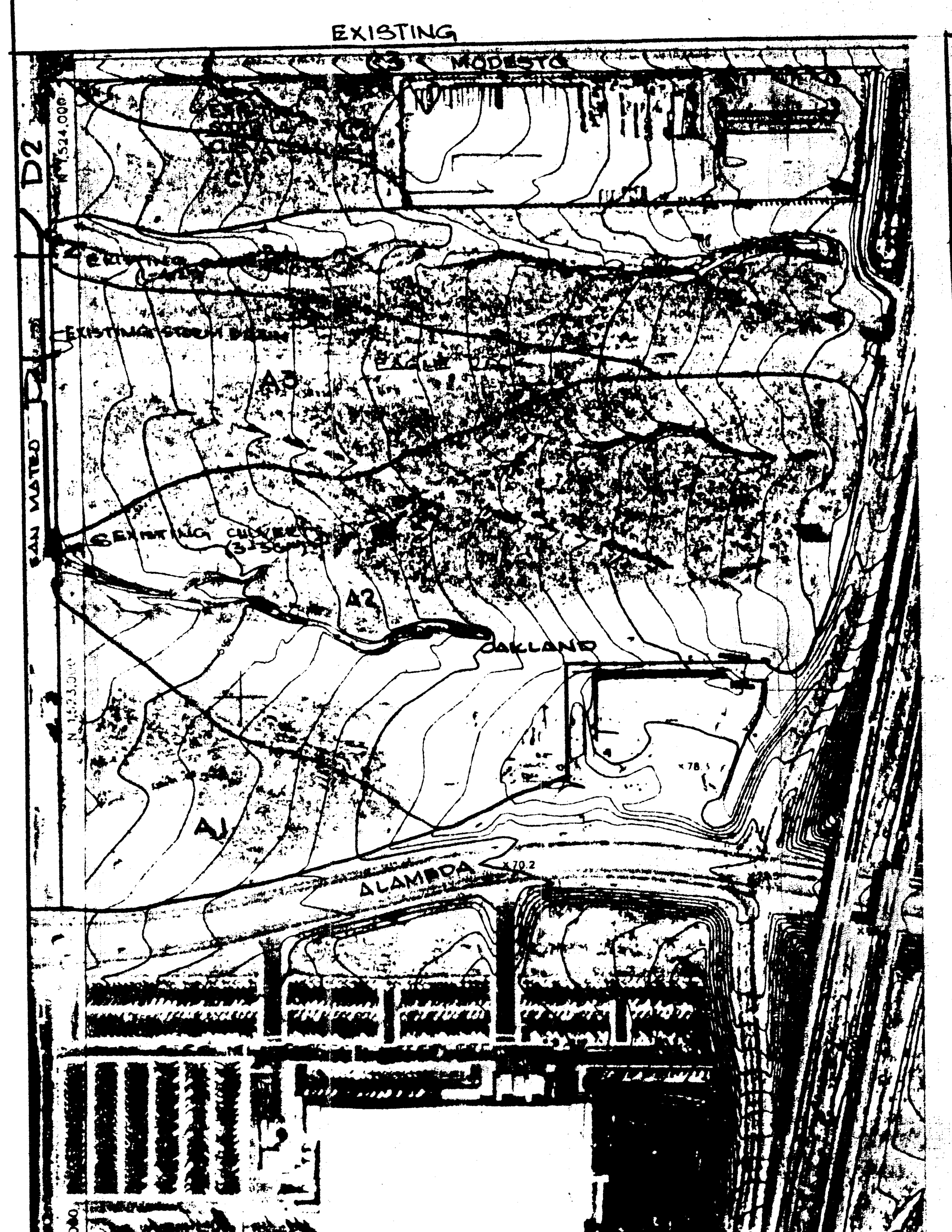
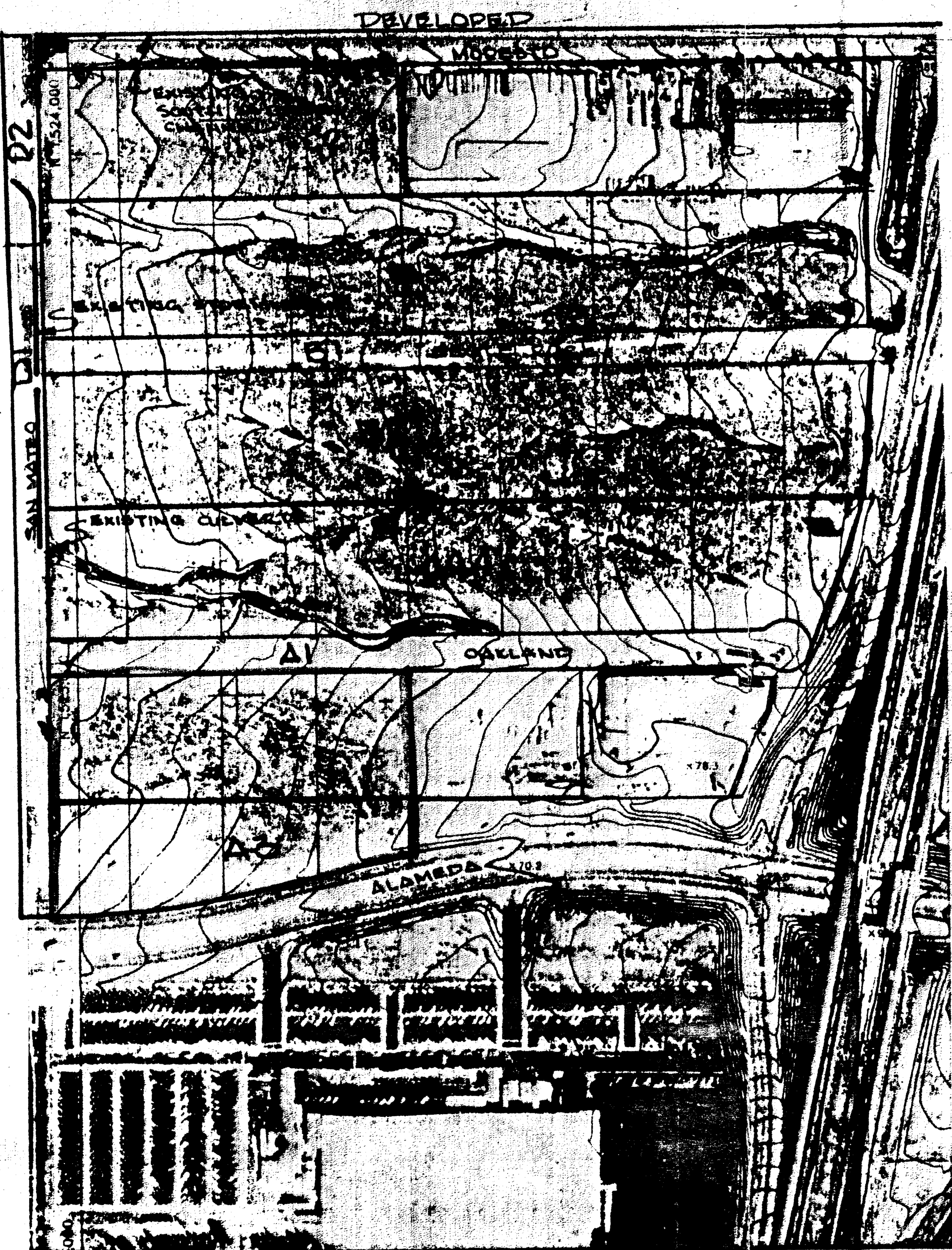
DRAINAGE BASIN MAP

