

Cherne, Curtis

J09/D05

From: Cherne, Curtis
Sent: Wednesday, April 03, 2013 1:12 PM
To: Conrad, Matthew A.
Cc: 'Lovato, Jerry'
Subject: RE: Hill at Gunnison and Ladera

Matt,
I thought I sent something out a few weeks ago.

The pond was built with the Tierra Oeste Subdivision as a Temporary pond until the Parkway Storm Drain was built.

AMAFCA built the Parkway Storm Drain (691592), but for some unknown reason the pipe was left stubbed into the pond. I reviewed the construction plans and didn't see any instructions to remove the pipe. I also don't see that it was disconnected. It seems it must be or you'd think we would have a lot of water in that pond.

It is not clear from aerial photography and 2 foot contours if the pond accepts surface flow from the local street nearby.

My Glendale appeal is tomorrow afternoon. I can run out there on Friday morning and check for local surface flows as well as get in the pipe. It is a 66" pipe and the manhole is in about 65 feet. It shouldn't be too bad with a flashlight.

Jerry,
Can you check with Kurt to see if he remembers what happened?

Has anyone been in there to see if it is still connected?

I checked the 2002 plat and didn't see the easement. Is it a paper easement? (Lot H1A blk000 Cielo Oeste).

Do you have a drainage report for these construction plans that may address why the pipe was left stubbed into the pond?

Curtis

From: Conrad, Matthew A.
Sent: Wednesday, April 03, 2013 11:12 AM
To: Cherne, Curtis
Subject: FW: Hill at Gunnison and Ladera

Curtis,
Do you have an update?
Matthew

From: Romero, Elaine T.
Sent: Wednesday, April 03, 2013 10:53 AM
To: Conrad, Matthew A.
Subject: RE: Hill at Gunnison and Ladera

Good morning Matthew,

4/3/2013

Do you have an update on this issue by chance? Mr. Borst has called to follow up.

Thank you.

Elaine

From: Conrad, Matthew A.
Sent: Tuesday, March 12, 2013 5:09 PM
To: Romero, Elaine T.
Subject: RE: Hill at Gunnison and Ladera

No problem.

From: Romero, Elaine T.
Sent: Tuesday, March 12, 2013 4:52 PM
To: Conrad, Matthew A.
Subject: RE: Hill at Gunnison and Ladera

As always, thank you.
Elaine

From: Conrad, Matthew A.
Sent: Tuesday, March 12, 2013 3:59 PM
To: Romero, Elaine T.
Cc: Dourte, Richard H.; Cherne, Curtis
Subject: FW: Hill at Gunnison and Ladera

Elaine,
At this time we have two hydrologists on staff. Building permit requests are up and we are working to comply with the new MS4 requirements. We are doing our best to keep up with the demand. We will review the drainage reports and get together with AMAFCA to see what we can do to address this issue.
Matthew

From: Cherne, Curtis
Sent: Tuesday, March 12, 2013 3:27 PM
To: Conrad, Matthew A.
Cc: Dourte, Richard H.
Subject: RE: Hill at Gunnison and Ladera

Yes.,
This is an old(?) ponding area that is being used as a recreational area. AMAFCA wants to fill it in to reduce the potential for injury. I have looked at the as-builts, but will need some more time to review the drainage reports and the plat.

Curtis

From: Conrad, Matthew A.
Sent: Tuesday, March 12, 2013 2:36 PM
To: Cherne, Curtis; Metro, Kristal D.
Cc: Dourte, Richard H.; Romero, Elaine T.
Subject: FW: Hill at Gunnison and Ladera

4/3/2013

Curtis and Kristal,
Do you have any information regarding this area?
Matthew

From: Romero, Elaine T.
Sent: Tuesday, March 12, 2013 2:33 PM
To: Conrad, Matthew A.
Subject: FW: Hill at Gunnison and Ladera

Hi Matthew,

Can you direct me to the right person in your department to obtain additional information?

Thank you kind Sir.

Elaine

From: Lovato, Jerry [mailto:jlovato@amafca.org]
Sent: Tuesday, March 12, 2013 11:12 AM
To: Romero, Elaine T.
Cc: Willis, Jeffrey
Subject: RE: Hill at Gunnison and Ladera

Good Morning Elaine

The "hill" is part of a temporary drainage pond that is not longer needed. The property is owned by WALH and the temporary drainage easement is to the City of Albuquerque. The AMAFCA Real Estate Manager, Jeff Willis, has contacted the COA planning department concerning the situation.

I am not sure at this time what the best approached would be. The property is owned by WALH and the City controls the easement. I will get you more information when more becomes available in the next week or so.

Jerry

From: Romero, Elaine T. [mailto:eromero@cabq.gov]
Sent: Monday, March 11, 2013 4:25 PM
To: Lovato, Jerry
Subject: Hill at Gunnison and Ladera

Hi Jerry,

I hope all is well. A few weeks ago, we chatted about the hill at Gunnison and Ladera. You mentioned to me that you all were working with the City traffic Engineers. Tommy Borst calls me about every other day for an update. I mentioned to him that you had asked for a week or so. Could you let me know what the status of this is. I know there has been question of who is responsible for this hill and if there is a true need for it.

Thank you in advance for your help.

Elaine

4/3/2013

**CITY OF ALBUQUERQUE
PLANNING DEPARTMENT**

**HYDROLOGY DEVELOPMENT SECTION
DEVELOPMENT REVIEW BOARD MEMO**

DRB PROJECT NO: 1008519

AGENDA ITEM NO: 6

SUBJECT:

Site Plan for Building Permit

ENGINEERING COMMENTS:

The plan proposes improvements and grading in Tract A1A. Written approval is required from the property owner.

Include a keyed note for pavement.

Seems this site should drain to the southwest corner, where runoff enters a rip-rap lined swale to the inlet. Therefore keyed Note 5 should be an asphalt curb not edge of pavement.

Why are you proposing a berm along the frontage road since it is not required for screening? A depressed landscape area could function as a water harvesting area/LID.

Since this is a restaurant, the dumpster is to drain through a grease trap to the SAS. This line is not shown on the conceptual utility plan.

Label the AMAFCA Vineyard Channel.

An infrastructure list may not be applicable.

Initial comments on the conceptual grading plan that will be included in a letter to the engineer.

The site historically drains from the northeast to the southwest. The outfall is in the southwest corner. The reason for the water harvesting area, keyed note 4, is for sediment to drop out. Draining the north

Parkway John ~~Ant~~ down
Smith Engine car
691592

DEVELOPMENT & BUILDING SERVICE CENTER
ONE STOP SHOP
600 SECOND ST. N.W.

ATTENTION:

505-924-3900

Records Withdrawal Form

Project No. J9/D15

Date:

2/28/05

Project Title:

Tiera Oeste Unit 1

a. File

b. Mylars

c. Redlines/Comments

(d.) Other

Drainage Report - Addendum #1

Requested by:

Scott Eddings/Hunt-Hollars
Name and Company

Phone No.:

892-5141

Comments:

Anticipated Return Date: _____

I hereby accept full responsibility for the security of the above noted records/plans until return receipt acknowledgement is completed. Records/plans will be returned to the Development and Building Services Center on or before the indicated anticipated return date.

Delivery Picked Up By:

Name:

Print

Organization:

Academy Repro

Signed:

Date:

Office Use Only

Return Acknowledged:

Received By:

Andrew Garcia

Print

Date:

3-1-05

CINFRAN / HUITT-ZOLIARS

Huitt-Zollars, Inc / 333 Rio Rancho Dr NE / Suite 101 / Rio Rancho, New Mexico 87124-1450 / Phone (505) 892-5141 / Fax (505) 892-3259

September 14, 2000

Mr. Bradley L. Bingham, P.E.
Hydrology Section
City of Albuquerque
600 N. 2nd Street NW
Albuquerque, NM 87103

**RE: Tierra Oeste Subdivision Drainage Report – Addendum #1
City Project Number 5297.90 and 5297.91**

Dear Brad,

On behalf of our client, Westland Development, Co., Inc., we are submitting this addendum to the approved "Drainage Report for the Tierra Oeste Subdivision", Engineer's Stamp dated 4/18/96. The purpose of this addendum is to incorporate the following changes:

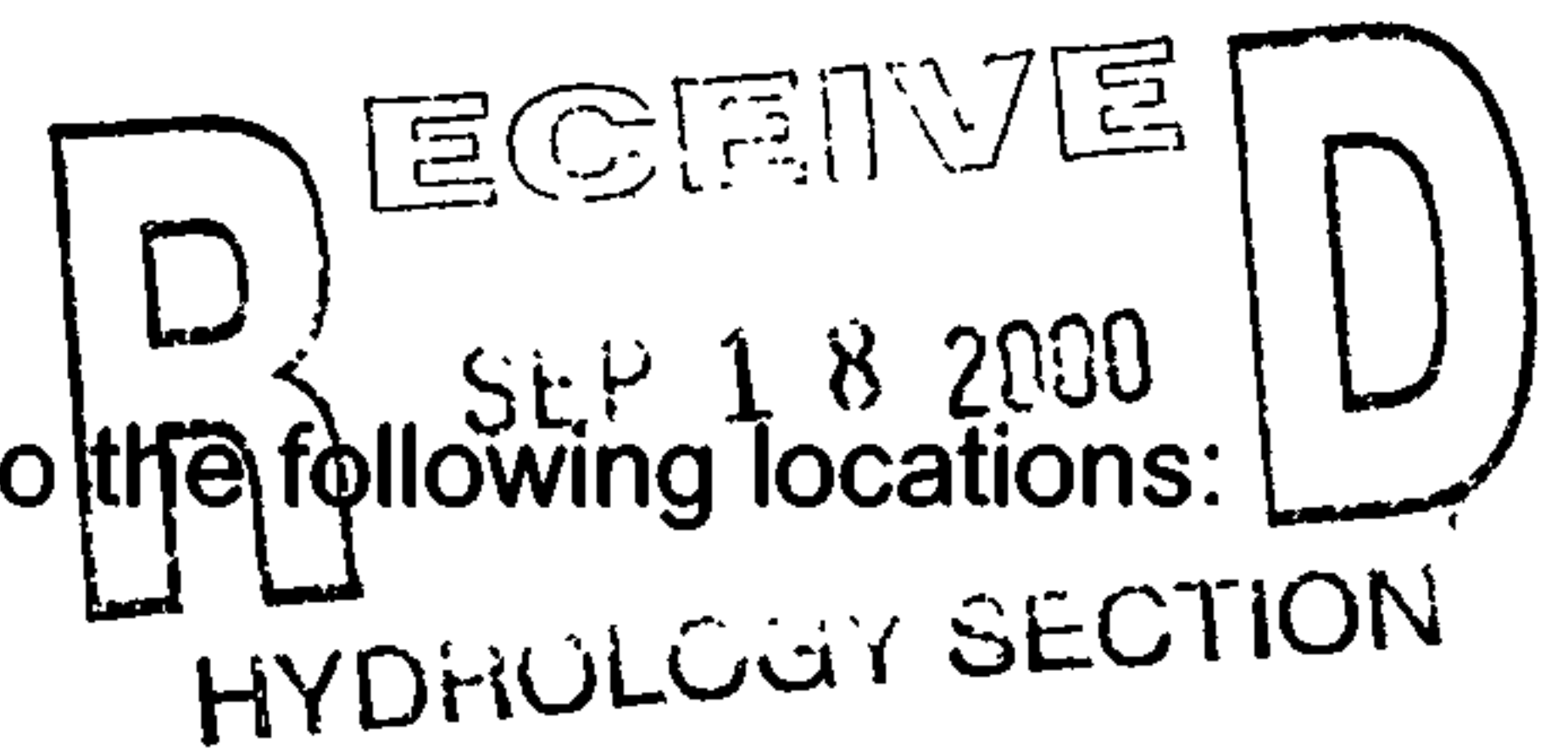
- Update the report to incorporate the hydrology presented in the "West I-40 Drainage Management Plan (DMP)," dated June 29, 2000, prepared by Bohannon Huston. This report was recently approved by AMAFCA and is the most current drainage master plan for this area.
- Revise some of the developed off-site drainage patterns to incorporate changes desired by Westland Development.
- Update the Ladera Drive Storm Drain to accommodate the revised flows.

As shown on **Exhibit 1**, the off-site watershed to the southwest of the Tierra Oeste Subdivision was indicated in both the approved drainage report for Tierra Oeste and the West I-40 DMP by the following boundary limits:

- Tierra Oeste to the northeast.
- 98th Street to the southwest.
- The Ladera System of Dams to the northwest.
- Ladera Drive to the southeast.

This off-site basin was shown in the drainage studies to discharge to the following locations:

- The Ladera Drive Storm Drain.
- To the property southeast of Ladera Drive (not connecting to the Ladera Drive Storm Drain).



Per discussions with Westland Development, we are proposing that all of this off-site runoff to the northwest of Ladera Drive discharge to the Ladera Drive Storm Drain. It was determined that the cost of up-sizing the Ladera Drive Storm Drain was more economical than constructing another facility to convey off-site runoff through the properties southeast of Ladera Drive.

Additionally, per the West I-40 DMP, AMAFCA is planning to divert an additional 300 cfs from the Ladera Dam #12 into the Ladera Drive Storm Drain. The approved drainage report for Tierra Oeste did not indicate that any flows would be diverted to the Ladera Drive storm drain. Therefore, this addendum will reanalyze the storm drain to incorporate these additional flows.

The following Hydrologic and Hydraulic Calculations sections describe all of the proposed changes of this addendum.

Hydrology Calculations

The hydrologic calculations used to compute the peak discharges in the Ladera Drive Storm Drain were taken from both the approved drainage report for the Tierra Oeste subdivision and the West I-40 DMP. Because the West I-40 DMP is the most recently approved master plan for this area, it was used to determine the off-site flows that will discharge to the Ladera Drive Storm Drain. The Tierra Oeste drainage study was used to determine the on-site flows. Because the digital AHYMO model for the West I-40 DMP was not available, any changes to the models required by this addendum were calculated by directly adding the peak discharges. Therefore, the effect of offsetting time to peaks was not analyzed.

On-Site Flows

Because the on-site flow patterns will not be altered with this addendum, the same flows from the approved Tierra Oeste drainage study were used. As shown on the Drainage Areas exhibit from that report (portions shown on **Page A-1**), the following on-site storm drains from the subdivision discharge into the Ladera Drive Storm Drain:

Table 1
On-Site Discharge Locations to the Ladera Drive Storm Drain

Analysis Point	Location Description	Time to Peak	Peak Discharge (cfs)
AP3	Casa Verde Storm Drain	1.50	58 cfs
AP4	Casa Roja Storm Drain (Northwest Cul-De-Sac)	1.50	19cfs
AP3 & AP4	Total Flow from Tierra Oeste Units 1 and 2	1.50	77cfs

Off-Site Flows

The West I-40 DMP presents three alternatives (identified as Option 2D, 3C.1 and 6A). Option 2D and 3C.1 have AHYMO calculations in the DMP. Option 6A is their recommended

option and is comprised of the worst-case scenario from both Option 2D and 3C.1. See **Pages A-2 to A-12** for excerpts from the West I-40 DMP.

As indicated in the Basin Map for the DMP (See **Exhibit 1** and **Page A-5**), Tierra Oeste Units 1 and 2 are a portion of Basin 608. Basin 609 is the segment of Ladera Drive to the northeast of Tierra Oeste that will discharge into the Ladera Drive Storm Drain. Basins 604 and 606 are the off-site basins that are bounded by Tierra Oeste, 98th Street, Ladera Drive and the Ladera Dams. Under both Options 2D and 3C.1, Basins 604 and 606 are split into Basins 604A, 604B, 606A and 606B. Both options indicate Basins 604A and 606A discharging into the Ladera Drive Storm Drain and Basin 604B and 606B discharging to the south across Ladera Drive and being conveyed to the south through Basins 605 and 607 to the West I-40 Interceptor Channel. It is the intent of this addendum to convey all of Basin 604 (A&B) and 606 (A&B) into the Ladera Drive Storm Drain, therefore conveying no runoff to the southeast of Ladera Drive.

Basin 608 is larger than the Tierra Oeste Subdivision. Therefore, to determine the total off-site flow that will be in the Ladera Drive Storm drain at the upstream end of the Tierra Oeste Subdivision Boundary, Basins 604 (A&B) and 606 (A&B) were added to remaining flow from Basin 608 once the on-site flows from Tierra Oeste had been subtracted. Also, the additional flow to be diverted from Ladera Dam 12 has been included.

Tables 2 and 3 indicate the development of the peak off-site discharges for Option 2.D and Option 3.C-1, respectively.

Table 2
West I-40 DMP Option 2D – Off-Site Flow Descriptions

Approved West I-40 DMP						Proposed Addendum Changes	
No.	Description	West I-40 DMP Hyd. ID	Peak Discharge (cfs)	Discharges to Ladera Drive Storm Drain	Cumulative Discharge in Ladera Dr. Storm Drain (cfs)	Discharges to Ladera Drive Storm Drain	Cumulative Discharge in Ladera Dr. Storm Drain (cfs)
1	Basin 604A & 606A	605_3	200	Yes	200	Yes	200
2	Basin 604B	604B	64	No	200	Yes	264
3	Basin 606B	606B	28	No	200	Yes	292
4	Basin 608 (120 cfs total) a) Off-site Flow b) On-site Flow (see Table 1)	608.00	a) 43 b) 77	a) Yes b) Yes	a) 243 b) 318 (Hyd 608_2)	a) Yes b) Yes	a) 335 ⁽¹⁾ b) 410 ⁽¹⁾
6	Basin 609	609.00	23	Yes	340 (Hyd 609_2)	Yes	432 ⁽¹⁾
7	Ladera Dam #12 Diversion	Blufdiv	300	Yes	416 (Hyd 609_3) Total Discharge to AMAFCA Easement	Yes	508 ⁽²⁾ Total Discharge to AMAFCA Easement

Notes:

- ⁽¹⁾ The cumulative flow in the Ladera Drive Storm Drain with the proposed addendum was calculated by adding the additional 92 cfs from Basin 604B and 606B to the peak discharges shown in the approved West I-40 DMP. Additional decreases in the peak discharge caused by time to peak offsets were not analyzed.
- ⁽²⁾ The additional flow into the Ladera Drive Storm Drain from the Ladera Dam #12 Diversion was taken from the difference in peak discharges indicated in the approved West I-40 DMP. The total diversion from Dam #12 was 300 cfs but due to offsetting time to peaks with the Ladera Drive Storm Drain, only a 76 cfs (416 cfs – 340 cfs) increase was represented in the storm drain.

Table 3
West I-40 DMP Option 3C.1 – Off-Site Flow Descriptions

Approved West I-40 DMP						Proposed Addendum Changes	
No.	Description	West I-40 DMP Hyd. ID	Peak Discharge (cfs)	Discharges to Ladera Drive Storm Drain	Cumulative Discharge in Ladera Dr. Storm Drain (cfs)	Discharges to Ladera Drive Storm Drain	Cumulative Discharge in Ladera Dr. Storm Drain (cfs)
1	Basin 604A & 606A	605_3	200	Yes	200	Yes	200
2	Basin 604B	604B	64	No	200	Yes	264
3	Basin 606B	606B	28	No	200	Yes	292
4	Basin 608 (120 cfs total) a) Off-site Flow b) On-site Flow (see Table 1)	608.00	a) 43 b) 77	a) Yes b) Yes	a) 243 b) 318 (Hyd 608_2)	a) Yes b) Yes	a) 335 ⁽¹⁾ b) 410 ⁽¹⁾
6	Basin 609	609.00	23	Yes	340 (Hyd 609_2)	Yes	432 ⁽¹⁾
7	Ladera Dam #12 Diversion	Blufdiv	300	Yes	443 (Hyd 609_3) Total Discharge to AMAFCA Easement	Yes	535 ⁽²⁾ Total Discharge to AMAFCA Easement

Notes:

- ⁽³⁾ The cumulative flow in the Ladera Drive Storm Drain with the proposed addendum changes was calculated by adding the additional 92 cfs from Basin 604B and 606B to the peak discharges shown in the approved West I-40 DMP. Additional decreases in the peak discharge caused by time to peak offsets were not analyzed.
- ⁽⁴⁾ The additional flow into the Ladera Drive Storm Drain from the Ladera Dam #12 Diversion was taken from the difference in peak discharges indicated in the approved West I-40 DMP. The total diversion from Dam #12 was 300 cfs but due to offsetting time to peaks with the Ladera Drive Storm Drain, only a 103 cfs (443 cfs – 340 cfs) increase was represented in the storm drain.

In accordance with the West I-40 DMP recommended Option 6.A, Option 3C.1 is the worst-case scenario, and was therefore used to for the purposes of this addendum.

Hydraulic Calculations

Hydraulic calculations for the Ladera Drive Storm Drain were performed using Haestad's Methods "StormCad" software. Junction and bend losses were calculated using the equations shown in **Pages A-23 to A-24**. These losses were implemented into the StormCad software to size the pipes. Flows in StormCad correspond with Option 3C.1 discharges shown in Table 3. The flows that were captured by the existing and proposed inlets in the portion of Ladera Drive that will be constructed with Tierra Oeste were not changed from the approved Tierra Oeste Drainage report. The summation of these inlet flows (22 cfs) was subtracted from the off-site flow (43 cfs) from Basin 608 shown in Item 4 in **Table 3**. Please refer to **Pages A-13 to A-24** for the hydraulic calculations for the Ladera Drive Storm Drain.

I have attached the revised improvement plans for the Ladera Drive Storm Drain that incorporate all of the changes proposed by this addendum. The Revision #1 symbol indicates the revisions to the plan set. These plans are being submitted for your review and approval.

Please call me if you have any questions or require additional information.

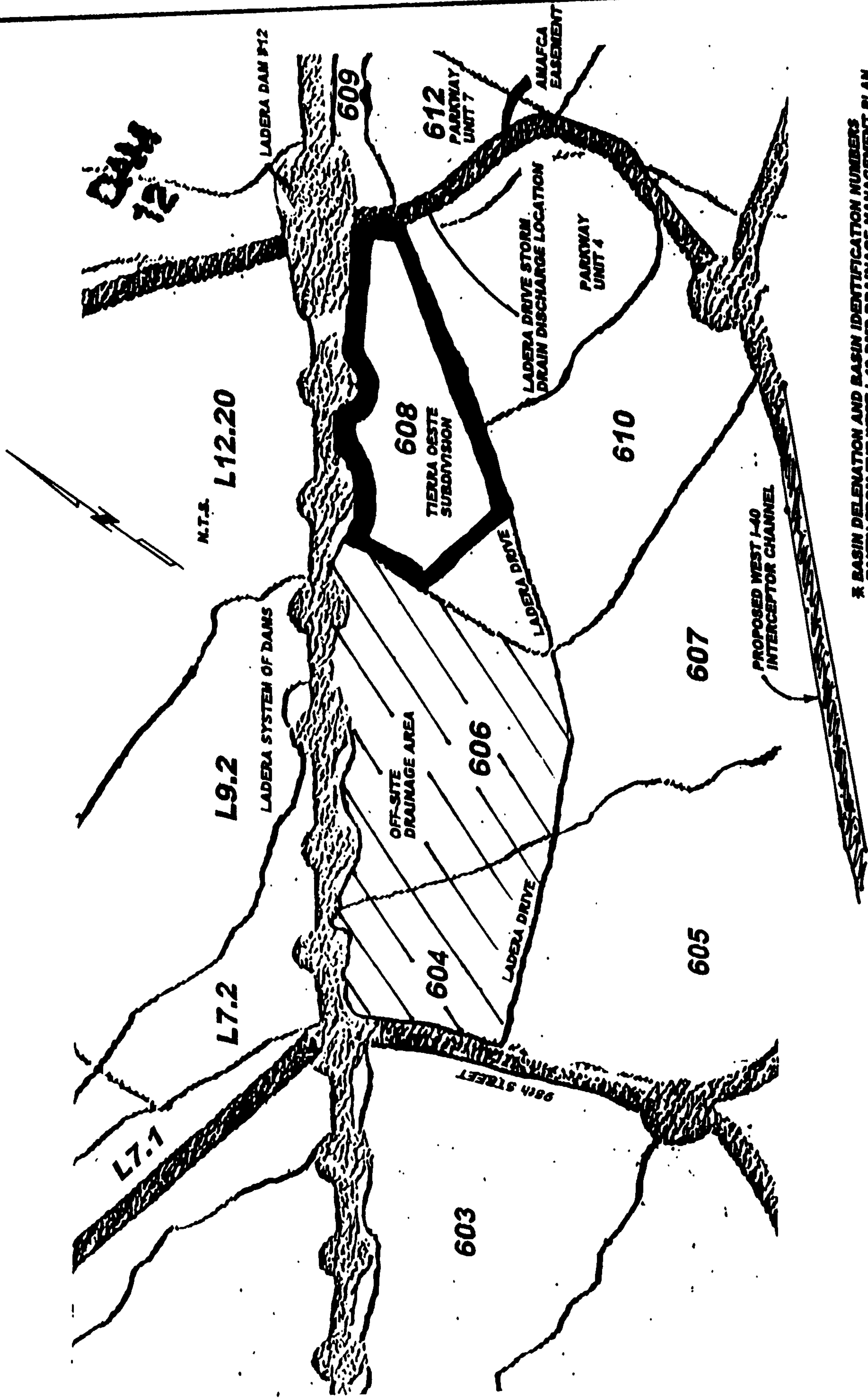
Sincerely,
Huitt-Zollars, Inc.



Russell Grayson, PE
Project Manager

Attachments

cc: John Kelly, Executive Director – AMAFCA
Nancy Musinsky, Wilson and Company
Fred Ambrogi, Westland Development



* BASIN DELINEATION AND BASIN IDENTIFICATION NUMBERS
TAKEN FROM THE WEST I-40 DMP DRAINAGE MANAGEMENT PLAN
DATED JUNE 28, 2000 AND PREPARED BY BOHANNAN HUSTON.

CNFRAN/HUITT-ZOLLARS

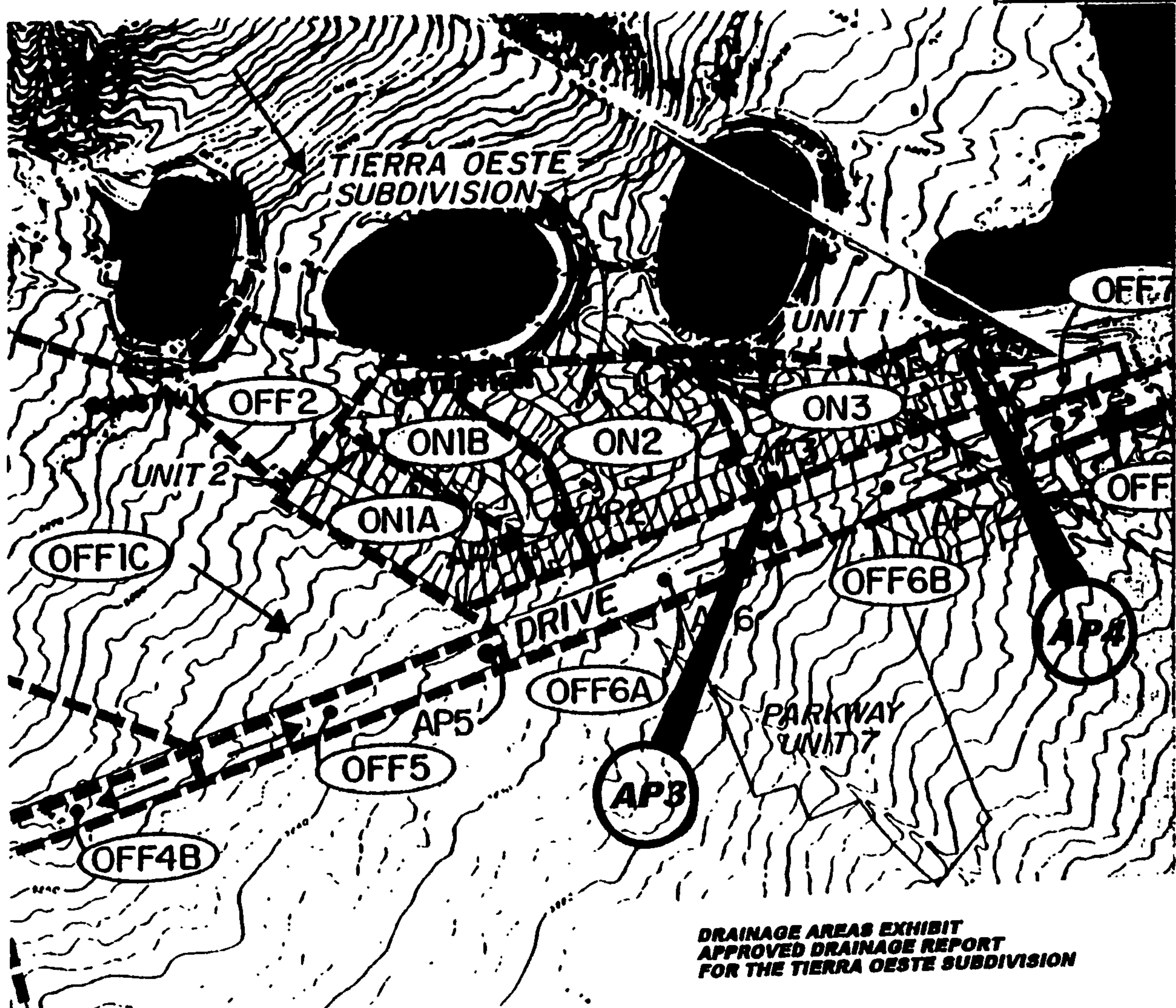
DRAINAGE REPORT FOR THE TIERRA OESTE SUBDIVISION - ADDENDUM #1
OVERALL DRAINAGE BASIN MAP
WESTLAND DEVELOPMENT, INC.

EXHIBIT 1

TABLE 4
HYDROLOGY PARAMETERS
FULLY DEVELOPED CONDITION

BASIN #	AREA (SQ. MI.)	LENGTH (FT)	SLOPE (%)	LAND TREATMENTS				DEVELOPED			PIPE FLOW (CFS)
				A	B	C	D	Tc (MIN)	Q10 (CFS)	Q100 (CFS)	
ON1A	0.0060	700	2	0	21	21	58	12	0.2	13.7	
OFF2	0.0077	650	2.5	0	25	25	50	12	9.8	16.81	
AP1	COMBINE OFF2 AND ON1A AND ROUTE TO INLETS @ CASA ROJA & CASA MORENA									30.51 (28.35)	
	FLOW COLLECTED IN TWO TYPE 'A' INLETS										14
	SURFACE BYPASS FLOW TO NEXT INLET LOCATION									14.35	
ON1B	0.0078	760	2	0	21	21	58	12	10.66	17.8	
AP2	COMBINE BYPASS AND ON1B AND ROUTE TO INLETS @ CASA ROJA & CASA NEGRA									32.15 (31.09)	
	FLOW COLLECTED IN TWO TYPE 'A' INLETS										14.4
	SURFACE BYPASS FLOW TO NEXT INLET LOCATION									16.69	
ON2	0.0108	1025	2	0	21	21	58	12	14.48	24.18	
AP3	COMBINE BYPASS AND ON2 AND ROUTE TO INLETS @ CASA ROJA & CASA VERDE									40.87 (36.87)	
	FLOW COLLECTED IN TWO TYPE 'A' & TWO TYPE DOUBLE 'C' INLETS										29.2
	SURFACE BYPASS FLOW TO NEXT INLET LOCATION									7.67	
ON3	0.0083	1300	2	0	21	21	58	12	11.34	18.94	
AP4	COMBINE BYPASS AND ON3 AND ROUTE TO INLETS @ NORTH CUL-DE-SAC OF CASA ROJA									26.61 (19.31)	
	FLOW COLLECTED IN TWO TYPE 'A' & ONE TYPE DOUBLE 'C' INLETS										19.31
	SURFACE BYPASS FLOW TO NEXT INLET LOCATION									0	

58 CFS
TOTAL
AP3



DRAINAGE AREAS EXHIBIT
APPROVED DRAINAGE REPORT
FOR THE TIERRA OESTE SUBDIVISION

WEST I-40 DMP

VOLUME I

DRAINAGE MANAGEMENT PLAN

BOHANNAN HUSTON

Courtyard One

7500 JEFFERSON NE

Albuquerque

NEW MEXICO 87109

voice 505.823.1000

fax 505.821.0892

JUNE 29, 2000

PREPARED FOR:

**ALBUQUERQUE METROPOLITAN ARROYO
FLOOD CONTROL AUTHORITY
2600 PROSPECT NE
ALBUQUERQUE, NM 87107**

3. Option 6A

Option 6A (see Figure 10) is the recommended option for a number of reasons. Under this option, the immediate needs in the lower watershed and the requirements of the adopted Amole Westgate and Amole Hubbell DMP's are met. Option 6A also establishes sizes for drainage facilities in the lower portion of the watershed (below the Atrisco Terrace and along the Amole Watershed at I-40) without precluding future selection on either option 2D or 3C.1. This is accomplished by sizing the drainage facilities for the worst case (highest) flow rate and volume from either option 2D or 3C.1 with the exception of the two Amole Dams which are sized for existing conditions.

Under option 6A, the Amole dams will be designed to allow expansion of the dams pools to accommodate developed conditions runoff and volumes, should development occur on the top of the escarpment. The costs included in Option 6A size the dam pools for existing conditions. The dams principal spillway will be the same for both existing and developed conditions, while the dam should be designed with provisions to expand the dam's emergency spillway to handle the Probable Maximum Flood (PMF) under fully developed conditions. It should be noted that, with the multiple detention facilities in the upper portion of the watershed in both option 2D and 3C.1 that the developed flow rates for each option in the lower portion of the watershed are nearly identical. Further, due to upstream detention proposed with both Options 2D and 3C.1, the flow rates to size conveyances for arroyos, such as the Mirehaven, between the Monument/Atrisco Terrace, and the Ladera Dams are only slightly larger than existing conditions flow rates, plus sediment. This increase is due to the increase in runoff from development of the area between the Monument/Atrisco Terrace and the Ladera Dams. Finally, Option 6A allows more time for the two major landowners, Westland Development and the National Park Service, to reach an agreement concerning drainage and the Monument.

IV. CONCLUSION

The three preferred options represent the best options for drainage management within the West I-40 study area. These options are the result of years of analysis and refinement based on input from both the AMAFCA Board and the Tech Team.

Based on the inability of the two major landowners to reach an agreement concerning either Option 2D or 3C.1, Option 6A is the recommended option. This option addresses immediate and short-term drainage needs in the study area, while allowing the two majority landowners more time to reach an agreement with regard to management of drainage relating to the Monument.

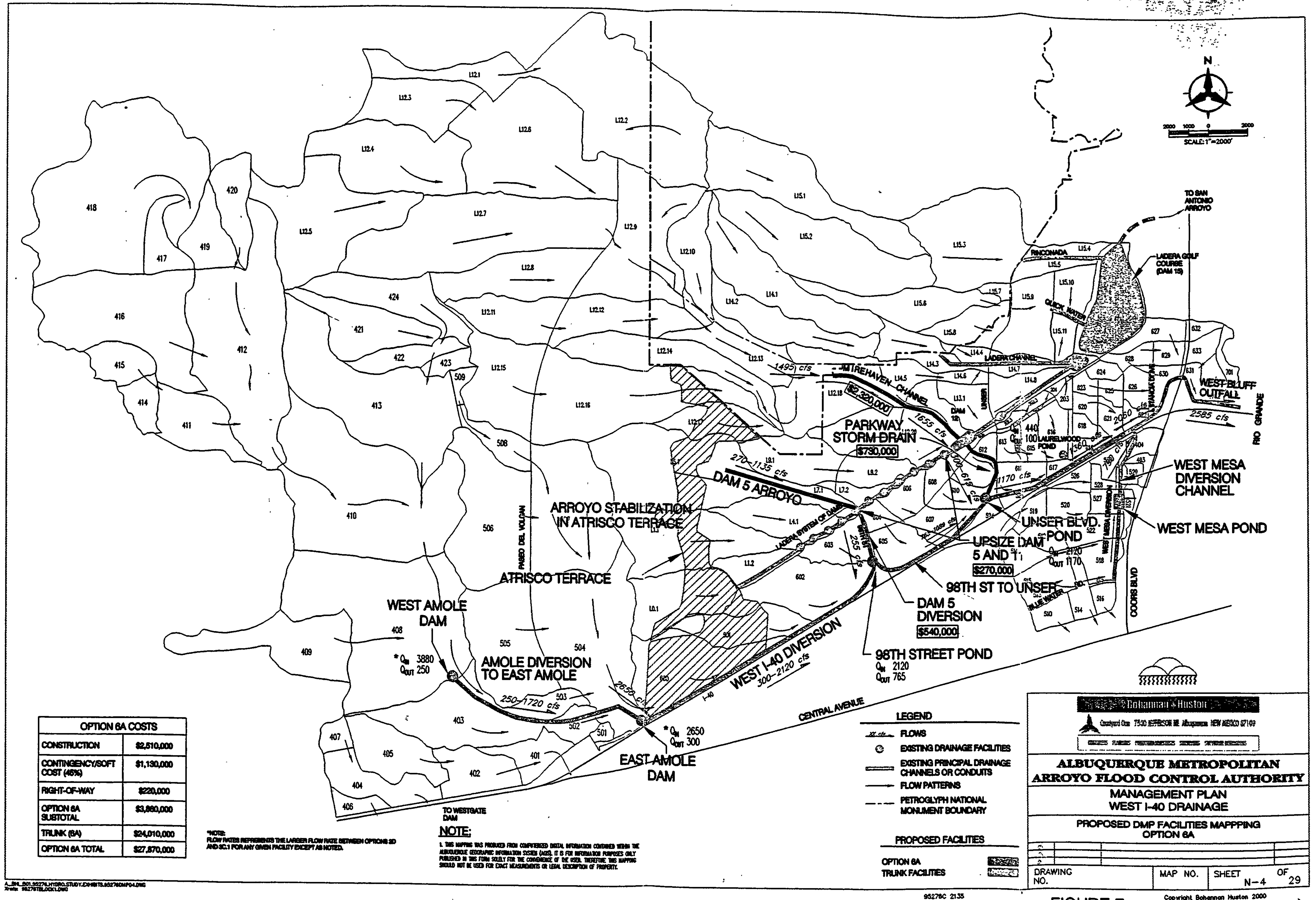
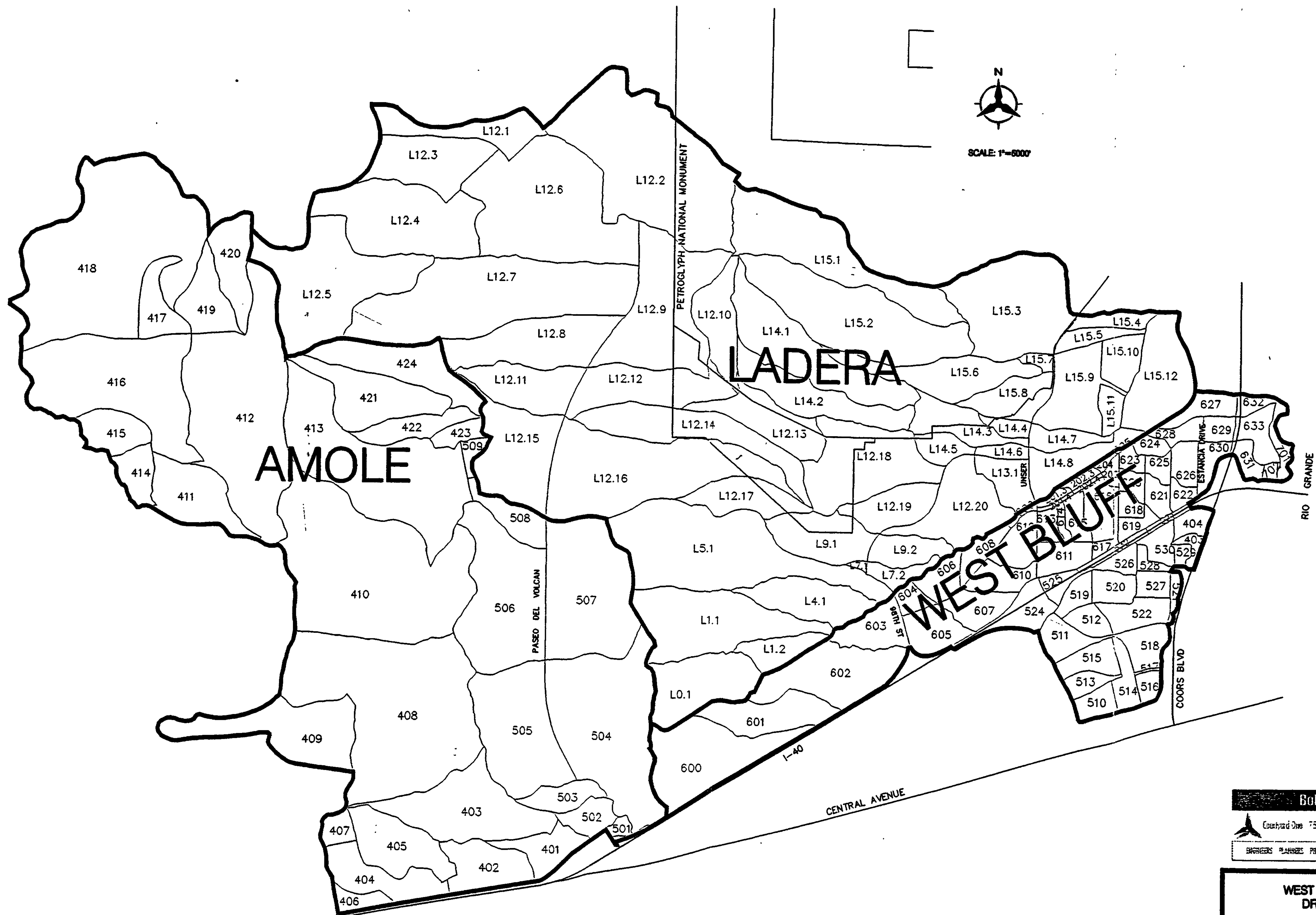


FIGURE 7



Bohannan & Huston
Consulting One 7500 JEFFERSON HE Albuquerque NEW MEXICO 87107
ENGINEERS PLANNERS PHOTOGRAMMETRISTS SURVEYORS SOFTWARE DEVELOPERS

WEST I-40 DIVERSION DMP
DRAINAGE REPORT
BASIN MAP
MAY 1986

FIGURE 2 A-5

APPENDIX E

- **OPTION 2D AHYMO SUMMARY
TABLE**

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 14 NOTATION
DIVIDE HYD	blufdiv	10	37	5.29842	300.00	197.399	.69855	2.100	.088	
	ladera	AND	38	.61980	839.02	23.091	.69855	2.200	2.115	
*S PLOT HYD= BLUFDIV										
*S*****										
*S CALCULATE RUNOFF FOR BASINS NORTH OF I-40 BETWEEN 98TH ST & UNSER BLVD										
*S REGION C										
*S*****										
RAINFALL TYPE= 2										RAIN24= 2.650
*S ADD DAM5 DIVERSION TO I-40 DIV UPSTREAM OF 98TH ST										
ADD HYD	603_15	75&73	72	20.26138	2122.39	1125.034	1.04111	1.550	.164	
*S ROUTE COMBINED THRU 2- 10x8 CBC UNDER 98TH ST										
ROUTE MCUNGE	603_2	72	2	20.26138	2119.66	1124.930	1.04102	1.550	.163	CCODE = .2
*S ROUTE FLOW THROUGH A POND EAST OF 98TH STREET										
ROUTE RESERVOIR	I40P_98	2	45	20.26138	763.27	1107.130	1.02454	2.050	.059	AC-FT= 42.596
*S										
*S ROUTE THROUGH 605 I40 CHANNEL										
ROUTE MCUNGE	605_1	45	51	20.26138	762.76	1106.266	1.02375	2.100	.059	CCODE = .1
*S										
*S COMPUTE HYDROGRAPH FOR BASIN 604B										
COMPUTE NM HYD	604B	-	1	.02930	63.79	2.578	1.64994	1.500	3.402	PER IMP= 52.00
*S ROUTE 604B THROUGH 605										
ROUTE MCUNGE	605_2	1	50	.02930	54.91	2.555	1.63480	1.700	2.928	CCODE = .1
*S ADD 604B & CBC FLOW										
ADD HYD	605_3	50&51	2	20.29068	780.11	1108.820	1.02463	2.000	.060	
*S										
*S COMPUTE HYDROGRAPH FOR BASIN 605										
COMPUTE NM HYD	605.00	-	1	.14220	283.55	12.513	1.64994	1.500	3.116	PER IMP= 52.00
*S ADD 605 & 600-604B										
*S FOR EXISTING COND, ADD 605 & ROUTED FLOW										
ADD HYD	605_4	1&2	3	20.43288	873.77	1121.333	1.02898	1.750	.067	
*S ROUTE FLOW FROM 600-605 THRU 607 DOWN I40 CHANNEL										
ROUTE MCUNGE	607_1	3	50	20.43288	872.36	1119.648	1.02743	1.850	.067	CCODE = .1
*S										
*S COMPUTE HYDROGRAPH FOR BASIN 606B										
COMPUTE NM HYD	606B	-	1	.01450	28.10	1.300	1.68161	1.550	3.028	PER IMP= 52.00
*S ROUTE FLOW FROM 606B THRU 607										
ROUTE MCUNGE	607_3	1	51	.01450	25.64	1.292	1.67013	1.750	2.763	CCODE = .1
*S										
*S COMPUTE HYDROGRAPH FOR BASIN 607										
COMPUTE NM HYD	607.00	-	1	.12030	233.09	10.789	1.68161	1.550	3.027	PER IMP= 52.00
*S ADD 607 & 600-605										
ADD HYD	607_2	1&50	4	20.55318	963.68	1130.438	1.03126	1.800	.073	
*S ADD 606B & (SUM OF 600-605 & 607)										
ADD HYD	607_2	4&51	4	20.56768	986.74	1131.729	1.03171	1.800	.075	
*S										
*S COMPUTE HYDROGRAPH FOR BASIN 604A										
COMPUTE NM HYD	604A	-	1	.02070	42.43	1.694	1.53434	1.500	3.202	PER IMP= 47.00
*S ROUTE FLOW FROM 604A THRU 606A VIA 30 INCH PIPE										
ROUTE MCUNGE	607_1	1	51	.02070	41.78	1.692	1.53247	1.550	3.153	CCODE = .2
*S										
*S COMPUTE HYDROGRAPH FOR BASIN 606A										
COMPUTE NM HYD	606A	-	1	.07770	159.33	6.358	1.53434	1.500	3.204	PER IMP= 47.00
*S ADD 604A & 606A										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 15 NOTATION
ADD HYD	605_3	1&51	2	.09840	199.63	8.050	1.53394	1.500	3.170	
*S	ROUTE 604A AND 606A FLOW THRU 608 DOWN LADERA DR									
ROUTE MCUNGE	608_1	2	50	.09840	198.68	8.103	1.54403	1.600	3.155	CCODE = .2
*S	COMPUTE HYDROGRAPH FOR BASIN 608									
COMPUTE NM HYD	608.00	-	1	.07500	120.49	6.126	1.53156	1.550	2.510	PER IMP= 47.00
*S	ADD ROUTED FLOW FROM 604A AND 606 TO 608									
ADD HYD	608_2	1&50	3	.17340	317.91	14.229	1.53863	1.600	2.865	
*S	COMPUTE HYDROGRAPH FOR BASIN 609									
COMPUTE NM HYD	609.00	-	1	.01250	23.10	1.110	1.66548	1.550	2.887	PER IMP= 50.00
*S	ADD ROUTED FLOW FROM 604A, 606A, 608 TO 609 DAM 12 DIVERSION									
ADD HYD	609_2	1&3	5	.18590	339.97	15.340	1.54716	1.600	2.857	
ADD HYD	609_3	5&37	6	5.48432	415.98	212.738	.72732	1.600	.119	
*S>>>>	ROUTE THRU 612 IN LADERA DIVERSION CHANNEL									
*S	Modified to route through storm drain rather than channel 5/16/00 CWH									
ROUTE MCUNGE	612_1	6	9	5.48432	401.68	212.361	.72603	1.650	.114	CCODE = .1
*S	COMPUTE HYDROGRAPH FOR BASIN 612									
COMPUTE NM HYD	612.00	-	1	.10940	223.10	9.841	1.68668	1.500	3.186	PER IMP= 51.00
*S	ADD FLOW FROM BASIN 612 TO FLOW IN LADERA DIVERSION CHANNEL AT AP 612									
ADD HYD	612_2	1&9	9	5.59372	552.65	222.202	.74482	1.650	.154	
*S	ROUTE FLOW FROM (600-605, 604B, 606B, 607) THRU 610 IN I40 CHANNEL									
ROUTE MCUNGE	610_1	4	50	20.56768	985.87	1131.057	1.03110	1.800	.075	CCODE = .2
*S	COMPUTE HYDROGRAPH FOR BASIN 610									
COMPUTE NM HYD	610.00	-	1	.10160	190.10	10.003	1.84600	1.550	2.924	PER IMP= 61.00
*S	ADD 610 TO (600-605, 604A 606A, 607).									
ADD HYD	610_2	1&50	51	20.66928	1088.58	1141.060	1.03510	1.800	.082	
*S	ADD LADERA DIVERSION TO (600-605, 604A 606A, 607, 610). TOT FLOW IN I-40 CH									
ADD HYD	610_3	9&51	51	26.26300	1556.05	1363.261	.97328	1.700	.093	
*S	PLOT7 HYD=610_3 TOT FLOW IN I-40 CHANNEL W OF UNSER.									
*S	FLOW FROM DAM 12 AND PARKWAY ROUTED THROUGH UNSER POND - CWH 6/15/00									
*S	ROUTE THROUGH UNSER POND FOR 790 CFS WEST MESA DIVERSION									
*S	REVISED POND TO SET SPILLWAY CREST AT 5175.5 CWH 6/15/00									
*S	OUTLET WORKS = 4 - 4' X 6' CBC'S UNDER UNSER BLVD.									
*S	REDUCE POND VOLUME BY A FACTOR OF 0.62 OF ORIGINAL VOLUME CWH 6/15/00									
ROUTE RESERVOIR	I40P_UN	51	1	26.26300	1168.13	1347.160	.96178	2.350	.069	AC-FT= 42.063
*S	ROUTE FLOW THROUGH 6x4 CBC 4 BARRELS UNDER UNSER BLVD AP 610									
ROUTE MCUNGE	610_3	1	10	26.26300	1167.85	1346.427	.96126	2.400	.069	CCODE = .1
*S	COMPUTE OLF ABOVE AP 611 NORTH SIDE OF I40 AT LAURELWOOD PARKWAY									
COMPUTE NM HYD	611.00	-	3	.09840	162.36	9.476	1.80573	1.600	2.578	PER IMP= 58.00
*S	ROUTE OUTFLOW FROM AP 610 TO AP 611 DOWN I40 CHANNEL									
ROUTE MCUNGE	611_1	10	2	26.26300	1167.49	1344.452	.95985	2.450	.069	CCODE = .1
*S	ADD ROUTED FLOW FROM 610 TO OLF ABOVE AP 611									
*S	TOTAL HYD AT AP 611 I40 CHANNEL AT LAURELWOOD PARKWAY									
ADD HYD	611_2	2&3	39	26.36140	1186.08	1353.928	.96300	2.350	.070	
*S										
*S										
*S	*****									
*S	CALCULATE RUNOFF FOR BASINS EAST OF UNSER, SOUTH OF LADERA									
*S	FLOWING TO LAURELWOOD DETENTION POND									
*S	REGION D									
*S	*****									
*S										
*S	COMPUTE HYD ABOVE AP 613 HANOVER RD 825' WEST OF LAURELWOOD PARKWAY									