EXISTING



DEVELOPED



N

SCALE 1 INCH = 200 FEET

100 0 100 200 400 600

Basin A3 (developed) won't ever get to Oakland

looks overcapacity

LEGAL DESCRIPTION

BLOCKS 9, 10 & 11, TRACT A, UNIT B, N. ALBUQUERQUE ACRES

PERMANENT BENCHMARK

N/A

GENERAL NOTES

1. SAN MATEO BLVD. WAS ORIGINALLY CONSTRUCTED AS A TWO LANE STREET AS A PART OF THE WILDFLOWER RESIDENTIAL SUBDIVISION, WHICH IS LOCATED IMMEDIATELY WEST OF THE STREET. THE ONLY DRAINAGE FACILITIES IN SAN MATEO IN THE ORIGINAL CONSTRUCTION WAS 3-36" CULVERTS LOCTED 150 FEET NORTH OF OAKLAND AVE. AND 1-42" CULVERT LOCATED 250 FEET NORTH OF EAGLE ROCK AVE. THE SUBDIVISION DRAINAGE REPORT (C17/D2, DATED JUNE, 1978) STATES THAT 292 CFS ENTERS THE SUBDIVISION AT THE 3-36" CULVERT CROSSING (180 CFS VIA CULVERT AND 112 CFS VIA STREET OVERFLOW). THIS FLOW WAS THEN ROUTED, VIA STREETS, THROUGH THE SUBDIVISION. THE 1-42" CULVERT CROSSING IS NORTH OF THE SUBDIVISION AND ROUTED TO THE SOUTH LA CUEVA CHANNEL.

2. THE CITY (PROJECT 5231.90) HAS SINCE WIDENED SAN MATEO TO FOUR LANES, WITH WHAT IS TERMED TEMPORARY ASPHALT (4"). THERE IS NO SIDEWALK ON THE EAST SIDE AND AN ASPHALT VEE DITCH WAS SUBSTITUTED FOR CURB AND GUTTER ON THE EAST SIDE OF THE STREET. AS PART OF THE CITY PROJECT A STORM DRAIN WAS CONSTRUCTED SOUTHWARD FROM NEAR MODESTO TO THE EXISTING CULVERTS DISCUSSED ABOVE. THE STATED CAPACITY OF THE STORM DRAIN IS 96 CFS. IN ADDITION THE 42" CULVERT WAS EXTENDED TO ACCOMODATE THE STREET WIDENING.