APPENDIX F

● OPTION 3C1 AHYMO SUMMARY TABLE

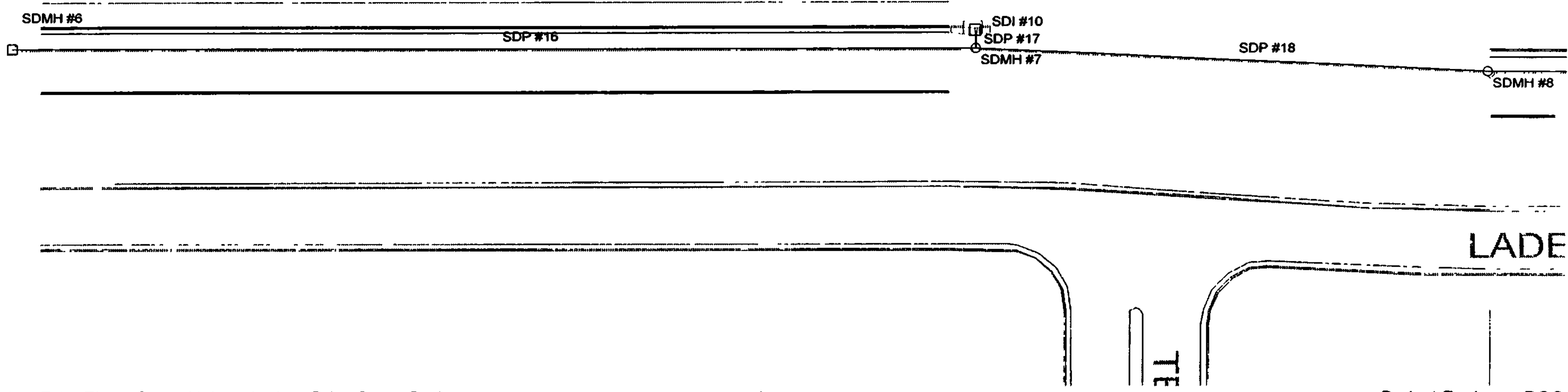
COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 13 NOTATION
ROUTE RESERVOIR	POND12	9	10	11.42826	1324.24	644.361	1.05718	2.150	.181	AC-FT= 58.696
*S PLOT4										
*S										
*S*** DIVERT 80 CFS FROM DAM 12 TO I-40; REST OF DAM 12 OUTFLOW GOES TO DAM 13										
DIVIDE HYD	blufdiv	10	37	9.25961	300.00	522.086	1.05718	2.050	.051	
	ladera	AND	38	2.16865	1024.24	122.275	1.05718	2.150	.738	
*S PLOT6 LADERA CHANNEL										
*S*****										
*S CALCULATE RUNOFF FOR BASINS NORTH OF I-40 BETWEEN 98TH ST & UNSER BLVD										
*S REGION C										
*S*****										
										RAIN24= 2.650
RAINFALL TYPE= 2										
*S										
*S ROUTE OUTFLOW FROM 98TH ST CBC'S THROUGH 605 I40 CHANNEL										
ROUTE MCUNGE	605_1	45	51	14.75133	744.29	728.779	.92633	1.900	.079	CCODE = .1
*S										
*S COMPUTE HYDROGRAPH FOR BASIN 604B										
COMPUTE NM HYD	604B	-	1	.02930	63.79	2.578	1.64994	1.500	3.402	PER IMP= 52.00
*S ROUTE 604B THROUGH 605 VIA 90TH STREET SECTION										
ROUTE MCUNGE	605_2	1	50	.02930	54.91	2.555	1.63480	1.700	2.928	CCODE = .1
*S ADD 604B & CBC FLOW										
ADD HYD	605_3	50&51	2	14.78063	771.92	731.333	.92773	1.850	.082	
*S										
*S COMPUTE HYDROGRAPH FOR BASIN 605										
COMPUTE NM HYD	605.00	-	1	.14220	283.55	12.513	1.64994	1.500	3.116	PER IMP= 52.00
*S ADD 605 & 600-604B										
*S FOR EXISTING COND, ADD 605 & ROUTED FLOW										
ADD HYD	605_4	1&2	3	14.92283	873.77	743.846	.93462	1.750	.091	
*S ROUTE FLOW FROM 600-605 THRU 607 DOWN I40 CHANNEL										
ROUTE MCUNGE	607_1	3	50	14.92283	871.91	742.198	.93255	1.850	.091	CCODE = .1
*S										
*S COMPUTE HYDROGRAPH FOR BASIN 606B										
COMPUTE NM HYD	606B	-	1	.01450	28.10	1.300	1.68161	1.550	3.028	PER IMP= 52.00
*S ROUTE FLOW FROM 606B THRU 607										
ROUTE MCUNGE	607_3	1	51	.01450	25.64	1.292	1.67013	1.750	2.763	CCODE = .1
*S										
*S COMPUTE HYDROGRAPH FOR BASIN 607										
COMPUTE NM HYD	607.00	-	1	.12030	233.09	10.789	1.68161	1.550	3.027	PER IMP= 52.00
*S ADD 607 & 600-605										
ADD HYD	607_2	1&50	4	15.04313	963.64	752.988	.93854	1.800	.100	
*S ADD 606B & (SUM OF 600-605 & 607)										
ADD HYD	607_2	4&51	4	15.05763	986.70	754.279	.93924	1.800	.102	
*S										
*S COMPUTE HYDROGRAPH FOR BASIN 604A										
COMPUTE NM HYD	604A	-	1	.02070	42.43	1.694	1.53434	1.500	3.202	PER IMP= 47.00
*S ROUTE FLOW FROM 604A THRU 606A VIA 30 INCH PIPE										
ROUTE MCUNGE	607_1	1	51	.02070	41.60	1.693	1.53326	1.550	3.140	CCODE = .2
*S										
*S COMPUTE HYDROGRAPH FOR BASIN 606A										
COMPUTE NM HYD	606A	-	1	.07770	159.33	6.358	1.53434	1.500	3.204	PER IMP= 47.00
*S ADD 604A & 606A										
ADD HYD	605_3	1&51	2	.09840	199.93	8.051	1.53410	1.500	3.175	
*S ROUTE 604A AND 606A FLOW THRU 608 DOWN LADERA DR										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 14 NOTATION
ROUTE MCUNGE	608_1	2	50	.09840	198.79	8.101	1.54364	1.600	3.157	CCODE = .2
*S										
*S COMPUTE HYDROGRAPH FOR BASIN 608										
COMPUTE NM HYD	608.00	-	1	.07500	120.49	6.126	1.53156	1.550	2.510	PER IMP= 47.00
*S ADD ROUTED FLOW FROM 604A AND 606A TO 608										
ADD HYD	608_2	1&50	3	.17340	318.02	14.227	1.53841	1.600	2.866	
*S										
*S COMPUTE HYDROGRAPH FOR BASIN 609										
COMPUTE NM HYD	609.00	-	1	.01250	23.10	1.110	1.66548	1.550	2.887	PER IMP= 50.00
*S ADD ROUTED FLOW FROM 604A, 606A, 608 TO 609 LADERA DIVERSION										
ADD HYD	609_2	1&3	5	.18590	340.08	15.338	1.54695	1.600	2.858	
ADD HYD	609_3	5&37	6	9.44551	442.50	537.423	1.06682	1.600	.073	
*S>>>>> ROUTE THRU 612 IN LADERA DIVERSION CHANNEL										
*S Modified to route through storm drain rather than channel 5/16/00 CWH										
ROUTE MCUNGE	612_1	6	9	9.44551	442.30	537.096	1.06617	1.650	.073	CCODE = .2
*S COMPUTE HYDROGRAPH FOR BASIN 612										
COMPUTE NM HYD	612.00	-	1	.10940	223.10	9.841	1.68668	1.500	3.186	PER IMP= 51.00
*S ADD FLOW FROM BASIN 612 TO FLOW IN LADERA DIVERSION CHANNEL AT AP 612										
ADD HYD	612_2	1&9	9	9.55491	616.34	546.937	1.07328	1.600	.101	
*S ROUTE FLOW FROM (600-605, 604B, 606B, 607) THRU 610 IN I40 CHANNEL										
ROUTE MCUNGE	610_1	4	50	15.05763	985.85	753.620	.93842	1.800	.102	CCODE = .2
*S										
*S COMPUTE HYDROGRAPH FOR BASIN 610										
COMPUTE NM HYD	610.00	-	1	.10160	190.10	10.003	1.84600	1.550	2.924	PER IMP= 61.00
*S ADD 610 TO (600-605, 604B, 606B, 607).										
ADD HYD	610_2	1&50	51	15.15923	1088.56	763.622	.94450	1.800	.112	
*S ADD LADERA DIVERSION. TO (600-605, 604B, 606B, 607, 610). TOT FLOW IN I-40										
ADD HYD	610_3	9&51	51	24.71414	1566.55	1310.561	.99429	1.700	.099	
*S PLOT7 HYD=610_2 TOT FLOW IN I-40 CHANNEL W OF UNSER.										
*S UNSER POND FOR 790 CFS WEST MESA DIVERSION										
*S FLOW FROM DAM 12 AND PARKWAY ROUTED THROUGH UNSER POND - CWH 6/15/00										
*S ROUTE THROUGH UNSER POND FOR 790 CFS WEST MESA DIVERSION										
*S REVISED POND TO SET SPILLWAY CREST AT 5175.5 CWH 6/15/00										
*S OUTLET WORKS = 4 - 4' X 6' CBC'S UNDER UNSER BLVD.										
ROUTE RESERVOIR	I40P_UN	51	1	24.71414	1164.87	1293.722	.98151	2.250	.074	AC-FT= 41.824
*S ROUTE FLOW THROUGH 6x4 CBC 4 BARRELS UNDER UNSER BLVD AP 610										
ROUTE MCUNGE	610_3	1	10	24.71414	1164.75	1292.935	.98092	2.300	.074	CCODE = .1
*S COMPUTE OLF ABOVE AP 611 NORTH SIDE OF I40 AT LAURELWOOD PARKWAY										
COMPUTE NM HYD	611.00	-	3	.09840	162.36	9.476	1.80573	1.600	2.578	PER IMP= 58.00
*S ROUTE OUTFLOW FROM AP 610 TO AP 611 DOWN I40 CHANNEL										
ROUTE MCUNGE	611_1	10	2	24.71414	1164.76	1291.630	.97993	2.300	.074	CCODE = .2
*S ADD ROUTED FLOW FROM 610 TO OLF ABOVE AP 611										
*S TOTAL HYD AT AP 611 I40 CHANNEL AT LAURELWOOD PARKWAY										
ADD HYD	611_2	2&3	39	24.81254	1196.09	1301.107	.98320	2.200	.075	
*S										
*S										
*S*****										
*S CALCULATE RUNOFF FOR BASINS EAST OF UNSER, SOUTH OF LADERA										
*S FLOWING TO LAURELWOOD DETENTION POND										
*S REGION D										
*S*****										
*S										
*S COMPUTE HYD ABOVE AP 613 HANOVER RD 825' WEST OF LAURELWOOD PARKWAY										

Combined Pipe/Node Report

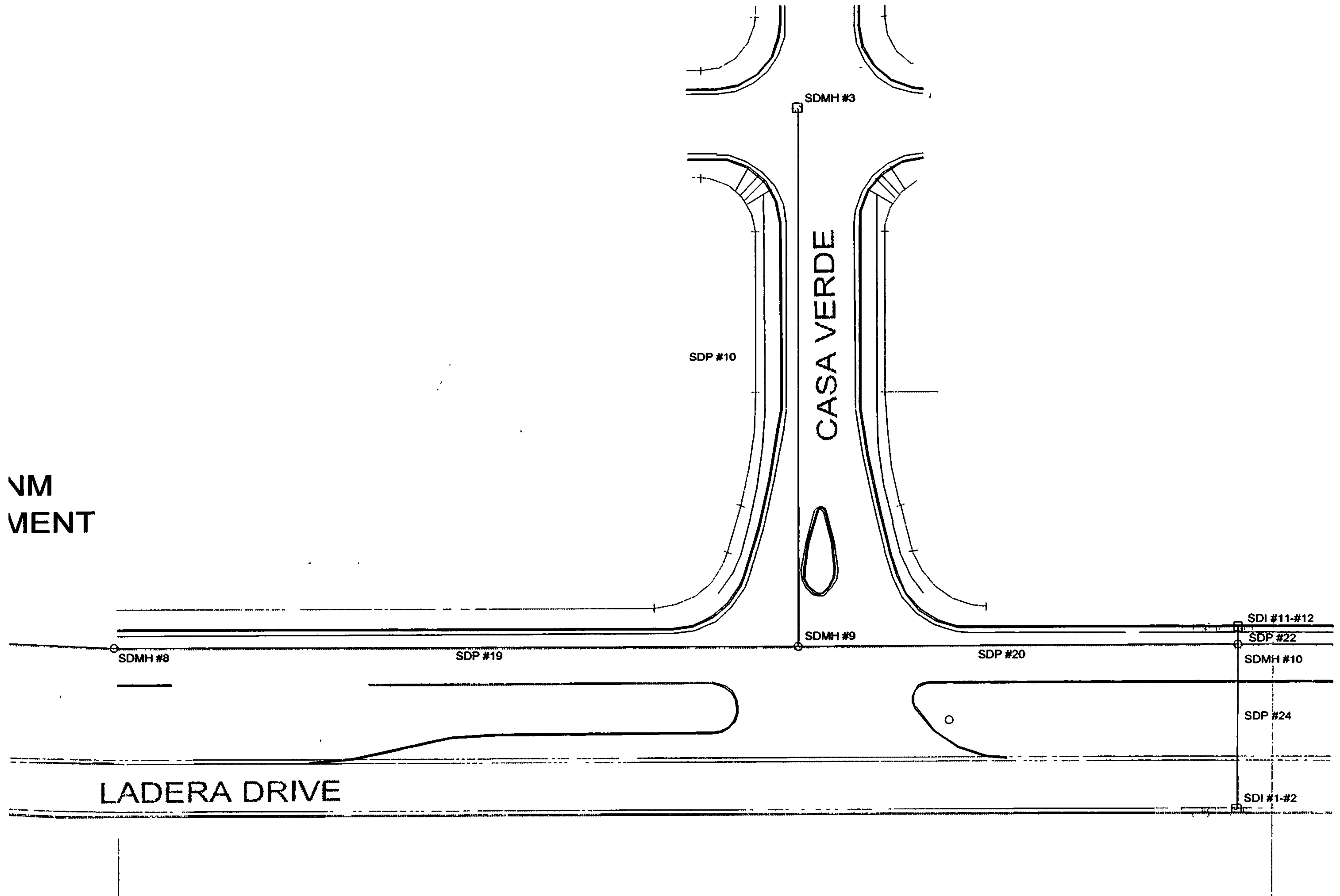
Pipe	Up Node	Dn Node	Length (ft)	Q (cfs)	Size	Cap (cfs)	V avg (ft/s)	Up Invert (ft)	Up Gr Elev (ft)	Up HGL (ft)	Dn Invert (ft)	Dn Gr Elev (ft)	Dn HGL (ft)	S (ft/ft)	Dn Cover (ft)	Up Cover (ft)
SDP #17	SDI #10	SDMH #7	7.00	2.80	18 inch	14.31	2.18	5,227.50	5,231.77	5,228.46	5,227.37	5,231.77	5,228.47	0.018571	2.90	2.77
SDP #16	SDMH #6	SDMH #7	372.00	313.44	60 inch	359.28	18.23	5,230.85	5,238.95	5,235.57	5,223.77	5,231.77	5,227.47	0.019032	3.00	3.10
SDP #18	SDMH #7	SDMH #8	196.00	316.24	60 inch	358.30	16.28	5,223.67	5,231.77	5,228.39	5,219.96	5,227.96	5,225.30	0.018929	3.00	3.10
SDP #10	SDMH #3	SDMH #9	251.00	58.00	36 inch	121.50	8.77	5,221.66	5,226.17	5,224.13	5,213.33	5,224.48	5,220.39	0.033187	8.15	1.51
SDP #19	SDMH #8	SDMH #9	316.00	316.24	60 inch	374.37	16.11	5,219.86	5,227.96	5,225.05	5,213.33	5,224.48	5,220.39	0.020665	6.15	3.10
SDP #22	SDI #11-#12	SDMH #10	8.00	7.45	18 inch	13.39	6.13	5,215.73	5,219.83	5,216.79	5,215.60	5,220.00	5,216.51	0.016250	2.90	2.60
SDP #20	SDMH #9	SDMH #10	202.00	374.24	60 inch	388.70	19.06	5,213.23	5,224.48	5,218.80	5,208.73	5,220.00	5,214.63	0.022277	6.27	6.25
SDP #24	SDI #1-#2	SDMH #10	77.00	7.20	18 inch	18.58	4.07	5,210.73	5,219.83	5,214.99	5,208.32	5,220.00	5,214.63	0.031299	10.18	7.60
SD #25	SDMH #10	SDMH #11	275.00	388.89	60 inch	511.78	19.81	5,208.22	5,220.00	5,213.74	5,197.60	5,211.33	5,207.61	0.038618	8.73	6.78
SDP #26	SDMH #11	SDMH #12	276.00	388.89	60 inch	336.94	19.81	5,197.50	5,211.33	5,207.31	5,192.88	5,202.61	5,201.15	0.016739	4.73	8.83
SDP #15	SDMH #5	SDMH #12	242.00	19.00	30 inch	67.84	5.08	5,204.70	5,211.20	5,206.18	5,198.08	5,202.61	5,201.15	0.027355	2.03	4.00
SDP #30	SDI #14	SDI #13	23.00	9.00	24 inch	14.15	2.86	5,188.20	5,192.74	5,192.72	5,188.11	5,192.76	5,192.68	0.003913	2.65	2.54
SDP #27	SDMH #12	SDMH #13	134.00	407.89	66 inch	525.36	17.17	5,192.78	5,202.61	5,199.55	5,189.50	5,198.34	5,197.57	0.024478	3.34	4.33
SDP #29	SDI #13	SDMH - EXST	45.00	14.00	24 inch	15.82	4.46	5,188.01	5,192.76	5,192.60	5,187.79	5,193.32	5,192.43	0.004889	3.53	2.75
SDP - EXST	SDI - EXST	SDMH - EXST	60.00	9.00	18 inch	7.18	5.09	5,188.07	5,193.41	5,192.87	5,187.79	5,193.32	5,192.43	0.004667	4.03	3.84
SDP # 33	I-15	SDMH#14	71.00	100.00	66 inch	471.52	4.21	5,189.00	5,203.00	5,196.31	5,187.60	5,196.25	5,196.25	0.019718	3.15	8.50
SDP #28	SDMH #13	SDMH#14	74.00	407.89	66 inch	523.71	17.17	5,189.40	5,198.34	5,197.34	5,187.60	5,196.25	5,196.25	0.024324	3.15	3.44
SDP - EXST 24	SDMH - EXST	SDMH - 6' EXST	117.00	23.00	24 inch	18.94	7.32	5,187.69	5,193.32	5,191.88	5,186.87	5,195.33	5,190.67	0.007009	6.46	3.63
SDP #34	SDMH#14	WYE 1	98.00	507.89	72 inch	759.24	18.14	5,187.50	5,196.25	5,193.19	5,184.35	5,196.00	5,190.54	0.032143	5.65	2.75
SDP #31	SDMH - 6' EXST	WYE 1	88.00	23.00	36 inch	75.58	3.25	5,186.77	5,195.33	5,190.64	5,185.64	5,196.00	5,190.54	0.012841	7.36	5.56
SDP #32	SDI	WYE #2	54.00	4.11	18 inch	32.56	3.39	5,191.33	5,197.48	5,192.11	5,186.14	5,196.25	5,189.67	0.096111	8.61	4.65
SDP 34A	WYE 1	WYE #2	14.00	530.89	72 inch	767.63	19.03	5,184.35	5,196.00	5,190.09	5,183.89	5,196.25	5,189.67	0.032857	6.36	5.65
SDP 34B	WYE #2	Outlet	12.00	535.00	72 inch	763.45	19.06	5,183.89	5,196.25	5,189.63	5,183.50	5,192.00	5,189.50	0.032500	2.50	6.36

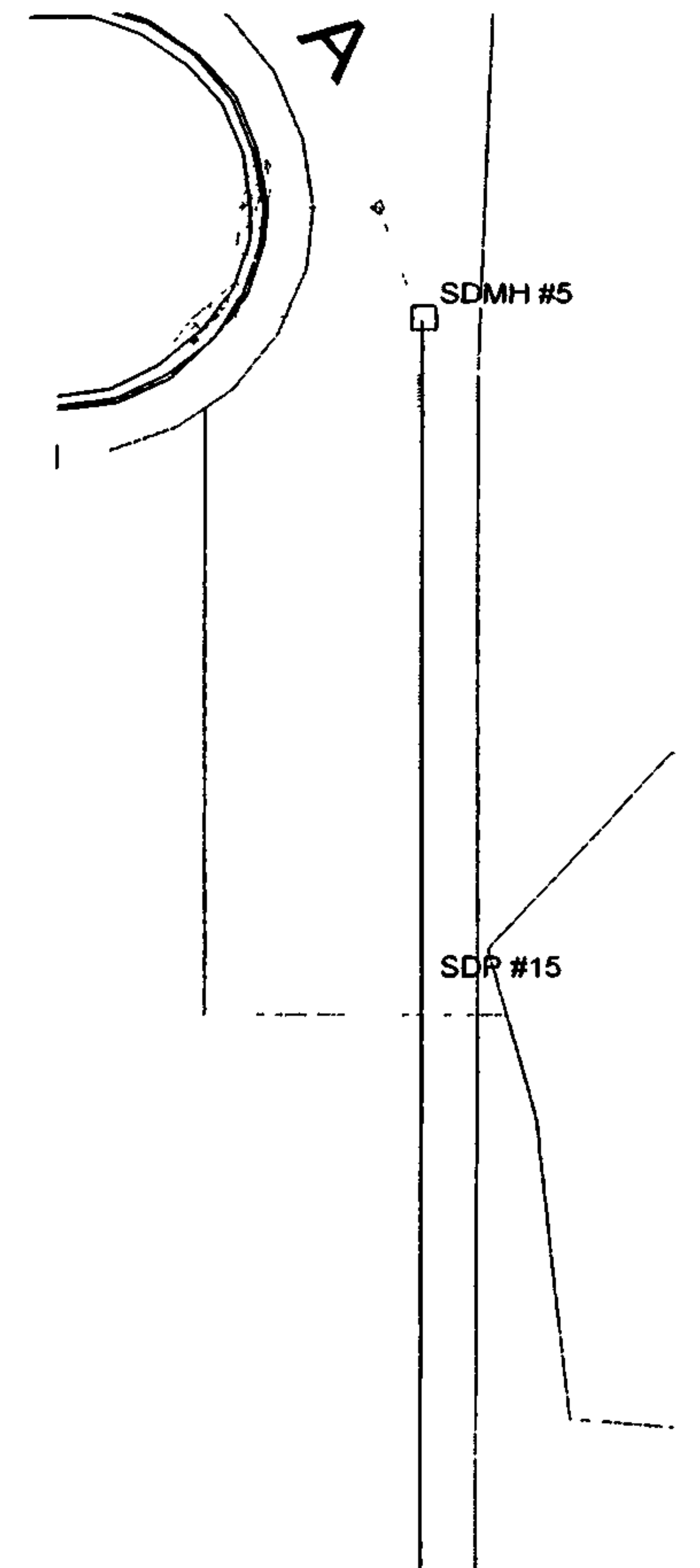
100' PNM
EASEMENT



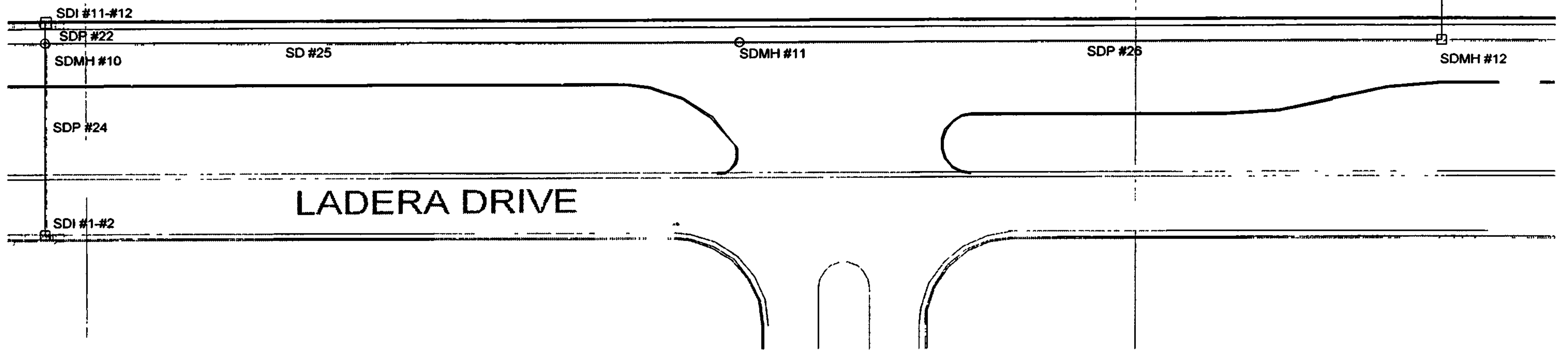
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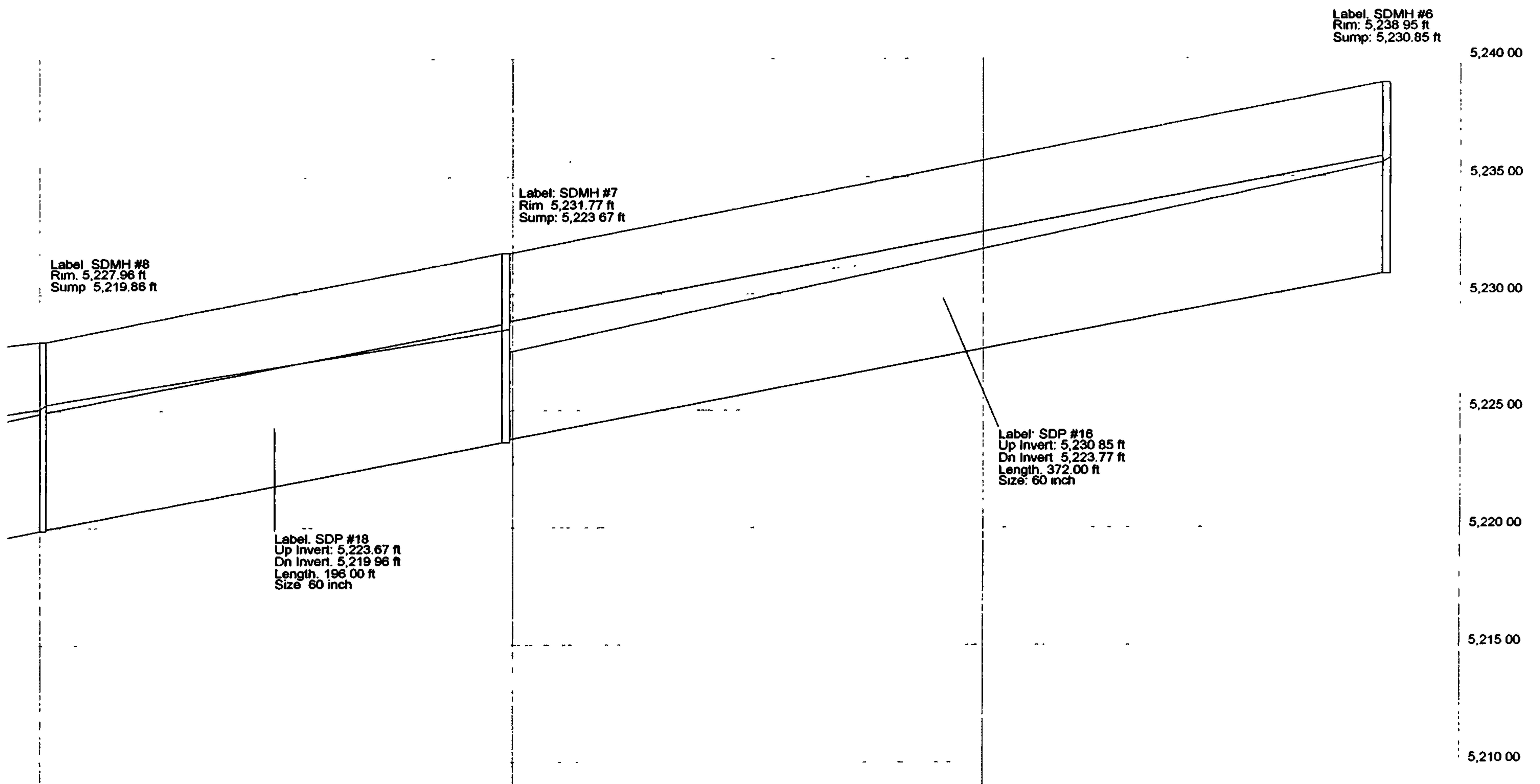


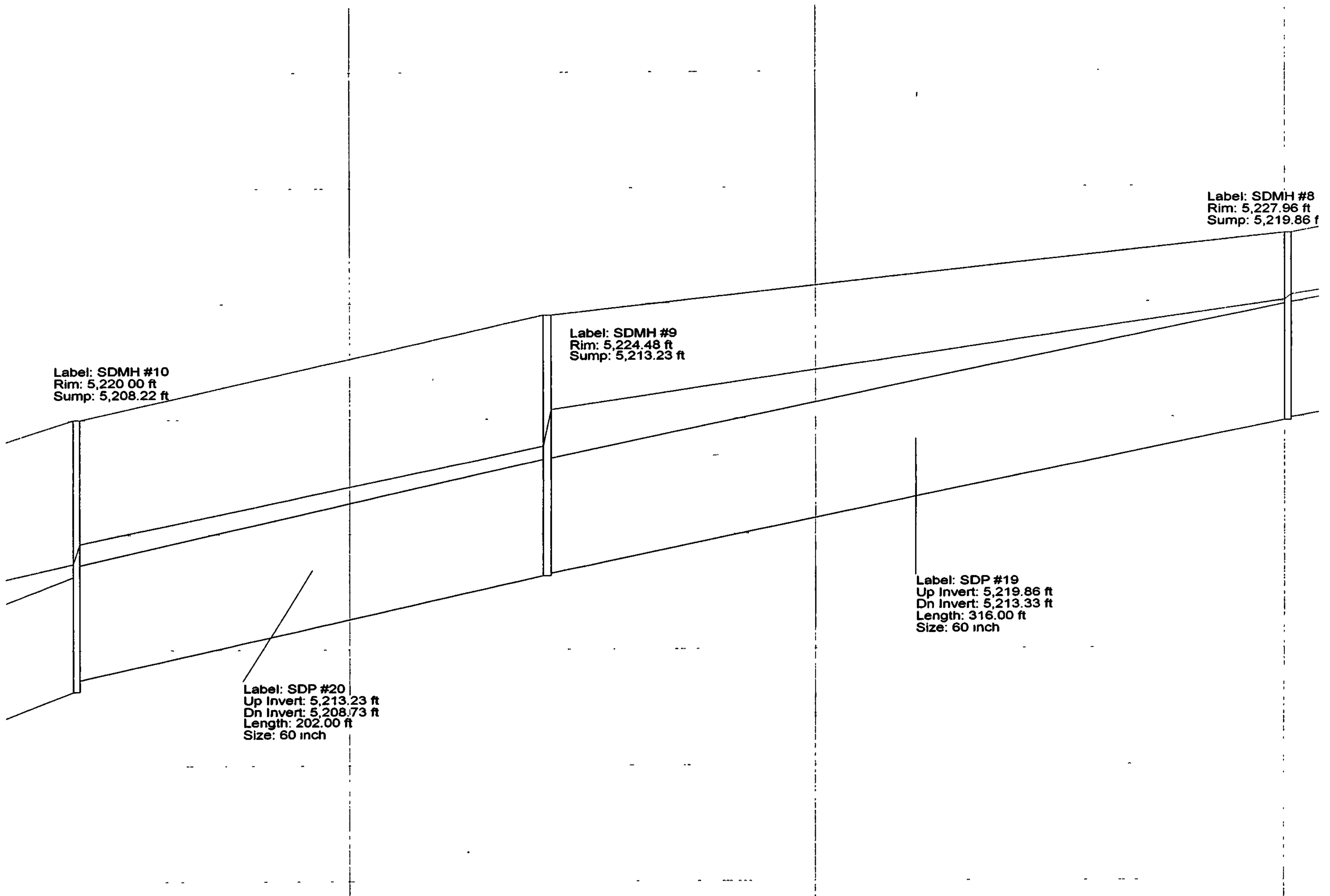
100' PNM
EASEMENT



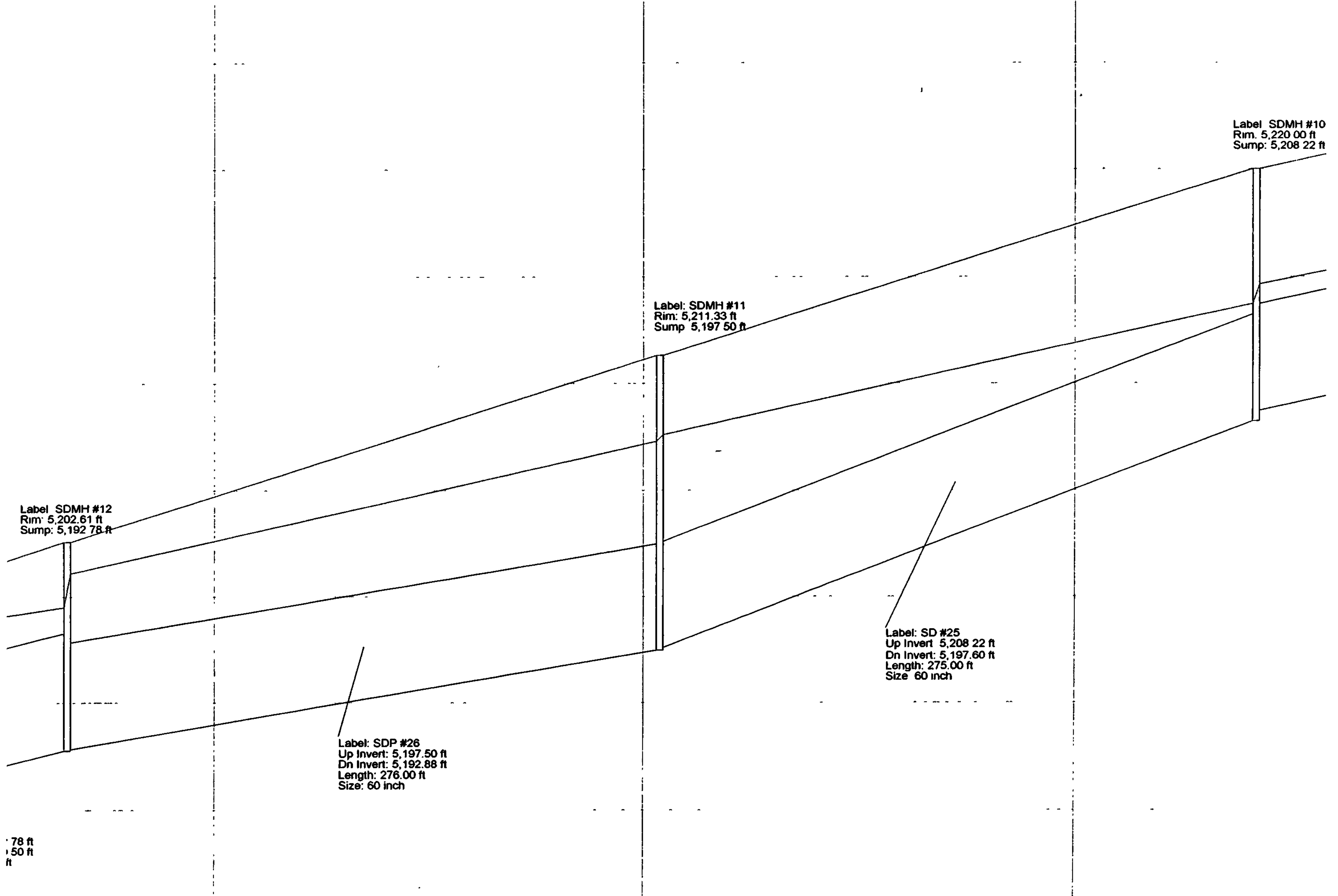
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A-18

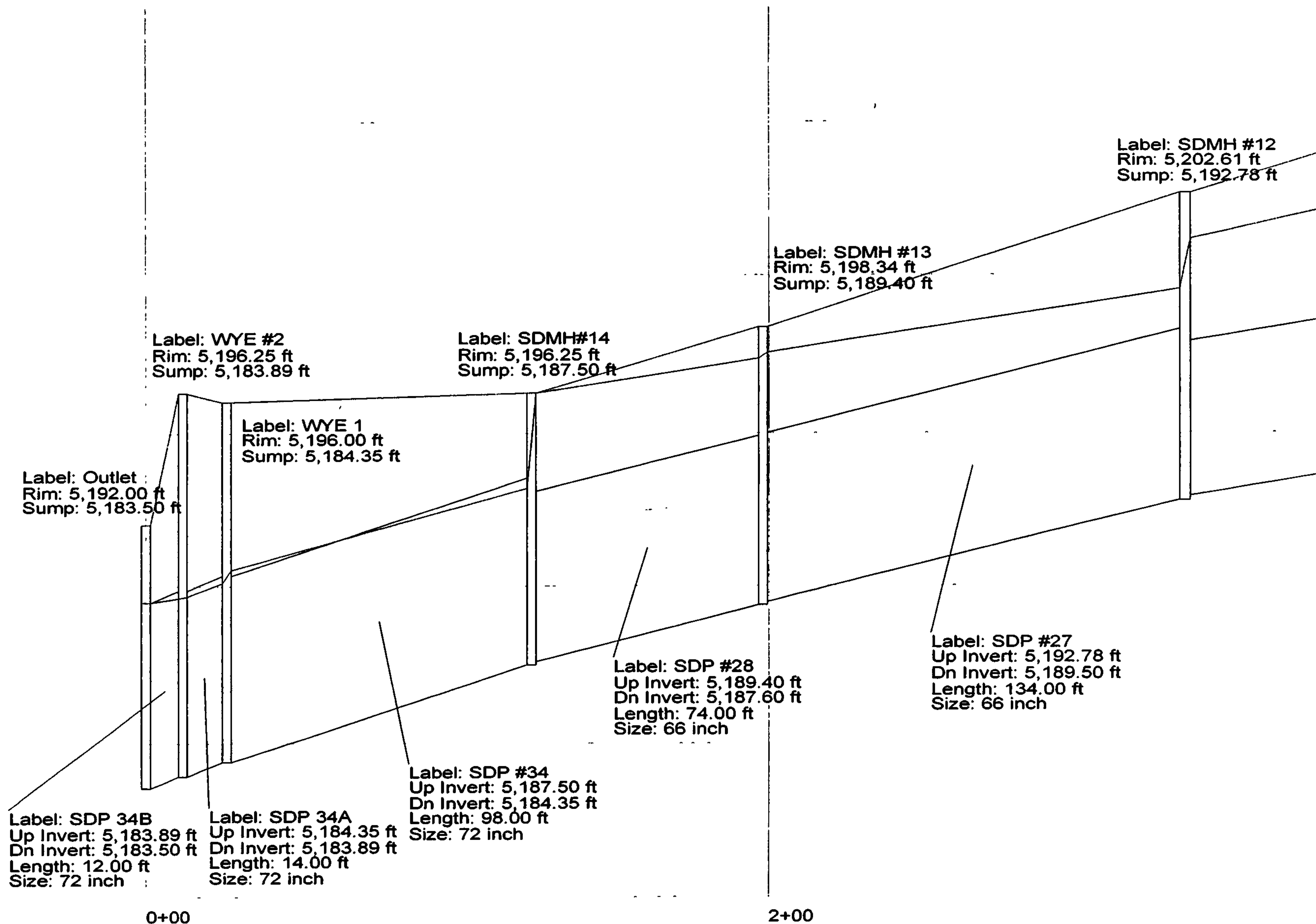




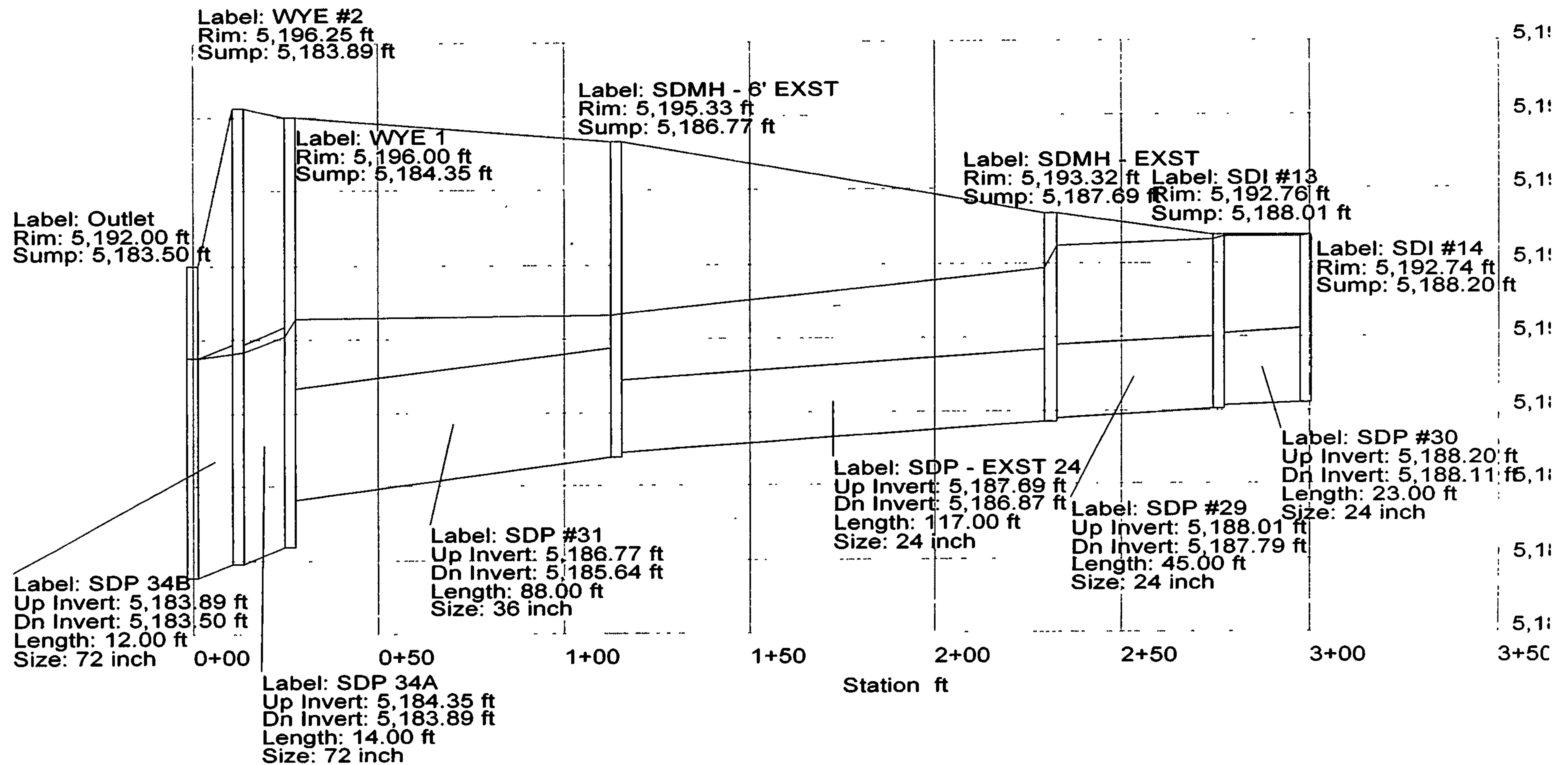
4-19



4-20



A-21



4-22

HYDRAULIC NOTES- Tierra Oeste Headloss

Date:	September 14, 2000	By: Russell Grayson
Project:	Enchanted Hills Master Drainage Plan	

A StormCAD model was created to size the storm drain pipes in Ladera Drive.

Design Criteria

The Headloss at manholes were designed as follows:

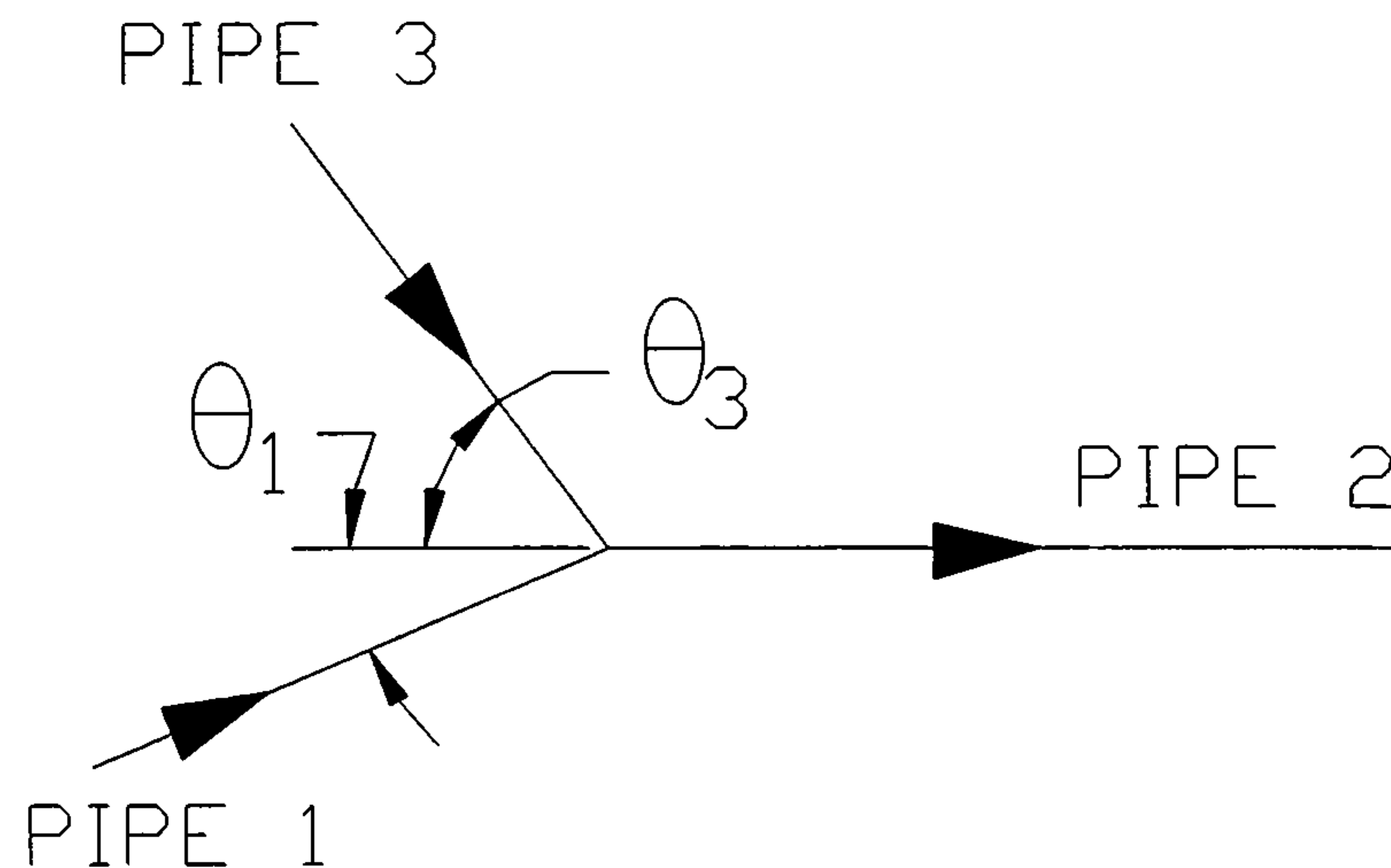
1. StormCAD requires input of either a calculated headloss or the headloss coefficient at the manholes. Per the DPM Section 22, the headloss coefficient due to a manhole is 0.05. In addition to this, if there is also an angle point loss, the coefficient was increased by the value calculated by the following DPM equation:

$$K_a = .0033 * \theta$$

Street Name	Manhole Station	θ (degrees)	K_{mh}	K_a	K_{total} ($K_{mh} + K_a$)
Ladera	SDMH #6	0	.05	-	.05
Ladera	SDMH #8	2.90	.05	.01	.06
Casa Verde	SDMH #3	90	.05	.30	.35
Ladera	SDMH #11	0	.05	-	.05
Ladera	SDMH #12	90	.05	.30	.35
Ladera	SDMH #13	0	.05	-	.05
Ladera	23+57.01 (EX)	31.5	.05	.13	.18
Ladera	SDI #13	66.86	.05	.22	.27

2. In some cases, flow is introduced from adjacent lines into the main line. The DPM's suggested method is using the Thompson equation. The following equation is a modified version of the Thompson equation out of the Los Angeles County Flood Control District Hydraulic Design Manual that takes different pipe angles both into and out of the junction into account:

$$h_j = \frac{Q_2 V_2 - Q_1 V_1 \cos \theta_1 - Q_3 V_3 \cos \theta_3}{g(A_1 + A_2)/2}$$



This equation was used to compute the junction losses that were manually input into the StormCad model, as tabulated below.

Street Name	Junction Station	Q_1	V_1	θ_1	Q_2	V_2	Q_3	V_3	θ_3	A_1	A_2	h_j
Ladera	SDMH #7	313.4	16.2	0	316.3	16.3	2.80	1.6	90	19.6	19.6	0.63
Ladera	SDMH #9	316.3	16.3	0	374.2	19.1	58	8.8	90	19.6	19.6	1.59
Ladera	SDMH #10	374.2	19.4	0	388.9	19.9	7.45	6.1	90	19.6	19.6	0.89
Ladera	SDMH #14	100	4.2	0	507.9	18.1	407.9	17.2	90	23.8	28.3	5.24
Ladera	Wye #1	507.9	18.1	0	530.9	19.0	23	3.3	51	28.3	28.3	0.46
Ladera	Wye #2	530.9	19	0	535.0	19.1	4.1	3.4	49	28.3	28.3	0.04
Ladera	25+27.43 (EX)	14	4.5	67	23.0	3.3	9	5.1	45	3.14	3.14	0.55



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

March 30, 2001

Russell Grayson, P.E.
Huitt-Zoliars, Inc.
333 Rio Rancho Dr NE Suite 101
Rio Rancho, New Mexico 87124-1450

**RE: Grading and Drainage Certification
Tierra Oeste Subd Unit 1 (J-9/D15)
Submitted for Release of Financial Guarantees
Engineers Stamp dated 7/24/1995 Rev. 1/18/1996
Engineer's Certification Stamp Dated 2/13/2001**

Dear Mr. Grayson:

Based upon the information provided in your submittal dated 2/13/2001, the above referenced plan is adequate to satisfy the Grading and Drainage Certification requirements for Release of Financial Guaranty.

Since the original engineer (Larry Read, P.E.), who stamped the grading & drainage plan, has authorized you to prepare and submit the Engineers Certification on the referenced project, we accept your engineers stamp.

If you have any questions, please call me at 924-3986.

Sincerely,

Bradley L. Bingham

Bradley L. Bingham, P.E.
Senior Civil Engineer, Hydrology
Public Works Dept., C.O.A.

C: Arlene Portillo, PWD – #5297.90
File

HUITT-ZOLLARS

Huitt-Zollars, Inc / 333 Rio Rancho Dr N E / Suite 101 / Rio Rancho, New Mexico 87124-1450 / Phone (505) 892-5141 / Fax (505) 892-3259

February 13, 2001

Mr. Bradley Bingham, PE
City of Albuquerque
Development and Building Services
600 N. Second St., NW
P.O. Box 1293
Albuquerque, NM 87103

J9/D15

RE: Tierra Oeste Unit 1 Final Grading Certification-City of Albuquerque Project # 5297.90
Huitt-Zollars Job #: 17-0119-01



Dear Brad,

On behalf of our client, Westland Development, Inc., we are submitting the following items for final grading certification approval for this project.

- City Drainage Information Sheet
- Authorization letter from Larry Reid to certify the approved grading plan engineer stamped by him for Tierra Oeste Unit 1.
- Tierra Oeste Unit 1 Grading Plans Sheet 5 and 6 with engineer's certification.
- Copy of the common lot drainage easement document (see Item 1 below for further information).

Explanations for the corrected final grades on the certified grading plan are as follows:

1. Per direction from our client, we were informed the home developer for this project was not planning on constructing CMU privacy walls for the entire project. The perimeter walls would be CMU, but the interior walls were to be cedar fencing. Because the original design had CMU walls, side yard drainage swales were indicated on both sides of the wall. Also, these CMU privacy walls were designed to retain a maximum of 1.5 ft. Because cedar fencing was incorporated, there could not be any side yard retaining and a common drainage swale on the property line had to be incorporated. Therefore, common drainage easements were created by a separate document (see attached document). This change did not alter the overall drainage patterns for this project.
2. The grades at the intersection of Casa Roja Drive and Casa Verde Drive were changed from the original grading plan to incorporate design changes requested by the DRC during the final review process for this project. The City's comments required a redesign of intersection grades. This redesign did not alter the drainage patterns for this project.

Please call me if you have any questions or require any additional information.

Sincerely,
Huitt-Zollars, Inc.



Russell Grayson, PE
Project Manager

cc: Fred Ambrogio, Westland Development

DRAINAGE INFORMATION

J-9/DO15

PROJECT TITLE Tierra Oeste Unit 1 ZONE ATLAS/DRNG. FILE #: ~~J-9~~
DRB#: 1000117 (94-443) EPC #: _____ WORK ORDER #: 5297.90
LEGAL DESCRIPTION: Subdivision Plat for Tierra Oeste Unit 1 recorded in Bernalillo County Document 2000122355
Recorded 12/8/00 BK-2000C, Pg 307
CITY ADDRESS: North Side of Ladera Drive between Unser Blvd. and Tessa Drive.
ENGINEERING FIRM: Huitt-Zollars, Inc. CONTACT: Russell Grayson, PE
ADDRESS: 333 Rio Rancho Dr., Suite 101 PHONE: 892-5141
Rio Rancho, NM 87124
OWNER: Westland Development Co., Inc. CONTACT: Fred Ambrogi
ADDRESS: 401 Coors Blvd., NW, Alb., NM 87121 PHONE: 831-9600
ARCHITECT: N/A CONTACT: _____
ADDRESS: _____ PHONE: _____
SURVEYOR: Huitt-Zollars, Inc. CONTACT: Russell Grayson, PE
ADDRESS: 333 Rio Rancho Dr., Suite 101 PHONE: 892-5141
Rio Rancho, NM 87124
CONTRACTOR: Melendez Concrete, Inc. CONTACT: Roger Lucero
ADDRESS: 506 Rio Rancho Blvd. PHONE: 896-3821
Rio Rancho, NM 87124

TYPE OF SUBMITTAL:

☐ DRAINAGE REPORT
☐ DRAINAGE PLAN
☐ CONCEPTUAL GRADING & DRAINAGE PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☒ ENGINEER'S CERTIFICATION
☐ OTHER

PRE-DESIGN MEETING:

☐ YES
☒ NO
☐ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

☐ SKETCH PLAT APPROVAL
☐ PRELIMINARY PLAT APPROVAL
☐ S. DEV. PLAN FOR SUB'D. APPROVAL
☐ S. DEV. PLAN FOR BLDG. PRMT. APPROVAL
☐ SECTOR PLAN APPROVAL
☐ FINAL PLAT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☐ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY APPROVAL
☐ GRADING PERMIT APPROVAL
☐ PAVING PERMIT APPROVAL
☐ S.A.D. DRAINAGE REPORT
☒ DRAINAGE REQUIREMENTS *ROFG*
☐ OTHER _____ (SPECIFY)

DATE SUBMITTED: 2/13/01

BY: _____

Russell Grayson, PE, Project Manager
Huitt-Zollars, Inc.

**GRANT OF
PRIVATE DRAINAGE EASEMENTS**

Grant of permanent, private cross-lot drainage easements ("Easements") by Westland Development Co., Inc., a New Mexico corporation whose address is 401 Coors Blvd. NW, Albuquerque, New Mexico ("Grantor"), which shall inure to the benefit of all future owners of lots 1 through 28, inclusive, block 1, lots 1 through 12, inclusive, block 2 and lots 1 through 32, inclusive, of Tierra Oeste Unit One Subdivision, as the same is shown on the plat thereof recorded in the Bernalillo County Real Estate Records on December 8, 2000, in Book 2000C, Page 307, as Document Number 2000122355 ("Lots").

Said "Easements" are ten feet in width and are centered on common side "Lot" property lines and on rear "Lot" property lines where they abut the side yard of an adjacent "Lot". The purpose of the "Easements" is to allow drainage accumulating on the rear yards of the "Lots" to drain forward to the street along a common side property line drainage swale.

Grantor covenants and warrants that Grantor is the owner in fee simple of the "Lots" and that Grantor has good and lawful right to convey the lots or any part thereof.

The Grant and other provisions of these "Easements" constitute covenants running with the land for the benefit of the owners of the "Lots" and their successors and assigns.

WITNESS my hand and seal, this 20 day of December, 2000.

GRANTOR: Westland Development Co., Inc.

By: Barbara Page
Barbara Page, President & CEO

STATE OF NEW MEXICO)
) SS.
COUNTY OF BERNALILLO)

This instrument was acknowledged before me this 20 day of December, 2000, by Barbara Page, President & CEO of Westland Development Co., Inc., a New Mexico corporation, on behalf of said corporation.

Ande J. Blair
Notary Public



OFFICIAL SEAL
ANDERSON J. BLAIR
My Commission Expires
NOTARY PUBLIC - STATE OF NEW MEXICO
Notary Bond Filed with Secretary of State
My Commission Expires 8/5/01

LARRY READ & ASSOCIATES, Inc.

Civil Engineers

Site • Drainage • Utility Design

January 22, 2001

Mr. Russell Grayson, PE
Huitt-Zollars
333 Rio Rancho Blvd. NE
Rio Rancho, New Mexico 87124

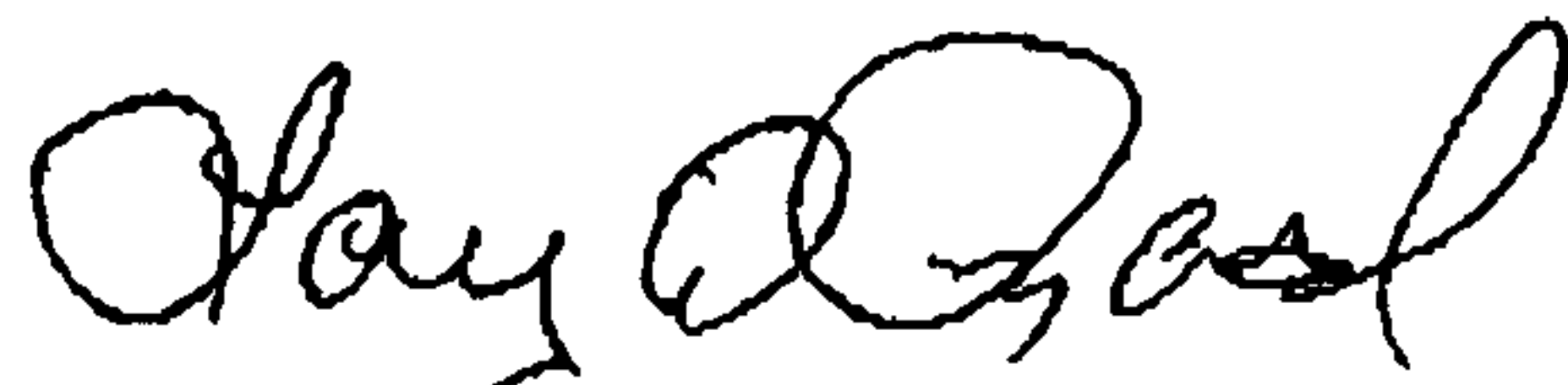
RE: Tierra Oeste Subdivision
Drainage File No. ~~C-12/D-4~~ 59/D15

Dear Mr. Grayson:

Please use this letter as evidence to the City of Albuquerque Public Works Department - Hydrology that I authorize you to prepare and submit the Engineers Certification on the referenced project.

If you have any questions or comments regarding the project design, please call.

Sincerely
LARRY READ & ASSOCIATES, INC.



Larry D. Read, P.E.
President

PROJECT: TIERRA DESTE SUBDIVISION

CALCULATIONS

DATE: 2/13/95

Larry D. Read, P.E.

CHECK CURVE FROM CASA NARANJA Rd. to CASA ROJA

 $Q_{100} = 16.4 \text{ cfs}$ from PLATE 22.3 D-1

$$d = 0.38'$$

$$v = 3.5 \text{ fps} \Rightarrow \text{FLOW IS SUPERCRITICAL}$$

$$w = 32' \text{ (FL to FL)}$$

$$r = 150' @ E$$

$$S = \frac{V^2 b}{g r} \quad (\text{EQN 22.3 PG 58})$$

$$= \frac{(3.5)^2 (32)}{(32.2)(150)}$$

$$= 0.08'$$

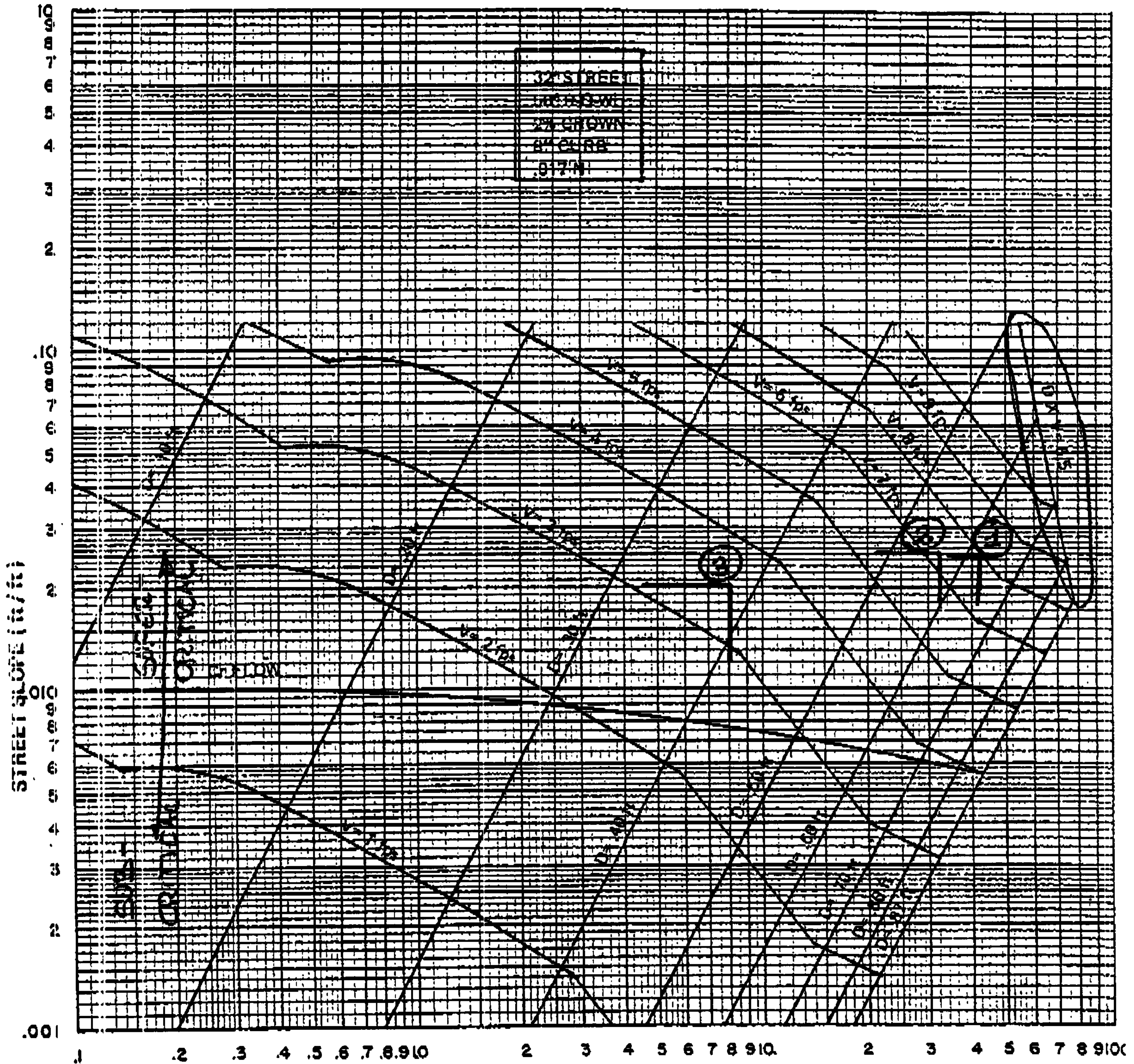
$$\text{Max depth} = 0.38' + 0.08' = 0.46 < 0.87'$$

∴ FLOW IS CONTAINED BETWEEN THE CURBS

ERRA 06516
2/13/96

22.3

STREET CAPACITY



- ONE HALF STREET FLOWS (cfs)
- ① CASA AMARILLA RD
 - ② CASA ROJA @ CASA VERDE
 - ③ CASA ROJA @ CUL-DE-SAC
- PLATE 22.3 D-1

CITY OF ALBUQUERQUE
PLANNING DEPARTMENT
DEVELOPMENT SERVICES DIVISION

DEVELOPMENT REVIEW BOARD
December 13, 1994
S-94-73/DRB-94-443

S-94-73
DRB-94-443 Cinfran Engineering Inc., agents for Tierra Oeste Limited Company request Preliminary Plat approval (includes grading approval) for approximately 133 lots on Unplatted Lands of the Town of Atrisco Grant, Section 16, T10N, R2E, zoned R-D (City) and located on the west side of Ladera Dr NW between 98th St NW and Interstate Route 40, containing approximately 24.5 acres. (J-9)

AMAFCA-
~~(Defer to City Hydrology. Lot B near Pond 12 will require a blanket drainage easement per meeting with City and developer. We understand that an analysis is underway to determine if a storm drain is required in Ladera Drive to the west. City Hydrology will coordinate.)~~

Transit "No adverse comment."

Jones Intercable "No adverse comment."

COG No adverse comments. For information, the Long Range Major Street Plan designates Ladera Drive as a minor arterial which requires 106 feet of right-of-way.

Police Department "No adverse comment."

Real Estate "No adverse comment."

Economic Development "No adverse comment."

APS The 133 homes in the proposed residential development will affect S.R. Marmon Elementary School, Adams Middle School and West Mesa High School. The development, in conjunction with others in the area will likely crowd the facilities in the near future. The current APS Facilities Master Plan includes a new elementary school, however the facility will not open until 1997 or thereabouts. The APS facilities in the area are already large and overcrowded. Enrollment growth is expected to continue in the rapidly developing areas of the City. As schools become overcrowded, boundary changes, alternative schedules, transportation to less crowded schools, and/or combinations of the above strategies maybe employed to relieve schools with large numbers of students.

Zoning Enforcement "No adverse comment."

PNM "No adverse comment."

Gas Company of New Mexico Approves.

Environmental Health The proposed Tierra Oeste development lies adjacent to a major 60 Hz (60 cycles per second) electrical transmission line which is producing a substantial electromagnetic field (EMF). Typical houses do not provide much shielding of magnetic fields.

Environmental Health

There have been many studies of possible health risks associated with prolonged exposure to EMF. Careful and responsible scientists do not yet agree on whether 60 Hz fields pose a risk to public health and, if they do, how serious this risk might be.

The Environmental Health Department recently completed a study of the health effects of electromagnetic fields. A Task Force made up of planners, epidemiologists, a physician, electric utility representatives, real estate professionals and environmental health representatives from the City and County issued a report on EMF on May 25, 1994. It recommended low cost or no cost alternatives by government, public utilities, and developers in regard to land use issues. Following this recommendation, EHD has adopted a policy of "prudent avoidance" which is a strategy for keeping people out of 60 Hz fields in ways which are not economically burdensome.

The strength of electromagnetic fields depend upon the amount of the current flow, not the voltage. The highest fields occur during the periods of maximum electricity use, typically in the early evening. The strength of the EMF at the PNM easement along Ladera NW opposite Parkway Dr. NW was measured at 5 P.M. on 12/5/94 using an EMDEX II Magnetic Field Exposure System. EMF under the outside power line measured 35.2 milliGauss (mG). Background levels are 0.1-0.2 mG. Fifteen feet from the outside power line (identified on the Preliminary Plat Map as the rear setback of townhouses along the southeast side of Casa Roja Place), EMF was measured at 30.0 mG. This level approximates the magnetic field within 1'-2' of a microwave oven.

We recommend that the subdivision be redesigned and Casa Roja Place be realigned to the southeast to parallel the 100' PNM easement. This would provide a 65' buffer between the front setback of the structures and the edge of the PNM easement. EMF at this distance was measured at 11.4 mG. This level approximates the magnetic field surrounding a fluorescent lamp at the distance of 1'-2'.

A copy of the EMF study is attached.

While EH encourages this kind of density as efficient relative to the use of mass transit. Cul-de-sac designs lead to access restrictions that ultimately undermine the inclination to use alternative transit.

As the proposal proceeds toward the implementation of residential units, EH encourages the applicant to consider alternatives to the use of woodburning fireplaces. Possibilities include gas logs and Environmental Protection Agency approved woodburning devices. Operating a fireplace for 4 hours can produce as much carbon monoxide as 2 days worth of driving to and from work. In, contrast, gas logs produce about 35 times less carbon monoxide than a woodburning fireplace.

Because the proposed development will result in earthmoving activities involving an area of 3/4 of an acre or more, a Topsoil Disturbance Permit must be obtained from the City's Environmental Health Department pursuant to Albuquerque/Bernalillo County Air Quality Control Board Regulation No. 8. Revegetation or stabilization of disturbed areas can be coordinated as part of the permitting process.

Parks and General Serv

The Developer under Ordinance 7-1976, as amended, is required to dedicate land which is suitable for development. The City may in lieu of dedication of land accept a cash payment of an amount equal to the value of the land required. Parks & General Services seeks a cash-in-lieu for 133 new lots (Park dedication of a 2.5 acres (+/-) park is proposed at Parkways South, north of the proposed elementary school site and east across Ladera Dr NW). 2. At the time of issuance of building permits, the developer shall be required to pay a development fee per dwelling unit. 3. Mirehaven Diversion Channel is identified as a planned secondary trail on the Trails & Bikeways Facility Plan. 4. RD Zoning requires 2400 s.f. of open space per lot. How will this requirement be met?

Utilities Development

A water and sanitary sewer availability statement was issued on August 22, 1994 for the proposed development. An infrastructure list, based on the availability statement, is required for preliminary plat approval.

City_Engineer

An approved drainage report is required for Preliminary Plat approval. City Surveyor's review and approval is required for Preliminary Plat approval. An approved Infrastructure Listing is required for Preliminary Plat approval. An executed Subdivision Improvements Agreement with financial guarantees are required for Final Plat sign-off. Development projects with land area of 5 acres, or more, are required to file a Notice Of Intent (NOI) with the U.S. Environmental Protection Agency for storm water discharge during construction.

Transportation Develop.

1. Landscaping Plans should not show crosswalks. 2. Entrance does not meet DPM criteria. 3. Two access points to Ladera. 4. Infrastructure list is required. 5. Traffic distribution breakdown is needed for subdivision.

Planning Department

1. A site development/landscape plan must be approved by DRB to allow a R-T density on this site; site plan approval must be specifically requested. Site Plan needs to note building height and setbacks for the entire subdivision; landscape legend, irrigation, and maintenance note are needed. Maintenance of common area tracts (A and B) needs to be addressed (on site plan and plat). DRB signature block is needed.

2. A note should be added addressing the required open space (2,400 sq. ft. per lot); proposed plan does not provide adequate open space (only 1,690 on interior lots).

3. Northern portion of site greatly exceeds design criteria for access street (25 dwellings, 400 feet); refer to comments from Transportation Development, cul-de-sacs need to be 10 feet from subdivision boundary, or minimum 10 foot tangent sections are needed.

IT IS REQUESTED THAT THE APPLICANT AND/OR AGENT BE PRESENT AT THE HEARING

cc:Tierra Oeste Limited Co., 6201 Uptown Blvd NE, Suite 204, 87110

Cinfran Engineering Inc., 333 Rio Rancho Dr NE, Suite 101, Rio Rancho, NM 87124

DRB-94-443

received
19 Oct. 1994

May 25, 1994

FINDINGS AND RECOMMENDATIONS OF THE ALBUQUERQUE ENVIRONMENTAL
HEALTH DEPARTMENT TASK FORCE ON ELECTROMAGNETIC FIELDS

INTRODUCTION

There has been an increase in public interest, awareness and concerns regarding potential health effects from exposure to electromagnetic fields (EMFs). The ability of government, health professionals, and electric utility providers to adequately address these concerns has been challenged by the lack of conclusive EMF research to date. Until research yields more definitive results, interim measures to address potential harmful effects from exposure to EMFs should be considered.

In December 1993, an EMF Task Force was formed by the City of Albuquerque Environmental Health Department (AEHD) to obtain Task Force recommendations for the AEHD policy regarding the relationship between EMFs and health in the context of land use and also how the AEHD should educate the public about EMFs. The group consisted of planners, developers, Realtors, epidemiologists, physicians, electric utility representatives, environmental scientists, and a representative from the Environmental Planning Commission. Thirteen meetings were held which covered the following areas:

- Introduction to the issue and setting of goals and a scope of work.
- Presentation of technical information on electric power transmission and distribution.
- Presentation of scientific research on health effects and a summary of the results from these studies.
- Ongoing and future research.
- A review of previous local land use requests involving EMF issues.
- What other communities are doing.
- Deliberation on proposed findings and recommendations.

The following findings and recommendations have been developed to assist the AEHD in responding to land use matters and requests for public information concerning EMFs.

FINDINGS

1. The focus of the health studies reviewed by the task force in regard to cancer risk was on the magnetic field component of EMFs, not the electric fields. Thus, the following findings and recommendations pertain to magnetic fields only.
2. Although a conclusive link between adverse health effects and exposure to EMFs has not been established, studies over the last fifteen years have indicated that there is reason to view human exposure to EMFs with concern.
3. In the studies considered by the EMF Task Force, stronger associations were found between exposure of children to EMFs and possible adverse effects than were exhibited for adults.
4. Ongoing research should provide a better understanding of the possible health effects of EMFs; however, the specific mechanisms of carcinogenesis for EMFs, if any, are unknown at this time (frequency, duration, magnitude, etc.). Resolution of this issue is not expected for at least several more years.
5. Technological, behavioral, and site planning methods exist which can be used to reduce exposure to EMFs. Different methods can range from no or minimal cost to very expensive. Examples of methods that can help reduce EMF exposure levels include the following:

- Increasing distances between EMF sources and locations of human activity.
- Decreasing length of exposure to EMFs.
- Modifying power lines (e.g., reconfiguration using a "delta arrangement", use of higher poles, burying lines in some instances*, etc.).
- Arranging land use patterns so that locations where children are most likely to spend the most time are also the locations with lower EMF levels.
- Assessing individual home exposure conditions and taking actions to reduce exposure.

- * Buried lines are considered one of the most expensive options, both in terms of the initial cost and from a long-term maintenance standpoint. Buried lines also produce relatively high magnetic fields directly above them, however, they often tend to have lower magnetic fields than overhead lines as distances from the lines increase.

6. EMF levels can also be kept at, or close to, their present levels by maintaining currently existing conditions. However, if no significant changes are made, it is still possible that increased electrical demand will cause a corresponding increase in power and associated EMFs.

RECOMMENDATIONS

1. The City of Albuquerque and the AEHD should pursue efforts to help reduce exposure of community members to EMFs. Emphasis should be focused where the greatest practical benefits may be yielded. Areas of focus should include:
 - Existing land uses.
 - Proposed (or changed) land uses.
 - Children.
 - Enhanced educational efforts concerning EMFs.
2. AEHD should continue efforts to help educate the public about the issue of human exposure to EMFs. Education should include:
 - Preparing an informational brochure to help answer questions and provide information in an easily understandable manner.
 - Monitoring research and continually updating staff knowledge in order to provide the best information possible.
 - Assisting individuals wishing to determine personal exposure levels. Upon request, information on known measured levels should be provided along with available reference materials. With available resources, the City may create a database of community EMFs.
 - Preparing an informational package specifically intended to address questions in the real estate industry and development community which would include a range of options available to reduce EMF exposure.

Additionally, it is recommended that any educational material assembled for release to the public be reviewed by members of the Task Force and other appropriate entities prior to finalization.

3. The City may request the real property owner or the developer to perform a technical evaluation of the anticipated exposure

of community members where proposed land uses are likely to result in exposure of a segment of the population to magnetic fields which are substantially above normal ambient levels over an extended time period. Land use where children are present for extended time periods, including but not limited to residences, day care facilities, and schools, should be given greater weight. Such an evaluation by the real property owner or the developer might include the following elements:

- Field measurements taken at varying distances from the magnetic field source to establish the magnetic field gradient as a function of distance. An EMF measurement protocol should be developed by the City to provide for consistency.
 - Computer generated milligauss contours developed to represent existing and future levels of exposure under various conditions or scenarios, for situations where land use proposals are adjacent to utility lines.
 - Comparisons of the effectiveness of various mitigation options.
 - Cost comparisons of various alternatives.
 - Characterization of the number, type, and siting of buildings, individuals, or potentially sensitive land uses.
4. Developers, government, and utilities should be encouraged to work together to make reasonable efforts to reduce electromagnetic field exposure to members of the community.
 5. Current scientific findings are not definitive and, therefore, no cost or low cost alternatives by government, public utilities, and developers are recommended at this time.
 6. Where an action will result in a substantial increase in electromagnetic field exposure levels to existing sites of prolonged human activity, adequate justification should be given for the proposed action.
 7. The City of Albuquerque, in cooperation with local electric utilities, should make an effort to discuss and incorporate appropriate measures pertinent to electromagnetic fields within the Electrical Facilities Plan for the metropolitan area.



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

July 26, 1995

Larry D. Read, PE
Cinfran Engineering
333 Rio Rancho Dr NE #101
Rio Rancho, NM 87124

J9/D15

RE: DRAINAGE REPORT FOR TIERRA OESTE ~~HOUSTON~~
RECEIVED JUNE 22, 1995 FOR BUILDING PERMIT
ENGINEER'S STAMP DATED 6/15/95

Dear Mr. Read:

Based on the information included in the submittal referenced above, City Hydrology accepts the Grading Plan dated 7-24-95 for Rough Grading Permit for Phase 1 only. Any excess disturbed areas must be seeded using C.O.A. Spec 1012. The following comments must be addressed before City Hydrology will accept the Drainage Report for Final Plat & Work Order:

Provide a summary table for hydraulic design of each street. Include Street name, width, type of curb, slope, Q100, Dn, velocity and $E = Dn + V^2/(2g)$. If all of the cul-de-sacs have the same width, curb & slop, then it will be sufficient to check only the one with the largest flow. Provide hydraulic grade line calculations for the storm drain in Ladera and volume calculations for the sediment ponds.

City Hydrology recommends that existing contours and proposed spot elevations be used on the Final Grading Plan. Existing contours or spot elevations must extend at least 25' beyond the property line. Label adjacent properties. Provide top of curb & flow line elevations at PCs and slope changes. Indicate which streets have mountable roll curb. The sediment pond at the end of Casa Amarilla must have an Agreement & Covenant and a temporary drainage easement.

If you have any questions about this project, You may contact me at 768-2727.

Sincerely,

John P. Curtin, P.E.
Civil Engineer/Hydrology

c: Andrew Garcia
Larry Caudill, Environmental Health

DRAINAGE INFORMATION SHEET

J9/D15

PROJECT TITLE: Tierra OesteZONE ATLAS/DRNG. FILE ~~888-443/113~~LEGAL DESCRIPTION: Town of Artrisco Grant, Unplatted Lands of Westland Development Co. Inc.CITY ADDRESS: West of Unser Blvd., North of I-40, North of Ladera Dr.ENGINEERING FIRM: Cinfran Engineering Inc.CONTACT: Larry D. ReadADDRESS: 333 Rio Rancho Dr. NE, #101PHONE: 892-5141OWNER: Tierra Oeste Limited Co.CONTACT: Chuck WilkenADDRESS: 6201 Uptown Blvd. NE, Suite 204PHONE: 889-0080ARCHITECT: N/ACONTACT: N/AADDRESS: N/ACONTACT: N/ASURVEYOR: Cinfran Engineering Inc.CONTACT: Dan HolmesADDRESS: 333 Rio Rancho Dr. NE, #101PHONE: 892-5141CONTRACTOR: N/ACONTACT: N/AADDRESS: N/APHONE: N/A

PRE-DESIGN MEETING:

☒ YES
☐ NODRB NO. 94-443
EPC NO. _____

____ COPY OF CONFERENCE RECAP SHEET PROVIDED PROJ. NO. _____

TYPE OF SUBMITTAL:

CHECK TYPE OF APPROVAL SOUGHT:

☒ DRAINAGE REPORT

____ SKETCH PLAT APPROVAL

☒ DRAINAGE PLAN

____ PRELIMINARY PLAT APPROVAL

____ PRELIMINARY GRADING AND DRAINAGE PLAN

____ SITE DEVELOPMENT PLAN APPROVAL

☒ GRADING PLAN

____ FINAL PLAT APPROVAL

____ EROSION CONTROL PLAN

☒ BUILDING PERMIT APPROVAL

____ ENGINEER'S CERTIFICATION

____ FOUNDATION PERMIT APPROVAL

____ CERTIFICATE OF OCCUPANCY APPROVAL

☒ ROUGH GRADING PERMIT APPROVAL

____ GRADING/PAVING PERMIT APPROVAL

DATE SUBMITTED: JUNE 16, 1995BY: Larry D. ReadOTHER ☐ ☐ ☐ ☐ ☐ (SPECIFY)

JUN 22 1995

DRAINAGE INFORMATION SHEET

J9/D15

PROJECT TITLE: Tierra Oeste

ZONE ATLAS/DRNG. FILE ~~J-9-8-11-9-2-1-3~~

LEGAL DESCRIPTION: Town of Artrisco Grant, Unplatted Lands of Westland Development Co. Inc.

CITY ADDRESS: West of Unser Blvd., North of I-40, North of Ladera Dr.

ENGINEERING FIRM: Cinfran Engineering Inc. CONTACT: Larry D. Read

ADDRESS: 333 Rio Rancho Dr. NE, #101 PHONE: 892-5141

OWNER: Tierra Oeste Limited Co. CONTACT: Chuck Wilken

ADDRESS: 6201 Uptown Blvd. NE, Suite 204 PHONE: 889-0080

ARCHITECT: N/A CONTACT: N/A

ADDRESS: N/A CONTACT: N/A

SURVEYOR: Cinfran Engineering Inc. CONTACT: Dan Holmes

ADDRESS: 333 Rio Rancho Dr. NE, #101 PHONE: 892-5141

CONTRACTOR: N/A CONTACT: N/A

ADDRESS: N/A PHONE: N/A

PRE-DESIGN MEETING:

☒ YES
☐ NO

DRB NO. 94-443
EPC NO. _____

____ COPY OF CONFERENCE RECAP SHEET PROVIDED PROJ. NO. _____

TYPE OF SUBMITTAL:

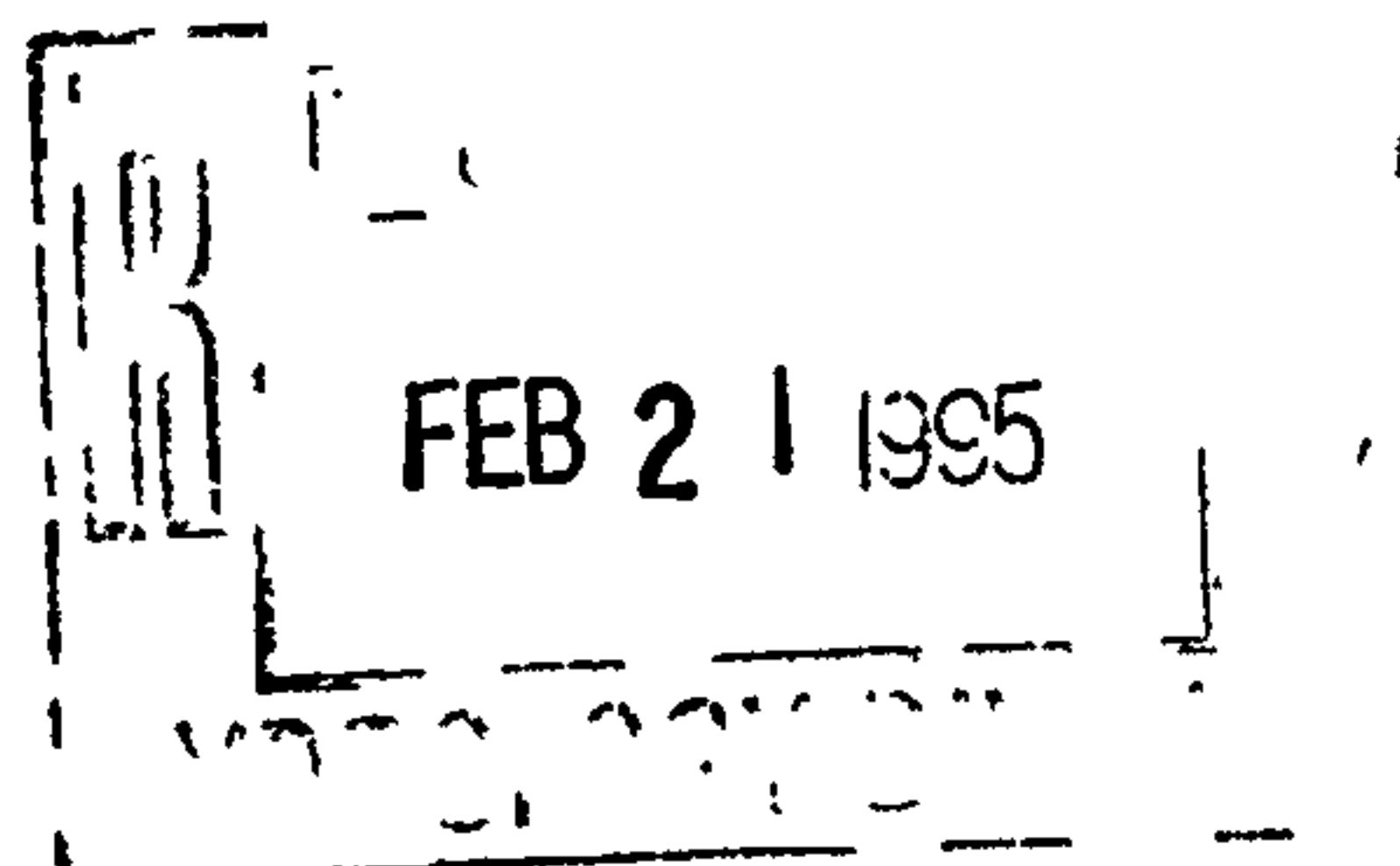
- ☒ DRAINAGE REPORT
- ☐ DRAINAGE PLAN
- ☒ PRELIMINARY GRADING AND DRAINAGE PLAN
- ☐ GRADING PLAN
- ☒ EROSION CONTROL PLAN
- ☐ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

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

DATE SUBMITTED: 1/17/95

BY: [Signature]





City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

February 21, 1995

Larry D. Read
Cinfran Engineering Inc.
333 Rio Rancho Dr. NE, Suite 101
Rio Rancho, NM 87124

RE: PRELIMINARY PLAT APPROVAL FOR TIERRA OESTE SUBDIVISION
(~~1706/000123~~) ENGINEER'S STAMP DATED 1/17/95

J9/D15

Dear Mr. Read:

Based upon the information supplied in your 1/18/95 submittal, along with the additional information (including a revised Infrastructure List) provided, I can approve at this time the Preliminary Plat for the referenced project.

It is my understanding from our recent telephone conversations that:

1. You will provide an addendum to your drainage report which will include an analysis of developed storm flows from OFF2. Although your current calculations show that your site's streets have adequate carrying capacity, it is imperative that an energy grade line analysis be performed to ensure that hydraulic jumps can be contained within the right-of-ways.
2. To confirm our earlier discussion regarding the temporary detention facility within basin OFF1C, I have since discussed this with Mr. Steve Crawford from Community Sciences and he agrees that this pond will be included on the Parkway Unit 8 & 9 Infrastructure List.

If I can be of further assistance, feel free to call me at 768-3622.

Sincerely,

Scott Davis
PWD, Hydrology Division

c: Andrew Garcia

File



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

November 6, 2000

Russell Grayson, PE
Cinfran/Huitt-Zollars
333 Rio Rancho Dr. NE, Ste 101
Rio Rancho, NM 87124

**Re: Tierra Oeste Units 1 & 2 Drainage Report, Addendum #1
Engineer's Stamp dated 9-14-00, (J9/D15)**

Dear Mr. Grayson,

Based on your resubmittal dated 9-18-00, the above referenced Addendum is approved for Work Order requirements. AMAFCA approval will be required as well. Since Work Order has already been issued for this project, please submit a change order to the original documents. This will include revising the SIA and Infrastructure List.

Prior to release of Financial Guaranty, Engineer Certification will be required.

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

Sincerely,

Bradley L. Bingham, PE
Sr. Engineer, Hydrology

C: Kevin Broderick, COA # 529790
file

DRAINAGE INFORMATION

J-9/DOIS &

PROJECT TITLE Tierra Oeste Units 1 & 2 ZONE ATLAS/DRNG. FILE #: H-9/5-9

DRB#: 94-443 EPC #: _____ WORK ORDER #: 5297.90 & 5297.91

LEGAL DESCRIPTION: Unplatted Lands of Westland Development Co., Inc.

CITY ADDRESS: _____

ENGINEERING FIRM: CINFRAN/Huitt-Zollars, Inc. CONTACT: Russell Grayson, PE

ADDRESS: 333 Rio Rancho Dr. NE Suite 101 PHONE: 892-5141
Rio Rancho, NM 87129

OWNER: Westland Development Co., Inc. CONTACT: Fred Ambrosi

ADDRESS: 401 Coors Blvd NW PHONE: 831-9600
Albuquerque, NM 87131

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- ☒ DRAINAGE REPORT
- ☒ DRAINAGE PLAN
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- ____ GRADING PLAN
- ____ EROSION CONTROL PLAN
- ____ ENGINEER'S CERTIFICATION
- ____ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

- ____ SKETCH PLAT APPROVAL
- ____ PRELIMINARY PLAT APPROVAL
- ____ S. DEV. PLAN FOR SUB'D. APPROVAL
- ____ S. DEV. PLAN FOR BLDG. PRMT. APPROVAL
- ____ SECTOR PLAN APPROVAL
- ____ FINAL PLAT APPROVAL
- ____ FOUNDATION PERMIT APPROVAL
- ____ BUILDING PERMIT APPROVAL
- ____ CERTIFICATE OF OCCUPANCY APPROVAL
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ S.A.D. DRAINAGE REPORT
- ____ DRAINAGE REQUIREMENTS
- ☒ OTHER _____ (SPECIFY)

PRE-DESIGN MEETING:

- ____ YES
- ☒ NO
- ____ COPY PROVIDED

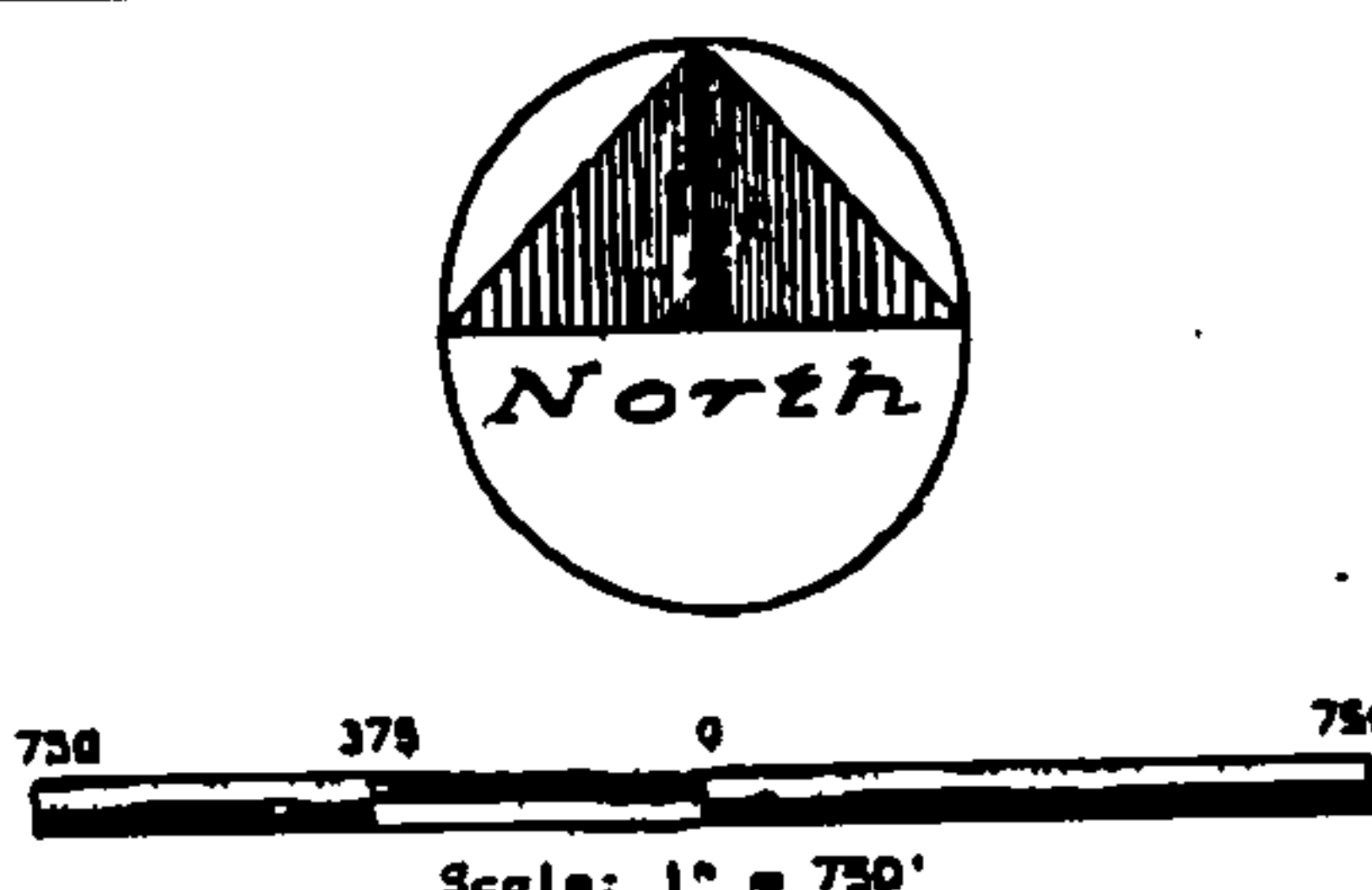
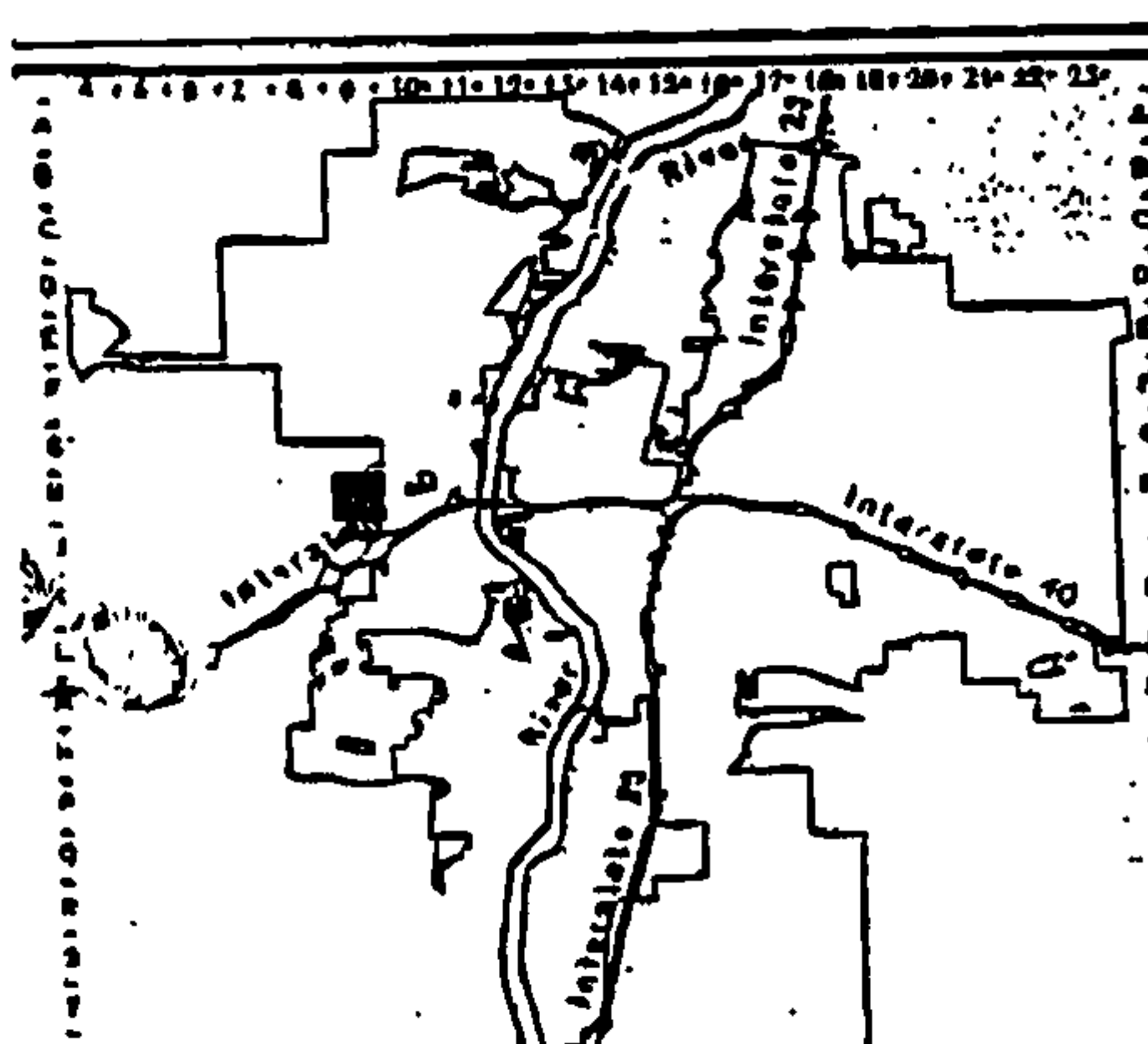
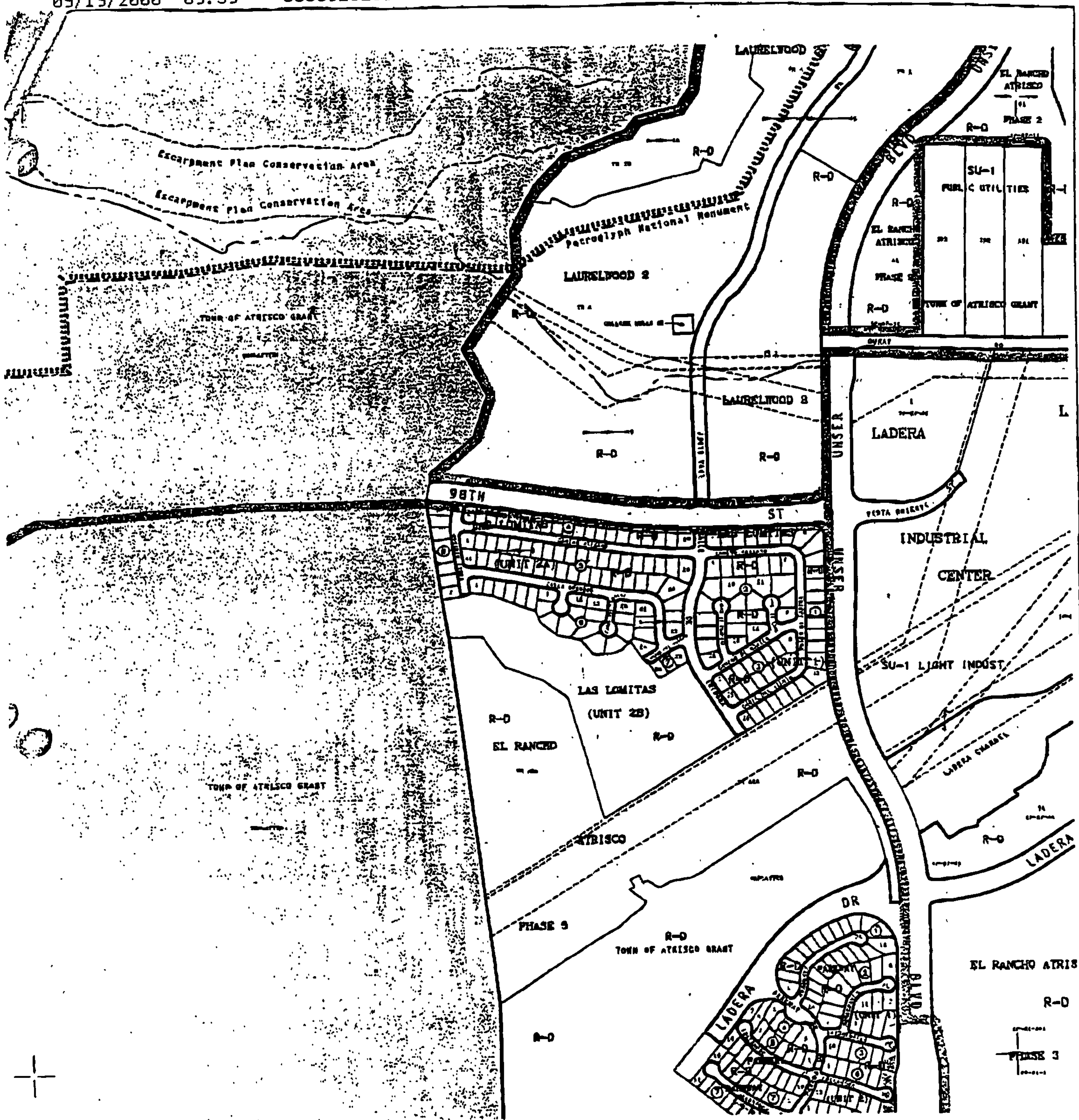
DATE SUBMITTED: 9/14/00BY: [Signature]

Addendum to approved drainage report.