3. THE PURPOSE OF THIS REPORT IS TO ESTABLISH DRAINAGE REQUIREMENTS FOR PROPERTIES BORDERED BY SAN MATEO ON THE WEST, MODESTO ON THE NORTHM I-25 ON THE EAST AND ALAMEDA ON THE SOUTH. THIS REPORT ADDRESSES STORM DRAIN REQUIREMENTS AND ALLOWABLE DISCHARGE RATES FROM PRIVATE PROPERTY AND PUBLIC FACILITIES REQUIRED TO ROUTE FLOWS TO EXISTING CONVEYENCES.

Then why doesn't want a paving permit

4. THE SITE IS LOCATED IN PRECIPITATION ZONE 3 AND MOST OF THE AREA IS LOCTED A DESIGNATED FLOOD HAZARD AREA PER FEMA FIRM NO. 137, DATED SEPTEMBER 20, 1996. IT IS NOTED THAT UPSTREAM CONSTRUCTION OF STORM DRAIN FACILITIES AND INTERCHANGE RAMPS HAVE SIGNIFICANTLY CHANGED THE DRAINAGE CONDITIONS OF THE SITE AND MOST, IF NOT ALL, OF THE AREA IS PROBABLY NOT ACTUALLY IN A FLOOD PLAIN.

5. IT IS THE RECOMMENDATION OF THIS REPORT THAT A 36" STROM DRAIN BE CONSTRUCTED FROM THE SOUTHERLY CULVERT OF THE THREE CULVERT BATTERY TO OAKLAND AVE. AND A 27" CULVERT AND SIX CATCH BASINS BE CONSTRUCTED ON OAKLAND. THIS CONSTRUCTION WILL ALLOW RFREE DISCHARGE OF ALL PROPERTIES IN DRAINAGE BASIN A.

6. IT IS RECOMMENDED THAT A 27" STORM DRAIN AND EIGHT CATCH BASINS BE CONSTRUCTED IN EAGLE ROCK AVE. THIS CONSTRUCTION WILL ALLOW FREE DISCHARGE FROM ALL PROPERTIES IN DRAINAGE BASIN B.

Show on plan.

7. IT IS RECOMMENDED THAT ADDITIONAL DRAINAGE FACILITIES BE CONSTRUCTED IN THE SAN MATEO/MODESTO INTERSECTION TO CONVEY FLOWS TO THE ADJACENT SOUTH LA CUEVA CHANNEL. THIS WILL ALLOW FREE DISCHARGE FROM ALL PROPERTIES IN DRAINAGE BASIN C.