RECEIVED

SEP 18 2000

HYDROLOGY SECTION



A. G. L. S.
ARCHITECTS & ENGINEERS
© Planning Department July 03, 1993

LEGAL DESCRIPTION

T10N
R2E
SEC 8

UNIFORM PROPERTY CODE

1-008-053

H-9-Z

City Project No.
5297-20
5297-21

Tierra Oeste
Subdivision

TOWN OF ATRISCO GRANT

TOWN OF AT

R-D

15 DU/A

FRVY

ATRISCO

BUSINESS PARK

LEGAL DESCRIPTION

T10N

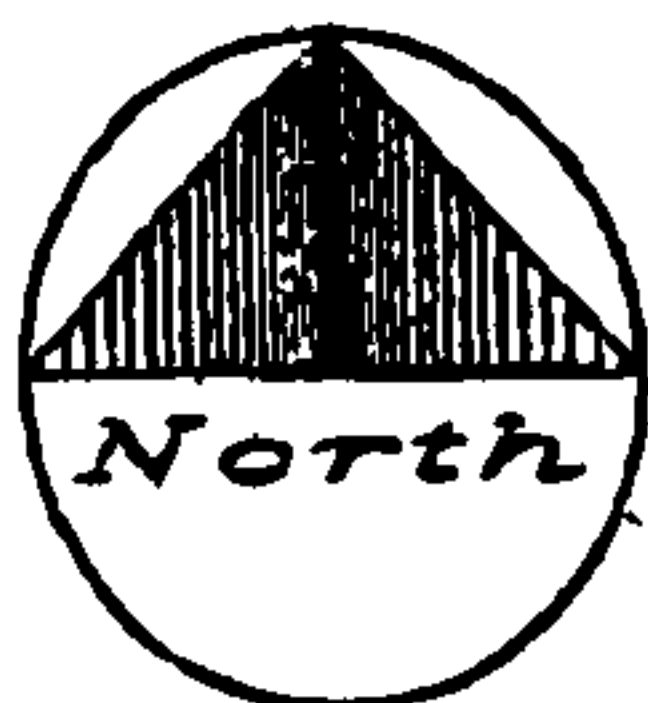
R2E

SEC 18

UNIFORM PROPERTY CODE

1-002-058

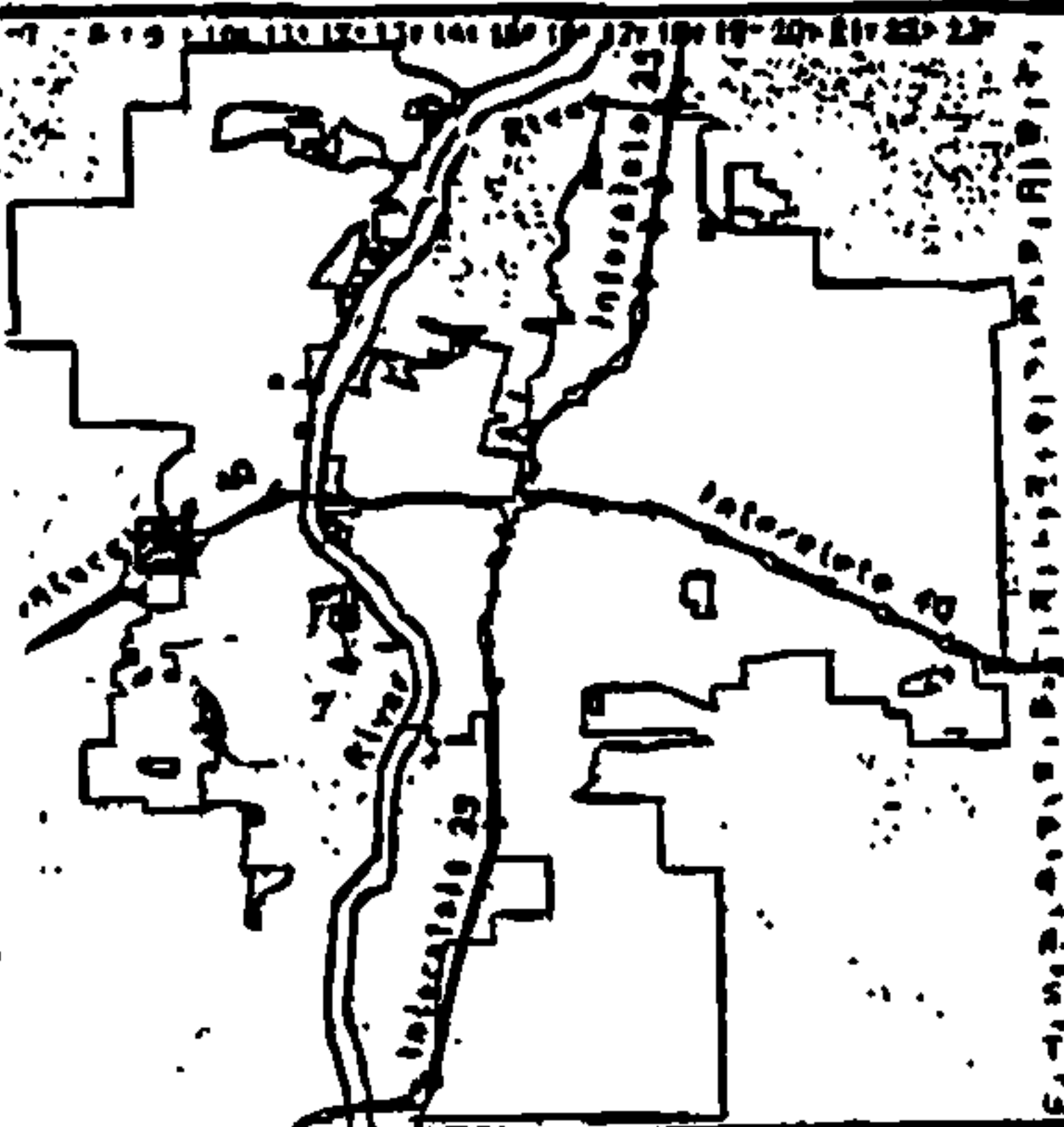
J-9-Z



750 375 0 750
Scale: 1" = 750'

A. G. I. S.
Engineering & Surveying
1000 N. 1st St., Suite 100, San Jose, CA 95131

© Planning Department July 06, 1993



In accordance with the West I-40 DMP recommended Option 6.A, Option 3C.1 is the worst-case scenario, and was therefore used to for the purposes of this addendum.

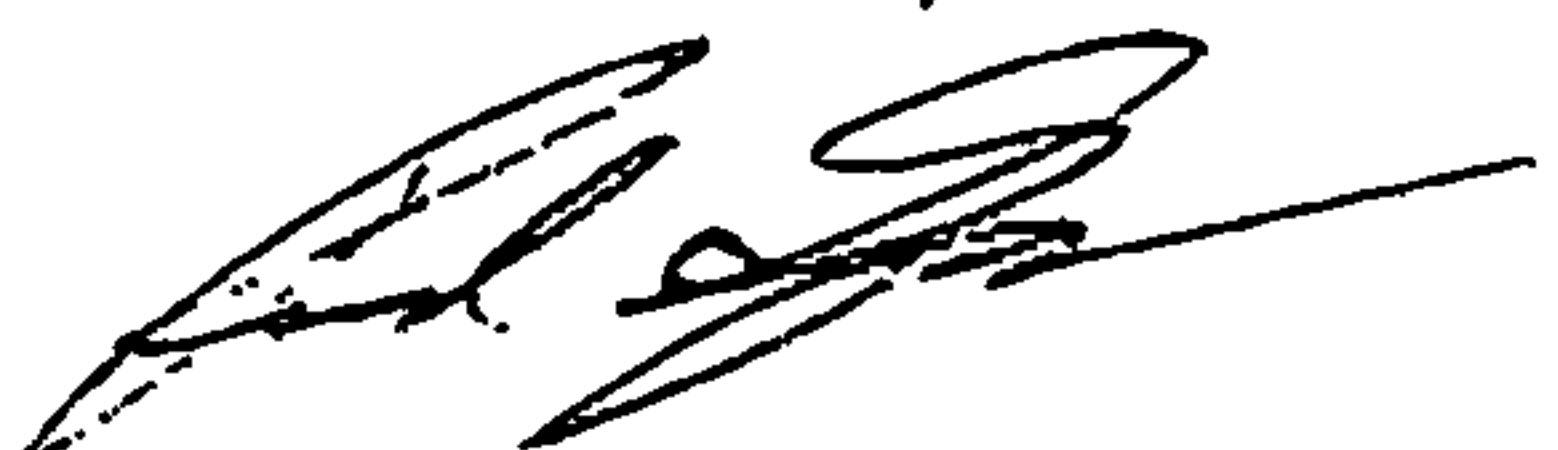
Hydraulic Calculations

Hydraulic calculations for the Ladera Drive Storm Drain were performed using Haestad's Methods "StormCad" software. Junction and bend losses were calculated using the equations shown in Pages A-23 to A-24. These losses were implemented into the StormCad software to size the pipes. Flows in StormCad correspond with Option 3C.1 discharges shown in Table 3. The flows that were captured by the existing and proposed inlets in the portion of Ladera Drive that will be constructed with Tierra Oeste were not changed from the approved Tierra Oeste Drainage report. The summation of these inlet flows (22 cfs) was subtracted from the off-site flow (43 cfs) from Basin 608 shown in Item 4 in Table 3. Please refer to Pages A-13 to A-24 for the hydraulic calculations for the Ladera Drive Storm Drain.

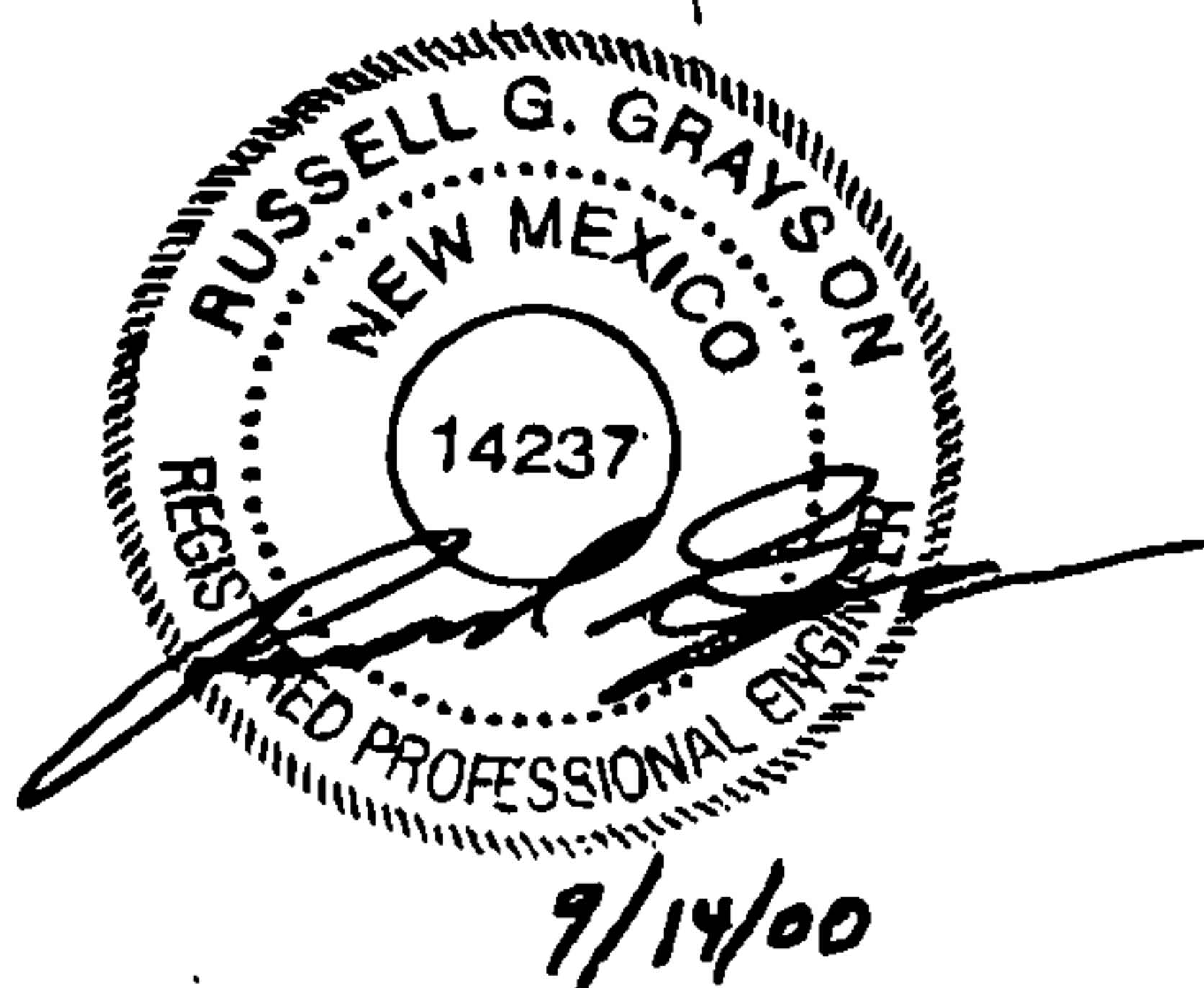
I have attached the revised improvement plans for the Ladera Drive Storm Drain that incorporate all of the changes proposed by this addendum. The Revision #1 symbol indicates the revisions to the plan set. These plans are being submitted for your review and approval.

Please call me if you have any questions or require additional information.

Sincerely,
Huitt-Zollars, Inc.



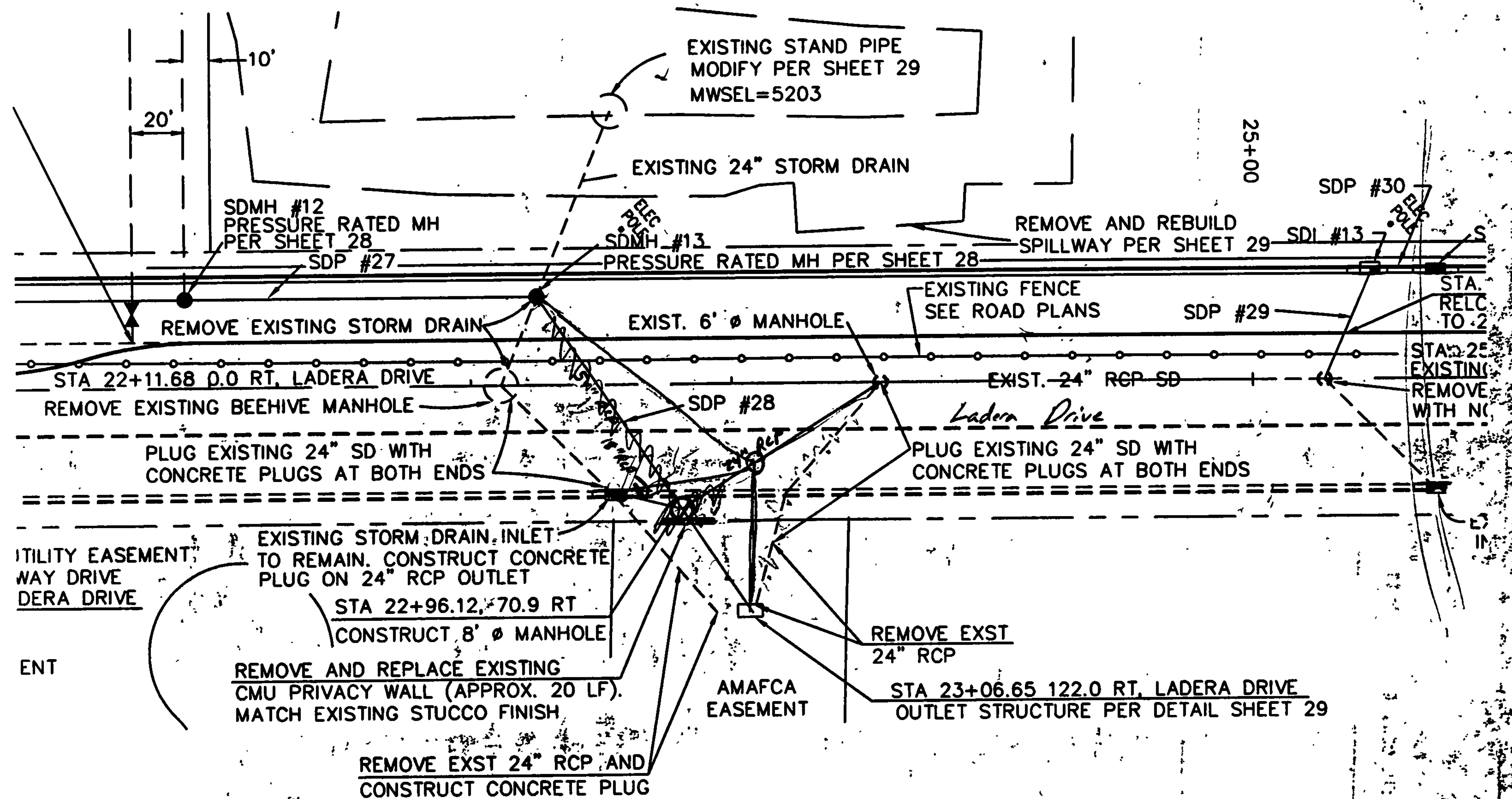
Russell Grayson, PE
Project Manager



Attachments

cc: John Kelly, Executive Director – AMAFCA
Nancy Musinsky, Willson and Company
Fred Ambrogi, Westland Development

Tierra Oeste Unit 1 Plan Set
Sheet 27





John P. Curtin

01/18/2000 04:41 PM

To: Kevin P. Broderick/PWD/CABQ@COA

cc: rgrayson@huitt-zollars.com

Subject: Tierra Oeste Unit 1

I am satisfied that Russell has addressed my comments satisfactorily.

----- Forwarded by John P. Curtin/PWD/CABQ on 01/18/2000 04:33 PM -----



"Grayson, Russell"
<rgrayson@huitt-zollars.com>

01/18/2000 01:16 PM

To: "JCurtin" <JCurtin@cabq.gov>

cc:

Subject: Tierra Oeste Unit 1

John,

Per our phone conversation earlier today, here is the response to your questions.

How do you make the connection to the concrete pad watertight?
Per a conversation with Waterworks Supply, a specification will be placed on the detail that states the following "Deeter - 24" Watertight Boltdown Ring and Cover, or Approved Equal" will be included in the detail. This item includes a neoprene gasket between the cover and the frame. The frame is approximately 8" deep and the flanges to the ring will be within the concrete pad. Because of this depth, the ring will provide a water-tight seal between the asphalt and the concrete pad. The detail will be revised to better indicate the asphalt pavement, concrete and the location of the ring flanges within the concrete.

Pavement Section on top of concrete pad for Ladera Drive?
I talked to Brad Bingham about this and he said that there is not set criteria but usually only the top lift is put on top of the concrete pad. Therefore, I will change the detail to show only the top 1 1/2" lift and 5/8" seal coat on top of the manhole. This will not change the calculations because the unit weight of concrete and asphalt are assumed to be the same (150 lbs/cf).

Is the Rim Elevation at the top of the seal coat or at the top of the 1 1/2" lift of pavement?

Because this is all new construction, the rim elevation will be set at the top of the seal coat.

Please call me if you have any questions or would like me to fax over the revised detail for your final approval.

CINFRAN/Huitt~Zollars, Inc.

(505)892-5141 • FAX (505)892-3259

333 Rio Rancho Dr. NE, Ste. 101 • Rio Rancho, New Mexico 87124

E-Mail: rgrayson@huitt-zollars.com

FASCIMILE TRANSMITTAL**January 18, 2000**

To : John Curtin
Company : City of Albuquerque – Hydrology Department Room 301
FAX No. : 768-3629
Voice No. : 768-2727
From : Russell Grayson
Project : Tierra Oeste Unit 1
Project. No. : 17-0119-01
Subject : Ladera Drive Storm Drain – Pressure Rated Manhole Calculations
Pages : 4 including this cover page.

Message:

John, per your email on January 13, I have redone the calculations on the pressure rated storm drain manholes #12 and #13 on Ladera Drive. A factor of safety of 2 has been incorporated and the pressure has been calculated based on the elevation difference from the Parkway Unit 7 Pond Spillway Crest and the bottom of the manhole cover. Also on the detail for the manholes on Sheet 28, reinforcing steel has been added to the concrete pad and a note stating that the top of the pad shall be formed to match the cross slope and longitudinal slope of Ladera Drive. If this is satisfactory, please email Kevin Broderick and copy me at the email address above.

Please call me if you have any questions.

Russ

CINFRAN/HUITT~ZOLLARS

(505)892-5141 • FAX (505)892-3259

333 Rio Rancho Dr. NE, Ste. 101 • Rio Rancho, New Mexico 87124

Ladera Dr. Storm Drain Pressure Manholes #12 and #13 Calculations

Date:	January 17, 2000	By: Russell Grayson
Project:	Tierra Oeste Unit 1	City Project No. 5297.90

Description

The following calculations are in response to comments by John Curtin of the City of Albuquerque Hydrology Department at the January 11, 2000 DRC session for this project. The following calculations are for the design of the pressure rated manholes for Ladera Drive Storm Drain Manholes #12 and #13 as shown on Tierra Oeste Unit 1 Improvement Plans. The calculations are to indicate that the hydrostatic pressure of the storm water within the manholes will not "float" or move the manhole tops.

Calculations

The calculated hydrostatic force within these manholes was based on the elevation difference from the Parkway Unit 7 Pond Spillway Crest (5204) and the bottom of the precast manhole lid for each manhole. A factor of safety of 2.0 was used.

Manhole #12**Lifting Force (Hydrostatic Pressure acting on top of manhole)**

- Parkway Unit 7 Pond Spillway Crest = 12 5204.0 ft
- Rim Elevation of Storm Drain Manhole #12 = 5202.61 ft
- Bottom of the precast manhole lid (2 ft below Rim) = 5200.61 ft
- Difference in Elevation = 4.0 ft
- Manhole Diameter = 8 ft Area = 50.3 sf
- Hydrostatic Force on Manhole Lid = 4.0 ft * 50.3 sf * 62.4 lbs/cf = 12,555 lbs
- Design Hydrostatic Force w/ Factor of Safety of 2.0 = 25,110 lbs

Resisting Force (Weight of Concrete on top of manhole)

- Use City of Albuquerque Type 'C' Manhole
- Top of Manhole outside diameter = 9' 4" = 9.3 ft
- Top of Manhole Thickness = 10" = 0.8 ft
- Asphalt Pavement Section = 4.6" = 0.4 ft
- Unit weight of concrete = 150 lbs/cf
- Unit weight of asphalt = 150 lbs/cf
- Use 2 ft max depth from Rim to bottom of manhole cover
- Thickness of concrete pad and asphalt above manhole cover = 2.0 ft - 0.8 ft = 1.2 ft
- Manhole Access Cover Diameter = 1'-10" = 1.8 ft
- Volume of manhole cover

$$\{[(9.3 \text{ ft}/2)^2 * 3.1416] - [(1.8 \text{ ft}/2)^2 * 3.1416]\} * 0.8 \text{ ft} = 52.3 \text{ cf}$$
- Weight of manhole cover = 52.3 cf * 150 lbs/cf = 7,845 lbs
- Required additional weight on top of manhole cover = 25,110 lbs - 7,845 lbs = 17,265 lbs
- Volume of Asphalt and concrete required = 17,265 lbs / 150 lbs/cf = 115 cf
- Calculate Area required for asphalt and concrete on top of manhole

$$\{\text{Area of concrete and asphalt} - [(1.8 \text{ ft}/2)^2 * 3.1416]\} * 1.2 \text{ ft} = 115 \text{ cf}$$

Area of concrete and asphalt = 98.4 sf
- Area of required pad = 10 ft x 10 ft = 100 sf

CINFRAN/HUITT~ZOLLARS

(505)892-5141 • FAX (505)892-3259

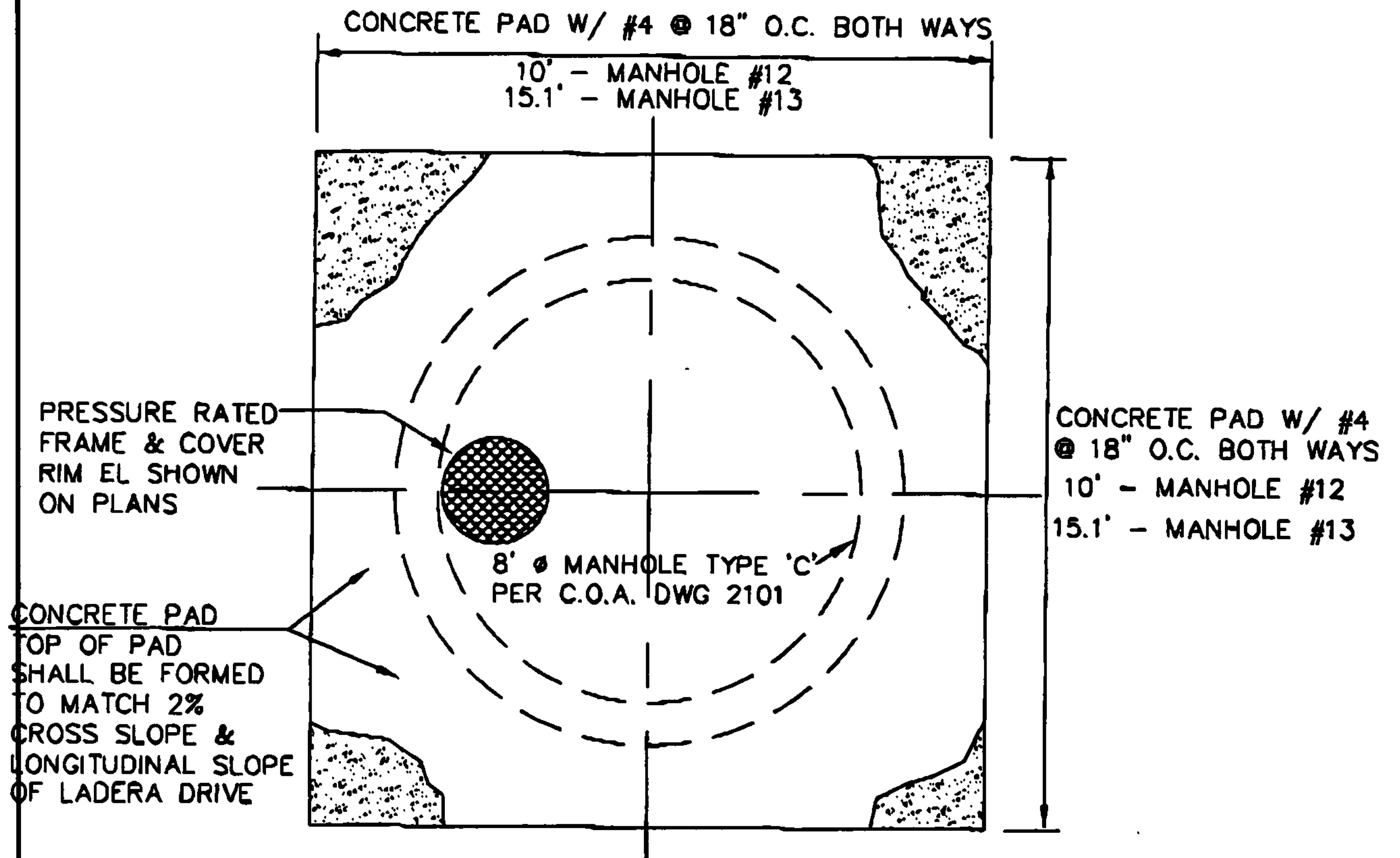
333 Rio Rancho Dr. NE, Ste. 101 • Rio Rancho, New Mexico 87124

Manhole #13**Lifting Force (Hydrostatic Pressure acting on top of manhole)**

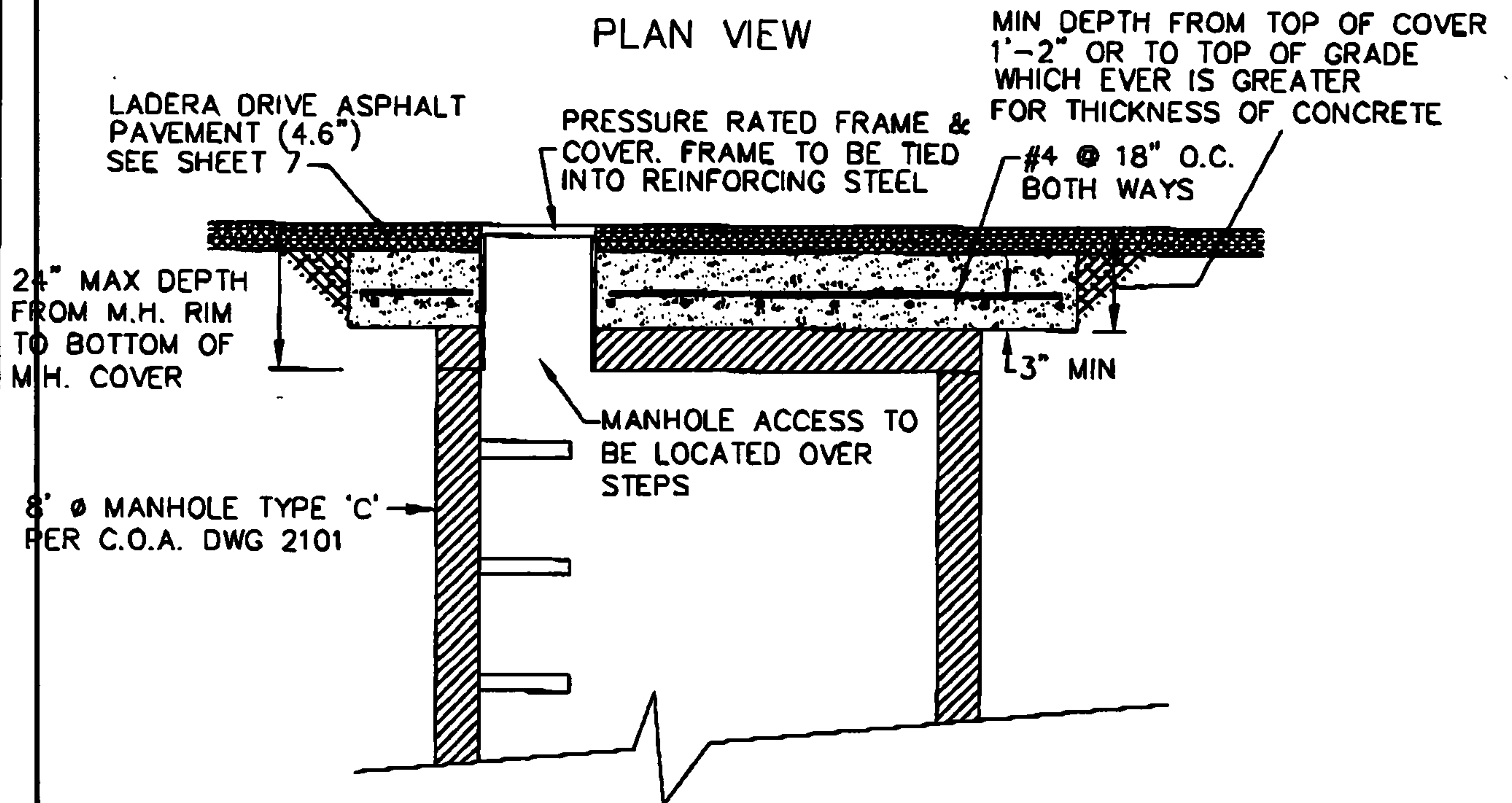
- Parkway Unit 7 Pond Spillway Crest = 5204.0 ft
- Rim Elevation of Storm Drain Manhole #13 = 5198.34 ft
- Bottom of the precast manhole lid (2 ft below Rim) = 5196.34
- Difference in Elevation = 7.66 ft
- Manhole Diameter = 8 ft Area = 50.3 sf
- Hydrostatic Force on Manhole Lid = 7.66 ft * 50.3 sf * 62.4 lbs/cf = 24,043 lbs
- Design Hydrostatic Force w/ Factor of Safety of 2.0 = 48,086 lbs

Resisting Force (Weight of Concrete on top of manhole)

- Use City of Albuquerque Type 'C' Manhole
- Top of Manhole outside diameter = 9' 4" = 9.3 ft
- Top of Manhole Thickness = 10" = 0.8 ft
- Asphalt Pavement Section = 4.6" = 0.4 ft
- Unit weight of concrete = 150 lbs/cf
- Unit weight of asphalt = 150 lbs/cf
- Use 2 ft max depth from Rim to bottom of manhole cover
- Thickness of concrete pad and asphalt above manhole cover = 2.0 ft - 0.8 ft = 1.2 ft
- Manhole Access Cover Diameter = 1'-10" = 1.8 ft
- Volume of manhole cover
 $\{[(9.3 \text{ ft}/2)^2 * 3.1416]\} - [(1.8 \text{ ft}/2)^2 * 3.1416]\} * 0.8 \text{ ft} = 52.3 \text{ cf}$
- Weight of manhole cover = 52.3 cf * 150 lbs/cf = 7,845 lbs
- Required additional weight on top of manhole cover = 48,086 lbs - 7,845 lbs = 40,241 lbs
- Volume of Asphalt and concrete required = 40,241 lbs / 150 lbs/cf = 268 cf
- Calculate Area required for asphalt and concrete on top of manhole
 $\{ \text{Area of concrete and asphalt} - [(1.8 \text{ ft}/2)^2 * 3.1416]\} * 1.2 \text{ ft} = 268 \text{ cf}$
Area of concrete and asphalt = 226 sf
- Area of required pad = 15.1 ft x 15.1 ft = 228 sf



PLAN VIEW



PROFILE VIEW

PRESSURE RATED MANHOLE

SDMH #12 AND #13



John P. Curtin

01/14/2000 04:39 PM

To: rgrayson@huitt-zollars.com

cc: Kevin P. Broderick/PWD/CABQ@COA, Steve A.
Boberg/PWD/CABQ@COA

Subject: Tierra Oeste Unit 1, CPN 5297.90

Russell:

The calculations, dated January 13, 2000, are not acceptable. Based on the extensive damage caused by past failures, the Hydrology Division requires a minimum Factor of Safety of 2.0 for Uplift on pressure manhole lids. Furthermore the uplift pressure should be based on the elevation difference between the spillway crest and the bottom of the precast manhole lid. In this case the difference is 7.66', the uplift pressure is 478 psf and the uplift force is 24,000 lbs.

Manholes 12 & 13 are located in the roadway. How much asphalt pavement is on top of the concrete pad? Since the pad is directly under the pavement, Is the top of the pad sloped at 2%.

If you have any questions you may contact me at 768-2727 or reply to this e-mail.

John Curtin

CINFRAN/Huitt-Zollars, Inc.

333 Rio Rancho Dr. NE, Ste. 101 • Rio Rancho, New Mexico 87124

(505)892-5141 • FAX (505)892-3259

E-Mail: rgrayson@huitt-zollars.com

FASCIMILE TRANSMITTAL**January 13, 2000**

To : John Curtin
Company : City of Albuquerque – Hydrology Department Room 301
FAX No. : 768-3629
Voice No. : 768-2727
From : Russell Grayson *Russ*
Project : Tierra Oeste Unit 1
Project. No. : 17-0119-01
Subject : Ladera Drive Storm Drain – Pressure Rated Manhole Calculations
Pages : 3 including this cover page.

Message:

John, attached is the calculation you requested at the January 11, 2000 DRC meeting for the pressure rated manholes on Ladera Drive. I have also attached a copy of the revised detail for these manholes (Sheet 28 of the Improvement Plans) in which you requested to move the manhole access point away from the center of the manhole and place it under the access steps. If this information is acceptable, the DRC session minutes indicate that you will email Kevin Broderick that you are satisfied with these items. If possible, please copy me at the email address above.

Please call me if you have any questions.

Russ

CINFRAN/HUITT~ZOLLARS

(505)892-5141 • FAX (505)892-3259

333 Rio Rancho Dr. NE, Ste. 101 • Rio Rancho, New Mexico 87124

Ladera Dr. Storm Drain Pressure Manholes #12 and #13 Calculations

Date:	January 13, 2000	By: Russell Grayson <i>RS</i>
Project:	Tierra Oeste Unit 1	City Project No. 5297.90

Description

The following calculations are in response to comments by John Curtin of the City of Albuquerque Hydrology Department at the January 11, 2000 DRC session for this project. The following calculations are for the design of the pressure rated manholes for Ladera Drive Storm Drain Manholes #12 and #13 as shown on Tierra Oeste Unit 1 Improvement Plans. The calculations are to indicate that the hydrostatic pressure of the storm water within the manholes will not "float" or move the manhole tops.

Calculations

The largest hydrostatic pressure within these manholes will be created at the peak 100-yr water surface elevation (WSEL) in the Parkway Unit 7 Pond. The information for the Parkway Unit 7 Pond WSEL was taken from Appendix A Section 3 of the approved Final Drainage Report for Tierra Oeste Subdivision Rev 4, dated April 1996 and prepared by CINFRAN Engineering, the peak 100-yr WSEL in the Parkway Unit 7 Pond is 5202.7. The rim elevation of Manhole #12 is 5202.6 (0.1 ft below the 100-yr WSEL of the Parkway Unit 7 Pond). Therefore use typical standard for Type 'C' Manhole but add a pressure rated frame and cover.

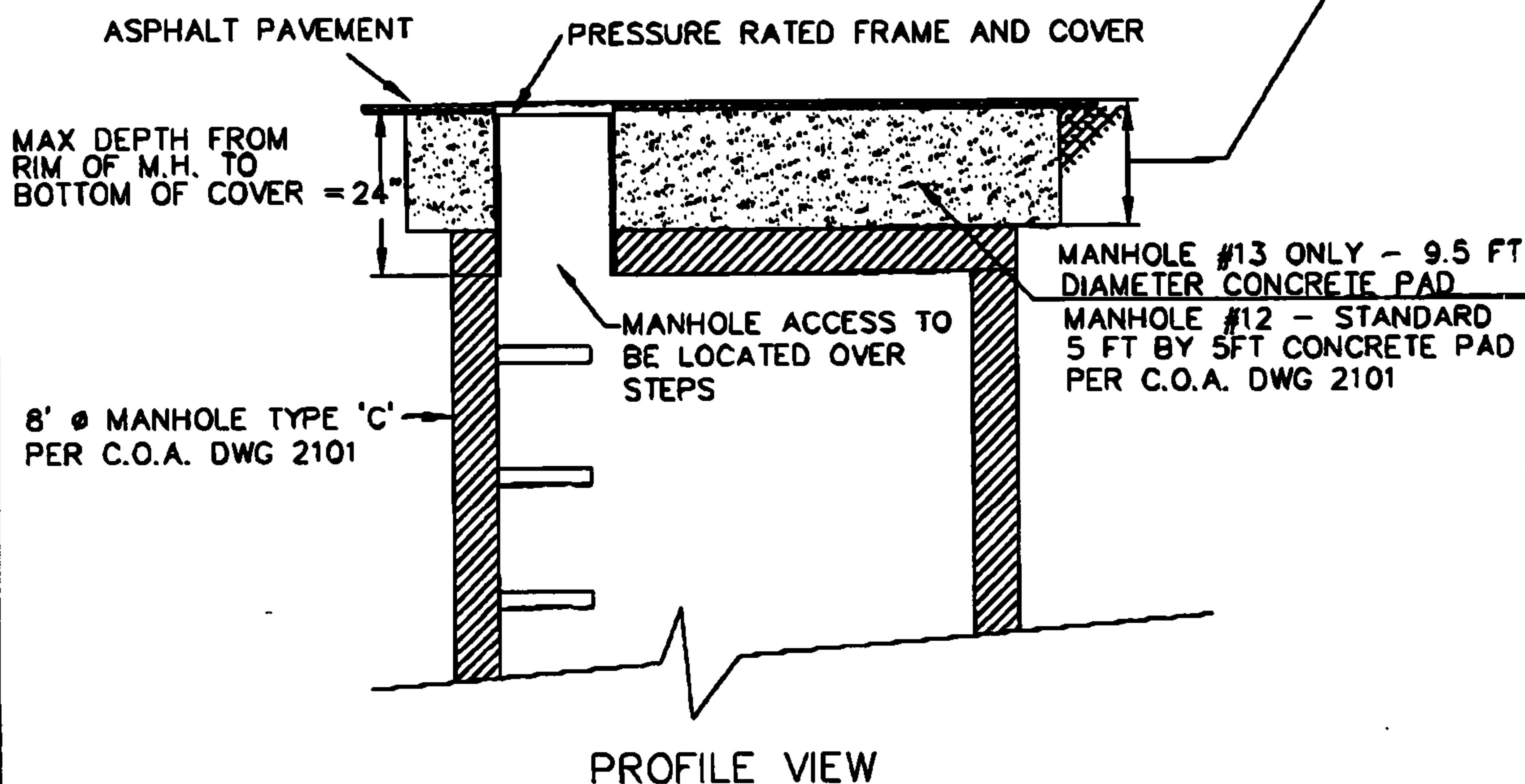
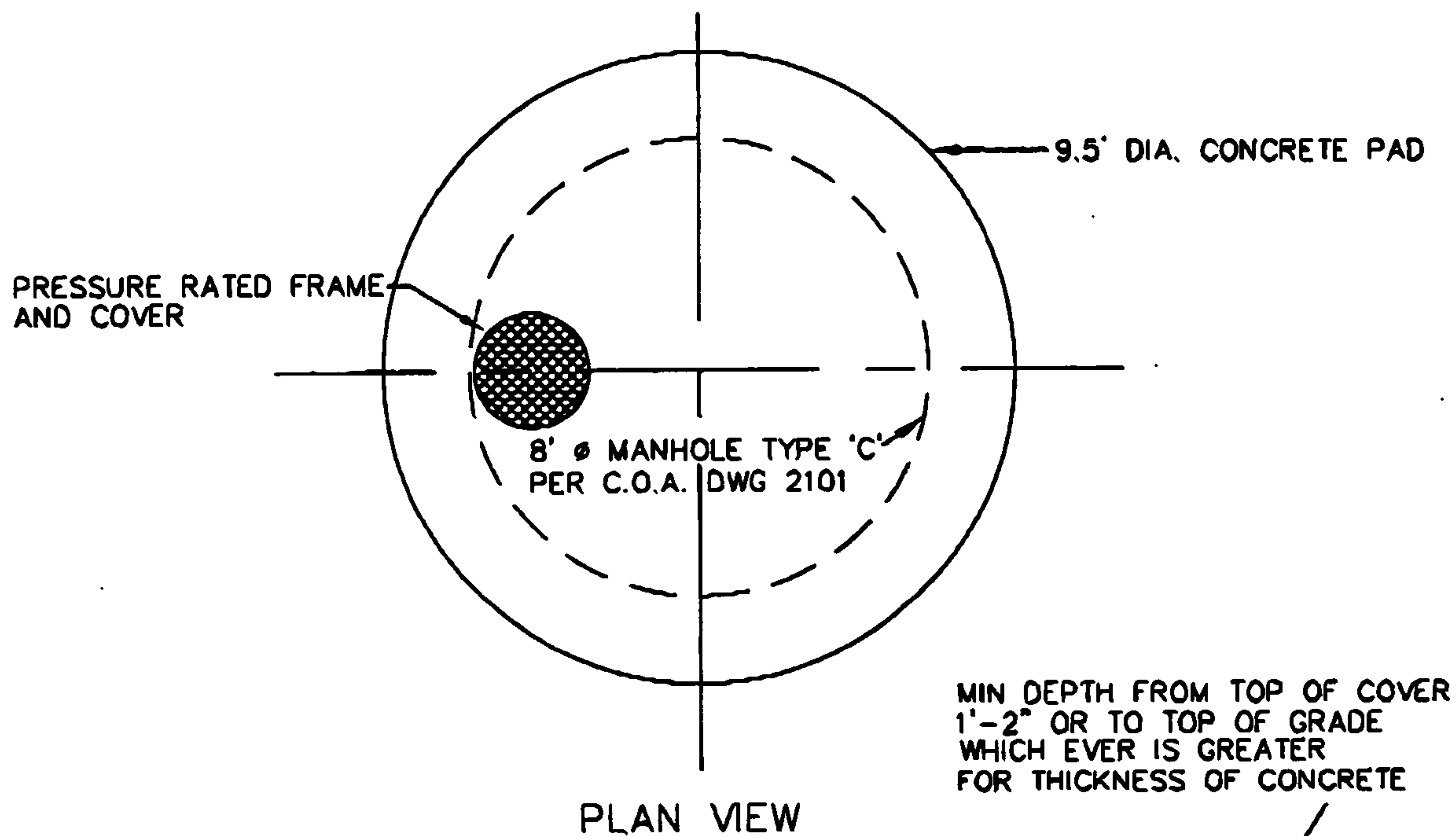
Manhole #13 Lifting Force (Hydrostatic Pressure acting on top of manhole)

- Peak 100-yr WSEL in the Parkway Unit 7 Pond = 5202.7. ft
- Rim Elevation of Storm Drain Manhole #13 = 5198.34 ft
- Difference in Elevation = 4.36 ft
- Manhole Diameter = 8 ft Area = 50.3 sf *8'*
- Hydrostatic Pressure on Manhole Lid = $4.36 \text{ ft} \times 50.3 \text{ sf} \times 62.4 \text{ lbs/cf} = \underline{13,685 \text{ lbs}}$ *24,043 #*

Manhole #13 Resisting Force (Weight of Concrete on top of manhole)**Assumptions**

- Use City of Albuquerque Type 'C' Manhole
- Top of Manhole outside diameter = 9' 4" = 9.3 ft
- Top of Manhole Thickness = 10" = 0.8 ft
- Use 9.5 ft diameter concrete pad (instead of standard 5 ft x 5 ft)
- Thickness of concrete pad on top of manhole is 1'-2" = 1.17 ft
- Manhole Cover Diameter = 1'-10" = 1.83 ft
- Volume of Concrete Pad minus manhole cover opening (1 ft thick) (9.5 ft diameter)
 $\{[(9.5 \text{ ft}/2)^2 \times 3.1416]\} - [(1.8 \text{ ft}/2)^2 \times 3.1416] \times 1.17 \text{ ft} = 80.0 \text{ cf}$
- Volume of Top of Manhole
 $\{[(9.3 \text{ ft}/2)^2 \times 3.1416]\} - [(1.8 \text{ ft}/2)^2 \times 3.1416] \times 0.83 \text{ ft} = 52.3 \text{ cf}$
- Total Volume of Concrete = 79.9 cf + 52.3 cf = 132.3 cf
- Weight of concrete = 150 lbs/cf
- Total weight of concrete on top of manhole = 19,845 lbs
- Therefore, total downward force of concrete on top of the manhole exceeds lifting force caused by hydrostatic pressure.
- Use 9.5 ft diameter concrete pad and a pressure rated manhole frame and cover.

Revised Detail - Sheet 28



PRESSURE RATED MANHOLE

SDMH #12 AND #13

EXSI

2

CINFRAN / HUITT-ZOLIARS

333 Rio Rancho Drive Suite 101 Rio Rancho, New Mexico 87124 • Phone (505) 892-5141 • Fax (505) 892-3259
Dallas • Fort Worth • Houston • El Paso • Phoenix • Tustin • Ontario • Albuquerque • Seattle • Tacoma • Denver

FACSIMILE TRANSMITTAL

Date: **September 19, 2000** No. of Pages: **3**
Project Name: **Tierra Oeste Units 1 and 2** (Including Cover Sheet)
H-Z Proj. No.: **17-0119-01**
From: **Russell Grayson** *RS*
Fax:

924-3864		
Whitney Reiersen		
City of Albuquerque - Hydrology Section		

To:
Company:

☐ URGENT ☐ For Your Review ☐ For Your Approval ☐ Orig. To Follow By Mail

Message:

Whitney,
Here is the a copy of the zone map atlas indicating the project location.

Please call me if you have any questions.

Thanks,
Russ



CITY OF
Albuquerque

P.O. Box 1293 Albuquerque, NM 87103

May 16, 1996

Martin J. Chávez, Mayor

Larry D. Read, PE
Cinfran Engineering
333 Rio Rancho Dr NE #101
Rio Rancho, NM 87124

J9/D15

RE: DRAINAGE REPORT FOR TIERRA OESTE (H-9/D-15)
RECEIVED APRIL 23, 1996 FOR WORK ORDER & FINAL PLAT
ENGINEER'S STAMP DATED 4/18/96

Dear Mr. Read:

Based on the information included in the submittal referenced above, City Hydrology accepts the Drainage Report for Final Plat & Work Order.

Engineer's Certification of grading & drainage per DPM checklist must be accepted by City Hydrology before the Financial Guaranty will be released.

If you have any questions about this project, You may contact me at 768-2727.

Sincerely,

John P. Curtin, P.E.
Civil Engineer/Hydrology

c: Andrew Garcia
Fred Aguirre, DRB 94-443
Kurt Browning, AMAFCA

Good for You, Albuquerque!



DRAINAGE INFORMATION SHEET

J9/D15

PROJECT TITLE: Tierra OesteZONE ATLAS/DRNG. FILE ~~6-9-81-5/D-43~~LEGAL DESCRIPTION: Town of Artrisco Grant, Unplatted Lands of Westland Development Co. Inc.CITY ADDRESS: West of Unser Blvd., North of I-40, North of Ladera Dr.ENGINEERING FIRM: Cinfran Engineering Inc. CONTACT: Larry D. ReadADDRESS: 333 Rio Rancho Dr. NE, #101 PHONE: 892-5141OWNER: Tierra Oeste Limited Co. CONTACT: Ed BoyleADDRESS: 6201 Uptown Blvd. NE, Suite 204 PHONE: 889-0080ARCHITECT: N/A CONTACT: N/AADDRESS: N/A CONTACT: N/ASURVEYOR: Cinfran Engineering Inc. CONTACT: Dan HolmesADDRESS: 333 Rio Rancho Dr. NE, #101 PHONE: 892-5141CONTRACTOR: N/A CONTACT: N/AADDRESS: N/A PHONE: N/A

PRE-DESIGN MEETING:

☒ YES
☐ NODRB NO. 94-443
EPC NO. _____

____ COPY OF CONFERENCE RECAP SHEET PROVIDED PROJ. NO. _____

TYPE OF SUBMITTAL:

☒ DRAINAGE REPORT☒ DRAINAGE PLAN☐ PRELIMINARY GRADING AND DRAINAGE PLAN☒ GRADING PLAN☐ EROSION CONTROL PLAN☐ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

☐ SKETCH PLAT APPROVAL☐ PRELIMINARY PLAT APPROVAL☐ SITE DEVELOPMENT PLAN APPROVAL☐ FINAL PLAT APPROVAL☒ BUILDING PERMIT APPROVAL☐ FOUNDATION PERMIT APPROVAL☐ CERTIFICATE OF OCCUPANCY APPROVAL☐ ROUGH GRADING PERMIT APPROVAL☐ GRADING/PAVING PERMIT APPROVALDATE SUBMITTED: April 18, 1996 OTHER _____ (SPECIFY)BY: Larry D. Read

APR 23 1996

ENCLOSURE

February 7, 1996

Larry D. Read, PE

TIERRA OESTE (H-9/D-1A3)

Page 2 of 2

J9/D15

The print out for the storm drain system is a confusing jumble. The does not appear to be any logical progression to the ordering of the pipes. Does this program determine junction and manhole losses? There is no indication of these losses in the printout.

If you have any questions about this project, You may contact me at 768-2727.

Sincerely,



John P. Curtin, P.E.

Civil Engineer/Hydrology

c: Andrew Garcia
Fred Aguirre, DRB 94-443
Kurt Browning, AMAFCA



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

February 7, 1996

Larry D. Read, PE
Cinfran Engineering
333 Rio Rancho Dr NE #101
Rio Rancho, NM 87124

JR/DIS

RE: DRAINAGE REPORT FOR TIERRA OESTE ~~(#0143)~~
RECEIVED JANUARY 22, 1996 FOR WORK ORDER & FINAL PLAT
ENGINEER'S STAMP DATED 1-18-96

Dear Mr. Read:

Based on the information included in the submittal referenced above, City Hydrology has the following comments:

What scale is the Grading Plan drawn to? Indicate the storm drain system on the Grading Plan. Show street grades on Ladera. The Grading Plan will be approved for Rough Grading instead of Final.

Are four different AHYMO runs necessary? Won't two provide the data needed? City Hydrology recommends that Basin OFF5 be divided into two basins to provide data for Ladera at the west end of the site. It is not clear on the Drainage Areas sheet whether the PNM easement is in Basin OFF5 or not. Use Table A-5 to estimate the percentage of treatment D. Typical lot analysis is applicable only when the lot sizes are known and most are identical. AMAFCA must approve the discharge to their easement. The discharge from the inlets that discharge directly to the easement must be included in the allowable rate.

Where is the inlet design for Casa Verde & the cul-de-sac? Coordinate the inlet locations on Ladera with Community Sciences. Where does the runoff that drains to Unser go? Use roughness factors, "n", from DPM Table B-1. The correct depth for "one dry lane is .345' instead of .37'. Revise the street hydraulics for Casa Roja because the width has been changed to 32'. Extend the storm drain system in Casa Roja upstream from Casa Verde to keep the energy grade line within the right of way.

CONTINUED ON PAGE 2

DRAINAGE INFORMATION SHEET

59/D15
~~49/01143~~

PROJECT TITLE: Tierra Oeste

ZONE ATLAS/DRNG. FILE ~~J-9 & H-9~~

LEGAL DESCRIPTION: Town of Artrisco Grant, Unplatted Lands of Westland Development Co. Inc.

CITY ADDRESS: West of Unser Blvd., North of I-40, North of Ladera Dr.

ENGINEERING FIRM: Cinfran Engineering Inc. CONTACT: Larry D. Read

ADDRESS: 333 Rio Rancho Dr. NE, #101 PHONE: 892-5141

OWNER: Tierra Oeste Limited Co. CONTACT: Chuck Wilken

ADDRESS: 6201 Uptown Blvd. NE, Suite 204 PHONE: 889-0080

ARCHITECT: N/A CONTACT: N/A

ADDRESS: N/A CONTACT: N/A

SURVEYOR: Cinfran Engineering Inc. CONTACT: Dan Holmes

ADDRESS: 333 Rio Rancho Dr. NE, #101 PHONE: 892-5141

CONTRACTOR: N/A CONTACT: N/A

ADDRESS: N/A PHONE: N/A

PRE-DESIGN MEETING:

☒ YES
☐ NO

DRB NO. 94-443
EPC NO. _____

____ COPY OF CONFERENCE RECAP SHEET PROVIDED PROJ. NO. _____

TYPE OF SUBMITTAL:

☒ DRAINAGE REPORT

☒ DRAINAGE PLAN

____ PRELIMINARY GRADING AND DRAINAGE PLAN

☒ GRADING PLAN

____ EROSION CONTROL PLAN

____ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

____ SKETCH PLAT APPROVAL

____ PRELIMINARY PLAT APPROVAL

____ SITE DEVELOPMENT PLAN APPROVAL

☒ FINAL PLAT APPROVAL

☒ BUILDING PERMIT APPROVAL

____ FOUNDATION PERMIT APPROVAL

____ CERTIFICATE OF OCCUPANCY APPROVAL

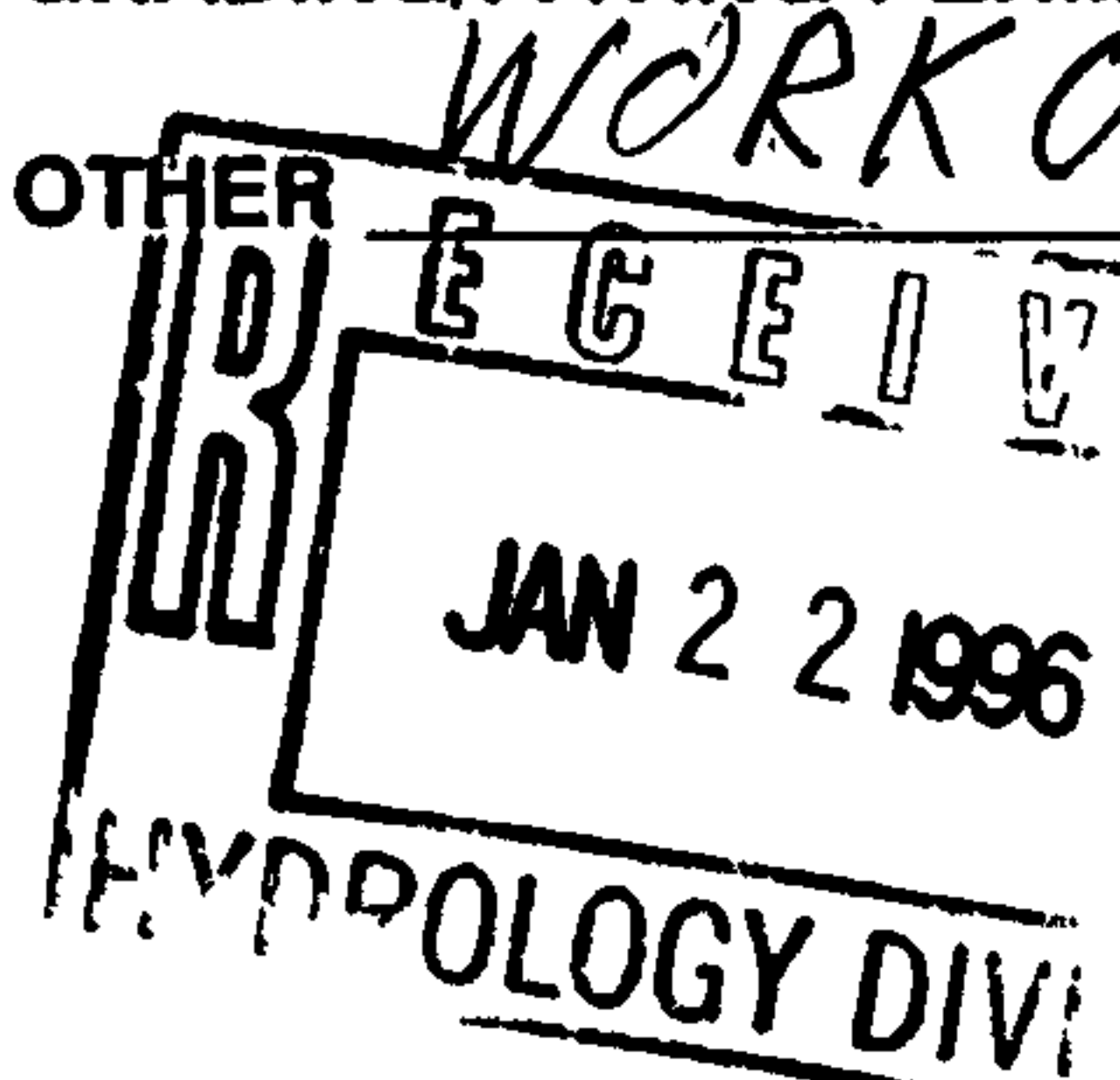
____ ROUGH GRADING PERMIT APPROVAL

____ GRADING/PAVING PERMIT APPROVAL

OTHER WORK ORDER (SPECIFY)

DATE SUBMITTED: 1/18/96

BY: Larry D. Read





City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

October 17, 1995

**Larry D. Read, PE
Cinfran Engineering
333 Rio Rancho Dr NE #101
Rio Rancho, NM 87124**

J9/D15

**RE: DRAINAGE REPORT FOR TIERRA OESTE ~~(12970123)~~
RECEIVED SEPTEMBER 29, 1995 FOR WORK ORDER & FINAL PLAT
ENGINEER'S STAMP DATED 9-27-95**

Dear Mr. Read:

Based on the information included in the submittal referenced above, City Hydrology accepts the Grading Plan dated 10-16-95 for Rough Grading Permit for Phase 2. Any excess disturbed areas must be seeded using C.O.A. Spec 1012. The following comments must be addressed before City Hydrology will accept the Drainage Report for Work Order & Final Plat:

Page 6 does not make sense. Part of the text is missing between the bottom of Page 5 and the top of Page 6. Land treatment computation for Basin 105 does not match Basin OFF5 on the Drainage Basin Map.

Indicate the storm drain system on the Grading Plan. Provide Legend of symbols used. Label all easements. Indicate where spot elevations are located. Include a typical lot grading detail. Cut a section through the side yard swales to indicate how they are graded.

Provide a summary table for the Hydrology. Include the Basin Name, Area, Land Treatment Percentages, Tc, Q100 & Q10 for each basin and cumulative Q100 & Q10 at significant analysis points. In Table B-1, Sheet flow is limited to only the first 400'. If the basin is longer than 400' a composite K must be calculated.

The Ladera Inlet Design does not make sense. The 10 year capacity of Ladera will be dependent on the slope, but the slope is not indicated. The 100' PNM Drainage Easement will drain into Ladera. How was Qd calculated? Provide a summary table for all of the inlet design. Include Inlet number, Q100, Depth, Street Slope and Q Intercepted. Label the streets & pond on the Storm Drain Schematic.

October 17, 1995

Larry D. Read, PE

TIERRA OESTE (LEO-1A8)

Page 2 of 2

J9/D15

It maybe be helpful to schedule a meeting to discuss these comments. You may contact me at 768-2727.

Sincerely,

A handwritten signature in cursive script, reading "John P. Curtin".

John P. Curtin, P.E.

Civil Engineer/Hydrology

c: Andrew Garcia
Larry Caudill, Environmental Health

DRAINAGE INFORMATION SHEET

59/D15
~~10 & H-3/4-3~~

PROJECT TITLE: Tierra Oeste

ZONE ATLAS/DRNG. FILE ~~10 & H-3/4-3~~

LEGAL DESCRIPTION: Town of Artrisco Grant, Unplatted Lands of Westland Development Co. Inc.

CITY ADDRESS: West of Unser Blvd., North of I-40, North of Ladera Dr.

ENGINEERING FIRM: Cinfran Engineering Inc. CONTACT: Larry D. Read

ADDRESS: 333 Rio Rancho Dr. NE, #101 PHONE: 892-5141

OWNER: Tierra Oeste Limited Co. CONTACT: Chuck Wilken

ADDRESS: 6201 Uptown Blvd. NE, Suite 204 PHONE: 889-0080

ARCHITECT: N/A CONTACT: N/A

ADDRESS: N/A CONTACT: N/A

SURVEYOR: Cinfran Engineering Inc. CONTACT: Dan Holmes

ADDRESS: 333 Rio Rancho Dr. NE, #101 PHONE: 892-5141

CONTRACTOR: N/A CONTACT: N/A

ADDRESS: N/A PHONE: N/A

PRE-DESIGN MEETING:

☒ YES
☐ NO

DRB NO. 94-443
EPC NO. _____

____ COPY OF CONFERENCE RECAP SHEET PROVIDED PROJ. NO. _____

TYPE OF SUBMITTAL:

CHECK TYPE OF APPROVAL SOUGHT:

☒ DRAINAGE REPORT

____ SKETCH PLAT APPROVAL

☒ DRAINAGE PLAN

____ PRELIMINARY PLAT APPROVAL

____ PRELIMINARY GRADING AND DRAINAGE PLAN

____ SITE DEVELOPMENT PLAN APPROVAL

☒ GRADING PLAN

☒ FINAL PLAT APPROVAL

☒ EROSION CONTROL PLAN

☒ BUILDING PERMIT APPROVAL

____ ENGINEER'S CERTIFICATION

____ FOUNDATION PERMIT APPROVAL

____ CERTIFICATE OF OCCUPANCY APPROVAL

☒ ROUGH GRADING PERMIT APPROVAL - Phase II

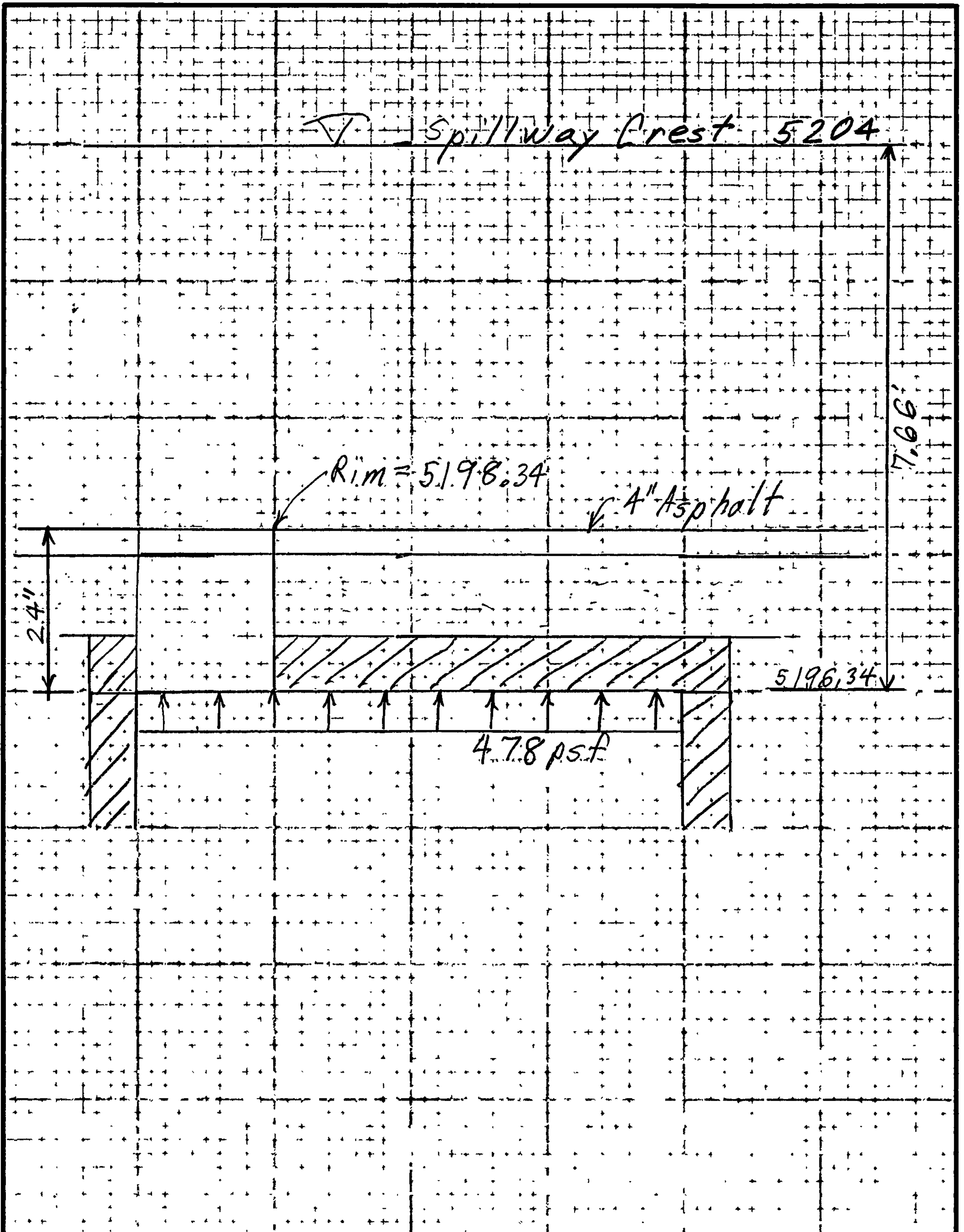
☒ GRADING/PAVING PERMIT APPROVAL

☒ OTHER Work Order (SPECIFY)

DATE SUBMITTED: 9-28-95

BY: Larry D. Read

11.3.95
29105



FOR _____ DESCRIPTION _____
PREPARED BY _____ DATE _____ FILE _____
CHECKED BY _____ SHEET _____ of _____

ALBUQUERQUE PUBLIC WORKS DEPARTMENT

FIGURE 6
CITY OF ALBUQUERQUE
NOTICE OF D.R.C. MEETING
01/05/00
(DATE)

DRB NO: 99-443
PROJECT NO: 529790
ZONE ATLAS: J-9

PROJECT NAME: Sierra Oeste, Unit 1
LOCATION: Area of Rader Dr + Unser Bd. N.W.

TYPE OF PROJECT: AHBA ☐ CIP ☐ PWC ☐ SAD ☐ ALL PRIVATE ☐

Contact Person: Russell Grayson Phone: 892-5141
Firm: Cinfran/Huitt-Zollars

☒ Scheduled with the D.R.C. on 01/11/00 at 2:30pm Plaza Del Sol/2nd Fl.
☐ No DRC Meeting Scheduled. Please return any comments by _____

The Project Is Scheduled For:

/ / Design Report Review	/ / Final Plan Review
/ / Pre-Design Meeting	/ ☒ Signoff of Plans
/ / Preliminary Plan Review	/ / _____

The Project Relates To:

☒ Water ☒ San. Sewer ☒ Paving ☒ Storm Drainage / / Traffic Signals

The Attached Package Includes:

/D/ Drawings /S/ Spec's /E/ Estimate /R/ Report /M/ Memo Only

Indicated below are the Departments/Divisions that have received project documents and/or are invited to attend. It will be the Project Managers responsibility to notify consulting engineering firms of date and time of scheduled meetings.

/ ☒ DRC Chairman	Project Review Section	All Drawings
/ ☒ Traffic Repres.	Transportation Development	All Drawings
/ ☒ Utility Dev. (Brad B.)	Utility Design	All AHBA Drawings
/ / Utility Dev. (Billy G.)	Utility Design	All CIP Drawings
/ ☒ Hydro Repres. <u>John Curtin</u>	Hydrology	All Drawings
/ / Const. Repres.	Construction	All Drawings
/ / Dave Harmon	Traffic Operations	All Drawings
/ / Sergio Miranda	Water (Shutoff Plan)	All Water Shutoff
/ / Parks Repres.	Parks & Recreation	ALL Landscaping
/ / Andre Houle	Street Maintenance	All Paving
/ / Kevin Broderick	Utility Coordinator	ALL PWC & CIP
/ / Tom Murphy	Transit Department	All Drawings
/ ☒ Joe Luehring	Construction Coordinator	CIP/Memo
/ / Jim Fink	Line Maintenance	CIP & SAS/Memo
/ / George Gee	City Architect	Arch. Drawings
/ /	SAD Engineer	SAD/Memo
/ / Tom Ellis	Park Mangement	Parks/Community Ctrs/APS
/ / Gene Bustamante	General Services Dept.	Arch. Drawings
/ / Greg Smith	PWD/Legal	Specs & Dwgs.
/ / Richard Sertich	Planning Department	CIP/Memos
/ / CIP Project Manager	CIP	CIP/Memos
/ / Donald Bartlett	Risk Management	Arch. Drawings
/ / _____	_____	_____

FIGURE 6
CITY OF ALBUQUERQUE
NOTICE OF D.R.C. MEETING
01/05/00
(DATE)

DRB NO: 99-443
PROJECT NO: 529791
ZONE ATLAS: 11/5-9

PROJECT NAME: Sierra Oeste Unit 2
LOCATION: Area of Ladera Dr. & Unser B.N.W.

TYPE OF PROJECT: AHBA ☒ CIP ☐ PWC ☐ SAD ☐ ALL PRIVATE ☐

Contact Person: Russell Grayson Phone: 892-5141
Firm: Infrastr./Hunt-Zollers

☒ Scheduled with the D.R.C. on 01/11/00 at 3:30 PM Plaza Del Sol/2nd Fl.
☐ No DRC Meeting Scheduled. Please return any comments by _____

The Project Is Scheduled For:

/ / Design Report Review	/ / Final Plan Review
/ / Pre-Design Meeting	/ / Signoff of Plans
/ / Preliminary Plan Review	/ / _____

The Project Relates To:

☒ Water ☒ San. Sewer / / Paving / / Storm Drainage / / Traffic Signals

The Attached Package Includes:

/D/ Drawings /S/ Spec's /E/ Estimate /R/ Report /M/ Memo Only

Indicated below are the Departments/Divisions that have received project documents and/or are invited to attend. It will be the Project Managers responsibility to notify consulting engineering firms of date and time of scheduled meetings.

☒ DRC Chairman	Project Review Section	All Drawings
☒ Traffic Repres.	Transportation Development	All Drawings
☒ Utility Dev. (Brad B.)	Utility Design	All AHBA Drawings
/ / Utility Dev. (Billy G.)	Utility Design	All CIP Drawings
☒ Hydro Repres. <u>John Curtin</u>	Hydrology	All Drawings
/ / Const. Repres.	Construction	All Drawings
/ / Dave Harmon	Traffic Operations	All Drawings
/ / Sergio Miranda	Water (Shutoff Plan)	All Water Shutoff
/ / Parks Repres.	Parks & Recreation	ALL Landscaping
/ / Andre Houle	Street Maintenance	All Paving
/ / Kevin Broderick	Utility Coordinator	ALL PWC & CIP
/ / Tom Murphy	Transit Department	All Drawings
☒ Joe Luehring	Construction Coordinator	CIP/Memo
/ / Jim Fink	Line Maintenance	CIP & SAS/Memo
/ / George Gee	City Architect	Arch. Drawings
/ /	SAD Engineer	SAD/Memo
/ / Tom Ellis	Park Mangement	Parks/Community Ctrs/APS
/ / Gene Bustamante	General Services Dept.	Arch. Drawings
/ / Greg Smith	PWD/Legal	Specs & Dwgs.
/ / Richard Sertich	Planning Department	CIP/Memos
/ / CIP Project Manager	CIP	CIP/Memos
/ / Donald Bartlett	Risk Management	Arch. Drawings
/ / _____	_____	_____

FIGURE 6
CITY OF ALBUQUERQUE
NOTICE OF D.R.C. MEETING

12/8/99 ✓
(DATE)

DRB NO: 99-443
PROJECT NO: 529790
ZONE ATLAS: 1/3-9

PROJECT NAME: Sierra Oeste Units 1
LOCATION: Area of Ladera Dr. & Unser Rd. N.W.

TYPE OF PROJECT: AHBA ☒ CIP ☐ PWC ☐ SAD ☐ ALL PRIVATE ☐

Contact Person: Russell Grayson Phone: 892-5141
Firm: Cinfran/Smith/Zollars

☒ Scheduled with the D.R.C. on 12/14/99 at 1:30 PM Plaza Del Sol/2nd Fl.
☐ No DRC Meeting Scheduled. Please return any comments by _____

The Project Is Scheduled For:

/ / Design Report Review	/ / Final Plan Review
/ / Pre-Design Meeting	/ ✓ Signoff of Plans
/ / Preliminary Plan Review	/ / _____

The Project Relates To:

/ / Water / / San. Sewer / ✓ Paving / ✓ Storm Drainage / / Traffic Signals

The Attached Package Includes:

/D/ Drawings /S/ Spec's /E/ Estimate /R/ Report /M/ Memo Only

Indicated below are the Departments/Divisions that have received project documents and/or are invited to attend. It will be the Project Managers responsibility to notify consulting engineering firms of date and time of scheduled meetings.

/D/ DRC Chairman	Project Review Section	All Drawings
/D/ Traffic Repres.	Transportation Development	All Drawings
/D/ Utility Dev. (Brad B.)	Utility Design	All AHBA Drawings
/ / Utility Dev. (Billy G.)	Utility Design	All CIP Drawings
/D/ Hydro Repres. <u>CURTIN</u>	Hydrology	All Drawings
/D/ Const. Repres.	Construction	All Drawings
/D/ Dave Harmon	Traffic Operations	All Drawings
/ / Sergio Miranda	Water (Shutoff Plan)	All Water Shutoff
/D/ Parks Repres.	Parks & Recreation	ALL Landscaping
/ / Andre Houle	Street Maintenance	All Paving
/ / Kevin Broderick	Utility Coordinator	ALL PWC & CIP
/D/ Tom Murphy	Transit Department	All Drawings
/D/ Joe Luehring	Construction Coordinator	CIP/Memo
/ / Jim Fink	Line Maintenance	CIP & SAS/Memo
/ / George Gee	City Architect	Arch. Drawings
/ /	SAD Engineer	SAD/Memo
/ / Tom Ellis	Park Mangement	Parks/Community Ctrs/APS
/ / Gene Bustamante	General Services Dept.	Arch. Drawings
/ / Greg Smith	PWD/Legal	Specs & Dwgs.
/ / Richard Sertich	Planning Department	CIP/Memos
/ / CIP Project Manager	CIP	CIP/Memos
/ / Donald Bartlett	Risk Management	Arch. Drawings
/ / _____	_____	_____

FIGURE 6
CITY OF ALBUQUERQUE
NOTICE OF D.R.C. MEETING
12/7/99
(DATE)

DRB NO: 99-443
PROJECT NO: 529791
ZONE ATLAS: 3/3-9

PROJECT NAME: Sierga Oeste Units I
LOCATION: Area of Ladera Dr. & Unser Bd. NW

TYPE OF PROJECT: AHBA ☒ CIP ☐ PWC ☐ SAD ☐ ALL PRIVATE ☐

Contact Person: Russell Grayson Phone: 892-5141
Firm: Confran/Huitt-Zollars

☒ Scheduled with the D.R.C. on 12/14/99 at 5:30 PM Plaza Del Sol/2nd Fl.
☐ No DRC Meeting Scheduled. Please return any comments by _____

The Project Is Scheduled For:

/ / Design Report Review	/ / Final Plan Review
/ / Pre-Design Meeting	/ / Signoff of Plans
/ / Preliminary Plan Review	<u>1/1</u> _____

The Project Relates To:

/ + Water / + San. Sewer / + Paving / + Storm Drainage / 1/ Traffic Signal

The Attached Package Includes:

/D/ Drawings /S/ Spec's /E/ Estimate /R/ Report /M/ Memo Only

Indicated below are the Departments/Divisions that have received project documents and/or are invited to attend. It will be the Project Managers responsibility to notify consulting engineering firms of date and time of scheduled meetings.

☒ DRC Chairman	Project Review Section	All Drawings
☒ Traffic Repres.	Transportation Development	All Drawings
☒ Utility Dev. (Brad B.)	Utility Design	All AHBA Drawings
/ / Utility Dev. (Billy G.)	Utility Design	All CIP Drawings
☒ Hydro Repres. <u>CURTIN</u>	Hydrology	All Drawings
☒ Const. Repres.	Construction	All Drawings
☒ Dave Harmon	Traffic Operations	All Drawings
/ / Sergio Miranda	Water (Shutoff Plan)	All Water Shutoff
☒ Parks Repres.	Parks & Recreation	ALL Landscaping
/ / Andre Houle	Street Maintenance	All Paving
/ / Kevin Broderick	Utility Coordinator	ALL PWC & CIP
☒ Tom Murphy	Transit Department	All Drawings
☒ Joe Luehring	Construction Coordinator	CIP/Memo
/ / Jim Fink	Line Maintenance	CIP & SAS/Memo
/ / George Gee	City Architect	Arch. Drawings
/ /	SAD Engineer	SAD/Memo
/ / Tom Ellis	Park Mangement	Parks/Community Ctrs/APS
/ / Gene Bustamante	General Services Dept.	Arch. Drawings
/ / Greg Smith	PWD/Legal	Specs & Dwgs.
/ / Richard Sertich	Planning Department	CIP/Memos
/ / CIP Project Manager	CIP	CIP/Memos
/ / Donald Bartlett	Risk Management	Arch. Drawings
/ / _____	_____	_____

DEVELOPMENT & BUILDING SERVICE CENTER
ONE STOP

600 SECOND ST. N.W./2ND FLOOR

J9/DIS

ATTENTION: _____
505-924-3900

Records Withdrawal Form

Project No. ~~119/D1A3~~

Date: 11-29-99

Project Title: Tierra Oeste ~~119/D1A3~~

a. File

b. Mylars

c. Redlines/Comments

d. Other _____

Requested By: Mark Gardin ~~119/D1A3~~ Phone No.: 828-2200
Company

Comments: Copy entire file

Anticipated Return Date: 11-30-99

Receipt Acknowledged

I here by accept full responsibility for the security of the above noted records/plans until return receipt acknowledgement is completed. Records/plans will be returned to the Development & Building Services Center on or before the indicated anticipated return date.

Delivery Picked Up By:

Name: X Tammy August
Print

Organization: AIB. Reprographics.

Signed: Tammy August
Phone No. 884-0885

Date: 11-29-99

Office Use Only

Return Acknowledged

Received by: _____ Date: _____
Print

FIGURE 6
CITY OF ALBUQUERQUE
NOTICE OF D.R.C. MEETING
6-13-96
(DATE)

PROJECT NO: 5297.90
ZONE ATLAS: 19

PROJECT NAME: Sierra Oeste Subd. Unit 1
LOCATION: W. of Unser, N. of I-40

TYPE OF PROJECT: AHBA ☒ CIP ☐ PWC ☐ SAD ☐ ALL PRIVATE ☐

Contact Person: Harry Read Phone: 892-5141
Firm: Cintra Eng.

☒ Scheduled with the D.R.C. on 6-21-96 at 10:00 in Conf. Room 302
☐ No DRC Meeting Scheduled. Please return any comments by _____

The Project Is Scheduled For:
/ / Design Report Review ☒ Final Plan Review
/ / Pre-Design Meeting ☒ Signoff of Plans
/ / Preliminary Plan Review ☐

The Project Relates To:
/ / Water / / San. Sewer / / Paving / / Storm Drainage / / _____

The Attached Package Includes:
/D/ Drawings /S/ Spec's /E/ Estimate /R/ Report /M/ Memo Only

Indicated below are the Departments/Divisions that have received project documents and/or are invited to attend. It will be the Project Managers responsibility to notify consulting engineering firms of date and time of scheduled meetings.

☒ DRC Chairman	Project Review Section	All Drawings
☒ Traffic Repres	Transportation Development	All Drawings
☒ Water Repres	Utility Design	All Drawings
☒ Hydro-Repres	Hydrology	All Drawings
☒ Const. Repres.	Construction	All Drawings
/ / Ray Chavez	Traffic Operations	All Drawings
/ / Andre Houle	Street Maintenance	All Paving
/ / Sergio Miranda	Water (Shutoff Plan)	All Water Shutoff
/ / Parks Repres.	Parks & Recreation	ALL Landscaping
/ /	Utility Coordinator	ALL PWC & CIP
/ / Jim Hamel	Transit Department	CIP/Memo
/ / Rick Roybal	Construction Coordinator	CIP/Memo
/ / Jim Fink	Line Maintenance	CIP & SAS/Memo
/ / Joe Dellalonga	City Architect	Arch. Drawings
/ / Lee Lunsford	SAD Engineer	SAD/Memo
/ / Joe Luehring	Transportation Develop.	CIP/Memo
/ / Roger Green	Utility Design	CIP/Water & SAS
/ / John Liebendorfer	General Services Dept.	Arch. Drawings
/ / Greg Smith	PWD/Legal	Specs & Dwgs.
/ / Richard Sertich	Planning Department	CIP/Memos
/ / CIP Manager	CIP	CIP/Memos
/ / Donald Bartlett	Risk Management	Arch. Drawings
/ /		

FIGURE 6
CITY OF ALEQUERQUE
NOTICE OF D.R.C. MEETING
10-13-96
(DATE)

PROJECT NO: 529791
ZONE ATLAS: 5-9

PROJECT NAME: Tucua Oeste, Unit 2
LOCATION: Ch. of Unas, W. of I-40

TYPE OF PROJECT: AHBA ☒ CIP ☐ PWC ☐ SAD ☐ ALL PRIVATE ☐

Contact Person: Larry Read Phone: 890-5141
Firm: Cofran

☒ Scheduled with the D.R.C. on 10/31 in Conf. Room
☐ No DRC Meeting Scheduled. Please return any comments by

The Project Is Scheduled For:

☒ Design Report Review	☒ Final Plan Review
☒ Pre-Design Meeting	☒ Signoff of Plans
☒ Preliminary Plan Review	☐ <u> </u>

The Project Relates To:

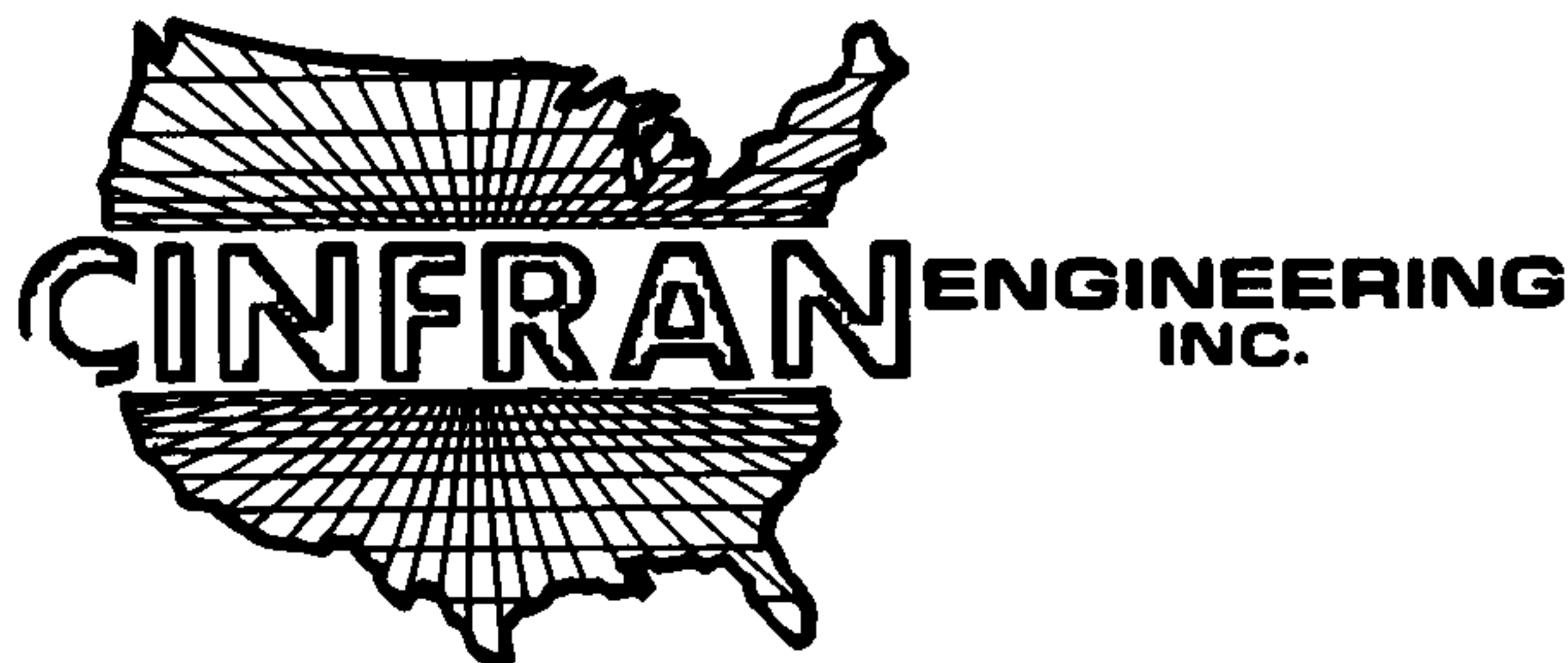
☒ Water ☒ San. Sewer ☒ Paving ☒ Storm Drainage ☐

The Attached Package Includes:

☐ D/ Drawings ☐ S/ Spec's ☐ E/ Estimate ☐ R/ Report ☐ M/ Memo Only

Indicated below are the Departments/Divisions that have received project documents and/or are invited to attend. It will be the Project Managers responsibility to notify consulting engineering firms of date and time of scheduled meetings.

☒ DRC Chairman	Project Review Section	All Drawings
☒ Traffic Repres	Transportation Development	All Drawings
☒ Water Repres	Utility Design	All Drawings
☒ Hydro Repres	Hydrology	All Drawings
☒ Const. Repres	Construction	All Drawings
☐ Ray Chavez	Traffic Operations	All Drawings
☐ Andre Houle	Street Maintenance	All Paving
☐ Sergio Miranda	Water (Shutoff Plan)	All Water Shutoff
☐ Parks Repres.	Parks & Recreation	ALL Landscaping
☐ <u> </u>	Utility Coordinator	ALL PWC & CIP
☐ Jim Hamel	Transit Department	CIP/Memo
☐ Rick Roybal	Construction Coordinator	CIP/Memo
☐ Jim Fink	Line Maintenance	CIP & SAS/Memo
☐ Joe Dellalonga	City Architect	Arch. Drawings
☐ Lee Lunsford	SAD Engineer	SAD/Memo
☐ Joe Luehring	Transportation Develop.	CIP/Memo
☐ Roger Green	Utility Design	CIP/Water & SAS
☐ John Liebendorfer	General Services Dept.	Arch. Drawings
☐ Greg Smith	PWD/Legal	Specs & Dwgs.
☐ Richard Sertich	Planning Department	CIP/Memos
☐ CIP Manager	CIP	CIP/Memos
☐ Donald Bartlett	Risk Management	Arch. Drawings
☐ <u> </u>	<u> </u>	<u> </u>



333 Rio Rancho Dr. NE, Suite 101
Rio Rancho, New Mexico 87124
(505) 892-5141

May 15, 1996

Mr. John P. Curtin, P.E.
Public Works Department - Hydrology
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RE: Tierra Oeste Subdivision, Street Hydraulic Calculations for
Streets w/mountable Curb and Gutter

Dear Mr. Curtin,

Per your request, we have calculated all of the street hydraulics for the streets with mountable curb and gutter. These streets include Casa Azul Court, Casa Negra Court and Casa Gris Court in Unit 1 and Casa Morena Court in Unit 2.

A special AHYMO run was calculated for these four streets and their respective contributing basins. A copy of the AHYMO run, basin geometry, and time to peak calculations are attached with this letter. Once the flows were obtained from AHYMO, the street hydraulics were calculated with Haestad's Method's "FlowMaster" computer program. This program was used due to the fact that no street capacity graphs exist for a 27 foot wide street with mountable curb and gutter in the DPM Section 22. A copy of the output is also attached to this letter.

A composite manning's roughness factor of 0.017 was used for all of the streets. The results of the street hydraulic calculations are as follows:

STREET	Q(100) FLOW (CFS)	ACTUAL DEPTH (FT)	TOP OF CURB DEPTH (FT)
CASA MORENA CT.	14.61	0.30	0.33
CASA NEGRA CT.	11.19	0.28	0.33
CASA GRIS CT.	7.77	0.24	0.33
CASA AZUL CT.	4.12	0.21	0.33

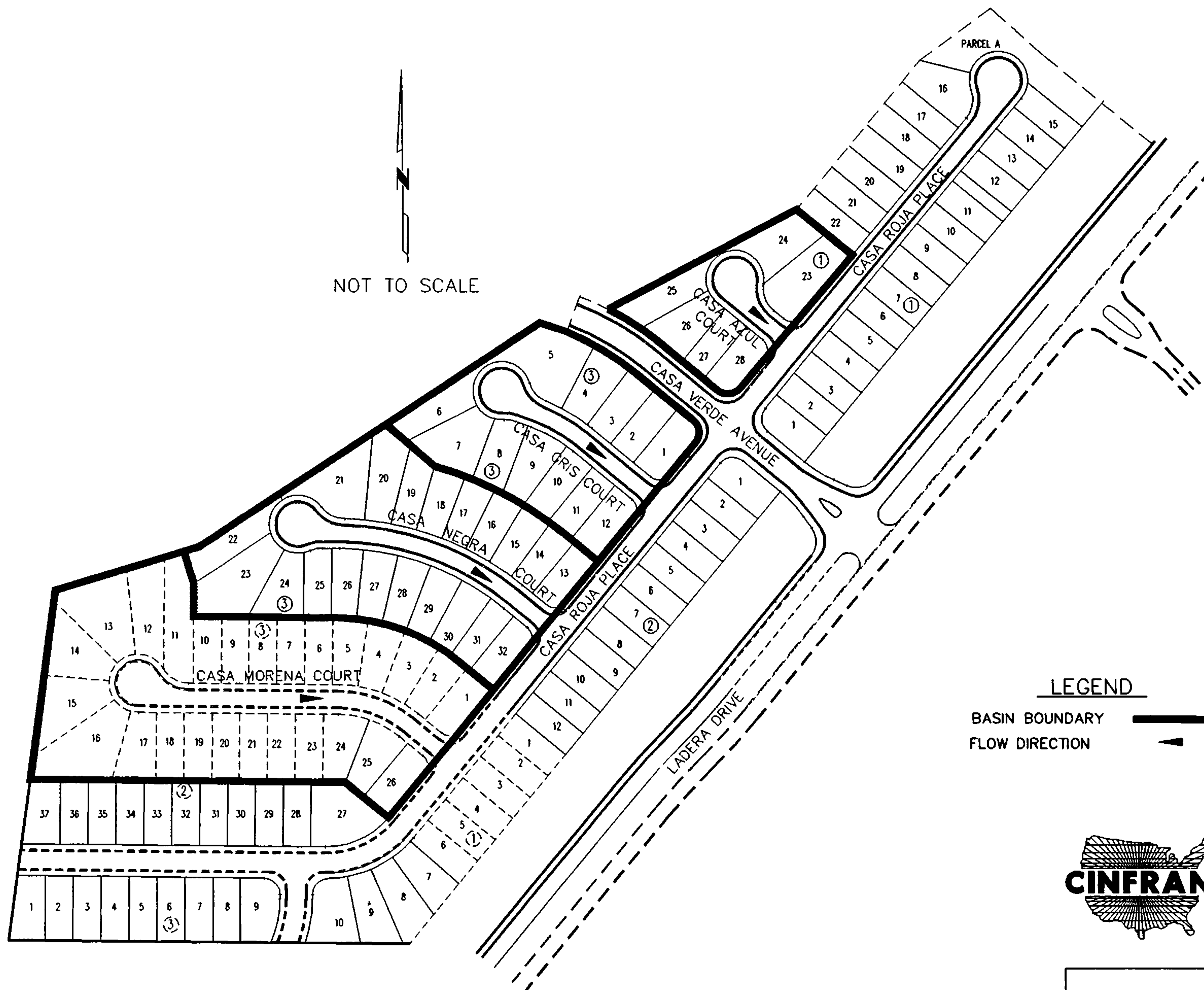
Please feel free to call if you have any questions or would like more information.

Sincerely,

Wallace L. Bingham, P.E.
Vice President

enclosures

WB/mp



LEGEND

BASIN BOUNDARY
FLOW DIRECTION



CINFRAN ENGINEERING, INC.
DRAINAGE BASINS
TIERRA OESTE SUBDIVISION

BASIN	AREA (SQ. FT.)	AREA (SQ. MI.)	LENGTH (FT.)	TOP ELEV.	BOTTOM ELEV.	SLOPE
CASA MORENA	179084	0.0064	704	5258	5241	0.0241
CASA NEGRA	135897	0.0049	602	5249	5236	0.0216
CASA GRIS	94186	0.0034	469	5242	5231	0.0235
CASA AZUL	50752	0.0018	309	5229	5224	0.0162

TIME TO PEAK CALCULATIONS

USE EQUATION B-1: $T_c = (L_1/V_1 + L_2/V_2 + \dots) / 3600$ $T_c = 0.2$ hr (MINIMUM)

WHERE: $V = K^*(S*100)^{0.5} = 10*K*(S^{0.5})$ S=SLOPE

FOR L<400' K=0.7 (HISTORICAL CONDITONS)

K=1.0 (DEVELOPED CONDITONS)

FOR $400' < L < 2000'$ $K=2.0$

FOR 2000' < L < 4000' K=3.0

TIME TO PEAK $T_p = 2/3 \cdot T_c$

DEVELOPED CONDITONS

BASIN #	AREA (SQ. MI.)	LENGTH (FT)	SLOPE (FT/FT)	L1/V1	L2/V2	L3/V3	CALCULATED Tc (HR)	ADJUSTED Tc (HR)	TP (HR)
MORENA	0.0064	704	0.024148	257	98	-	0.099	0.200	0.133
JEGRÁ	0.0049	602	0.021595	272	69	-	0.095	0.200	0.133
GRIS	0.0034	469	0.023454	261	23	-	0.079	0.200	0.133
AZUL	0.0018	309	0.016181	243	-	-	0.067	0.200	0.133

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
*S TIERRA OSESTE SUBDIVISION DRAINAGE REVISION DATE: 5/96											
*S Compute 100-Year Flow FN:T0 2.DAT BY:RGG											
*S COMPUTE 100YR-6HR STORM FOR FULLY DEVELOPED CONDITIONS											
*S NO POND											
*S											
*S											
START											
RAINFALL TYPE= 1										TIME=	.00
										RAIN6=	2.200
*S											
*S COMPUTE FLOWS FROM INSIDE SUBDIVISION ONLY-FOR CUL-DE-SACS											
*S W/MOUNTABLE CURB ONLY											
*S											
*S BASIN CASA MORENA-----											
*S											
COMPUTE NM HYD	101.10	-	1	.00640	14.61	.506	1.48259	1.499	3.566	PER IMP=	58.00
*S											
*S BASIN CASA NEGRA-----											
*S											
COMPUTE NM HYD	102.10	-	2	.00490	11.19	.387	1.48259	1.499	3.567	PER IMP=	58.00
*S											
*S BASIN CASA GRIS-----											
*S											
COMPUTE NM HYD	103.10	-	3	.00340	7.77	.269	1.48259	1.499	3.570	PER IMP=	58.00
*S											
*S BASIN CASA AZUL-----											
*S											
COMPUTE NM HYD	104.10	-	4	.00180	4.12	.142	1.48259	1.499	3.577	PER IMP=	58.00
*S											
FINISH											

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
 RUN DATE (MON/DAY/YR) = 03/04/1996
 START TIME (HR:MIN:SEC) = 06:47:58 USER NO.= CINFRNM.I01
 INPUT FILE = tohist.DAT

*S TIERRA OSESTE SUBDIVISION DRAINAGE REVISION DATE: 2/96

*S Compute 10-Year Flow FN:TIERRA.DAT BY:RGG

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*S COMPUTE 10YR-6HR STORM FOR HISTORICAL FLOWS

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START TIME=0.0 CODE 0 LINES -6

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RAINFALL TYPE=-1 RAIN QUATER=0.0 RAIN ONE=1.25
 RAIN SIX=1.47 RAIN DAY=1.77 DT=0.0333

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
 DT = .033300 HOURS END TIME = 5.994000 HOURS

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*S BASIN ON1A-----

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COMPUTE NM HYD ID=1 HYD NO=101.1 DA=0.0060 SQ MI
 PER A=100.0 PER B=0.00 PER C=0.00 PER D=0.00 TP=-.133
 MASS RAINFALL=-1

K = .178910HR TP = .133000HR K/TP RATIO = 1.345190 SHAPE CONSTANT, N = 2.675824
 UNIT PEAK = 11.469 CFS UNIT VOLUME = .9978 B = 254.23 P60 = 1.2500
 AREA = .006000 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=1 CODE=10

PARTIAL HYDROGRAPH 101.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.999	.0	1.998	.1	2.997	.0	3.996	.0
.333	.0	1.332	.0	2.331	.0	3.330	.0	4.329	.0
.666	.0	1.665	.6	2.664	.0	3.663	.0		

RUNOFF VOLUME = .08298 INCHES = .0266 ACRE-FEET
 PEAK DISCHARGE RATE = .95 CFS AT 1.532 HOURS BASIN AREA = .0060 SQ. MI.

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*S BASIN ON1B-----

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COMPUTE NM HYD ID=2 HYD NO=102.1 DA=0.0078 SQ MI
 PER A=100. PER B=0.00 PER C=0.00 PER D=0.00 TP=-.133
 MASS RAINFALL=-1

K = .178910HR TP = .133000HR K/TP RATIO = 1.345190 SHAPE CONSTANT, N = 2.675824
 UNIT PEAK = 14.910 CFS UNIT VOLUME = .9981 B = 254.23 P60 = 1.2500
 AREA = .007800 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=10

PARTIAL HYDROGRAPH 102.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.999	.0	1.998	.1	2.997	.0	3.996	.0
.333	.0	1.332	.0	2.331	.1	3.330	.0	4.329	.0
.666	.0	1.665	.7	2.664	.0	3.663	.0		

RUNOFF VOLUME = .08298 INCHES = .0345 ACRE-FEET
 PEAK DISCHARGE RATE = 1.24 CFS AT 1.532 HOURS BASIN AREA = .0078 SQ. MI.

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 *S BASIN ON2-----
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 COMPUTE NM HYD ID=3 HYD NO=103.1 DA=0.0106 SQ MI
 PER A=100. PER B=0.00 PER C=0.00 PER D=0.00 TP=-.133
 MASS RAINFALL=-1

K = .178910HR TP = .133000HR K/TP RATIO = 1.345190 SHAPE CONSTANT, N = 2.675824
 UNIT PEAK = 20.262 CFS UNIT VOLUME = .9984 B = 254.23 P60 = 1.2500
 AREA = .010600 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=3 CODE=10

PARTIAL HYDROGRAPH 103.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.999	.0	1.998	.2	2.997	.0	3.996	.0
.333	.0	1.332	.0	2.331	.1	3.330	.0	4.329	.0
.666	.0	1.665	1.0	2.664	.0	3.663	.0	4.662	.0

RUNOFF VOLUME = .08298 INCHES = .0469 ACRE-Feet
 PEAK DISCHARGE RATE = 1.68 CFS AT 1.532 HOURS BASIN AREA = .0106 SQ. MI.

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 *S BASIN ON3-----
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 COMPUTE NM HYD ID=4 HYD NO=104.1 DA=0.0083 SQ MI
 PER A=100. PER B=0.00 PER C=0.00 PER D=0.00 TP=-.133
 MASS RAINFALL=-1

K = .178910HR TP = .133000HR K/TP RATIO = 1.345190 SHAPE CONSTANT, N = 2.675824
 UNIT PEAK = 15.866 CFS UNIT VOLUME = .9981 B = 254.23 P60 = 1.2500
 AREA = .008300 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=4 CODE=10

PARTIAL HYDROGRAPH 104.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.999	.0	1.998	.1	2.997	.0	3.996	.0
.333	.0	1.332	.0	2.331	.1	3.330	.0	4.329	.0
.666	.0	1.665	.8	2.664	.0	3.663	.0		

RUNOFF VOLUME = .08298 INCHES = .0367 ACRE-Feet
 PEAK DISCHARGE RATE = 1.32 CFS AT 1.532 HOURS BASIN AREA = .0083 SQ. MI.

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 *S BASIN OFF1A-----
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 COMPUTE NM HYD ID=5 HYD NO=105.1 DA=0.0173 SQ MI
 PER A=100. PER B=0.00 PER C=0.00 PER D=0.00 TP=-.133
 MASS RAINFALL=-1

K = .178910HR TP = .133000HR K/TP RATIO = 1.345190 SHAPE CONSTANT, N = 2.675824
 UNIT PEAK = 33.069 CFS UNIT VOLUME = .9987 B = 254.23 P60 = 1.2500
 AREA = .017300 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=5 CODE=10

PARTIAL HYDROGRAPH 105.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.999	.0	1.998	.3	2.997	.0	3.996	.0

.333	.0	1.332	.0	2.331	.1	3.333	.0	4.329	.0
.666	.0	1.665	1.7	2.664	.1	3.663	.0	4.662	.0

RUNOFF VOLUME = .08298 INCHES = .0766 ACRE-FEET
PEAK DISCHARGE RATE = 2.75 CFS AT 1.532 HOURS BASIN AREA = .0173 SQ. MI.