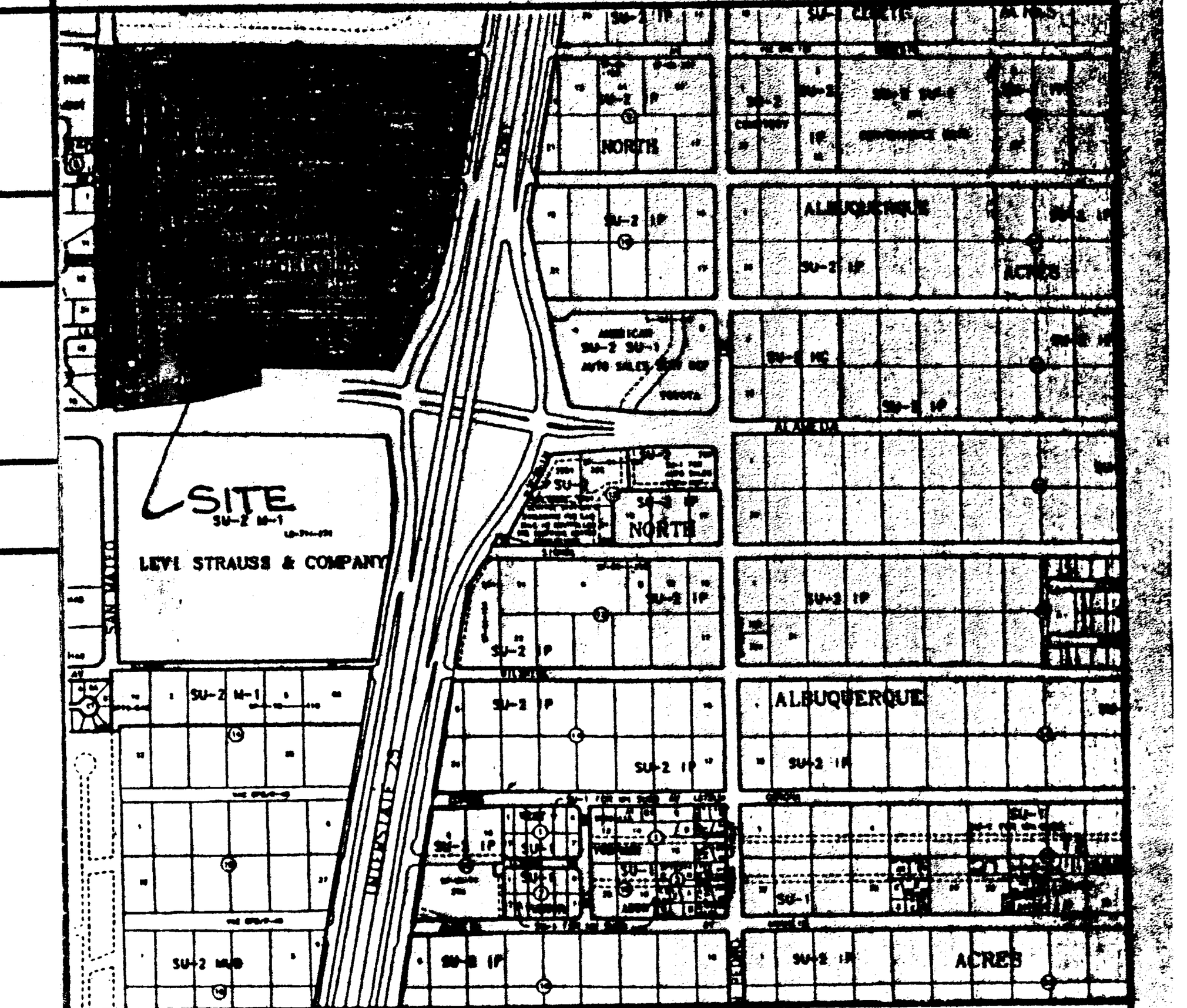
SUMMARY

THE DESIGN FLOW FROM THE EXISTING 3-36" CULVERTS IN SAN MATEO THROUGH THE WILDFLOWER SUBDIVIAION IS 292 CFS. THE ACTUAL FLOW FROM BASINS A AND D2 TO THIS POINT IS 90.12 CFS. IN ADDITION THE REPORT PREPARED BY ISAACSON AND ARFMAN FOR THE SAN MATEO WIDENING IDENTIFIED AND ADDITIONAL 15.6 CFS FROM ALAMEDA BLVD. ROUTED TO THIS CROSSING FOR A TOTAL OF 106 CFS. THE PROPOSED FLOW TO THE WILDFLOWER SUBDIVISION AT THE 3-36" CULVERTS IS 60 CFS.

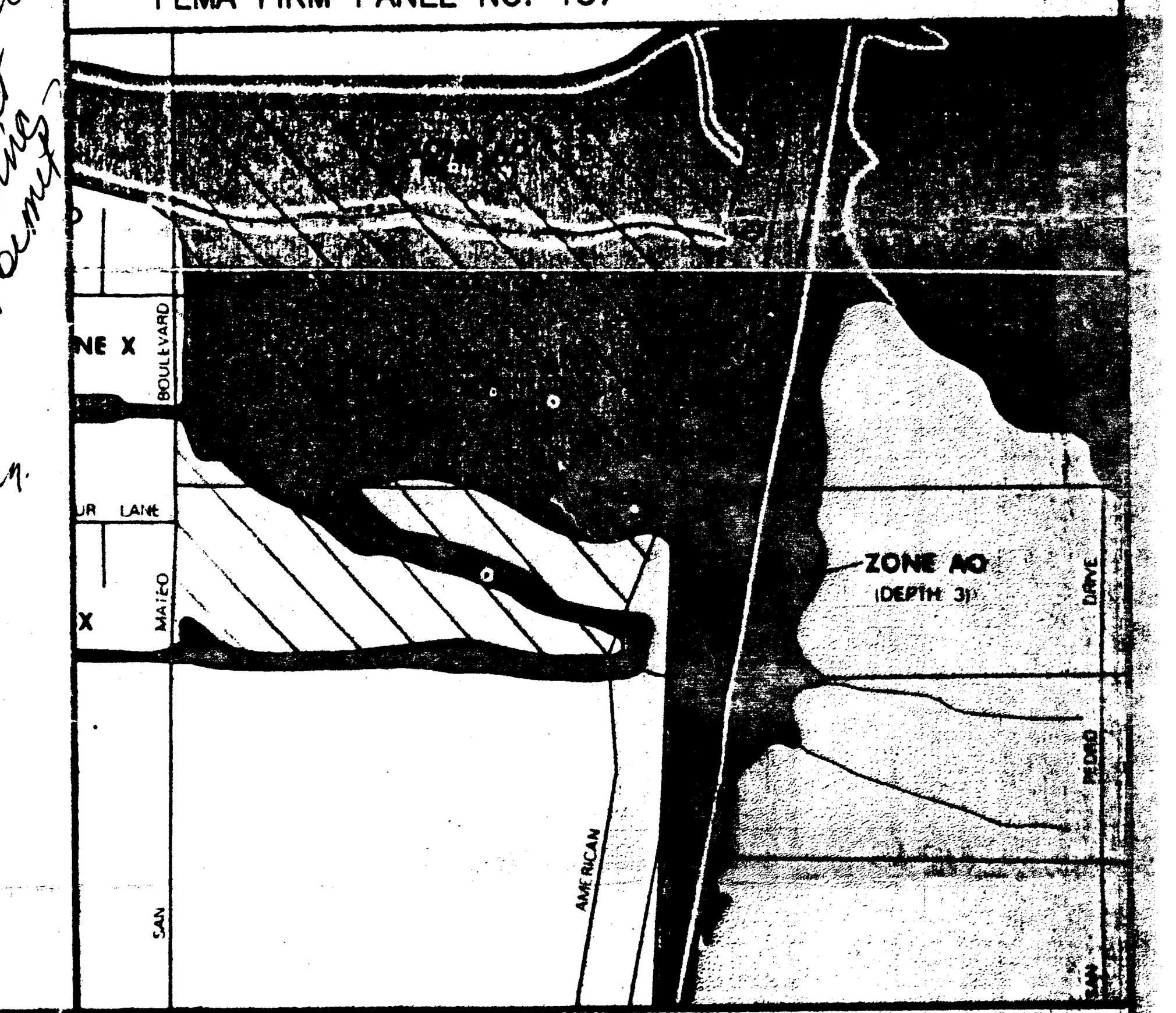
THE DESIGN FLOW IN THE SAN MATEO STORM DRAIN IS 96 CFS. THE PROPOSED FLOW IN THE SAN MATEO STORM DRAIN IS 101 CFS.