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*S BASIN OFF1B-----

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COMPUTE NM HYD ID=6 HYD NO=106.1 DA=0.0373 SQ MI
PER A=100. PER B=0.00 PER C=0.00 PER D=0.00 TP=-.170
MASS RAINFALL=-1

K = .228682HR TP = .170000HR K/TP RATIO = 1.345190 SHAPE CONSTANT, N = 2.675824
UNIT PEAK = 55.781 CFS UNIT VOLUME = .9993 B = 254.23 P60 = 1.2500
AREA = .037300 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=6 CODE=10

PARTIAL HYDROGRAPH 106.10

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	1.332	.0	2.664	.2	3.996	.0	5.328	.0
.333	.0	1.665	3.8	2.997	.1	4.329	.0	5.661	.0
.666	.0	1.998	.9	3.330	.1	4.662	.0	5.994	.0
.999	.0	2.331	.3	3.663	.0	4.995	.0	6.327	.0

RUNOFF VOLUME = .08298 INCHES = .1651 ACRE-FEET
PEAK DISCHARGE RATE = 4.63 CFS AT 1.565 HOURS BASIN AREA = .0373 SQ. MI.

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*S BASIN OFF1C-----

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COMPUTE NM HYD ID=7 HYD NO=107.1 DA=0.05209 SQ MI
PER A=100. PER B=0.00 PER C=0.00 PER D=0.00 TP=-.180
MASS RAINFALL=-1

K = .242134HR TP = .180000HR K/TP RATIO = 1.345190 SHAPE CONSTANT, N = 2.675824
UNIT PEAK = 73.572 CFS UNIT VOLUME = .9994 B = 254.23 P60 = 1.2500
AREA = .052090 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=7 CODE=10

PARTIAL HYDROGRAPH 107.10

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	1.665	5.3	3.330	.1	4.995	.0	6.660	.0
.333	.0	1.998	1.4	3.663	.1	5.328	.0		
.666	.0	2.331	.5	3.996	.1	5.661	.0		
.999	.0	2.664	.3	4.329	.0	5.994	.0		
1.332	.0	2.997	.2	4.662	.0	6.327	.0		

RUNOFF VOLUME = .08298 INCHES = .2305 ACRE-FEET
PEAK DISCHARGE RATE = 6.07 CFS AT 1.565 HOURS BASIN AREA = .0521 SQ. MI.

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*S BASIN OFF2-----

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COMPUTE NM HYD ID=8 HYD NO=108.1 DA=0.0077 SQ MI
PER A=100. PER B=0.00 PER C=0.00 PER D=0.00 TP=-.139
MASS RAINFALL=-1

K = .186981HR TP = .139000HR K/TP RATIO = 1.345190 SHAPE CONSTANT, N = 2.675824
UNIT PEAK = 14.083 CFS UNIT VOLUME = .9982 B = 254.23 P60 = 1.2500
AREA = .007700 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=8 CODE=10

PARTIAL HYDROGRAPH 108.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.999	.0	1.998	.1	2.997	.0	3.996	.0
.333	.0	1.332	.0	2.331	.1	3.330	.0	4.329	.0
.666	.0	1.665	.8	2.664	.0	3.663	.0	4.662	.0

RUNOFF VOLUME = .08298 INCHES = .0341 ACRE-FEET
PEAK DISCHARGE RATE = 1.17 CFS AT 1.532 HOURS BASIN AREA = .0077 SQ. MI.

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*S BASIN OFF3-----

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COMPUTE NM HYD ID=9 HYD NO=109.1 DA=0.0042 SQ MI
PER A=100. PER B=0.00 PER C=0.00 PER D=0.00 TP=-.133
MASS RAINFALL=-1

K = .178910HR TP = .133000HR K/TP RATIO = 1.345190 SHAPE CONSTANT, N = 2.675824
UNIT PEAK = 8.0283 CFS UNIT VOLUME = .9972 B = 254.23 P60 = 1.2500
AREA = .004200 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=9 CODE=10

PARTIAL HYDROGRAPH 109.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.999	.0	1.998	.1	2.997	.0	3.996	.0
.333	.0	1.332	.0	2.331	.0	3.330	.0		
.666	.0	1.665	.4	2.664	.0	3.663	.0		

RUNOFF VOLUME = .08298 INCHES = .0186 ACRE-FEET
PEAK DISCHARGE RATE = .67 CFS AT 1.532 HOURS BASIN AREA = .0042 SQ. MI.

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*S BASIN OFF4A-----

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COMPUTE NM HYD ID=10 HYD NO=110.1 DA=0.0057 SQ MI
PER A=100. PER B=0.00 PER C=0.00 PER D=0.00 TP=-.133
MASS RAINFALL=-1

K = .178910HR TP = .133000HR K/TP RATIO = 1.345190 SHAPE CONSTANT, N = 2.675824
UNIT PEAK = 10.896 CFS UNIT VOLUME = .9977 B = 254.23 P60 = 1.2500
AREA = .005700 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=10 CODE=10

PARTIAL HYDROGRAPH 110.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.999	.0	1.998	.1	2.997	.0	3.996	.0
.333	.0	1.332	.0	2.331	.0	3.330	.0	4.329	.0
.666	.0	1.665	.5	2.664	.0	3.663	.0		

RUNOFF VOLUME = .08298 INCHES = .0252 ACRE-FEET
PEAK DISCHARGE RATE = .91 CFS AT 1.532 HOURS BASIN AREA = .0057 SQ. MI.

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*S BASIN OFF4B-----

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COMPUTE NM HYD ID=11 HYD NO=111.1 DA=0.0024 SQ MI
PER A=100. PER B=0.00 PER C=0.00 PER D=0.00 TP=-.133
MASS RAINFALL=-1

K = .178910HR TP = .133000HR K/TP RATIO = 1.345190 SHAPE CONSTANT, N = 2.675824

UNIT PEAK = 4.5876 CFS UNIT VOLUME = .9958 B = 254.23 P60 = 1.2500
AREA = .002400 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=11 CODE=10

PARTIAL HYDROGRAPH 111.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.999	.0	1.998	.0	2.997	.0		
.333	.0	1.332	.0	2.331	.0	3.330	.0		
.666	.0	1.665	.2	2.664	.0	3.663	.0		

RUNOFF VOLUME = .08298 INCHES = .0106 ACRE-FEET
PEAK DISCHARGE RATE = .38 CFS AT 1.532 HOURS BASIN AREA = .0024 SQ. MI.

*S BASIN OFF5-----

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COMPUTE NM HYD ID=12 HYD NO=112.1 DA=0.0033 SQ MI
PER A=100. PER B=0.00 PER C=0.00 PER D=0.00 TP=-.133
MASS RAINFALL=-1

K = .178910HR TP = .133000HR K/TP RATIO = 1.345190 SHAPE CONSTANT, N = 2.675824
UNIT PEAK = 6.3080 CFS UNIT VOLUME = .9968 B = 254.23 P60 = 1.2500
AREA = .003300 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=12 CODE=10

PARTIAL HYDROGRAPH 112.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.999	.0	1.998	.1	2.997	.0	3.996	.0
.333	.0	1.332	.0	2.331	.0	3.330	.0		
.666	.0	1.665	.3	2.664	.0	3.663	.0		

RUNOFF VOLUME = .08298 INCHES = .0146 ACRE-FEET
PEAK DISCHARGE RATE = .52 CFS AT 1.532 HOURS BASIN AREA = .0033 SQ. MI.

*S

*S BASIN OFF6A-----

*S

COMPUTE NM HYD ID=13 HYD NO=113.1 DA=0.0062 SQ MI
PER A=100. PER B=0.00 PER C=0.00 PER D=0.00 TP=-.133
MASS RAINFALL=-1

K = .178910HR TP = .133000HR K/TP RATIO = 1.345190 SHAPE CONSTANT, N = 2.675824
UNIT PEAK = 11.851 CFS UNIT VOLUME = .9979 B = 254.23 P60 = 1.2500
AREA = .006200 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=13 CODE=10

PARTIAL HYDROGRAPH 113.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.999	.0	1.998	.1	2.997	.0	3.996	.0
.333	.0	1.332	.0	2.331	.1	3.330	.0	4.329	.0
.666	.0	1.665	.6	2.664	.0	3.663	.0		

RUNOFF VOLUME = .08298 INCHES = .0274 ACRE-FEET
PEAK DISCHARGE RATE = .98 CFS AT 1.532 HOURS BASIN AREA = .0062 SQ. MI.

*S

*S BASIN OFF6B-----

*S

COMPUTE NM HYD ID=14 HYD NO=114.1 DA=0.0074 SQ MI

PER A=100. PER B=0.00 PER C=0.00 PER D=0.00 TP=-.133
MASS RAINFALL=-1

K = .178910HR TP = .133000HR K/TP RATIO = 1.345190 SHAPE CONSTANT, N = 2.675824
UNIT PEAK = 14.145 CFS UNIT VOLUME = .9981 B = 254.23 P60 = 1.2500
AREA = .007400 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=14 CODE=10

PARTIAL HYDROGRAPH 114.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.999	.0	1.998	.1	2.997	.0	3.996	.0
.333	.0	1.332	.0	2.331	.1	3.330	.0	4.329	.0
.666	.0	1.665	.7	2.664	.0	3.663	.0		

RUNOFF VOLUME = .08298 INCHES = .0327 ACRE-FEET
PEAK DISCHARGE RATE = 1.17 CFS AT 1.532 HOURS BASIN AREA = .0074 SQ. MI.

*S

*S BASIN OFF6C-----

*S

COMPUTE NM HYD ID=15 HYD NO=115.1 DA=0.0018 SQ MI
PER A=100. PER B=0.00 PER C=0.00 PER D=0.00 TP=-.133
MASS RAINFALL=-1

K = .178910HR TP = .133000HR K/TP RATIO = 1.345190 SHAPE CONSTANT, N = 2.675824
UNIT PEAK = 3.4407 CFS UNIT VOLUME = .9948 B = 254.23 P60 = 1.2500
AREA = .001800 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=15 CODE=10

PARTIAL HYDROGRAPH 115.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.999	.0	1.998	.0	2.997	.0		
.333	.0	1.332	.0	2.331	.0	3.330	.0		
.666	.0	1.665	.2	2.664	.0	3.663	.0		

RUNOFF VOLUME = .08298 INCHES = .0080 ACRE-FEET
PEAK DISCHARGE RATE = .29 CFS AT 1.532 HOURS BASIN AREA = .0018 SQ. MI.

*S

*S BASIN OFF6D-----

*S

COMPUTE NM HYD ID=16 HYD NO=116.1 DA=0.0018 SQ MI
PER A=100. PER B=0.00 PER C=0.00 PER D=0.00 TP=-.133
MASS RAINFALL=-1

K = .178910HR TP = .133000HR K/TP RATIO = 1.345190 SHAPE CONSTANT, N = 2.675824
UNIT PEAK = 3.4407 CFS UNIT VOLUME = .9948 B = 254.23 P60 = 1.2500
AREA = .001800 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=16 CODE=10

PARTIAL HYDROGRAPH 116.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.999	.0	1.998	.0	2.997	.0		
.333	.0	1.332	.0	2.331	.0	3.330	.0		
.666	.0	1.665	.2	2.664	.0	3.663	.0		

RUNOFF VOLUME = .08298 INCHES = .0080 ACRE-FEET
PEAK DISCHARGE RATE = .29 CFS AT 1.532 HOURS BASIN AREA = .0018 SQ. MI.

*S
 *S BASIN OFF7-----
 *S
 COMPUTE NM HYD ID=17 HYD NO=117.1 DA=0.0013 SQ MI
 PER A=100. PER B=0.00 PER C=0.00 PER D=0.00 TP=-.133
 MASS RAINFALL=-1

K = .178910HR TP = .133000HR K/TP RATIO = 1.345190 SHAPE CONSTANT, N = 2.675824
 UNIT PEAK = 2.4850 CFS UNIT VOLUME = .9933 B = 254.23 P60 = 1.2500
 AREA = .001300 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=17 CODE=10

PARTIAL HYDROGRAPH 117.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.999	.0	1.998	.0	2.997	.0		
.333	.0	1.332	.0	2.331	.0	3.330	.0		
.666	.0	1.665	.1	2.664	.0				

RUNOFF VOLUME = .08298 INCHES = .0058 ACRE-FEET
 PEAK DISCHARGE RATE = .21 CFS AT 1.532 HOURS BASIN AREA = .0013 SQ. MI.

*S
 *S BASIN OFF8-----
 *S
 COMPUTE NM HYD ID=18 HYD NO=118.1 DA=0.0509 SQ MI
 PER A=100. PER B=0.00 PER C=0.00 PER D=0.00 TP=-.310
 MASS RAINFALL=-1

K = .417009HR TP = .310000HR K/TP RATIO = 1.345190 SHAPE CONSTANT, N = 2.675824
 UNIT PEAK = 41.743 CFS UNIT VOLUME = .9996 B = 254.23 P60 = 1.2500
 AREA = .050900 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=18 CODE=10

PARTIAL HYDROGRAPH 118.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.331	1.0	4.662	.1	6.993	.0	9.324	.0
.333	.0	2.664	.4	4.995	.1	7.326	.0	9.657	.0
.666	.0	2.997	.3	5.328	.0	7.659	.0	9.990	.0
.999	.0	3.330	.2	5.661	.0	7.992	.0		
1.332	.0	3.663	.2	5.994	.0	8.325	.0		
1.665	3.4	3.996	.1	6.327	.0	8.658	.0		
1.998	2.2	4.329	.1	6.660	.0	8.991	.0		

RUNOFF VOLUME = .08298 INCHES = .2253 ACRE-FEET
 PEAK DISCHARGE RATE = 3.46 CFS AT 1.698 HOURS BASIN AREA = .0509 SQ. MI.

*S
 *S
 FINISH
 NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 06:48:00

CASA MORENA COURT

Worksheet for Irregular Channel

Project Description	
Project File	c:\fmw\tierra2.fm2
Worksheet	28' FL-FL STREET W/ COA MOUNTABLE CURB
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

Input Data				
Channel Slope	2.660000 %			
Elevation range: 0.67 ft to 1.00 ft.				
Station (ft)	Elevation (ft)	Start Station	End Station	Roughness
0.00	1.00	0.00	28.25	0.017
1.63	0.67			
2.63	0.73			
14.13	0.96			
25.63	0.73			
26.63	0.67			
28.25	1.00			
Discharge	14.61	ft³/s		

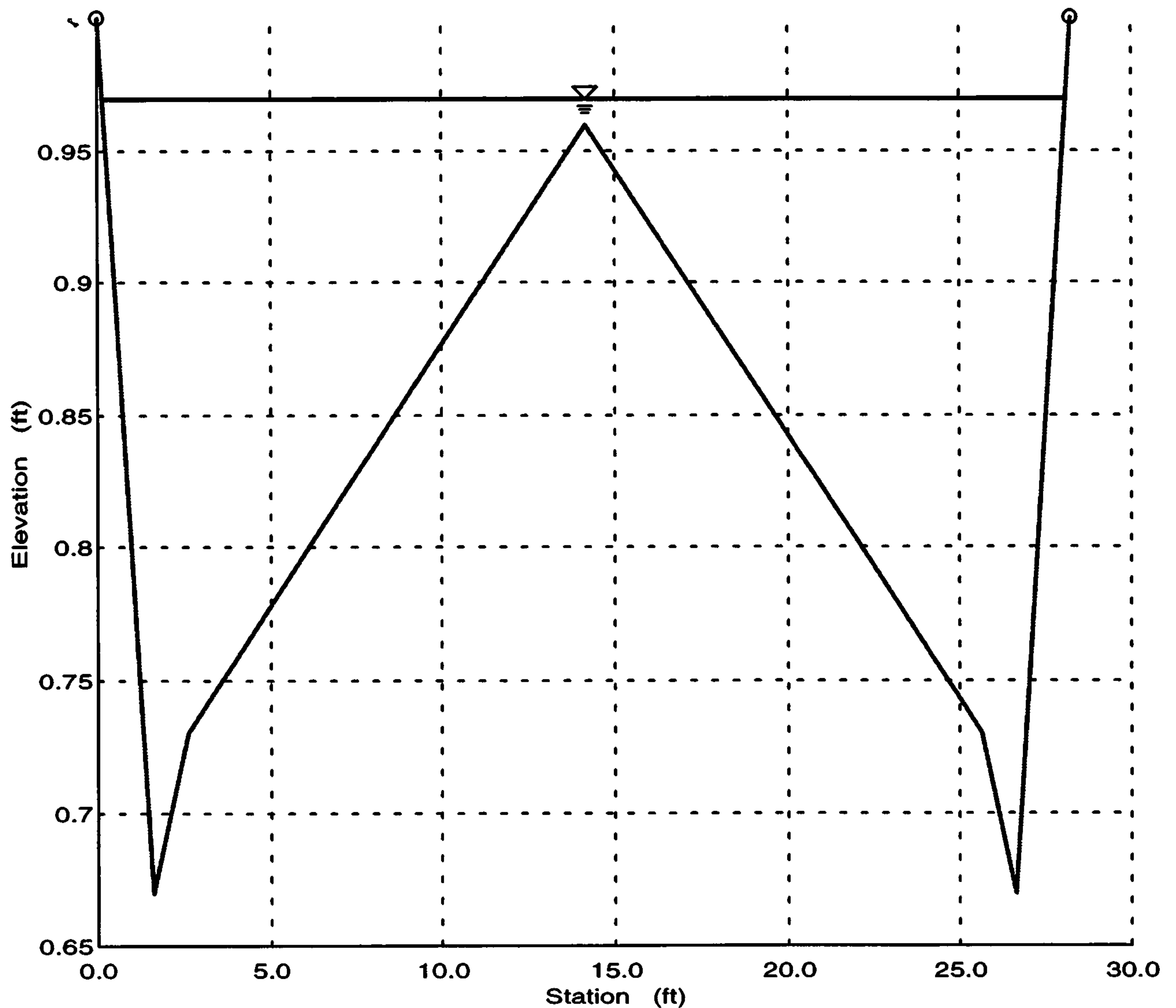
Results		
Wtd. Mannings Coefficient	0.017	
Water Surface Elevation	0.97	ft
Flow Area	3.85	ft ²
Wetted Perimeter	28.02	ft
Top Width	27.95	ft
Depth	0.30	ft
Critical Water Elev.	1.04	ft
Critical Slope	0.007221	ft/ft
Velocity	3.80	ft/s
Velocity Head	0.22	ft
Specific Energy	1.19	ft
Froude Number	1.80	
Full Flow Capacity	20.24	ft ³ /s
Flow is supercritical.		

CASA MORENA CROSS SECTION

Cross Section for Irregular Channel

Project Description	
Project File	c:\fmw\tierra2.fm2
Worksheet	28' FL-FL STREET W/ COA MOUNTABLE CURB
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

Section Data	
Wtd. Mannings Coefficient	0.017
Channel Slope	2.660000 %
Water Surface Elevation	0.97 ft
Discharge	14.61 ft ³ /s



CASA NEGRA COURT

Worksheet for Irregular Channel

Project Description	
Project File	c:\fmw\tierra2.fm2
Worksheet	28' FL-FL STREET W/ COA MOUNTABLE CURB
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

Input Data				
Channel Slope	2.560000 %			
Elevation range: 0.67 ft to 1.00 ft.				
Station (ft)	Elevation (ft)	Start Station	End Station	Roughness
0.00	1.00	0.00	28.25	0.017
1.63	0.67			
2.63	0.73			
14.13	0.96			
25.63	0.73			
26.63	0.67			
28.25	1.00			
Discharge	11.19	ft ³ /s		

Results			
Wtd. Mannings Coefficient	0.017		
Water Surface Elevation	0.95	ft	
Flow Area	3.25	ft ²	
Wetted Perimeter	26.59	ft	
Top Width	26.52	ft	
Depth	0.28	ft	
Critical Water Elev.	1.00	ft	
Critical Slope	0.007637	ft/ft	
Velocity	3.44	ft/s	
Velocity Head	0.18	ft	
Specific Energy	1.13	ft	
Froude Number	1.73		
Full Flow Capacity	19.86	ft ³ /s	
Flow is supercritical.			
Flow is divided.			

CASA GRIS COURT

Worksheet for Irregular Channel

Project Description	
Project File	c:\fmw\tierra2.fm2
Worksheet	28' FL-FL STREET W/ COA MOUNTABLE CURB
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

Input Data				
Channel Slope	2.840000 %			
Elevation range: 0.67 ft to 1.00 ft.				
Station (ft)	Elevation (ft)	Start Station	End Station	Roughness
0.00	1.00	0.00	28.25	0.017
1.63	0.67			
2.63	0.73			
14.13	0.96			
25.63	0.73			
26.63	0.67			
28.25	1.00			
Discharge	7.77	ft³/s		

Results			
Wtd. Mannings Coefficient	0.017		
Water Surface Elevation	0.91	ft	
Flow Area	2.37	ft ²	
Wetted Perimeter	22.67	ft	
Top Width	22.61	ft	
Depth	0.24	ft	
Critical Water Elev.	0.97	ft	
Critical Slope	0.008256	ft/ft	
Velocity	3.27	ft/s	
Velocity Head	0.17	ft	
Specific Energy	1.08	ft	
Froude Number	1.78		
Full Flow Capacity	20.91	ft ³ /s	
Flow is supercritical.			
Flow is divided.			

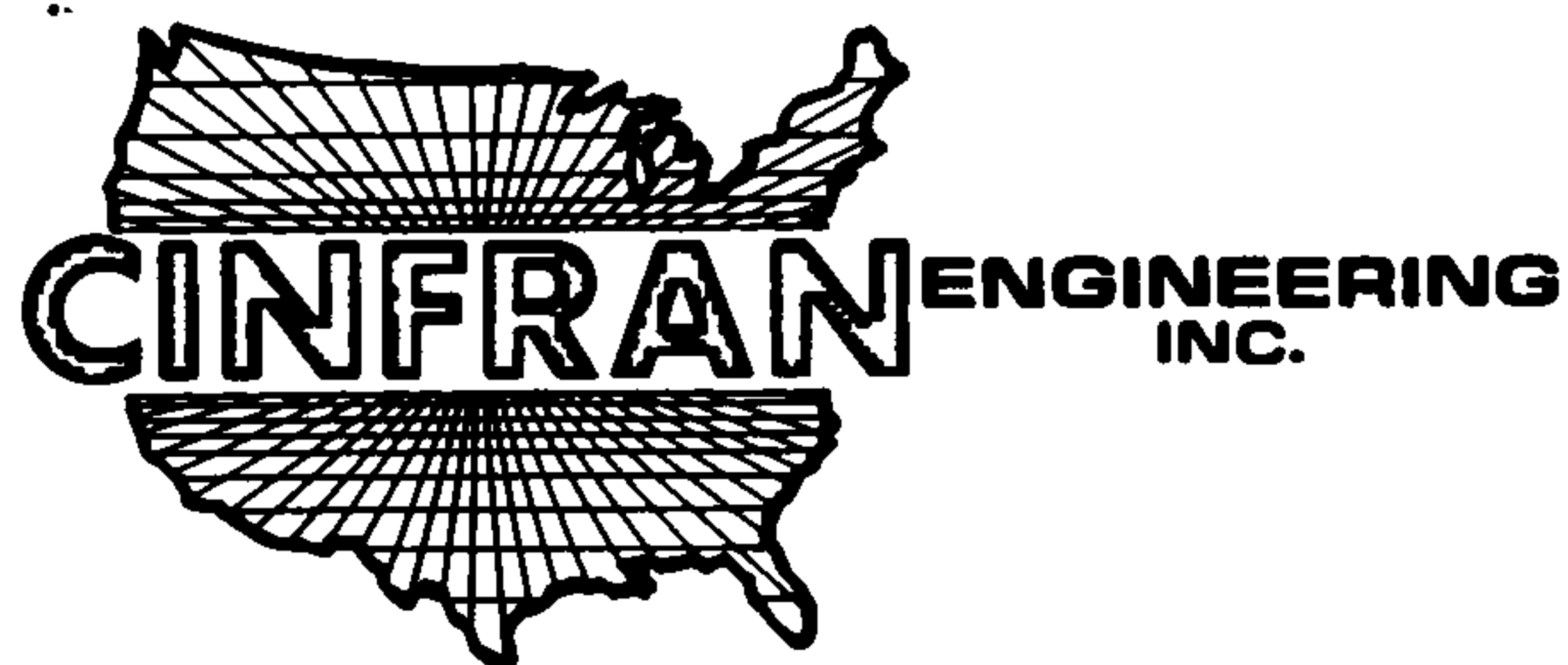
CASA AZUL COURT

Worksheet for Irregular Channel

Project Description	
Project File	c:\fmw\tierra2.fm2
Worksheet	28' FL-FL STREET W/ COA MOUNTABLE CURB
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

Input Data				
Channel Slope	1.990000 %			
Elevation range: 0.67 ft to 1.00 ft.				
Station (ft)	Elevation (ft)	Start Station	End Station	Roughness
0.00	1.00	0.00	28.25	0.017
1.63	0.67			
2.63	0.73			
14.13	0.96			
25.63	0.73			
26.63	0.67			
28.25	1.00			
Discharge	4.12	ft³/s		

Results		
Wtd. Mannings Coefficient	0.017	
Water Surface Elevation	0.88	ft
Flow Area	1.68	ft ²
Wetted Perimeter	19.00	ft
Top Width	18.95	ft
Depth	0.21	ft
Critical Water Elev.	0.91	ft
Critical Slope	0.009023	ft/ft
Velocity	2.45	ft/s
Velocity Head	0.09	ft
Specific Energy	0.97	ft
Froude Number	1.45	
Full Flow Capacity	17.51	ft ³ /s
Flow is supercritical.		
Flow is divided.		



333 Rio Rancho Dr. NE, Suite 101
Rio Rancho, New Mexico 87124
(505) 892-5141

April 19, 1996

Mr. John P. Curtin, P.E.
Public Works Department - Hydrology
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RE: Tierra Oeste Subdivision - Responses to the Drainage Report Comments

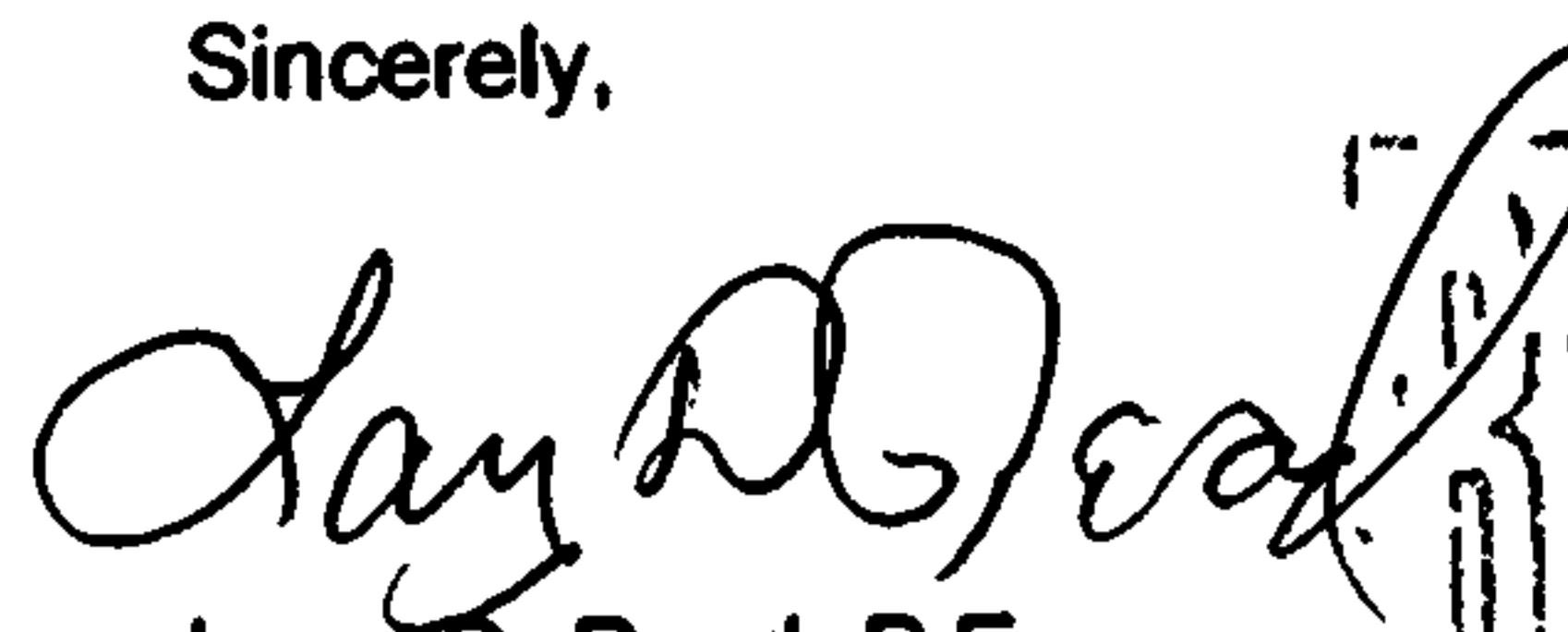
Dear Mr. Curtin,

This is in response to your comments stated in your letter dated February 7, 1996 concerning the Tierra Oeste Subdivision Drainage Report (copy of letter attached).

1. The grading plan is drawn to a scale of 1"=50'. Both the grading plans and road plans have been revised to indicate the storm drain inlet locations.
2. The four AHYMO runs are necessary for the following reasons:
 - 100 yr-6 hr Design Storm (Historical Conditions) - Calculated per DPM requirements.
 - 10 yr-6 hr Design Storm (Developed Conditions) - Calculated for storm drain inlet spacing on Ladera Drive. DPM requires one driving lane dry during the 10 year storm for arterial roadways.
 - 100 yr-6 hr Design Storm (Developed Conditions) - Calculated for the ultimate capacity of the storm drain system.
 - 100 yr-24 hr Design Storm (Historical Conditions) - Calculated to analyze the capacity of the Parkway Unit 7 Detention Pond and the discharge to the AMAFCA channel.
3. The basins were redefined and the drainage area map clearly shows the drainage boundaries for the PNM Easement.
4. The percentage of treatment D was calculated from Table A-5. It was compared to the %D calculated from a lot analysis. The value from Table A-5 was used because it was found to be more conservative.
5. A copy of the drainage report is being sent to AMAFCA for their approval. There should not be any conflicts since we are not increasing the flows to the AMAFCA channel.
6. All of the storm drain systems have been redesigned to keep the energy grade within the street right of way.
7. The hydraulic grade line for the storm drain system has been recalculated and the printout has been renumbered for clarity. The numbers shown on the printout correspond to the same numbers shown on the utility plans. The program does determine junction and manhole losses. A printout of the loss coefficients is included in the appendix of the report.

Please feel free to call if you have any questions or would like more information.

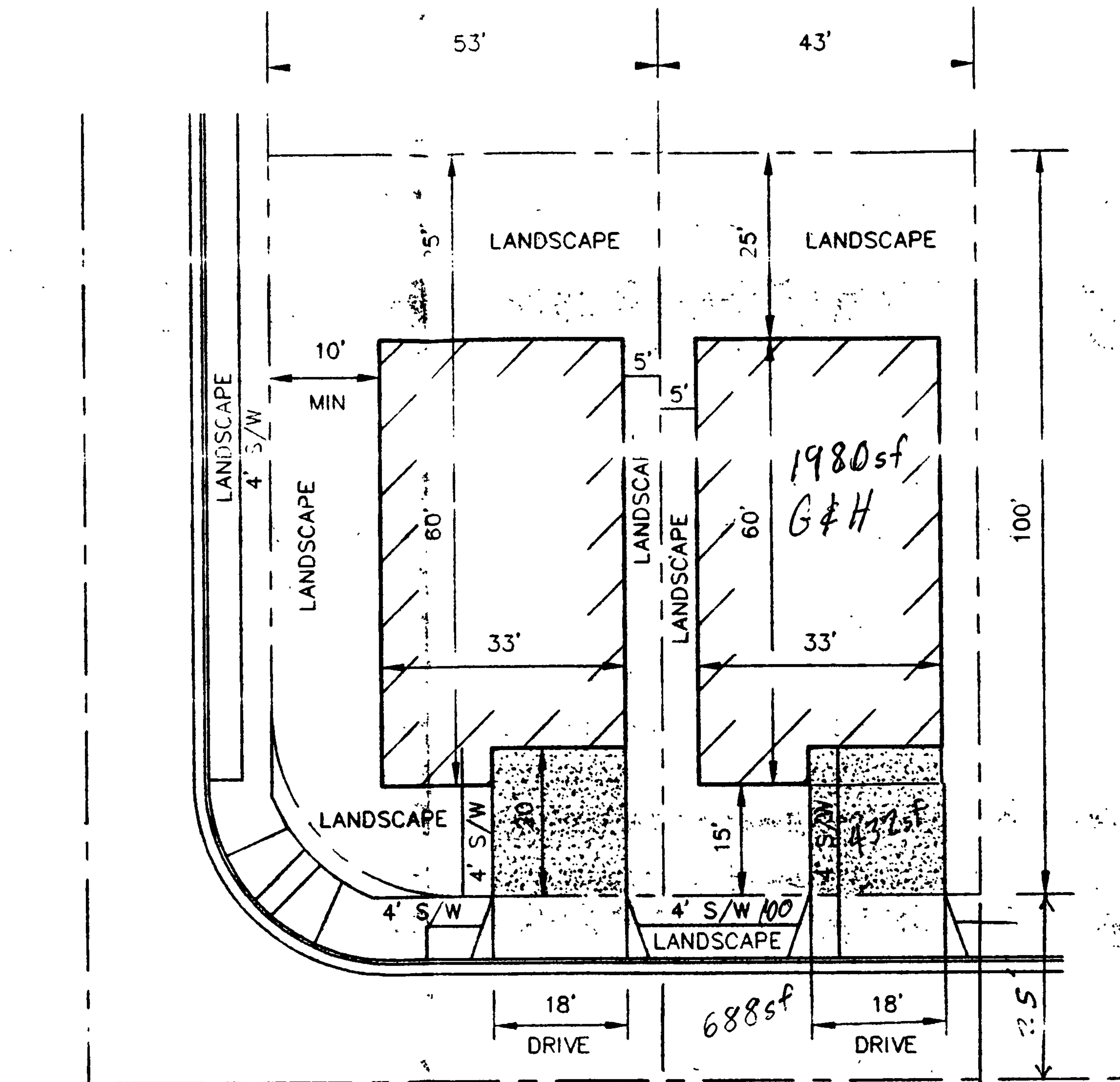
Sincerely,


Larry D. Read, P.E.
Project Engineer

APR 23 1996

enclosures

LR/ms Land Planning • Engineering/Environment • Subdivision Development • Surveying • Construction • Construction/Project Management



TYPICAL INTERIOR AND CORNER LOT LAYOUT

1" = 20'

$$\begin{array}{r}
 1980 \\
 432 \\
 100 \\
 688 \\
 \hline
 \text{SD } 3200 \text{ sf}
 \end{array}$$

$$43 \times 125 = 5375 \text{ sf}$$

$$\%D = \frac{3200}{5375} = 60\%$$

*** INTERSECTION IMPROV
OF LADERA + JONSON F.
TRAFFIC CONTROL ALSO
INCLUDED IN
PLAN SET.**

FIGURE 6
CITY OF ALBUQUERQUE
NOTICE OF D.R.C. MEETING
1-31-96
(DATE)

PROJECT NO: 5297.90 + .9
ZONE ATLAS: J-9

PROJECT NAME: TIERRA OESTE SUBD UNIT 1 + 2
LOCATION: (W. OF JONSON, N. OF I-40)

TYPE OF PROJECT: AHBA ☒ CIP ☐ PWC ☐ SAD ☐ ALL PRIVATE ☐

Contact Person: LARRY READ Phone: 892-5141
Firm: CINERMA ENVIRONMENTAL (RIO RANCHO)

☒ Scheduled with the D.R.C. on 2-8-96 at 1:30 PM in Conf. Room 302
☐ No DRC Meeting Scheduled. Please return any comments by _____

The Project Is Scheduled For:

☐ Design Report Review ☒ Final Plan Review
☐ Pre-Design Meeting ☐ Signoff of Plans
☐ Preliminary Plan Review

The Project Relates To:

☒ Water ☒ San. Sewer ☒ Paving ☒ Storm Drainage ☐

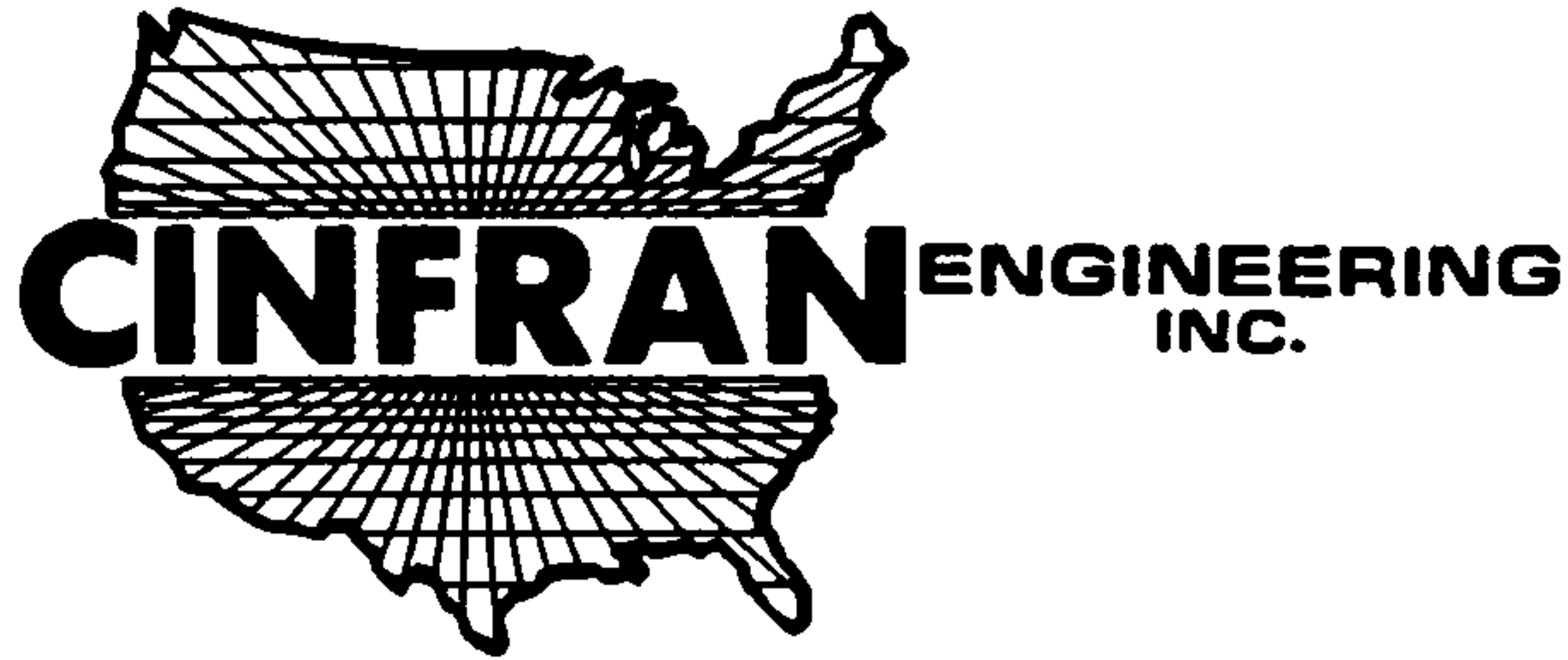
The Attached Package Includes:

☒ /D/ Drawings ☐ /S/ Spec's ☐ /E/ Estimate ☐ /R/ Report ☐ /M/ Memo Only

Indicated below are the Departments/Divisions that have received project documents and/or are invited to attend. It will be the Project Managers responsibility to notify consulting engineering firms of date and time of scheduled meetings.

☒ /D/ DRC Chairman	Project Review Section	All Drawings
☒ /D/ Traffic Repres	Transportation Development	All Drawings
☐ /D/ Water Repres.	Utility Design	All Drawings
☒ /D/ Hydro. Repres. SURTIN	Hydrology	All Drawings
☐ /D/ Const. Repres.	Construction	All Drawings
☐ / Ray Chavez	Traffic Operations	All Drawings
☐ / Andre Houle	Street Maintenance	All Paving
☐ / Sergio Miranda	Water (Shutoff Plan)	All Water Shutoff
☐ / Parks Repres.	Parks & Recreation	ALL Landscaping
☐ /	Utility Coordinator	ALL PWC & CIP
☐ / Jim Hamel	Transit Department	CIP/Memo
☐ / Rick Roybal	Construction Coordinator	CIP/Memo
☐ / Jim Fink	~~City Architect~~	CIP & SAS/Memo
☐ / Joe Dellalonga	City Architect	Arch. Drawings
☐ / Lee Lunsford	SAD Engineer	SAD/Memo
☐ / Joe Luehring	Transportation Develop.	CIP/Memo
☐ / Roger Green	Utility Design	CIP/Water & SAS
☐ / John Liebendorfer	General Services Dept.	Arch. Drawings
☐ / Greg Smith	PWD/Legal	Specs & Dwgs.
☐ / Richard Sertich	Planning Department	CIP/Memos
☐ / CIP Manager	CIP	CIP/Memos
☐ / Donald Bartlett	Risk Management	Arch. Drawings

DRCNOTIC. 10/19/95



333 Rio Rancho Dr. NE, Suite 101
Rio Rancho, New Mexico 87124
(505) 892-5141

January 26, 1996

Mr. Billy Goolsby, Chairman
Design Review Committee
City of Albuquerque – Public Works Dept.
PO Box 1293
Albuquerque, NM 87103

RE: Projects 5297.90 and 5297.91,
Tierra Oeste Units 1 and 2

Dear Mr. Goolsby,

Included is a summary of the action taken to address the comments furnished by the committee at the 95% Design Review meeting. I hope we have made the desired corrections/additions indicated by the comments.

We appreciate your help in finalizing the project.

Sincerely,

Wallace L. Bingham, P.E.
Vice President

enclosures

WLB/gl

John Curtain's Comments			
UNIT 1			
Sheet 1	(1-1)	<u>Comment</u>	"It is a waste of time for Hydrology to review these plans until the storm drain design is submitted".
		ACTION:	<u>NO ACTION</u>
Sheet 6 of 29		<u>Comment</u>	"Agreement & Covenant required".
		ACTION:	Agreement & Covenant requested from PNM.
Sheet 7		<u>Comment</u>	Computation of differential elevation of back of sidewalk above the top of curb.
		ACTION:	None taken. 0.87' provided at property line.
Sheet 14	(2-5)	<u>Comment</u>	(Show profile) across valley gutter – not to the returns.
		ACTION:	Profile modified accordingly.
Sheet 16	(2-7)	<u>Comment</u>	(Build) valley gutter.
		ACTION:	Valley gutters have been included at all applicable locations.
Sheet 25	(3-5)	<u>Comment</u>	Q, V, & HGL
		ACTION:	Flowrate, velocity and hydraulic grade line added to the plans (all sheets).
Sheet 26	(3-6)	<u>Comment</u>	Q, V, & HGL, connect inlets on south side of Ladera.
		ACTION:	Inlets on the south side are connected to the storm drain in Ladera.
Sheet 27	(3-7)	<u>Comment</u>	Q, V and HGL
		ACTION:	See Action Sheet 25.
Sheet 29	(3-8)	<u>Comment</u>	Indicated addition of two manholes – "Manholes required for maintenance".
		ACTION:	Manholes shown instead of elbows.
UNIT 2			
Sheet 4	(G1)	<u>Comment</u>	"Covenant and Agreement required".
		ACTION:	Covenant and Agreement obtained.

V
Vinyard & Associates, Inc.
A

4415-D Hawkins, NE
Albuquerque, New Mexico 87109
(505) 345-1937

Geotechnical Engineering • Materials Testing • Environmental Engineering

January 23, 1996

CINFRAN Engineering, Inc.
333 Rio Rancho Drive, NE
Suite 101
Rio Rancho, New Mexico 87124

Attention: Mr. Bingham, P.E.

Subject: R-Value Test Results
Vinyard & Associates, Inc. Project No.: 96-1-28

Gentlemen:

This letter presents the results of two R-Value tests. Sample locations are indicated on the attached Site Plan, Figure 1.

The soils sampled were silty fine to medium-grained sands. Samples were obtained from hand excavated pits at a depth of three feet.

Sieve analysis and atterberg limits test results are presented on Table 1. R-Value test results are presented on Figures 2 and 3.

Should you have any questions regarding this information, please do not hesitate to call.



Sincerely,

A handwritten signature in black ink, appearing to read "Martin D. Vinyard".

Martin D. Vinyard, P.E.

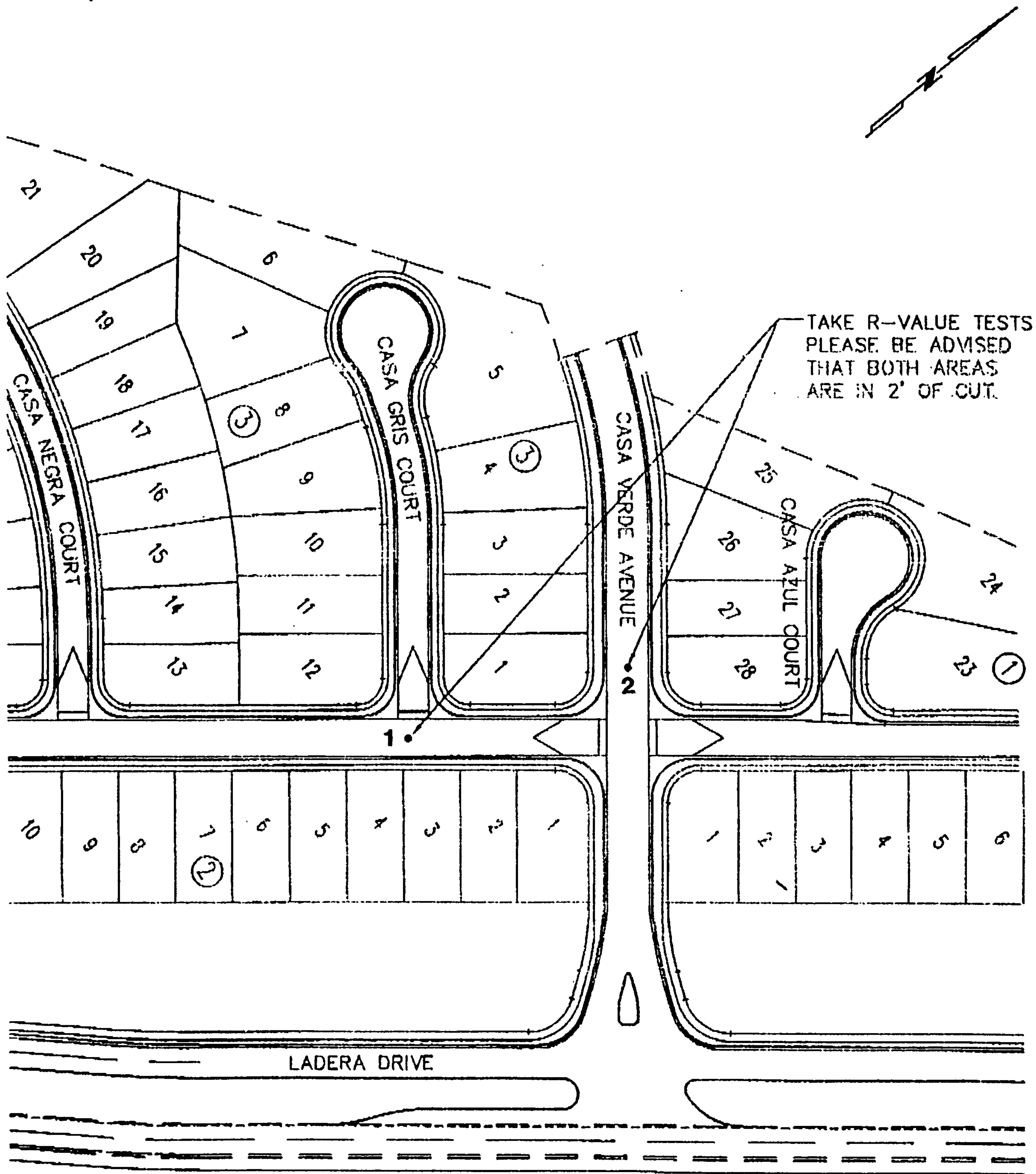


Figure 1

VINYARD & ASSOCIATES, INC.

R-VALUE TEST RESULTS

Client : Cinfran Engineering, Inc.
Project No.: 96-1-28
Location : #1 @ 3'

Sample No.:	A	B	C
Moisture Content (%)	11.6	10.5	9.8
Dry Density (pcf)	114.5	115.9	116.2
Expansion Pressure (psi)	0.0	0.0	0.0
Exudation Pressure (psi)	155	290	570
R Value	47	58	61

R VALUE AT 300 psi = 57

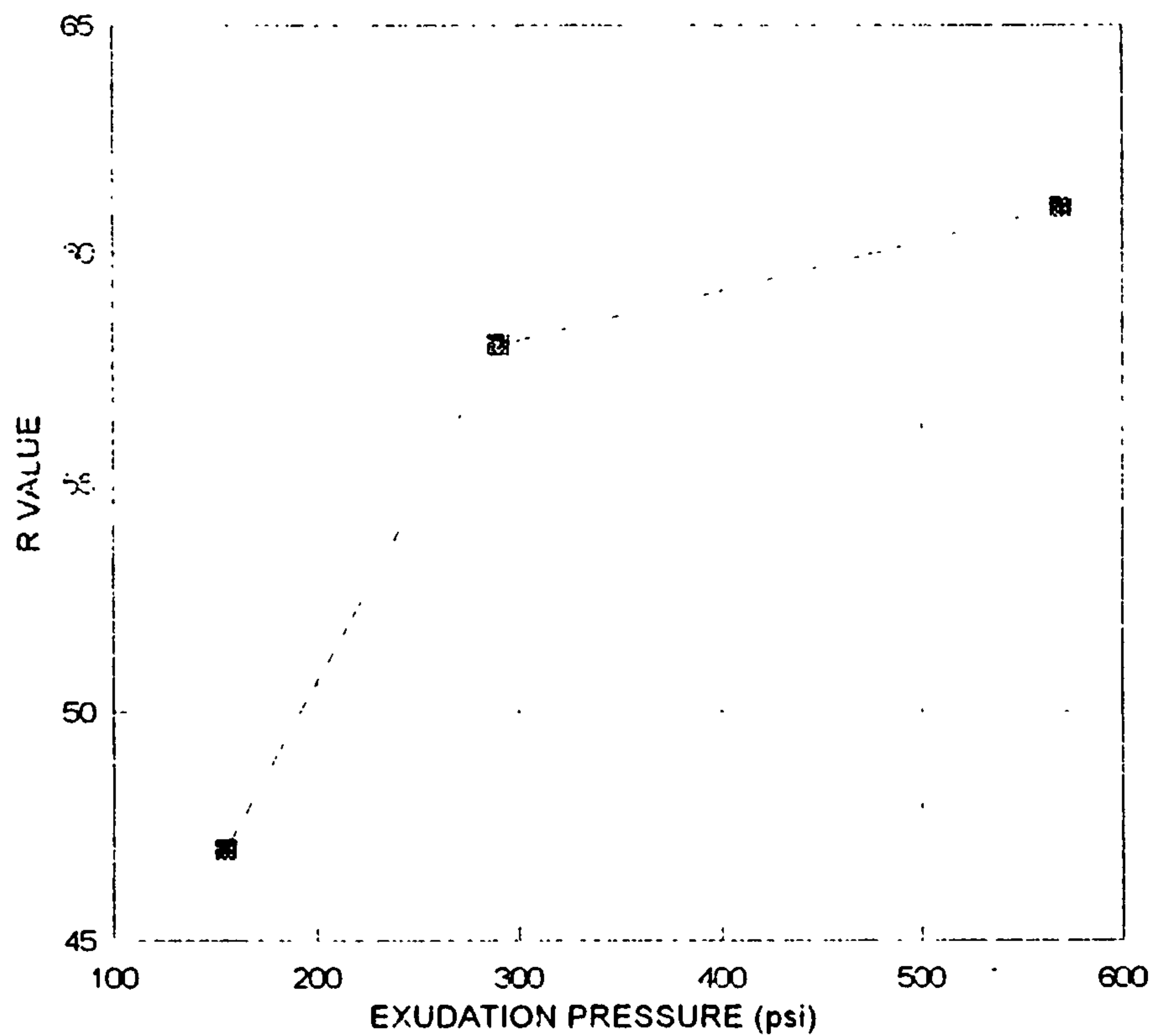


Figure 2

VINYARD & ASSOCIATES, INC.

R-VALUE TEST RESULTS

Client : Cinfran Engineering, Inc.
Project No.: 96-1-28
Location : #2 @ 3'

Sample No.:	A	B	C
Moisture Content (%)	12.1	11.2	10.4
Dry Density (pcf)	115.1	116.2	117.0
Expansion Pressure (psi)	0.0	0.0	0.0
Exudation Pressure (psi)	285	380	782
R Value	50	54	63

R VALUE AT 300 psi = 52

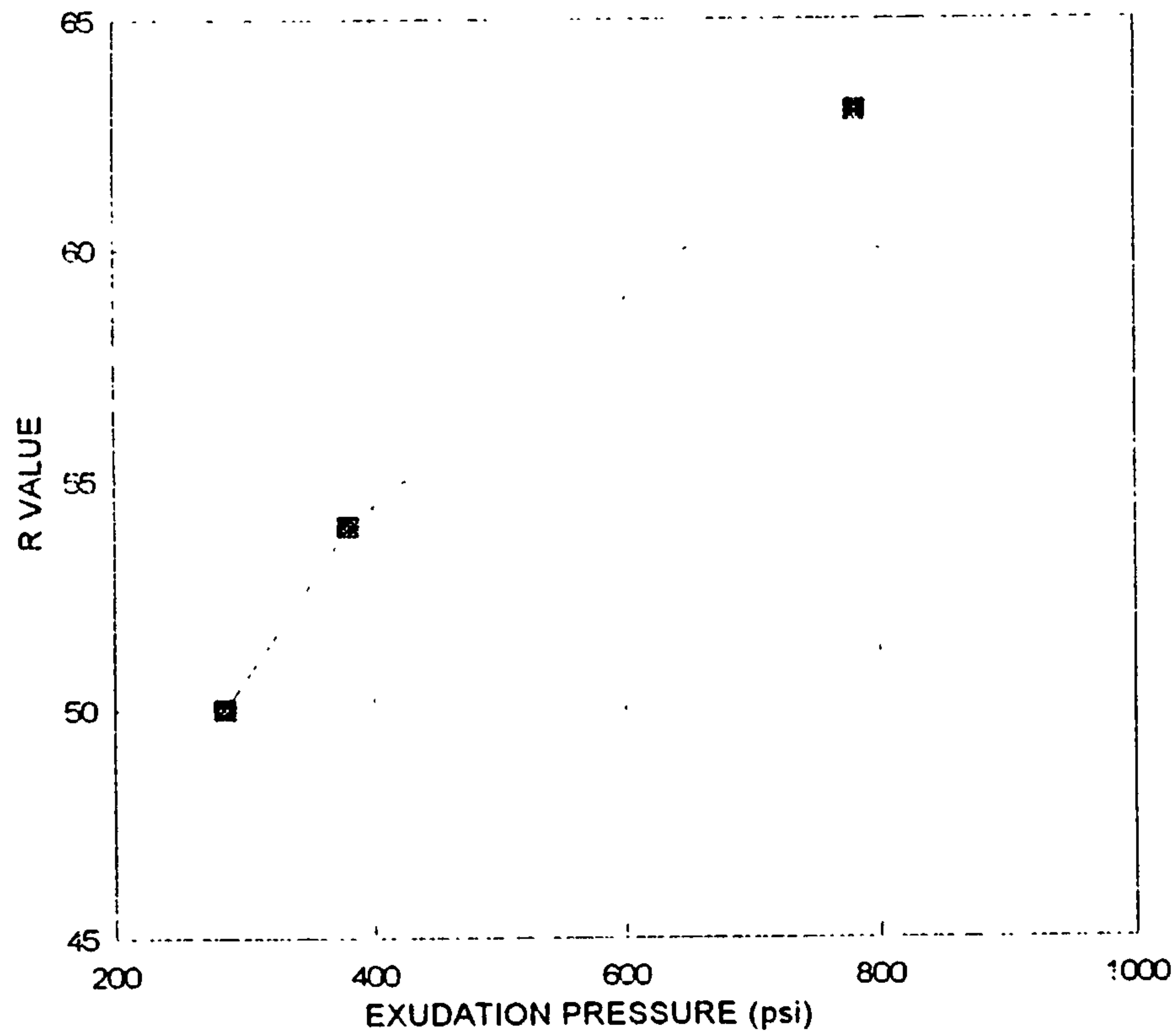


Figure 3

SUMMARY OF LABORATORY TEST DATA

Test Hole No.	Depth (Feet)	Unified Classification	Natural Dry Density (pcf)	Natural Moisture Content (%)	Atterberg Limits		SIEVE ANALYSIS % PASSING BY WEIGHT										DESCRIPTION
					LL	PI	1 1/2"	3/4"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200	
1	3	SM	-	3.2	NV	NP	-	-	-	100	98	97	96	83	47	21.3	SAND, silty (A-2-4)
2	3	SM	-	3.9	NV	NP	-	-	-	-	100	99	97	82	50	26.7	SAND, silty (A-2-4)

Project No. 96-1-28
Table 1

FIGURE 6
CITY OF ALBUQUERQUE
NOTICE OF D.R.C. MEETING

9-22-95
(DATE)

PROJECT NO: 5297.90
ZONE ATLAS: J-9

PROJECT NAME: TIERRA OESTE SUBD UNIT 1
LOCATION: (W. OF UNSEL, N. OF 7-40)

TYPE OF PROJECT: AHBA ☒ CIP ☐ PWC ☐ SAD ☐ ALL PRIVATE ☐

Contact Person: LARRY READ Phone: 892-5141
Firm: CINERAN ENGR. (RIO RANCHO)

☒ Scheduled with the D.R.C. on 9-29-95 at 9:00 A.M. in Conf. Room 302
☐ No DRC Meeting Scheduled. Please return any comments by _____

The Project Is Scheduled For:

/ / Design Report Review / / Final Plan Review (Approved Infra. List)
/ / Pre-Design Meeting / / Signoff of Plans (Mylars Required)
☒ Preliminary Plan Review / / _____

The Project Relates To:

☒ Water ☒ San. Sewer ☒ Paving ☒ Storm Drainage / / _____

The Attached Package Includes:

/D/ Drawings /S/ Spec's /E/ Estimate /R/ Report /M/ Memo Only

Indicated below are the Departments/Divisions that have received project documents and/or are invited to attend. It will be the Project Managers responsibility to notify consulting engineering firms of date and time of scheduled meetings.

☒ DRC Chairman	Project Review Section	All
☒ Traffic Repres.	Transportation Development	All
☒ Water Repres.	Utility Design	All
☒ Hydro-Repres.	Hydrology	All
☒ Const. Repres.	Construction	All
☒ Bill Coleman	Traffic Operations	
/ / Dick Salas	Street Maintenance	
☒ Sergio Miranda	Water (Shutoff Plan)	ALL WATER SHUTOFF
☒ Diane Scena	Parks & Recreation	ALL LANDSCAPING
/ /	Utility Coordinator	ALL PWC & CIP
/ / Jim Hamel	Transit Department	CIP/Memo
/ / Rick Roybal	Construction Coordinator	CIP/Memo
/ / Jim Fink	Line Maintenance	CIP-SAS/Memo
/ / Joe Dellalonga	City Architect	ARCHITECTURAL
/ / Lee Lunsford	SAD Engineer	SAD/Memo
/ / Joe Luehring	Transportation Develop.	CIP/Memo
/ / Roger Green	Utility Design	CIP/WATER & SAS
/ / Mike Minturn	General Services Dept.	BUILDINGS
/ / Greg Smith	PWD/Legal	DWGS & SPECS
/ / Richard Sertich	Planning Department	CIP/Memos
/ / CIP Manager	CIP	CIP/Memos
/ /	_____	_____
/ /	_____	_____

File ✓

Tierra Oeste Subdivision
DRB Case No.: 94-443

DRC Project No.:

Date Submitted: 06/02/95

PHASE 1

Prelim. Plat Approved: 2-21-95

Prelim. Plat Expires: 2-21-96

**TO SUBDIVISIONS IMPROVEMENT AGREEMENT
DEVELOPMENT REVIEW BOARD
REQUIRED INFRASTRUCTURE LISTING
FOR
TIERRA OESTE SUBDIVISION - PHASE 1**

Following is a summary of Public/Private Infrastructure required to be constructed or financially guaranteed to be constructed for the above development. This summary is not necessarily a complete listing. During the design process, if the City determines that appurtenant items have not been included in the summary, those items will be included in the listing and related financial guarantee, if the items normally are Subdivider responsibility. In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility are the responsibility of the Subdivider and will be included in the financial guarantee provided by the City.

SIZE	IMPROVEMENT	LOCATION	FROM	TO
8"	Waterline	20' P.U.E.	Casa Roja Place	Ladera Drive
STD	Curb and Gutter *	Casa Roja Place	" ^{212B} "First Cul-de-Sac"	"
4'	PCC Sidewalk *	"	"	"
28' FL to FL	Res. Paving	"	"	Casa Azul Ct.
32' FL to FL	Res. Paving	"	Casa Azul Ct.	L-12, 131K 2 Ph. 1/Ph. 2 Boundary west Ph.
8"	Waterline	"	North Property Line	"
	Fire Hydrant	"	@ Casa Azul Ct.	"
8"	Sanitary Sewer	"	North Cul-de-sac	"
27' FL to FL	Res. Paving	Casa Negra Court	West Cul-de-sac	Casa Roja Place
Mountable	Curb and Gutter *	"	"	"
4'	PCC Sidewalk *	"	"	"
6"	Waterline	"	"	"
8"	Sanitary Sewer	"	"	"
STD	Valley Gutter	"	@ Casa Roja Place	" ^{212B}
27' FL to FL	Res. Paving	Casa Gris Court	West Cul-de-sac	Casa Roja Place
Mountable	Curb and Gutter *	"	"	"
4'	PCC Sidewalk *	"	"	"
6"	Waterline	"	"	"

DRC Project No.:

Date Submitted: 06/02/95

PHASE 1

Prelim. Plat Approved:

Prelim. Plat Expires:

SIZE	IMPROVEMENT	LOCATION	FROM	TO
8"	Sanitary Sewer	"	"	"
~~STD~~	~~Valley Gutter~~	~~"~~	~~@ Casa Roja Place~~	~~7" NB~~
27' FL to FL	Res. Paving	Casa Azul Court	West Cul-de-sac	Casa Roja Place
Mountable	Curb and Gutter *	"	"	"
4'	PCC Sidewalk *	"	"	"
4"	Waterline	Casa Azul Court	West Cul-de-sac	Casa Roja Place
8"	Sanitary Sewer	"	"	"
~~STD~~	~~Valley Gutter~~	~~"~~	~~@ Casa Roja Place~~	~~2" NB~~
36' FL to FL	Res. Paving	Casa Verde Avenue	West ~~Cul-de-sac~~ ^{Fire Lane}	Casa Roja Place
48' w/Center Median	Res. Paving	"	E. of Casa Roja Place	Ladera Drive
~~FL to FL~~	Curb and Gutter *	"	West Cul-de-sac	"
STD	PCC Sidewalk *	"	"	"
4'		"	"	"
12"	Waterline	"	"	"
12"	Sanitary Sewer	"	"	"
~~STD~~	~~Valley Gutter~~	~~"~~	~~@ Casa Roja Place~~	~~2" NB~~
~~STD~~	~~Valley Gutter~~	~~"~~	~~W.~~	~~"~~
~~STD~~	~~Valley Gutter~~	~~"~~	~~@ Casa Roja Place E.~~	~~7" NB~~
25' FL to FL	Arterial Paving	Ladera Drive (W.Side)	~~Ph.1/Ph.2 Boundary~~	Unser Blvd.
8"	Waterline	"	~~Lot 12/13 Bk 2 Ph.~~	Casa Verde Ave.
12"	Waterline	"	Existing 8"	Ph.1/Ph.2 Boundary
12"	Sanitary Sewer	"	Casa Verde Ave.	"
STD	Curb and Gutter	"	Existing ~~8~~ 12"	"
Median	Curb and Gutter	"	Ph.1/Ph.2 Boundary	Unser Drive
Median	Curb and Gutter	"	Ph.1/Ph.2 Boundary	"
Median	Curb and Gutter	Unser Left Turn Lane	@ Ladera Drive (NB)	150' length
Median	Arterial Paving	"	"	"
6'	PCC Sidewalk	Ladera Drive (W.Side)	~~Ph.1/Ph.2 Boundary~~	Unser Blvd.
36"	Storm Drain	"	~~Lot 12/13 Bk 2 Ph.~~	Ph.1/Ph.2 Boundary
			AMAFCA R/W	

* Both Sides

DRC Project No.: _____

Date Submitted: 06/02/95

PHASE 1

Prelim. Plat Approved: 2-21-95

Prelim. Plat Expires: 2-21-96

SIZE	IMPROVEMENT	LOCATION	FROM	TO
36"	Storm Drain w/inlets & manholes	PNM Easement	North Cul-de-sac	Storm Drain in Ladera
48"	Storm Drain w/manholes	Ladera Drive	Ladera Storm Drain	AMAFCA RW
18"	Storm Drain w/inlets & manholes	PNM Easement	Existing Temporary Detention Pond	Storm Drain in Ladera
N/A	Residential Street Lights	Per DPM		
1.0 Ac.Ft.	Temp. Retention Pond	In Phase 2		
Engineering Certification of Grading and Drainage is necessary for release of SIA/Financial Guarantees.				

Prepared by:

Wallace L. Bingham
Wallace L. Bingham
Wallace L. Bingham, P.E.
Cinfran Engineering Inc.
Rio Rancho, New Mexico

June 6, 1995
June 2, 1995
Date

DEVELOPMENT REVIEW BOARD MEMBER APPROVAL

[Signature]
Transportation Development

6-06-95
Date

Robert W. Kane
Utility Development

6-6-95
Date

[Signature]
Parks & General Services

6-6-95
Date

Susan Calogre
City Engineer/AMAFCA

6-6-95
Date

[Signature]
DRB Chairman

6-6-95
Date

CITY OF ALBUQUERQUE
NOTICE OF D.R.C. MEETING9-22-95
(DATE)PROJECT NO: 5297.91
ZONE ATLAS: J-9
PROJECT NAME: TIGER CREEK UNIT 2
LOCATION: (W. OF UNSON, N. OF I-40)TYPE OF PROJECT: AHBA ☒ CIP ☐ PWC ☐ SAD ☐ ALL PRIVATE ☐Contact Person: LARRY READ Phone: 892-5141
Firm: CINEPLAN INC.Scheduled with the D.R.C. on ~~9-22-95~~ (SAME AS UNIT 1) at 9:00 in Conf. Room 302
No DRC Meeting Scheduled. Please return any comments by 9/29/95

The Project Is Scheduled For:

/ / Design Report Review	/ / Final Plan Review (Approved Infra. List)
/ / Pre-Design Meeting	/ / Signoff of Plans (Mylars Required)
☒ Preliminary Plan Review	/ /

The Project Relates To:

/ / Water / / San. Sewer / / Paving / / Storm Drainage / /

The Attached Package Includes:

/D/ Drawings /S/ Spec's /E/ Estimate /R/ Report /M/ Memo Only

Indicated below are the Departments/Divisions that have received project documents and/or are invited to attend. It will be the Project Managers responsibility to notify consulting engineering firms of date and time of scheduled meetings.

/D/ DRC Chairman	Project Review Section	All
/D/ Traffic Repres	Transportation Development	All
/D/ Water Repres.	Utility Design	All
/D/ (Hydro-Repres.	Hydrology	All
/D/ Const. Repres.	Construction	All
/D/ Bill Coleman	Traffic Operations	
/ / Dick Salas	Street Maintenance	
/D/ Sergio Miranda	Water (Shutoff Plan)	ALL WATER SHUTOFF
/D/ Diane Scena	Parks & Recreation	ALL LANDSCAPING
/ /	Utility Coordinator	ALL PWC & CIP
/ / Jim Hamel	Transit Department	CIP/Memo
/ / Rick Roybal	Construction Coordinator	CIP/Memo
/ / Jim Fink	Line Maintenance	CIP-SAS/Memo
/ / Joe Dellalonga	City Architect	ARCHITECTURAL
/ / Lee Lunsford	SAD Engineer	SAD/Memo
/ / Joe Luehring	Transportation Develop.	CIP/Memo
/ / Roger Green	Utility Design	CIP/WATER & SAS
/ / Mike Minturn	General Services Dept.	BUILDINGS
/ / Greg Smith	PWD/Legal	DOCS & SPECS
/ / Richard Sertich	Planning Department	CIP/Memos
/ / CIP Manager	CIP	CIP/Memos
/ /		
/ /		

DRC Project No.:

Date Submitted: 06/02/95

PHASE 2

Prelim. Plat Approved: 2-21-95

Prelim. Plat Expires: 2-21-96

TO SUBDIVISIONS IMPROVEMENT AGREEMENT
DEVELOPMENT REVIEW BOARD
REQUIRED INFRASTRUCTURE LISTING
FOR
TIERRA OESTE SUBDIVISION - PHASE 2

Following is a summary of Public/Private Infrastructure required to be constructed or financially guaranteed to be constructed for the above development. This summary is not necessarily a complete listing. During the design process, if the City determines that appurtenant items have not been included in the summary, those items will be included in the listing and related financial guarantee, if the items normally are Subdivider responsibility. In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility are the responsibility of the Subdivider and will be included in the financial guarantee provided by the City.

SIZE	IMPROVEMENT	LOCATION	FROM	TO
32' FL to FL STD	Res. Paving <i>w/turn around</i> Curb and Gutter *	Casa Amarilla Rd.	W. Property Line	Casa Roja Place
4'	PCC Sidewalk *	"	"	"
6"	Waterline	"	"	"
8"	Sanitary Sewer	"	"	"
32' FL to FL 31' FL to FL STD Mountable	Res. Paving Res. Paving Curb and Gutter * Curb and Gutter *	Casa Roja Place " " "	~~Ph.1/Ph.2 Boundary~~ <i>L-13/12 BIK2 PL.</i> Casa Amarilla Rd. Ph.1/Ph.2 Boundary Casa Amarilla Rd.	Casa Amarilla Rd. South Property Line Casa Amarilla Rd. South Property Line
4'	PCC Sidewalk *	"	Ph.1/Ph.2 Boundary	"
8"	Waterline	"	"	"
8"	Sanitary Sewer	"	"	"
-	Fire Hydrant	"	@ Casa Amarilla Rd.	
-	Fire Hydrant	"	@ Casa Morena Ct.	
STD	Valley Gutter	"	@ Casa Amarilla Rd.	
27' FL to FL Mountable	Res. Paving Curb and Gutter *	Casa Morena Ct. "	West Cul-de-sac "	Casa Roja Place "
4'	PCC Sidewalk *	"	"	"
6"	Waterline	"	"	"

DRC Project No.: _____
Date Submitted: 06/02/95

PHASE 2

Prelim. Plat Approved: _____
Prelim. Plat Expires: _____

SIZE	IMPROVEMENT	LOCATION	FROM	TO
8"	Sanitary Sewer	Casa Morena Ct.	West Cul-de-sac	Casa Roja Place
~~STD~~	~~Valley Gutter~~	~~"~~	~~@ Casa Roja Place~~	~~24' x 15'~~
25' FL to FL	Arterial Paving	Ladera Drive	So. End Tierra Oeste	~~Ph. 1/Ph. 2 Boundary~~
STD	Curb and Gutter *	"	"	~~L-12/13 B/K 2 PL~~ ~~Ph. 1/Ph. 2 Boundary~~ ~~(West Side)~~ ~~L-12/13 B/K 2 PL~~
Median	Curb and Gutter	Ladera Drive (W.Side)	"	Ph. 1/Ph. 2 Boundary
~~Median~~	~~Curb and Gutter~~	~~Unser Left Turn Lane~~	~~@ Ladera Drive (NB)~~	~~150' / 20' x 10' PL~~
~~Median~~	~~Arterial Paving~~	~~"~~	~~"~~	
6'	PCC Sidewalk	Ladera Drive (W.Side)	So. End Tierra Oeste	Ph. 1/Ph. 2 Boundary
36"	Storm Drain	Ladera Drive	Ph. 1/Ph. 2 Boundary	So. Property Line
N/A	Residential Street Lights	Per DPM		
12"	Waterline	Ladera Drive	~~Existing 12"~~	So. Property Line
12"	Sanitary Sewer	"	~~"~~ <i>Phase I</i>	"
N/A	Remove Temp. Retention Pond	In Phase 2		
Engineering Certification of Grading and Drainage is necessary for release of SIA/Financial Guarantees.				

DRC Project No.: _____
Date Submitted: 06/02/95

PHASE 2

Prelim. Plat Approved: 2-21-95
Prelim. Plat Expires: 2-21-96

Prepared by: Wallace L. Bingham
Wallace L. Bingham, P.E.
Cinfran Engineering Inc.
Rio Rancho, New Mexico

June 16, 1995
June 2, 1995
Date

DEVELOPMENT REVIEW BOARD MEMBER APPROVAL

N. Davis
Transportation Development

6-06-95
Date

Robert W. Kane
Utility Development

6-6-95
Date

B. Borden
Parks & General Services

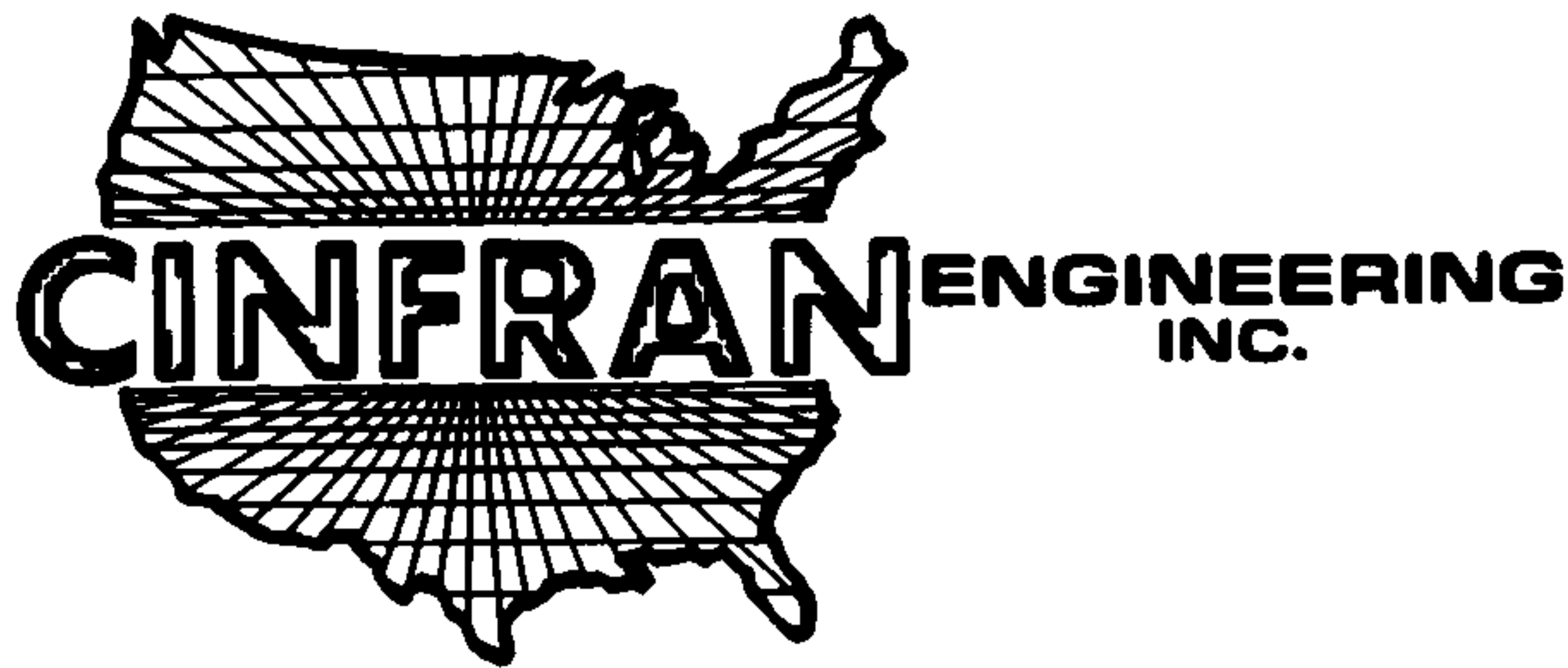
6-6-95
Date

Ann Calangone
City Engineer/AMAFCA

6-6-95
Date

Jack Clark
DRB Chairman

6-6-95
Date



333 Rio Rancho Dr. NE, Suite 101
Rio Rancho, New Mexico 87124
(505) 892-5141

June 16, 1995

Mr. Bernie Montoya
Public Works Department/Hydrology
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RE: Tierra Oeste Subdivision (H-9/D001A3)

Dear Mr. Montoya,

Attached is a Revised Conceptual Drainage Report, Grading Plan and Drainage Information Form for the referenced project.

This report has been amended to reflect that the construction will occur in two phases. For the initial or Phase I construction, a temporary retention pond has been added to retain all flows from the Phase II construction area and offsite flows that pass through the Phase II area. Although the flows proposed for retention could pass through the Phase I construction, they would be laden with sediment and would create a maintenance issue within the completed construction area. Therefore, we propose to temporarily retain these flows to avoid this problem.

The information shown in the original submittal dated 1/17/95 is still valid for the completed construction of both Phases I and II and is reproduced within this report. Also included is the additional information requested by Mr. Davis within his letter dated 2/21/95. Specifically, Basin OFF-2 was analyzed as a developed area and the analysis of flow capacity within the subdivisions streets.

If you have any questions, please call me.

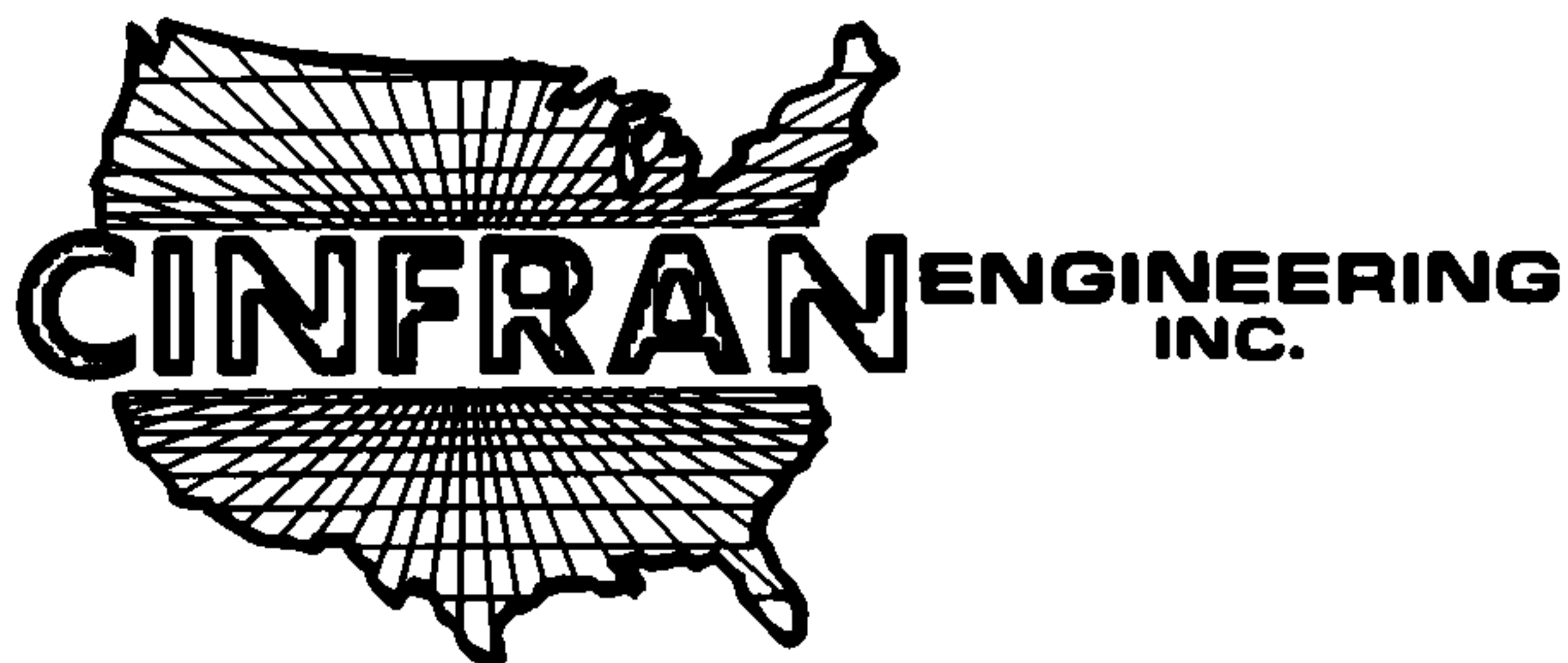
Sincerely,

Larry D. Read, P.E.
Project Engineer

enclosure

LR/ms

JUN 22 1995



333 Rio Rancho Dr. NE, Suite 101
Rio Rancho, New Mexico 87124
(505) 892-5141

February 2, 1995

Mr. Scott Davis
City of Albuquerque
Public Works Department/Hydrology
PO Box 1293
Albuquerque, New Mexico 87103

RE: Conceptual Drainage Report
Tierra Oeste Subdivision

Dear Mr. Davis:

Attached is the revised Conceptual Drainage Report for the referenced subdivision. This report replaces the January 17, 1995 report in its entirety.

I have attempted to address your previous comments. If you have any questions please call me at 895-5141.

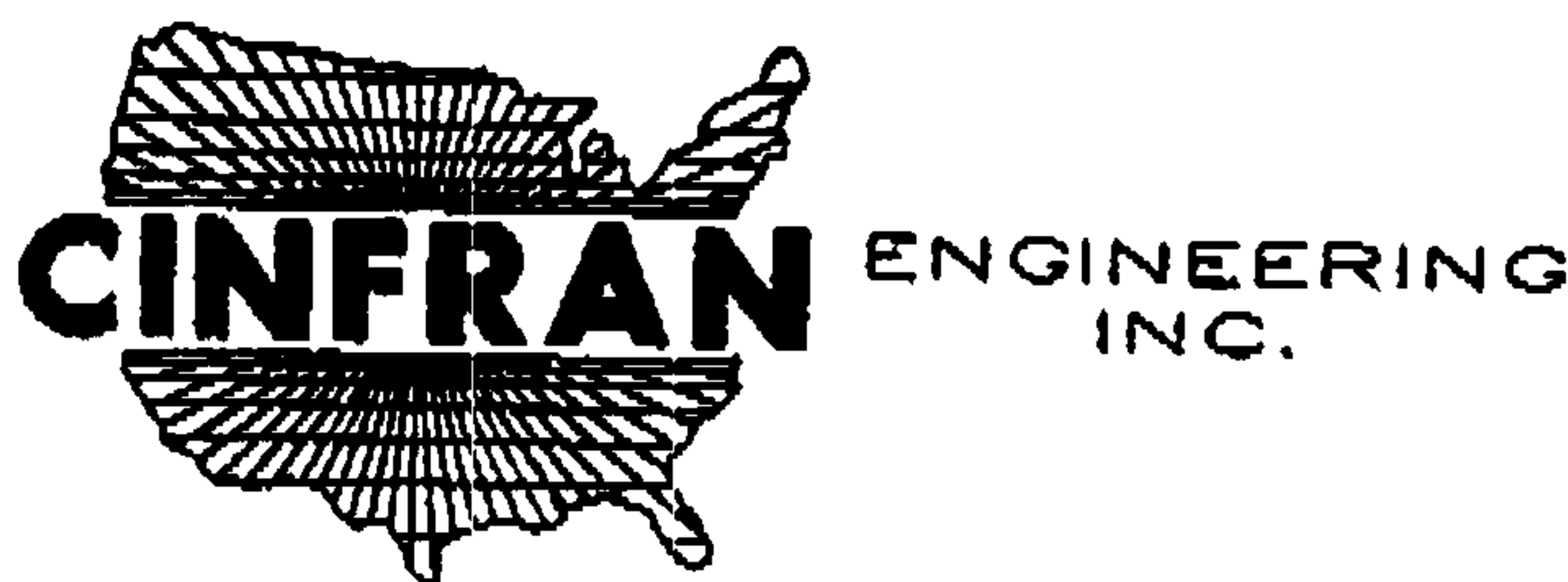
Sincerely,

Larry Read
Engineer

LR:je

FEB 2 1995

FAX Transmission Sheet



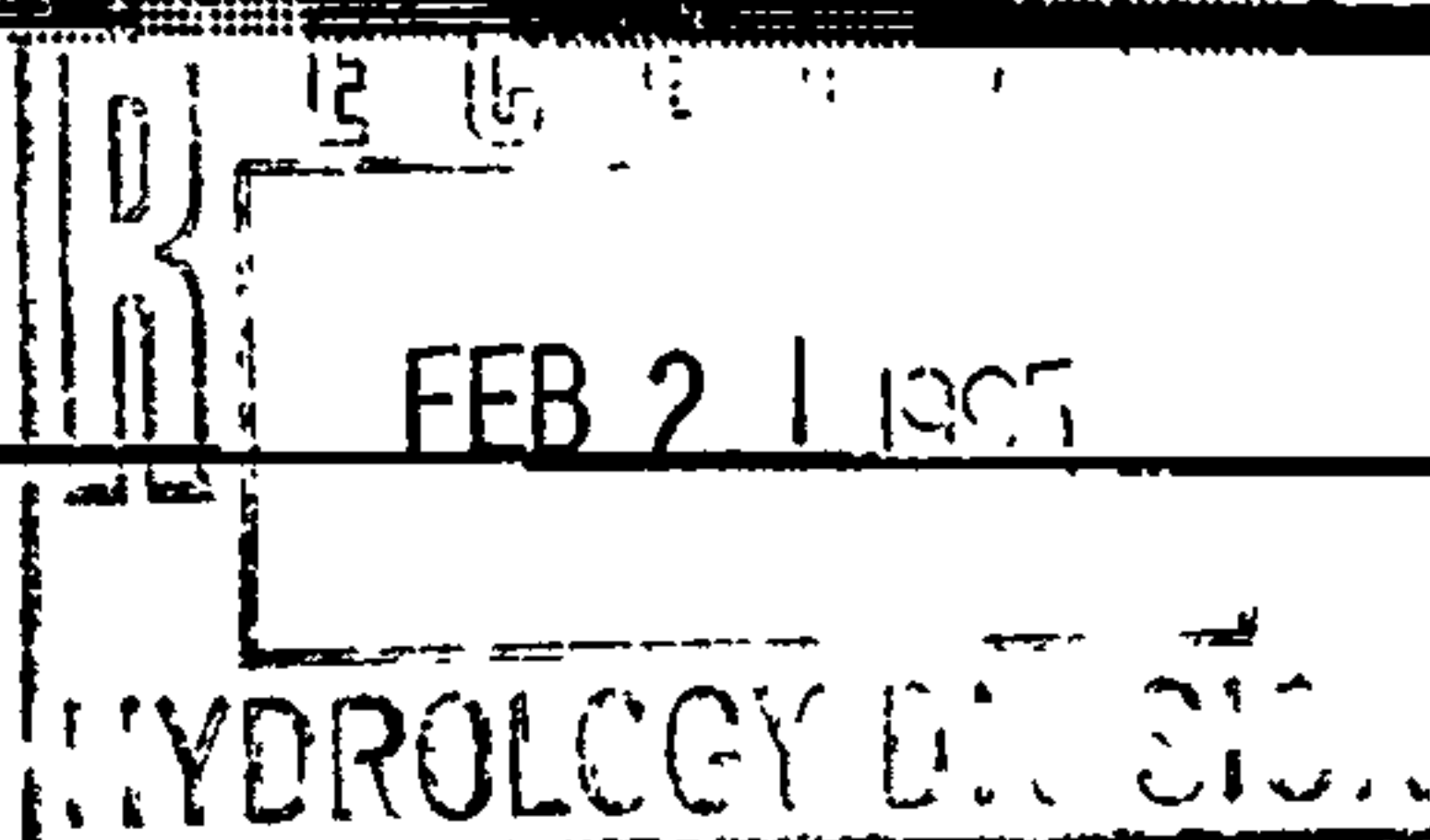
FAX Number: (505) 892-3259

333 Rio Rancho Dr., N.E. Suite 101
Rio Rancho, New Mexico 87124
Phone: (505) 892-5141

To Fax To: 768-3629
Date: 2/13/95 Time: 4:35 AM/PM ☒
To: SCOTT DAVIS
Company: COA - PUBLIC WORKS - HYDROLOGY
From: LARRY READ
Subject: TIERRA OESTE SUBDIVISION

You should receive 4 page(s) including this cover sheet.
If you do not receive all pages, please call (505) 892-5141.

COMMENTS: SCOTT - THIS IS THE INFO YOU
REQUESTED - I HOPE. IF YOU HAVE ANY
QUESTIONS - PLEASE CALL



PROJECT: TIERRA OESTE SUBDIVISION

CALCULATION

DATE: 2/13/95

Larry D. Read,

FULLY DEVELOPED FLOW CONDITIONSCASA AMARILLA RD $S = 2.0\%$

$$Q_{100} = 16.4 \text{ cfs}$$

$$Q_{10} = 10.9 \text{ cfs}$$

 $\frac{1}{2}$ STREET FLOW $\Rightarrow$

$$Q_{100} = 8.2 \text{ cfs}$$

$$Q_{10} = 5.5 \text{ cfs}$$

CASA ROSA PLACE@ CASA VERDE $S = 2.5\%$

$$Q_{100} = 67.6 \text{ cfs}$$

$$Q_{10} = 45.1 \text{ cfs}$$

 $\frac{1}{2}$ STREET FLOW $\Rightarrow$

$$Q_{100} = 33.8 \text{ cfs}$$

$$Q_{10} = 22.6 \text{ cfs}$$

@ Cul-de-Sac $S = 2.4\%$

$$Q_{100} = 82.97 \text{ cfs}$$

$$Q_{10} = 55.34 \text{ cfs}$$

 $\frac{1}{2}$ STREET FLOW $\Rightarrow$

$$Q_{100} = 41.5 \text{ cfs}$$

$$Q_{10} = 27.7 \text{ cfs}$$

 $\Rightarrow$ FROM PLATE 22.3 D-1 SINCE ALL SLOPESARE $> 2\%$ FLOW IS ALWAYSSUPER CRITICAL $\Rightarrow$ NO JUMP.ALSO $V \times D$ IS ALWAYS < 6.5



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

July 26, 2001

Russell Grayson, P.E.
Huitt-Zollars, Inc.
333 Rio Rancho DR NE Suite 101
Rio Rancho, New Mexico 87124-1450

RE: **TIERRA OESTE SUBD UNIT 2 (J-9/D15)**
Engineers Certification For Release of Financial Guaranty
Engineers Stamp dated 7/27/1999 Rev. 9/7/1999
Engineer's Certification dated 7/18/2001

Dear Mr. Grayson:

Based upon the information provided in your submittal dated July 19, 2001, the above referenced plan is adequate to satisfy the Grading and Drainage Certification requirements for Release of Financial Guaranty for Unit 2.

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

Sincerely,

Teresa A. Martin

Teresa A. Martin
Hydrology Plan Checker
Public Works Department
BLB

C: Arlene Portillo, PWD – #5297.91
File

DRAINAGE INFORMATION SHEET

J9/D15

PROJECT TITLE: Tierra Oeste Unit 2 ZONE ATLAS/DRNG. FILE #: H-9/J-9

DRB#: 1000117 (94-443) EPC #: _____ WORK ORDER #: 5297.91

LEGAL DESCRIPTION: Subdivision Plat for Tierra Oeste Unit 2 recorded in Bernalillo County Document 2001057115

CITY ADDRESS: North Side of Ladera Drive between Unser Blvd. And Tessa Drive

ENGINEERING FIRM: Huitt-Zollars, Inc. CONTACT: Russell Grayson, PE

ADDRESS: 333 Rio Rancho Dr., Suite 101 Rio Rancho, NM 87124 PHONE: 892-5141

OWNER: Westland Development Co., Inc. CONTACT: Fred Ambrogi

ADDRESS: 401 Coors Blvd., NW, Alb., NM 87121 PHONE: 831-9600

ARCHITECT: N/A CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: Huitt-Zollars, Inc. CONTACT: Russell Grayson, PE

ADDRESS: 333 Rio Rancho Dr., Suite 101 Rio Rancho, NM 87124 PHONE: 892-5141

CONTRACTOR: Melendez Concrete, Inc. CONTACT: Roger Lucero

ADDRESS: 506 Rio Rancho Blvd. Rio Rancho, NM 87124 PHONE: 896-3821

TYPE OF SUBMITTAL:

☐ DRAINAGE REPORT

☐ DRAINAGE PLAN

☐ CONCEPTUAL GRADING & DRAINAGE PLAN

☐ GRADING PLAN

☐ EROSION CONTROL PLAN

☒ ENGINEER'S CERTIFICATION

☐ OTHER _____

☐ PRE-DESIGN MEETING

☐ YES

☒ NO

☐ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

☐ SKETCH PLAT APPROVAL

☐ 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

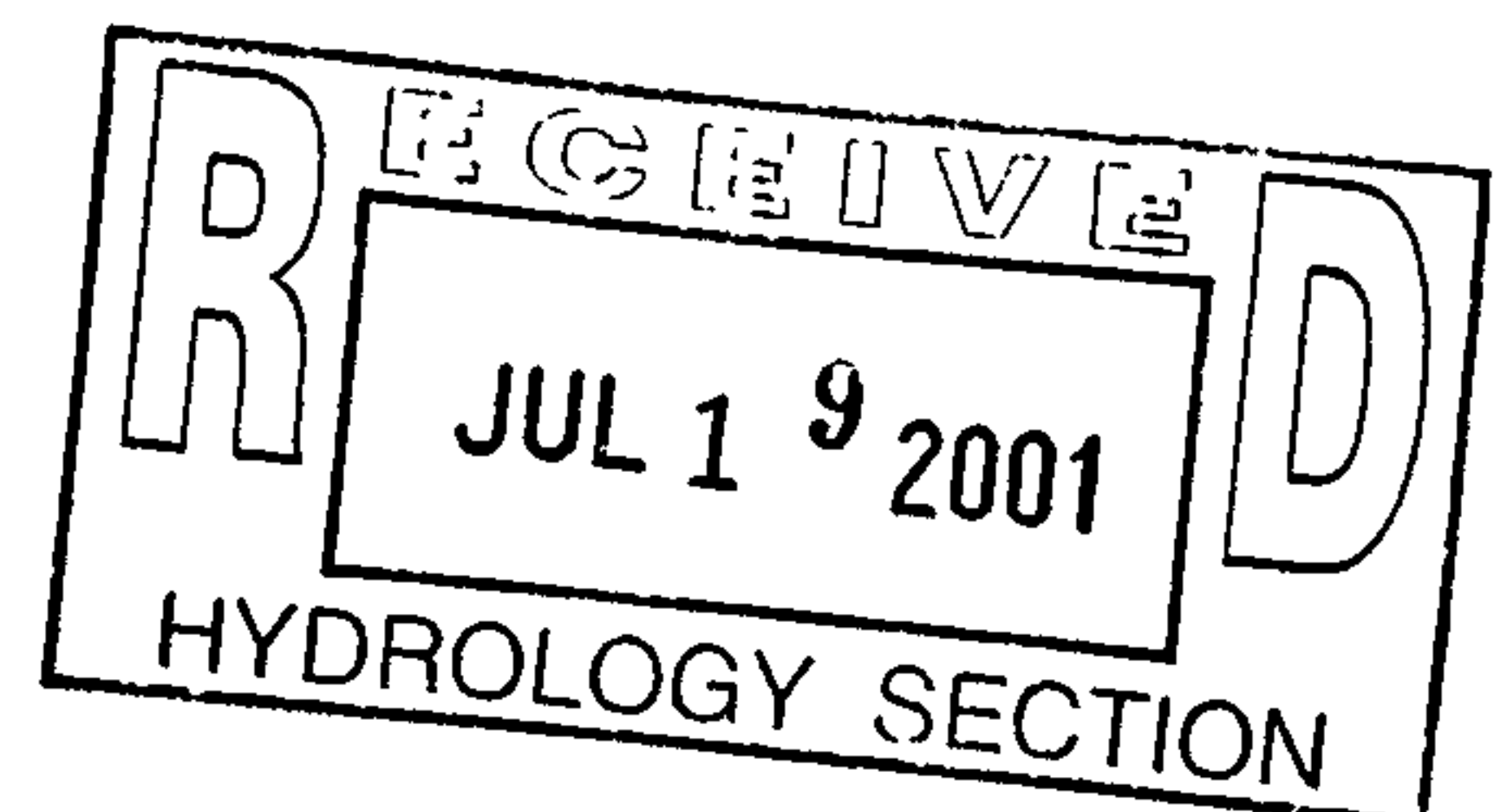
☐ GRADING PERMIT APPROVAL

☐ PAVING PERMIT APPROVAL

☐ S.A.D. DRAINAGE REPORT

☒ DRAINAGE REQUIREMENTS

☐ OTHER _____ (SPECIFY)

DATE SUBMITTED: 7-18-01BY: [Signature]

HUITT-ZOLLARS

Huitt-Zollars, Inc / 333 Rio Rancho Dr. N E / Suite 101 / Rio Rancho, New Mexico 87124-1450 / Phone (505) 892-5141 / Fax (505) 892-3259

July 18, 2001

Mr. Bradley Bingham, PE
City of Albuquerque
Development and Building Services
600 N. Second St., NW
P.O. Box 1293
Albuquerque, NM 87103

RE: Tierra Oeste Unit 2 Final Grading Certification-City of Albuquerque Project # 5297.91
Huitt-Zollars Job #: 17-0119-01

Dear Brad,

On behalf of our client, Westland Development, Inc., we are submitting the following items for final grading certification approval for this project.

- City Drainage Information Sheet
- Authorization letter from Larry Reid to certify the approved grading plan engineer stamped by him for Tierra Oeste Unit 2.
- Tierra Oeste Unit 2 Grading Plans Sheet 4 with final grading certification.

Explanations for the corrected final grades on the certified grading plan are as follows:

1. Per direction from our client, we were informed the home developer for this project was not planning on constructing CMU privacy walls for the entire project. The perimeter walls would be CMU, but the interior walls were to be cedar fencing. Because the original design had CMU walls, side yard drainage swales were indicated on both sides of the wall. Also, the CMU privacy walls were designed to retain a maximum of 1.5 ft. Because cedar fencing was incorporated, there could not be any side yard retaining and a common drainage swale on the property line had to be incorporated. Therefore, common drainage easements were created by the final plat for this project. This change did not alter the overall drainage patterns for this project.
2. A temporary turn-around was added at the end of Casa Amarilla Road. This turn-around does not alter the overall drainage patterns for this project.

Please call me if you have any questions or require any additional information.

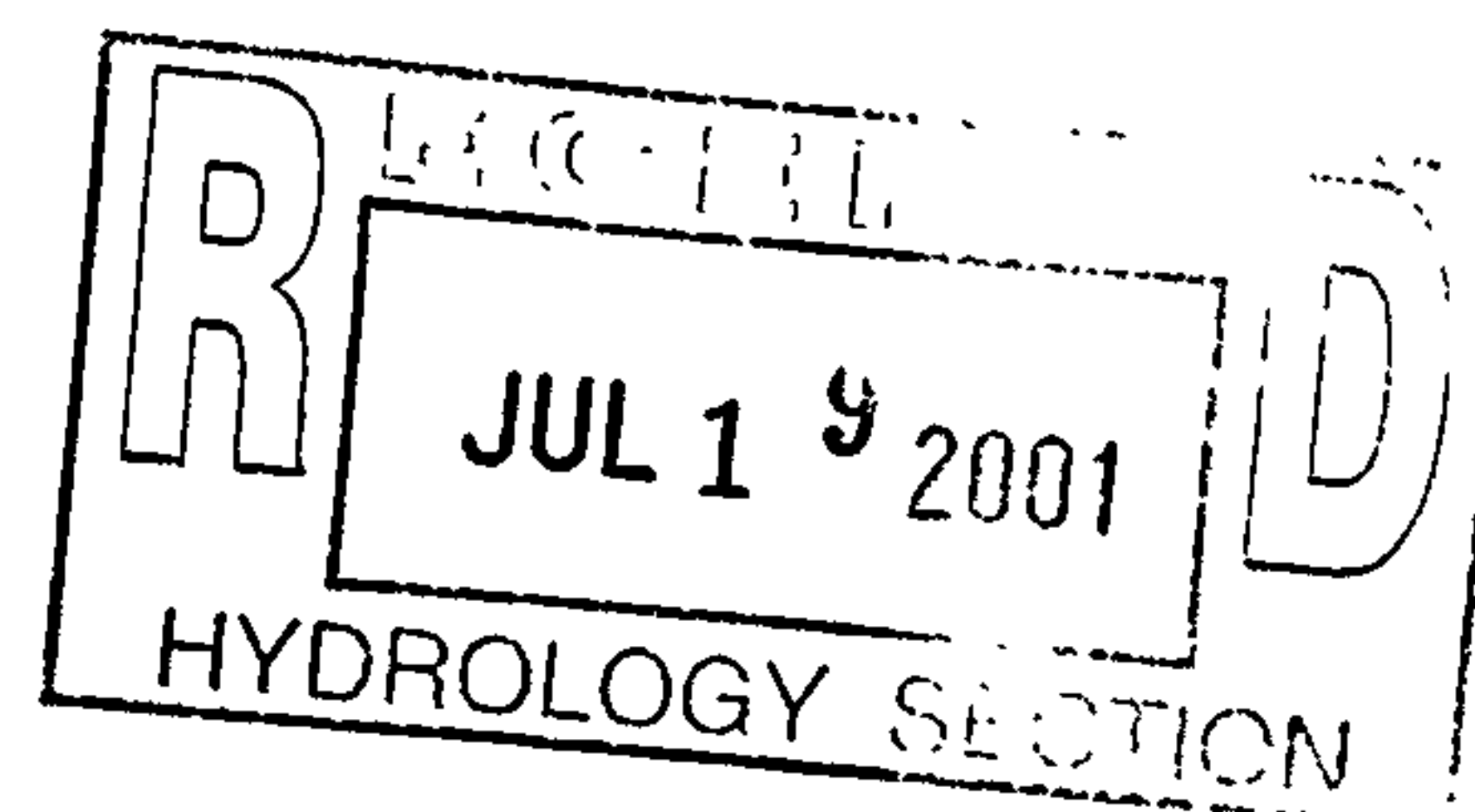
Sincerely,
Huitt-Zollars, Inc.



Russell Grayson, PE
Project Manager

cc: Fred Ambrogi, Westland Development

G:\Proj\TO\correspondence\to grading cert.doc



LARRY READ & ASSOCIATES, Inc.