INSTALLATION OF THE FACILITIES PROPOSED IN THIS REPORT WILL REDUCE FLOWS TO THE STREETS IN THE WILDFLOWER SUBDIVISON AND ALLOW FREE DISCHARGE OF ALL PROPERTIES IN THE STUDY AREA.

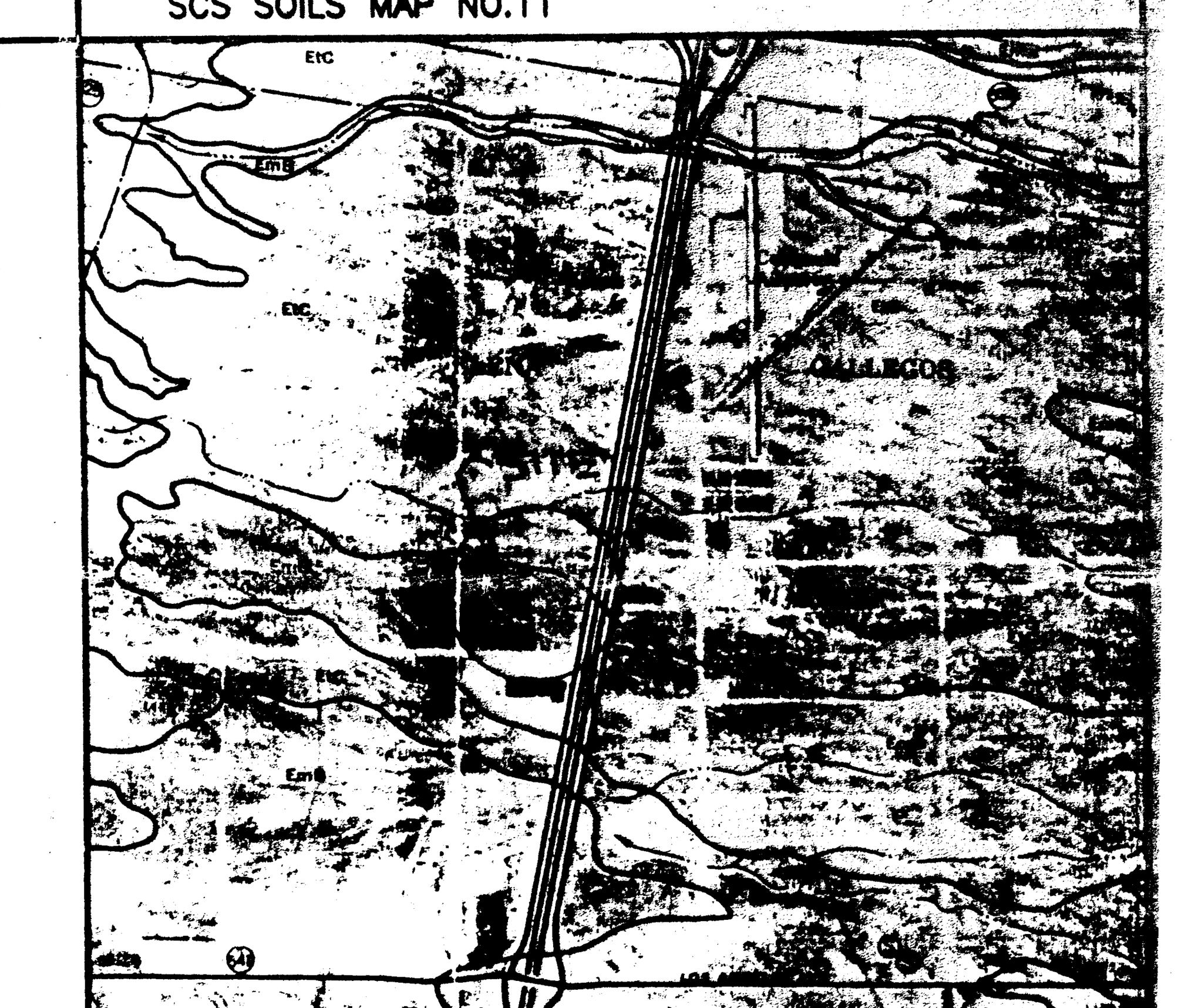
VICINITY MAP NO. C - 18



FEMA FIRM PANEL NO. 137



SCS SOILS MAP NO.11



DRAINAGE DATA

CONDITION	BASIN	STORM RETURN PERIOD	TREATMENT TYPE	TREATMENT AREA	EXCESS PRECIPITATION	PEAK RUNOFF	RUNOFF VOLUME	RUNOFF RATE
			(table 4)		(table 8)	(table 9)		
-	-	year	-	sq. ft.	in.	cfs/acre	cu. ft.	cfs
EXISTING	A1	10	A	192800	0.19	0.58	3053	2.57
			TOTAL	192800			3053	2.57
		100	A	192800	0.66	1.87	10604	8.28
			TOTAL	192800			10604	8.28
	A2	10	A	711000	0.19	0.58	11258	9.47
			TOTAL	711000			11258	9.47
		100	A	711000	0.66	1.87	39106	30.52
			TOTAL	711000			39106	30.52
	A3	10	A	265600	0.19	0.58	4205	3.54
			TOTAL	265600			4205	3.54
		100	A	265600	0.66	1.87	14608	11.40
			TOTAL	265600			14608	11.40
	B1	10	A	320800	0.19	0.58	5079	4.27
			TOTAL	320800			5079	4.27
		100	A	320800	0.66	1.87	17644	13.77
			TOTAL	320800			17644	13.77
	C1	10	A	99700	0.19	0.58	1579	1.33
			TOTAL	99700			1579	1.33
		100	A	99700	0.66	1.87	5484	4.28
			TOTAL	99700			5484	4.28
	C2	10	A	264800	0.19	0.58	4193	3.53
			TOTAL	264800			4193	3.53
		100	A	264800	0.66	1.87	14564	11.37
			TOTAL	264800			14564	11.37
	C3	10	B	15700	0.36	1.19	471	0.43
			C	15700	0.62	2	811	0.72
			D	62800	1.5	3.39	7850	4.89
			TOTAL	94200			9132	6.04
		100	B	15700	0.92	2.6	1204	0.94
			C	15700	1.29	3.45	1688	1.24
			D	62800	2.36	5.02	12351	7.24
			TOTAL	94200			15242	9.42
	D1	10	C	14040	0.62	2	725	0.64
			D	60840	1.5	3.39	7605	4.73
			TOTAL	74880			8330	5.38
		100	C	14040	1.29	3.45	1509	1.11
			D	60840	2.36	5.02	11966	7.01
			TOTAL	74880			13475	8.12
	D2	10	C	4320	0.62	2	223	0.20
			D	18720	1.5	3.39	2340	1.46
			TOTAL	23040			2563	1.66
		100	C	4320	1.29	3.45	464	0.34
			D	18720	2.36	5.02	3682	2.16
			TOTAL	23040			4146	2.50

CONDITION	BASIN	STORM RETURN PERIOD	TREATMENT TYPE	TREATMENT AREA	EXCESS PRECIPITATION	PEAK RUNOFF	RUNOFF VOLUME	RUNOFF RATE
			(table 4)		(table 8)	(table 9)		
-	-	year	-	sq. ft.	in.	cfs/acre	cu. ft.	cfs
DEVELOPED	A1	10	C	16020	0.62	2	[illegible]	0.74
			D	64080	1.5	3.39	8010	4.98
			TOTAL	80100			[illegible]	5.72
		100	C	16020	1.29	3.45	1722	1.27
			D	64080	2.36	5.02	[illegible]	7.38
			TOTAL	80100			[illegible]	[illegible]
	A2	10	B	54408	0.36	1.19	[illegible]	1.49
			C	10880	0.62	2	[illegible]	0.50
			D	152336	1.5	3.39	[illegible]	[illegible]
			TOTAL	217620			[illegible]	[illegible]
		100	B	54408	0.92	2.6	4171	3.28
			C	10880	1.29	3.45	1170	[illegible]
			D	152336	2.36	5.02	[illegible]	[illegible]
			TOTAL	217620			35300	[illegible]
	A3	10	B	25780	0.36	1.19	773	0.70
			C	5156	0.62	2	[illegible]	0.24
			D	72190	1.5	3.39	9024	5.62
			TOTAL	103125			[illegible]	6.56
		100	B	25780	0.92	2.6	[illegible]	1.54
			C	5156	1.29	3.45	554	0.41
			D	72190	2.36	5.02	[illegible]	8.32
			TOTAL	103126			[illegible]	10.27
	A4	10	B	81900	0.36	1.19	[illegible]	2.24
			C	16380	0.62	2	[illegible]	0.76
			D	229320	1.5	3.39	[illegible]	[illegible]
			TOTAL	327600			[illegible]	[illegible]
		100	B	81900	0.92	2.6	[illegible]	4.89
			C	16380	1.29	3.45	1761	1.30
			D	229320	2.36	5.02	[illegible]	26.46
			TOTAL	327600			[illegible]	32.61
	B1	10	C	18000	0.62	2	930	0.83
			D	72000	1.5	3.39	9000	5.60
			TOTAL	90000			9930	6.43
		100	C	18000	1.29	3.45	1935	1.43
			D	72000	2.36	5.02	14160	8.30
			TOTAL	90000			[illegible]	9.72
	B2	10	B	84825	0.36	1.19	2545	2.32
			C	16965	0.62	2	877	0.78
			D	237510	1.5	3.39	[illegible]	18.46
			TOTAL	339300			33110	21.56
		100	B	84825	0.92	2.6	[illegible]	5.06
			C	16965	1.29	3.45	1824	1.34
			D	237510	2.36	5.02	46710	27.37
			TOTAL	339300			[illegible]	33.78
	B3	10	B	84825	0.36	1.19	2545	2.32
			C	16965	0.62	2	877	0.78
			D	237510	1.5	3.39	[illegible]	18.46
			TOTAL	339300			33110	21.56
		100	B	84825	0.92	2.6	[illegible]	5.06
			C	16965	1.29	3.45	1824	1.34
			D	237510	2.36	5.02	46710	27.37
			TOTAL	339300			[illegible]	33.78

CONDITION	BASIN	STORM RETURN PERIOD	TREATMENT TYPE	TREATMENT AREA	EXCESS PRECIPITATION	PEAK RUNOFF	RUNOFF VOLUME	RUNOFF RATE
			(table 4)		(table 8)	(table 9)		
-	-	year	-	sq. ft.	in.	cfs/acre	cu. ft.	cfs
	C1	10	B	15700	0.36	1.19	471	0.43
			C	9420	0.62	2	487	0.43
			D	69080	1.5	3.39	8636	5.38
			TOTAL	94200			[illegible]	6.24
		100	B	15700	0.92	2.6	1204	0.94
			C	9420	1.29	3.45	1013	0.76
			D	69080	2.36	5.02	[illegible]	7.98
			TOTAL	94200			[illegible]	9.64
	C2	10	C	18000	0.62	2	930	0.83
			D	72000	1.5	3.39	9000	5.60
			TOTAL	90000			9930	6.43
		100	C	18000	1.29	3.45	1935	1.43
			D	72000	2.36	5.02	14160	8.30
			TOTAL	90000			16095	9.72
	D1	10	C	16965	0.62	2	877	0.78
			D	237510	1.5	3.39	[illegible]	18.48
			TOTAL	254475			[illegible]	19.28
		100	C	16965	1.29	3.45	1824	1.34
			D	237510	2.36	5.02	46710	27.37
			TOTAL	254475			48534	28.72
	D2	10	C	16966	0.62	2	877	0.78
			D	237510	1.5	3.39	[illegible]	18.46
			TOTAL	254475			[illegible]	19.28
		100	C	16966	1.29	3.45	1824	1.34
			D	237510	2.36	5.02	46710	27.37
			TOTAL	254475			48534	28.72
			TOTAL					

STORM DRAIN SYSTEM

ASSUMPTIONS

1. BASIN A IS ROUTED TO CULVERTS NORTH OF OAKLAND.
2. BASIN B IS ROUTED TO SAN MATEO TORM DRAIN.
3. BASIN C IS ROUTED TO SOUTH LA CUEVA CHANNEL.
4. BASIN D1 IS ROUTED TO SAN MATEO STORM DRAIN.
5. BASIN D2 IS ROUTED TO SOUTH LA CUEVA CHANNEL.
6. FINAL CONSTRUCTION OF SAN MATEO PAVING WILL BLOCK OFFSITE FLOWS FROM ALAMEDA BLVD.

BASIN A

from DPM Plate 22.3 D.2 w/ Q = 61.4 cfs, S = 1.85%
D = 0.58 ft
from DPM Plate 22.3 D.5 w/ D = 0.58 ft, S = 1.85%
Q = 10.1 cfs
from DPM Plate 22.3 D.2 w/ Q = 41.2 cfs, S = 1.85%
D = 0.53 ft
from DPM Plate 22.3 D.6 w/ D = 0.53 ft, S = 1.85%
Q = 9.5 cfs
from DPM Plate 22.3 D.2 w/ Q = 22.2 cfs, S = 1.85%
D = 0.42 ft
from DPM Plate 22.3 D.6 w/ D = 0.42 ft, S = 1.85%
Q = 8.0 cfs

Therefore build 2-Type A, & 4-Type Dbl C Catch Basins, also place 1 single D basin in existing temporary asphalt channel south of Oakland.

Storm drain w/ Q = 55.2 cfs, n = 0.015, D = 2.25 ft
min.S = 0.0145'/', v = 9.29 fps, Oakland
Storm drain w/ Q = 60 cfs, n = 0.015, D = 3.00 ft
min S = 0.0108'/', v = 8.49 fps, San Mateo

Bypass flow to San Mateo, Q = 6.2 cfs

BASIN B

from DPM Plate 22.3 D.2 w/ Q = 77.3 cfs, S = 2.55%
D = 0.58 ft
from DPM Plate 22.3 D.5 w/ D = 0.58 ft, S = 2.55%
Q = 11.0 cfs
from DPM Plate 22.3 D.2 w/ Q = 55.3 cfs, S = 2.55%
D = 0.51 ft
from DPM Plate 22.3 D.6 w/ D = 0.51 ft, S = 2.55%
Q = 10.5 cfs
from DPM Plate 22.3 D.2 w/ Q = 34.3 cfs, S = 2.55%
D = 0.46 ft
from DPM Plate 22.3 D.6 w/ D = 0.46 ft, S = 2.55%
Q = 9.0 cfs
from DPM Plate 22.3 D.2 w/ Q = 16.3 cfs, S = 2.55%
D = 0.36 ft
from DPM Plate 22.3 D.5 w/ D = 0.36 ft, S = 2.55%
Q = 8.0 cfs

Therefore build 2-Type A, 4-Type Dbl C, 2-Type Sgl C Catch Basins; also place 1 single C Catch Basin at south curb return south of Eagle Rock.

Storm drain w/ Q = 72.0 cfs, n - 0.015, D = 2.75 ft
min. S = 0.0247'/', v = 12.12 fps

Bypass flow to San Mateo, Q = 5.3 cfs

BASIN C & D2

THIS AREA IS OUTSIDE THE AREA OF CONCERN OF THIS REPORT AND IS LEFT TO OTHERS FOR FINAL SOLUTION.

BASIN D1

street capacity at depth = 0.5 ft, S = 0.43%
Q = 17 cfs
flow generated in Basin D1 = 28.72
bypass flows from Basin A = 6.2
bypass flows from Basin B = 5.3
total 40.22 cfs

The flow is reasonably close to being evenly split north and south of the low point in San at the existing culverts. There are three existing catch basins at this sag point. In addition one catch basin is proposed at both Oakland and Eagle Rock in the above computations. Therefore the street flow is very near the street capacity.

LEGEND

TBM	TEMPORARY BENCHMARK
FF	FINISH FLOOR
FG	FINISH GRADE
FL	FLOWLINE
TA	TOP OF ASPHALT
TCP	TOP OF CONCRETE
TC	TOP OF CURB
TP	TOP OF EARTH PAD
TS	TOP OF SIDEWALK
TW	TOP OF WALL
FH	FIRE HYDRANT
WM	WATER METER
WV	WATER VALVE
MH	MANHOLE
CB	CATCH BASIN GRATE
GM	GAS MATER
GV	GAS VALVE
LP	LIGHT POLE
PP	POWER POLE
GW	GUY WIRE
PED	ELEC. OR TEL. PEDESTAL
RD	ROOF DRAINAGE POINT
	FEMA FLOODPLAIN BOUNDARY
	DRAINAGE BASIN BOUNDARY
	EROSION SETBACK LINE
	EXISTING CONTOUR
	PROPOSED CONTOUR
XX.XX	EXISTING SPOT ELEVATION
XX.XX	PROPOSED SPOT ELEVATION
XX.XX	RECORD SPOT ELEVATION

RECEIVED JUL 07 1999 HYDROLOGY SECTION

no.	date	remarks	by

REVISIONS

RECEIVED NOV - 6 1996 HYDROLOGY DIVISION

REGISTERED PROFESSIONAL ENGINEER NEW MEXICO NO. 5110 JEAN J. BORDENAVE

project title: OAKLAND AVENUE ALBUQUERQUE, NM

sheet title: DRAINAGE PLAN

sheet date	design by	project no.	sheet
10/12/96	JJB	9615	of

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