Civil Engineers

Site • Drainage • Utility Design

January 22, 2001

Mr. Russell Grayson, PE
Huitt-Zollars
333 Rio Rancho Blvd. NE
Rio Rancho, New Mexico 87124

RE: Tierra Oeste Subdivision
Drainage File No. C-12/D-4

Dear Mr. Grayson:

Please use this letter as evidence to the City of Albuquerque Public Works Department - Hydrology that I authorize you to prepare and submit the Engineers Certification on the referenced project.

If you have any questions or comments regarding the project design, please call.

Sincerely
LARRY READ & ASSOCIATES, INC.



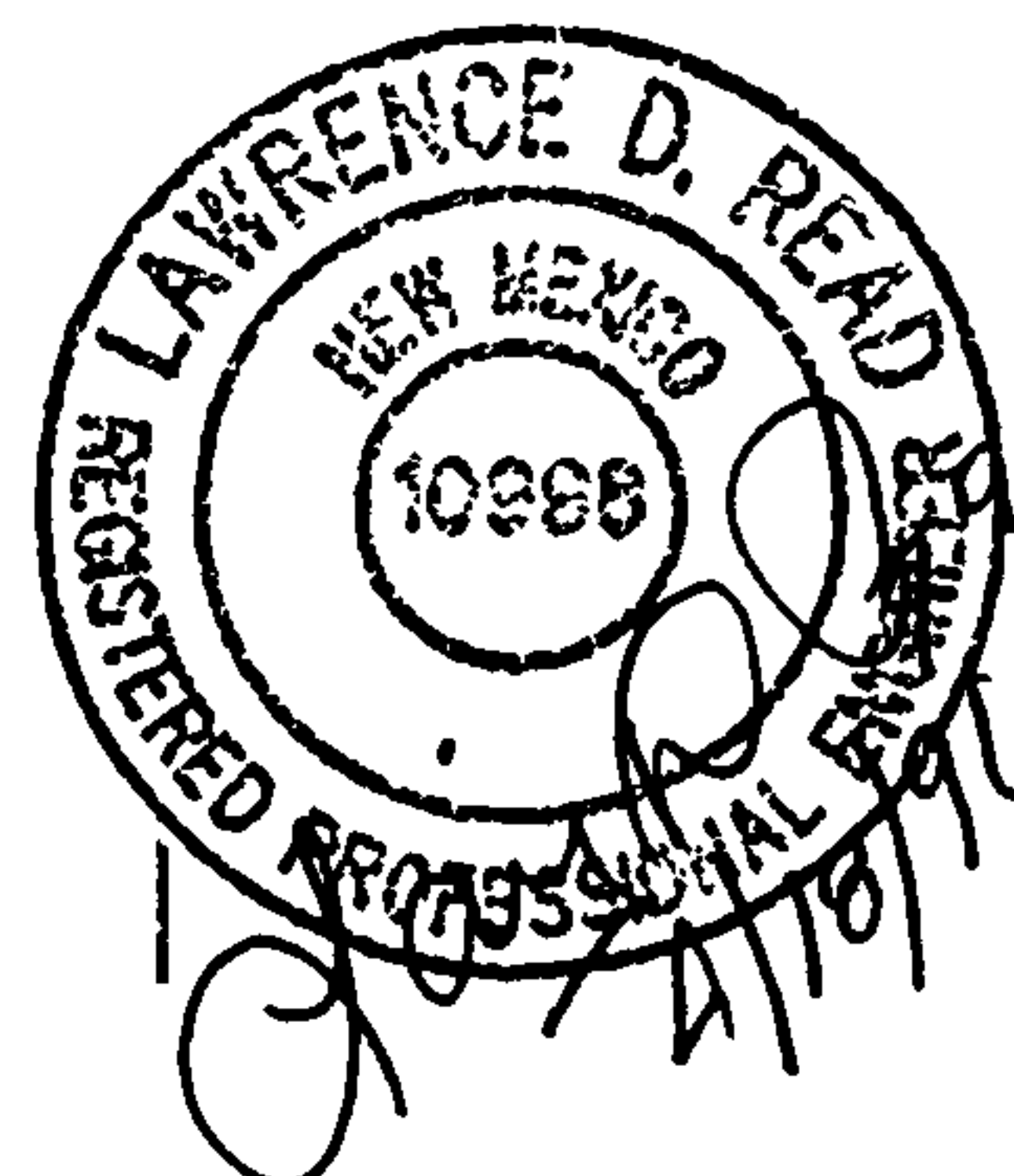
Larry D. Read, P.E.
President

FINAL
DRAINAGE REPORT
TIERRA OESTE SUBDIVISION
ALBUQUERQUE, NEW MEXICO

FOR

TIERRA OESTE LIMITED CO.
6201 UPTOWN BLVD. NE, SUITE 204
ALBUQUERQUE, NEW MEXICO 87110

JANUARY, 1995
REV4. APRIL, 1996



APR 23 1996



HYDROLOGY



ENGINEERING
INC.

Land Planning & Development

Surveying

Civil Engineering

333 Rio Rancho Dr. N.E., Ste. 101
Rio Rancho, New Mexico 87124

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FINAL DRAINAGE REPORT TIERRA OESTE SUBDIVISION

DESCRIPTION and LOCATION

The proposed Tierra Oeste Subdivision incorporates approximately 24.5 acres northwest of the future Ladera Drive extension and southeast of Ladera Ponds Number 10 and 11. The site is shown on City of Albuquerque Zone Atlas Pages H-9-Z and J-9-Z.

This proposed subdivision is on the unplatted lands of Westland Development Co. within the Town of Atrisco Grant Boundaries and is west of the Parkway Unit 7 that is now under construction.

The proposed site will be subdivided into approximately 128 single-family type lots for townhouse construction. The resulting density will be about 6.2 dwelling units per acre. The construction will be conducted in two phases as shown on the Conceptual Grading and Drainage Plan in the pocket at the rear of this report. Phase I will include 72 Lots on approximately 12.3 acres. Phase II will include 56 Lots on approximately 8.5 acres. *5.9 DU/Ac*
6.6 DU/Ac

EXISTING CONDITIONS

The site is presently not subdivided and is unimproved. The existing drainage is surface flow toward the east. Natural slope ranges from 1 percent to 5 percent toward the east.

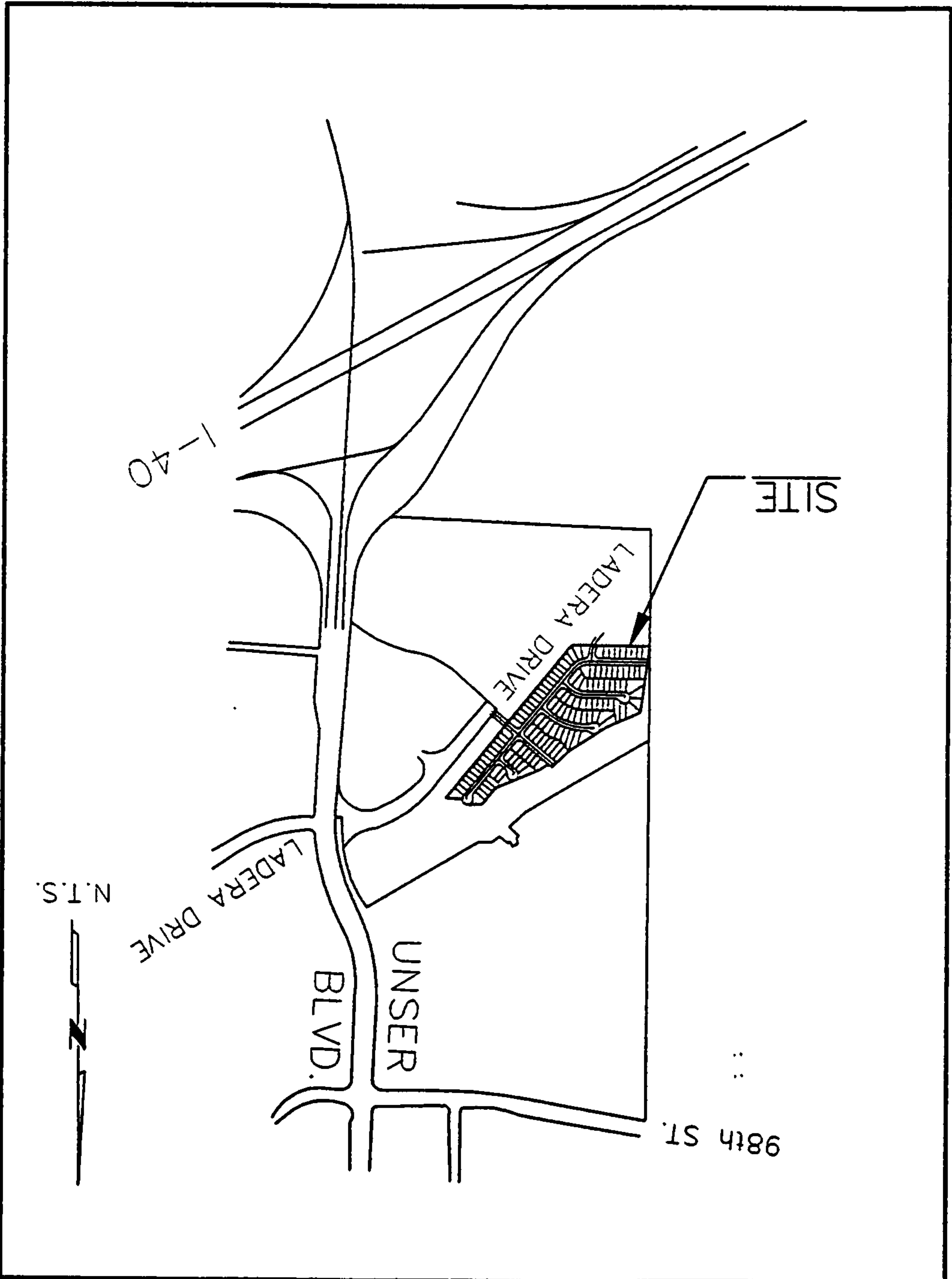
The site is shown on Panels 350002-0021 and 350002-0027 of the Flood Insurance Rate Maps, City of Albuquerque, Bernalillo County. The site is not included within any designated flood boundary per the referenced plates dated October 14, 1983.

The Soil Survey of Bernalillo County shows the site at the interface between soils classified as Pajarito Loamy Fine Sand (hydrologic soil group B) and Bluepoint-KoKan (hydrologic soil group A). In its natural state, the surface is vegetated with desert grasses covering 25 to 40 percent of the surface.

AMAFCA
Construction of the Ladera Pond system west of the site has intercepted most of the off-site runoff from the northwest before it could enter the subject property. Small areas of off-site runoff, mainly west of the site, will be intercepted and routed through the site.

There are two existing manholes northeast of the site near the future alignment of Ladera Drive. These manholes are fitted with a beehive type inlet grates and are located near the bottom of a natural northwest/southeast swale. The discharge from the inlet/manholes is via short sections of 24" storm drain to an AMAFCA easement south of Ladera Drive between existing Parkway Units 3 and 4. This easement is currently operating as a series of small detention ponds with very limited discharge capacity.

VICINITY MAP



ADJACENT PROJECTS

This project is northwest of the Parkway Unit 7 Subdivision which has completed construction. Due to the proximity of the two projects, the Drainage Report for Parkway Unit 7 was reviewed for any conflicts or requirements with this project. The construction of earthen channel and the detention pond as dictated by the Parkway Unit 7 Drainage Report have been completed. The channel was designed to intercept runoff from offsite basins above the Parkway Unit 7 Subdivision. The pond is connected to an existing beehive manhole (Ladera Drive Sta. 22+26) which discharges directly to the AMAFCA Easement.

PROPOSED CONDITIONS

As described above, the proposed development will include approximately 128 townhouse type lots constructed in two phases.

This subdivision is required to build the northwest portion of Ladera Drive from the intersection of Ladera Drive with Unser Blvd. to the portion adjacent to the subdivision's frontage. The earthen berm/channel constructed with Parkway Unit 7 must be removed in order to build this half of Ladera Drive. Once the earthen channel is removed, all the undeveloped lands to the west will not be able to drain into the Unit 7 pond because of the topography constraints of the area. Therefore, construction of the proposed subdivision would render the Unit 7 pond useless for its previous purpose.

Proposed drainage of the subdivision is by surface flow to a proposed storm drain system which conveys the runoff to the Parkway Unit 7 Detention Pond discussed previously. The design of the pond is shown in the Drainage Report for Parkway Unit 7 Subdivision prepared by Community Sciences Corporation stamped 7-29-94. It is located in an existing 100-foot wide utility easement for the Public Service Company of New Mexico. The pond was designed to have a maximum storage capacity of 5 acre-feet and will ultimately discharge directly to the AMAFCA easement. Until improvements have been made to this easement, the discharge must be limited to a total of 29.5 cfs. This number was obtained from the utility plans for Parkway Units 3 & 4. From the Parkway Unit 3 plans, the maximum discharge allowed from the inlet at the sump in Ladera Drive (approx. Sta. 25+70) and the beehive type inlet connected to the same storm drain is 16.3 cfs. The Parkway Unit 4 plans show a maximum of 13.2 cfs being released from the other beehive inlet that is connected to the Parkway Unit 7 pond mentioned previously. A copy of these plans showing both these locations is included in Appendix D.

We propose to use the Unit 7 pond as a temporary detention facility for the developed runoff from this subdivision and from the existing and the proposed sections of Ladera Drive until such time as AMAFCA builds an improved channel downstream from the pond in the easement between Parkway Units 3 and 4. The only changes needed to the existing pond is the emergency overflow spillway needs to be regraded and the discharge standpipe needs to be lowered. As the spillway is constructed now, it would be in the middle of the new north side pavement for Ladera Drive. The flow will be controlled with an orifice plate in the last manhole before the outlet structure to the easement and pressure rated manholes (where needed). The orifice plate will restrict the discharge to the AMAFCA easement forcing the remaining flow to backup into the Unit 7 Pond until it can be released at historical rates (13.2 cfs). At such time when the channel is improved, the proposed subdivision can allow free discharge into the easement.

During the construction of Phase I, it is proposed to construct a temporary sediment pond in the east corner of the Phase II area. This pond will intercept all undeveloped runoff from Basins OFF2, ON1A & ON1B. This pond will remain until Phase II is constructed and the drainage can function as described above for the full build out. This pond is desirable because it keeps sediment laden runoff away from the completed streets in Phase I thereby reducing the maintenance of the completed subdivision. The temporary sediment pond will remain under the ownership of Westland Development Company until Phase II is constructed and the pond is no longer needed. Likewise, Westland Development Company will be responsible for the pond while it exists. See the Drainage Area map in the pocket at the back of this report for the location sizing and drainage analysis of this pond.

DESIGN CRITERIA

The drainage plan presented in this report has been designed to comply with the City of Albuquerque Drainage Ordinance and has used the procedures documented in the January 1993 revision of Section 22.2 of the City of Albuquerque Development Process Manual (DPM).

All hydrology calculations have been prepared using AMAFCA's January 1994 revision of the AHYMO computer model. For the storm drain design of the proposed subdivision, the 100-year frequency, 6-hour duration storm was used. For the design of the Parkway Unit 7 pond as a temporary detention facility and sizing of the orifice plate, the 100-year frequency, 24-hour duration storm was used. For the inlet spacing on Ladera Drive, the 10-year frequency, 6-hour duration storm was used for spacing and confirmed for the peak flow for the 100-year frequency, 6-hour duration storm.

The proposed subdivision and surrounding areas are within Zone 1 as shown in Figure A-1 in the DPM Section 22.2. Therefore, the specific rainfall parameters are as follows:

RAIN FALL	1-HOUR	6-HOUR	24-HOUR
10-YEAR	1.25"	1.47"	1.77"
100-YEAR	1.87"	2.20"	2.66"

The inlet and storm drain design were calculated with the following design criteria:

1. 10-year storm:
 - a. Local Street - velocity times depth less than 6.5
 - b. Arterial Streets
 - i. The energy grade to be less than the depth at the right-of-way
 - ii. Velocity times depth not to exceed 6.5
 - iii. At least on driving lane free of stormwater in each direction

2. 100-year storm

- a. The energy grade to be less than the depth at the right-of-way
- b. The hydraulic jump is to be contained in the right-of-way

3. Per the DPM, the hydraulic grade line in the storm drain pipe must be less than two feet above the finished ground elevation. In areas where the hydraulic grade line is designed to be above the finished ground elevation, pressure rated manholes have been proposed.

The storm drain system was designed using Haestad Method's "StormCAD." This program is designed to compute all of the hydraulic parameters for a storm drain system including hydraulic and energy gradelines. A loss coefficient for the inlets of 0.2 was used and manhole losses were obtained from the table included in Appendix C.

All drainage areas and the resulting runoff are shown on the Drainage Area Plate in the back of this report.

OFF-SITE DRAINAGE

For Off-Site Drainage Basins OFF1A, OFF1B, OFF1C, OFF2 & OFF8, this report assumed a density of 5 du's/acre, which is conservative compared to the proposed 4.5 du's/acre as shown in the Preliminary Sector Development Plan for this area. The remaining off-site basins, except for OFF7, are for the Ladera Drive corridor. This report assumed a future 6-lane section for Ladera Drive, which is more conservative than the proposed 4-lane section. Basin OFF7 is the Parkway Unit 7 Pond. The remaining portion of Ladera Drive to the northeast drains to Unser Blvd. and is collected in the inlets on Unser Blvd. at the I-40 Interceptor. A valley gutter is proposed on Ladera Drive at Unser Blvd. to better convey flows across this intersection.

In both their natural and developed state, Drainage Basins OFF1A & B, OFF3, OFF4A & B, and OFF8 all drain to the southeast, such that the runoff bypasses the proposed site and Parkway Unit 7, and drains to the I-40 Interceptor channel. Therefore, they are not considered as part of the on-site calculations.

Drainage Basins OFF1C and OFF5 both drain away from the proposed site and Parkway Unit 7 in their natural state. However, once these basins are developed they will contribute flows to Ladera Drive and the proposed Ladera storm drain system. Due to the limited capacity of the Parkway Unit 7 Pond, development of these basins will require at least one of the following:

- continue runoff to the south bypassing Parkway Unit 7,
- increase the size of the Parkway Unit 7 Pond in the PNM Easement,
- the AMAFCA channel in their easement must be constructed, or
- the runoff must be ponded onsite and released below historical rates

Drainage Basin OFF2 includes 4.91 acres of undeveloped land between Ladera Pond 10 and the west boundary of the proposed site. The natural slope is to the east, such that if it is not addressed, it would drain through the western most lots in Tierra Oeste Unit 2. To control the runoff prior to development of this basin, we propose to construct an earthen berm at the west boundary of Tierra Oeste to direct the runoff to Casa Amarilla Road where it will be combined with the on-site flow. For the purpose of designing the storm drain system, Basin OFF2 was considered fully developed with a density of 5 du's/acre with street surface flow discharging to Casa Amarilla Road.

Drainage Basins OFF6A & OFF6B collect water from Ladera Drive and the 100' wide PNM Easement. The flow from these basins is collected via inlets in Ladera Drive and conveyed in the Ladera Drive storm drain. The storm drain systems from the proposed subdivision connect into this storm drain which empties into the Parkway Unit 7 Pond.

Drainage Basins OFF6C & OFF6D collect water that drains to the sump in Ladera Drive (approx. Sta 25+70). The water is collected with inlets and directly discharges to the AMAFCA easement through an existing 24" storm drain. The existing beehive type inlet connected to the existing 24" storm drain is to be removed and replaced with a typical manhole lid because the beehive inlet is no longer needed once Ladera Drive is constructed.

The ownership and maintenance of the temporary detention pond will remain as proposed for the Parkway Unit 7 Subdivision since all the lands involved in that area are owned by Westland Development Company. This responsibility will carry forward until such time as the pond is no longer necessary and is reclaimed.

ON-SITE DRAINAGE

Drainage Basins ON1A & B, ON2 & ON3 make up the proposed development site of this project. The developed runoff from these basins and Basin OFF2 will collect on Casa Roja Place, the main southeast/northwest street in the subdivision. Flow will be collected in two separate storm drain systems. The first storm drain system collects surface flows with inlets on Casa Roja Place located upstream of Casa Morena Place, upstream of Casa Negra Place, and upstream of Casa Verde Avenue. This storm drain runs down Casa Roja Place and then turns down Casa Verde Avenue where it connects to the Ladera Drive storm drain. The second storm drain system is located at the northeast cul-de-sac on Casa Roja Place. The flow is collected with inlets and conveyed to the Ladera Drive storm drain by running through both the AMAFCA Easement and the 100' PNM Easement.

Once the flow reaches the Ladera Drive storm drain, it runs down to the Parkway Unit 7 Pond where it is held and released at historic rates. See Table 1 for a detailed breakdown of the storm drain system.

STREET HYDRAULICS

Based on the proposed grading plan included in the back pocket of this report, the storm water contribution for all the inlet locations on Casa Roja Place and Ladera Drive has been calculated. The grades on the streets contributing to Casa Roja Place are all steeper than Casa Roja Place, therefore, the critical analysis points are at the inlet locations. All of the calculations were based on Plates 22.3 from the DPM. The plate for one half the width of 48' fl-fl typical street section was used for Ladera Drive, since the half-section for Ladera Drive is 25' fl-fl.

All street flows in the proposed subdivision are in compliance with DPM requirements.

EROSION CONTROL

Soil erosion during construction of this project will be controlled by utilizing standard construction methods augmented with the use of earthen berms and/or silt fence at the project limits.

These measures will prevent the transport of sediment laden runoff from directly entering the public right-of-way.

TABLE 1
HYDROLOGY PARAMETERS
DEVELOPED CONDITION W/ PARKWAY UNIT 7 POND

				LAND TREATMENTS				DEVELOPED			PIPE FLOW (CFS)	
BASIN #	AREA (SQ. MI.)	LENGTH (FT)	SLOPE (%)	A	B	C	D	Tc (MIN)	Q10 (CFS)	Q100 (CFS)		
ON1A	0.0060	700	2	0	21	21	58	12	8.2	13.7		
OFF2	0.0077	650	2.5	0	25	25	50	12	9.8	16.81		
AP1	COMBINE OFF2 AND ON1A AND ROUTE TO INLETS @ CASA ROJA & CASA MORENA									30.51 (28.35)		
	FLOW COLLECTED IN TWO TYPE 'A' INLETS										14	
	SURFACE BYPASS FLOW TO NEXT INLET LOCATION									14.35		
ON1B	0.0078	760	2	0	21	21	58	12	10.66	17.8		
AP2	COMBINE BYPASS AND ON1B AND ROUTE TO INLETS @ CASA ROJA & CASA NEGRA									32.15 (31.09)		
	FLOW COLLECTED IN TWO TYPE 'A' INLETS										14.4	
	SURFACE BYPASS FLOW TO NEXT INLET LOCATION									16.69		
ON2	0.0106	1025	2	0	21	21	58	12	14.48	24.18		
AP3	COMBINE BYPASS AND ON2 AND ROUTE TO INLETS @ CASA ROJA & CASA VERDE									40.87 (36.87)		
	FLOW COLLECTED IN TWO TYPE 'A' & TWO TYPE DOUBLE 'C' INLETS										29.2	
	SURFACE BYPASS FLOW TO NEXT INLET LOCATION									7.67		
ON3	0.0083	1300	2	0	21	21	58	12	11.34	18.94		
AP4	COMBINE BYPASS AND ON3 AND ROUTE TO INLETS @ NORTH CUL-DE-SAC OF CASA ROJA									26.61 (19.31)		
	FLOW COLLECTED IN TWO TYPE 'A' & ONE TYPE DOUBLE 'C' INLETS										19.31	
	SURFACE BYPASS FLOW TO NEXT INLET LOCATION									0		
LADERA DRIVE												
OFF6A	0.0062	815	1.8	48.5	4.25	4.25	43	12	5.68	10.68		
AP6	FLOW COLLECTED IN ONE TYPE 'A' INLET @ STA 8+25										2.8	
	SURFACE BYPASS FLOW TO NEXT INLET LOCATION									7.88		
OFF6B	0.0074	820	1.8	48.5	4.25	4.25	43	12	6.77	12.75		
AP7	FLOW COLLECTED IN TWO TYPE 'A' & ONE TYPE DOUBLE 'C' INLETS										14	
OFF6C	0.0018	325	1.8	0	8.5	8.5	83	12	2.99	8.22		
OFF6D	0.0022	675	1.8	0	8.5	8.5	83	12	2.99	4.68		
AP8	FLOW COLLECTED IN SUMP AT STA 25+70 (BYPASSES POND-SEE BELC										12.9	
OFF7	0.0013	600	1	100	0	0	0	12	0.21	1.09	1.09	
AP9	TOTAL DISCHARGE TO PARKWAY UNIT 7 POND										94.8 (94.28)	
TOTAL DISCHARGE FROM POND THRU ORIFICE TO EASEMENT											11.23	
TOTAL DISCHARGE FROM OFF6D (BYPASSES POND)											12.9	
TOTAL DISCHARGE TO AMAFCA EASEMENT											24.13 (22.62)	

AP# ANALYSIS POINTS PER DRAINAGE AREA MAP

NOTE: ALL OTHER BASINS ARE UNDEVELOPED AND FLOW TO THE I-40 INTERCEPTOR

**SUMMARY OF PEAK RUNOFF RATES
DEVELOPED CONDITIONS W/ PARKWAY UNIT 7 POND
TABLE 2**

ON-SITE DRAINAGE BASINS

		UNDEVELOPED			DEVELOPED			INCREASE	
	AREA	Tc	Q10	Q100	Tc	Q10	Q100	Q10	Q100
	(Sq. Mi.)	(Min)	(cfs)	(cfs)	(Min)	(cfs)	(cfs)	(cfs)	(cfs)
ON-1A	0.0060	12	0.95	5.00	12	8.20	13.70	7.25	8.70
ON-1B	0.0078	12	1.24	6.50	12	10.66	17.80	9.42	11.30
ON-2	0.0106	12	1.68	8.83	12	14.48	24.18	12.80	15.35
ON-3	0.0083	12	1.32	6.91	12	11.34	18.94	10.02	12.03

OFF-SITE DRAINAGE BASINS

OFF-1A	0.0173	12	2.75	14.41	12	22.02	37.75	19.27	23.34
OFF-1B	0.0373	15	4.63	25.08	14	44.49	76.09	39.86	51.01
OFF-1C	0.0521	16	6.07	33.26	14	60.27	103.28	54.20	70.02
OFF-2	0.0077	12	1.17	6.20	12	9.80	16.81	8.63	10.61
OFF-3	0.0042	13	0.67	3.50	12	6.96	10.89	6.29	7.39
OFF-4A	0.0057	13	0.91	4.75	12	9.86	14.78	8.95	10.03
OFF-4B	0.0057	12	0.38	2.00	12	9.45	6.23	9.07	4.23
OFF-5	0.0182	12	0.52	2.75	12	5.47	8.56	4.95	5.81
OFF-6A	0.0182	12	0.98	5.17	12	5.68	10.68	4.70	5.51
OFF-6B	0.0182	12	1.17	6.17	12	6.77	12.75	5.60	6.58
OFF-6C	0.0182	12	0.29	1.50	12	2.99	4.68	2.70	3.18
OFF-6D	0.0182	12	0.29	1.50	12	2.99	4.68	2.70	3.18
OFF-7	0.0013	12	0.21	1.09	12	0.21	1.09	0.00	0.00
OFF-8	0.0013	28	3.46	19.45	22	45.36	78.14	41.90	58.69

* SEE AHYMO MODEL PRINTOUT IN APPENDIX OF REPORT

SUMMARY OF RUNOFF VOLUMES
DEVELOPED CONDITIONS W/ PARKWAY UNIT 7 POND
TABLE 3

ON-SITE DRAINAGE BASINS

		UNDEVELOPED			DEVELOPED			INCREASE	
	AREA	Tc	V1Q	V100	Tc	V10	V100	V10	V100
	(Sq. Mi.)	(Min)	(ac-ft)	(ac-ft)	(Min)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)
ON-1A	0.0060	12	0.03	0.14	12	0.27	0.47	0.25	0.33
ON-1B	0.0078	12	0.04	0.18	12	0.35	0.62	0.32	0.43
ON-2	0.0106	12	0.05	0.25	12	0.48	0.84	0.43	0.59
ON-3	0.0083	12	0.04	0.19	12	0.38	0.66	0.34	0.46

OFF-SITE DRAINAGE BASINS

OFF-1A	0.0173	12	0.08	0.41	12	0.72	1.28	0.64	0.88
OFF-1B	0.0373	15	0.17	0.87	14	1.55	2.77	1.38	1.89
OFF-1C	0.0521	16	0.23	1.22	14	2.13	3.86	1.90	2.64
OFF-2	0.0077	12	0.03	0.18	12	0.24	0.57	0.21	0.39
OFF-3	0.0042	13	0.02	0.10	12	0.26	0.40	0.25	0.30
OFF-4A	0.0057	13	0.03	0.13	12	0.33	0.54	0.30	0.40
OFF-4B	0.0057	12	0.01	0.06	12	0.14	0.23	0.13	0.17
OFF-5	0.0182	12	0.02	0.08	12	0.19	0.31	0.18	0.24
OFF-6A	0.0182	12	0.03	0.15	12	0.20	0.37	0.17	0.23
OFF-6B	0.0182	12	0.03	0.17	12	0.24	0.44	0.20	0.27
OFF-6C	0.0182	12	0.01	0.04	12	0.10	0.17	0.10	0.13
OFF-6D	0.0182	12	0.01	0.04	12	0.10	0.17	0.10	0.13
OFF-7	0.0013	12	0.01	0.03	12	0.01	0.03	0.00	0.00
OFF-8	0.0013	28	0.23	1.19	22	2.11	3.78	1.89	2.58

* SEE AHYMO MODEL PRINTOUT IN APPENDIX OF REPORT

TABLE 4
HYDROLOGY PARAMETERS
FULLY DEVELOPED CONDITION

				LAND TREATMENTS				DEVELOPED			PIPE
BASIN #	AREA (SQ. MI.)	LENGTH (FT)	SLOPE (%)	A	B	C	D	Tc (MIN)	Q10 (CFS)	Q100 (CFS)	FLOW (CFS)
ON1A	0.0060	700	2	0	21	21	58	12	8.2	13.7	
OFF2	0.0077	650	2.5	0	25	25	50	12	9.8	16.81	
AP1	COMBINE OFF2 AND ON1A AND ROUTE TO INLETS @ CASA ROJA & CASA MORENA									30.51 (28.35)	
	FLOW COLLECTED IN TWO TYPE 'A' INLETS										14
	SURFACE BYPASS FLOW TO NEXT INLET LOCATION									14.35	
ON1B	0.0078	760	2	0	21	21	58	12	10.66	17.8	
AP2	COMBINE BYPASS AND ON1B AND ROUTE TO INLETS @ CASA ROJA & CASA NEGRA									32.15 (31.09)	
	FLOW COLLECTED IN TWO TYPE 'A' INLETS										14.4
	SURFACE BYPASS FLOW TO NEXT INLET LOCATION									16.69	
ON2	0.0106	1025	2	0	21	21	58	12	14.48	24.18	
AP3	COMBINE BYPASS AND ON2 AND ROUTE TO INLETS @ CASA ROJA & CASA VERDE									40.87 (36.87)	
	FLOW COLLECTED IN TWO TYPE 'A' & TWO TYPE DOUBLE 'C' INLETS										29.2
	SURFACE BYPASS FLOW TO NEXT INLET LOCATION									7.67	
ON3	0.0083	1300	2	0	21	21	58	12	11.34	18.94	
AP4	COMBINE BYPASS AND ON3 AND ROUTE TO INLETS @ NORTH CUL-DE-SAC OF CASA ROJA									26.61 (19.31)	
	FLOW COLLECTED IN TWO TYPE 'A' & ONE TYPE DOUBLE 'C' INLETS										19.31
	SURFACE BYPASS FLOW TO NEXT INLET LOCATION									0	
LADERA DRIVE											
OFF1C	0.0521	2500	2.5	0	25	25	50	14	60.27	103.3	
OFF5	0.0033	870	1.8	0	8.5	8.5	83	12	5.47	8.56	
AP5	ASSUME OFF1C AND OFF5 ARE IN LADERA STORM DRAIN PIPE										111.48
OFF6A	0.0062	815	1.8	48.5	4.25	4.25	43	12	5.68	10.68	
AP6	FLOW COLLECTED IN ONE TYPE 'A' INLET @ STA 8+25										2.8
	SURFACE BYPASS FLOW TO NEXT INLET LOCATION									7.88	
OFF6B	0.0074	820	1.8	48.5	4.25	4.25	43	12	6.77	12.75	
AP7	FLOW COLLECTED IN TWO TYPE 'A' & ONE TYPE DOUBLE 'C' INLETS										14
OFF6C	0.0018	325	1.8	0	8.5	8.5	83	12	2.99	8.22	
OFF6D	0.0022	675	1.8	0	8.5	8.5	83	12	2.99	4.68	
AP8	FLOW COLLECTED IN SUMP AT STA 25+70										12.9
OFF7	0.0013	600	1	100	0	0	0	12	0.21	1.09	1.09
AP9	TOTAL DISCHARGE TO AMAFCA EASEMENT										219.18 (218.85)
FLOW TO I-40 INTERCEPTOR											
OFF1A	0.0173	1200	3	0	25	25	50	12	22.02	37.75	
OFF1B	0.0373	2500	2.8	0	25	25	50	14	44.49	76.09	
OFF3	0.0042	1100	1.5	0	8.5	8.5	83	12	6.96	10.89	
OFF4A	0.0057	1500	2.4	0	8.5	8.5	83	12	9.86	14.78	
OFF4B	0.0024	640	2.4	0	8.5	8.5	83	12	9.45	6.23	
OFF8	0.0509	2900	2.5	0	25	25	50	22	45.36	78.14	
AP10	TOTAL DISCHARGE TO I-40 INTERCEPTOR										223.9 (202.34)

AP# ANALYSIS POINTS PER DRAINAGE AREA MAP

STREET HYDRAULICS

TABLE 5

STREET	LOCATION	WIDTH FL-FL (FT)	CURB & GUTTER TYPE	SLOPE (%)	Q100 (CFS)	Dn (FT)	Vn (FT/S)	E.G. (FT)
Casa Roja Pl.	@ Casa Morena Ave	32'	STD	2.02	28.35	0.45	4.2	0.72
Casa Roja Pl.	@ Casa Negra	32'	STD	2.02	31.09	0.46	4.4	0.76
Casa Roja Pl.	@ Casa Verde	32'	STD	2.02	36.87	0.48	4.7	0.82
Casa Roja Pl.	@ North Cul-de-Sac	32'	STD	2.56	19.31	0.39	4	0.64
Ladera Blvd	@ Sta. 8+25	25' (1/2 Street)	STD	1.93	3.42	0.3	2.8	0.42
Ladera Blvd	@ Sta. 15+40	25' (1/2 Street)	STD	3.16	7.41	0.35	4.1	0.61
Ladera Blvd	@ Sta. 25+70 (Sump)	25' (1/2 Street)	STD	8.22	8.22	0.36	4.2	0.63

NOTES: NORMAL DEPTH AND VELOCITY WERE OBTAINED FROM PLATE 22.3.

Mountable Curb on:

Casa Morena

Casa Negra

Casa Gris

·
·

APPENDIX A

AHYMO RUNS

Summary and Detailed Output

TIME TO PEAK CALCULATIONS

USE EQUATION B-1: $T_c = (L_1/V_1 + L_2/V_2 + \dots) / 3600$ $T_c = 0.2$ hr (MINIMUM)

WHERE: $V = K \cdot (S \cdot 100)^{0.5} = 10 \cdot K \cdot (S)^{0.5}$ $S = \text{SLOPE}$

FOR $L < 400'$ $K = 0.7$ (HISTORICAL CONDITONS)

$K = 1.0$ (DEVELOPED CONDITONS)

FOR $400' < L < 2000'$ $K = 2.0$

FOR $2000' < L < 4000'$ $K = 3.0$

TIME TO PEAK $T_p = 2/3 \cdot T_c$

HISTORICAL CONDITONS

BASIN #	AREA (SQ. MI.)	LENGTH (FT)	SLOPE (FT/FT)	L1/V1	L2/V2	L3/V3	CALCULATED Tc (HR)	ADJUSTED Tc (HR)	TP (HR)
ON1A	0.0060	700	0.02	404	106	-	0.142	0.200	0.133
ON1B	0.0078	760	0.02	404	127	-	0.148	0.200	0.133
ON2	0.0106	1025	0.02	404	221	-	0.174	0.200	0.133
ON3	0.0083	1300	0.02	404	318	-	0.201	-	0.134
								0.200	
OFF1A	0.0173	1200	0.03	330	231	-	0.156	0.200	0.133
OFF1B	0.0373	2500	0.028	341	478	100	0.255	-	0.170
OFF1C	0.0521	2500	0.025	361	506	105	0.270	-	0.180
OFF2	0.0077	650	0.025	361	79	-	0.122	0.200	0.133
OFF3	0.0042	1100	0.015	467	286	-	0.209	-	0.139
OFF4A	0.0057	1500	0.024	369	355	-	0.201	-	0.134
OFF4B	0.0024	640	0.024	369	77	-	0.124	0.200	0.133
OFF5	0.0033	870	0.018	426	175	-	0.167	0.200	0.133
OFF6A	0.0062	815	0.018	426	155	-	0.161	0.200	0.133
OFF6B	0.0074	820	0.018	426	157	-	0.162	0.200	0.133
OFF6C	0.0018	470	0.018	426	26	-	0.126	0.200	0.133
OFF6D	0.0018	550	0.018	426	56	-	0.134	0.200	0.133
OFF7	0.0013	600	0.01	571	100	-	0.187	0.200	0.133
OFF8	0.0509	2900	0.01	571	800	300	0.464	-	0.310

DEVELOPED CONDITONS

BASIN #	AREA (SQ. MI.)	LENGTH (FT)	SLOPE (FT/FT)	L1/V1	L2/V2	L3/V3	CALCULATED Tc (HR)	ADJUSTED Tc (HR)	TP (HR)
ON1A	0.0060	700	0.02	283	106	-	0.108	0.200	0.133
ON1B	0.0078	760	0.022	270	121	-	0.109	0.200	0.133
ON2	0.0106	1025	0.025	253	198	-	0.125	0.200	0.133
ON3	0.0083	1300	0.025	253	285	-	0.149	0.200	0.133
OFF1A	0.0173	1200	0.03	231	231	-	0.128	0.200	0.133
OFF1B	0.0373	2500	0.028	239	478	100	0.227	-	0.151
OFF1C	0.0521	2500	0.025	253	506	105	0.240	-	0.160
OFF2	0.0077	650	0.025	253	79	-	0.092	0.200	0.133
OFF3	0.0042	1100	0.015	327	286	-	0.170	0.200	0.133
OFF4A	0.0057	1500	0.024	258	355	-	0.170	0.200	0.133
OFF4B	0.0024	640	0.024	258	77	-	0.093	0.200	0.133
OFF5	0.0033	870	0.018	298	175	-	0.131	0.200	0.133
OFF6A	0.0062	815	0.019	290	151	-	0.122	0.200	0.133
OFF6B	0.0074	820	0.019	290	152	-	0.123	0.200	0.133
OFF6C	0.0018	325	0.03	188	-	-	0.052	0.200	0.133
OFF6D	0.0018	675	0.05	179	61	-	0.067	0.200	0.133
OFF7	0.0013	600	0.01	400	100	-	0.139	0.200	0.133
OFF8	0.0509	2900	0.025	253	506	569	0.369	-	0.246

PROJECT: _____

DATE: _____



CALCULATIONS

By: _____ Pg: _____ of _____

Land Treatments

- Onsite Basins

$$24.5 \text{ acres} - 3.87 \text{ ac (PNM Easement)} = 20.63 \text{ ac}$$

$$\frac{128 \text{ units}}{20.63 \text{ ac}} = 6.2 \text{ D.U./Acre}$$

- % D - Table A-5

$$7 + \sqrt{N^2 + 5N}$$

$$7 + \sqrt{6.2^2 + 5(6.2)}$$

$$\% D = 58\%$$

- Breakout by Square Footage

$$\text{House} \approx 1750 \text{ FT}^2$$

$$\text{Garage} \approx 400 \text{ FT}^2$$

$$\text{Driveway} = 18'(20') = 360 \text{ FT}^2$$

$$\text{Street} = 25'(43') = 1075 \text{ FT}^2$$

$$\text{Walk} = 43'(4') = 172 \text{ FT}^2$$

$$\text{Total} = 3757 \text{ Sq. FT}$$

$$\% D = \frac{6.2(3757)}{43560} = 53.5\% < 58\%$$

$$\therefore \text{Use } \% D = 58\%$$

$$\% B = 21.0\%$$

$$\% C = 21.0\%$$

- OFFSITE Basins

$$\text{USE } 5 \text{ D.U./Acre}$$

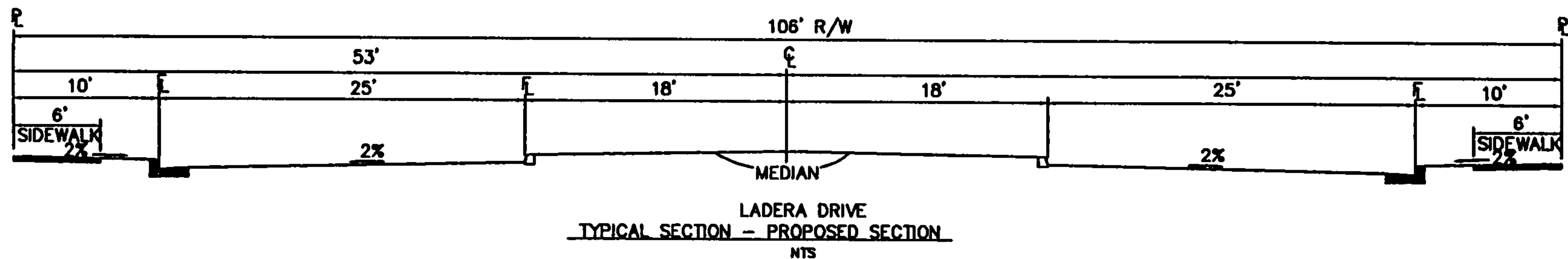
$$\text{Table A-5 } \% D = 7 + \sqrt{5^2 + 5(5)}$$

$$= 49.5\%$$

$$\therefore \text{USE } \% D = 50\%$$

$$\% B = 25\%$$

$$\% C = 25\%$$

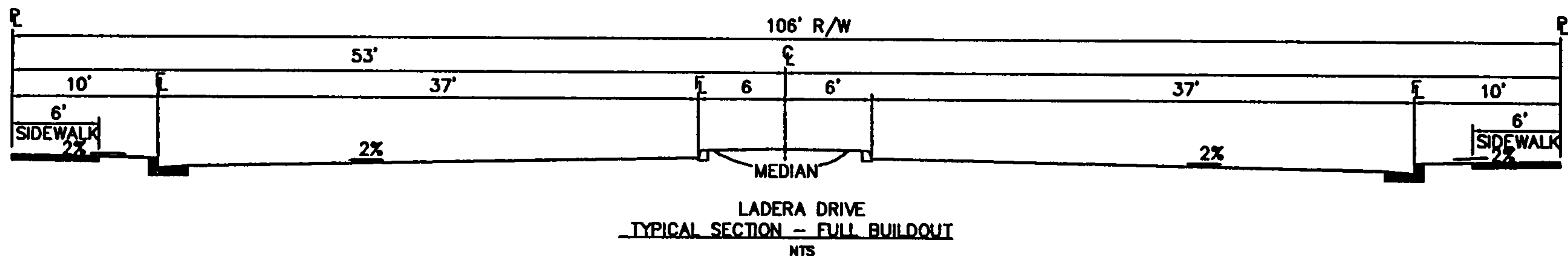


LAND TREATMENT D - LADERA RIGHT OF WAY ONLY

PAVEMENT= 50'
 STD CURB= 2(7.5")
 PINNED CURB= 2(8")
 SIDEWALK= 2(6')
 TOTAL= 64.0'
 TOTAL WIDTH = 106'
 $\%D: 64.0'/106' = 60.0\%$
 SPLIT BALANCE BETWEEN B & C
 $\%B: 20.0\%$
 $\%C: 20.0\%$

LAND TREATMENT D - LADERA RIGHT OF WAY & PNM EASEMENT

PAVEMENT= 50'
 STD CURB= 2(7.5")
 PINNED CURB= 2(8")
 SIDEWALK= 2(6')
 TOTAL= 64.0'
 TOTAL WIDTH = 106' + 100' = 206'
 $\%D: 64.0'/206' = 31.0\%$
 EASEMENT ALL TYPE A
 $\%A: 100'/206' = 48.5\%$
 SPLIT BALANCE BETWEEN B & C
 $\%B: 10.25\%$
 $\%C: 10.25\%$



LAND TREATMENT D - LADERA RIGHT OF WAY ONLY

PAVEMENT= 74'
 STD CURB= 2(7.5")
 PINNED CURB= 2(8")
 SIDEWALK= 2(6')
 TOTAL= 88.0'
 TOTAL WIDTH = 106'
 $\%D: 88.0'/106' = 83.0\%$
 SPLIT BALANCE BETWEEN B & C
 $\%B: 8.5\%$
 $\%C: 8.5\%$

LAND TREATMENT D - LADERA RIGHT OF WAY & PNM EASEMENT

PAVEMENT= 74'
 STD CURB= 2(7.5")
 PINNED CURB= 2(8")
 SIDEWALK= 2(6')
 TOTAL= 88.0'
 TOTAL WIDTH = 106' + 100' = 206'
 $\%D: 88.0'/206' = 43.0\%$
 EASEMENT ALL TYPE A
 $\%A: 100'/206' = 48.5\%$
 SPLIT BALANCE BETWEEN B & C
 $\%B: 4.25\%$
 $\%C: 4.25\%$

Ladera Drive
Land Treatments

RESERVOIR ROUTING CURVE

NOTE: THIS DETENTION POND WAS DESIGNED BY
COMMUNITY SCIENCES CORPORATION FOR
THE PARKWAY UNIT 7 SUBDIVISION.

MAXIMUM DISCHARGE TO AMAFCA
EASEMENT=13.2 CFS

POND BOTTOM ELEVATION 5197.00
SPILLWAY ELEVATION 5204.00

ORIFICE DIAMETER 0.83 FEET
10.00 INCHES

HEIGHT IS MEASURED FROM WATER SURFACE ELEVATION
TO CENTER OF ORIFICE

ORIFICE EQUATION: $Q=C*A*(2*G*H)^{0.5}$
WHERE C=0.60

ELEVATION	HEIGHT	WETTED AREA	ORIFICE (CFS)
5184.42	0.42	0.27	0.85
5185.00	0.58	0.41	1.50
5186.00	1.58	0.55	3.30
5187.00	2.58	0.55	4.22
5188.00	3.58	0.55	4.97
5189.00	4.58	0.55	5.62
5190.00	5.58	0.55	6.21
5191.00	6.58	0.55	6.74
5192.00	7.58	0.55	7.23
5193.00	8.58	0.55	7.69
5194.00	9.58	0.55	8.13
5195.00	10.58	0.55	8.54
5196.00	11.58	0.55	8.94
5197.00	12.58	0.55	9.32
5198.00	13.58	0.55	9.68
5199.00	14.58	0.55	10.03
5200.00	15.58	0.55	10.37
5201.00	16.58	0.55	10.69
5202.00	17.58	0.55	11.01
5203.00	18.58	0.55	11.32
5204.00	19.58	0.55	11.62

①

**AHYMO
FULLY DEVELOPED
10 YR. - 6 HR.**

**FOR LADERA DRIVE
STORM DRAIN INLET SPACING**

(Appendix A)

*S ROUTE BYPASS FLOW FROM INLETS (ID=13) THRU ON2 TO INLETS ON CASA ROJA
 *S @ CASA VERDE
 *S

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2 NOTATION

ROUTE	114.10	13	14	.00000	.00	.000	.00000	-.033	.000	

*S
 *S
 *S ADD ON2 TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ CASA ROJA
 *S & CASA VERDE
 *S

ADD HYD	115.10	3&14	15	.01060	14.48	.481	.85143	1.499	2.134	

*S
 *S
 *S INLETS ON CASA ROJA @ CASA VERDE RECIEVED 29.19 CFS
 *S ID=16 IS FLOW INTO STORM DRAIN SYSTEM ID=17 BYPASS FLOW ON SURFACE
 *S

DIVIDE HYD	116.10	15	16	.01060	14.48	.481	.85143	1.499	2.134	
	117.10	AND	17	.00000	.00	.000	.00000	-.033	.000	

*S
 *S-----
 *S ROUTE BYPASS FLOW FROM INLETS (ID=17) THRU ON3 TO END OF 50'
 *S RIGHT OF WAY ENDING AT CASA AZUL

ROUTE	118.10	17	18	.00000	.00	.000	.00000	-.033	.000	

*S
 *S-----
 *S ROUTE BYPASS FLOW FROM INLETS (ID=18) THRU ON3 FROM END OF 50'
 *S RIGHT OF WAY ENDING AT CASA AZUL TO NORTH END OF CASA ROJA
 *S (CUL-DE-SAC)

ROUTE	119.10	18	19	.00000	.00	.000	.00000	-.033	.000	

*S
 *S-----
 *S
 *S ADD ON3 TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ NORTH END
 *S OF CASA ROJA
 *S

ADD HYD	120.10	4&19	20	.00830	11.34	.377	.85142	1.499	2.135	

*S
 *S-----
 *S
 *S
 *S
 *S
 *S ROUTE STORM DRAIN IN SUBDIVISION
 *S
 *S

*S
 *S-----
 *S
 *S
 *S ROUTING OF PIPE FLOW FROM FIRST OF INLETS (ID=8) TO SECOND SET OF INLETS
 *S (ID=12) NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S

*S
 *S-----
 *S
 *S ADD FIRST SET OF INLETS (ID=8) TO SECOND SET OF INLETS (ID=12)
 *S

ADD HYD	122.10	8&12	22	.02150	25.76	.946	.82528	1.532	1.872	

*S
 *S-----
 *S
 *S ROUTING OF PIPE FLOW FROM 2 SETS OF INLETS (ID=22) TO THIRD SET OF INLETS
 *S (ID=16) NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S

*S
 *S-----
 *S
 *S ADD FIRST TWO SETS INLETS (ID=22) TO THIRD SET OF INLETS (ID=16)
 *S

ADD HYD	124.10	22&16	24	.03210	39.79	1.428	.83392	1.532	1.937	

*S
 *S-----
 *S
 *S ROUTING OF PIPE FLOW FROM 3 SETS OF INLETS (ID=24) TO LADERA STORM DRAIN
 *S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S

*S
 *S-----
 *S

*S
 *S
 *S ROUTING OF PIPE FLOW FROM CUL-DE-SAC ON CASA ROJA (ID=20) TO LADERA STORM
 *S DRAIN NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S

*S-----
 *S-----
 *S-----
 *S

LADERA STORM DRAIN

*S
 *S-----
 *S-----
 *S

*S COMPUTE FLOWS CONTRIBUTING TO LADERA STORM DRAIN
 *S ASSUMPTIONS: USE FULL BUILDOUT SIX LANE SECTION
 *S

*S BASIN OFF7-----
 *S

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3 NOTATION
COMPUTE NM HYD	126.10	-	26	.00130	.21	.006	.08298	1.532	.249	PER IMP= .00

*S
 *S BASIN OFF5-----
 *S

COMPUTE NM HYD	127.10	-	27	.00330	5.47	.190	1.08149	1.499	2.592	PER IMP= 83.00

*S
 *S BASIN OFF6A-----
 *S

COMPUTE NM HYD	128.10	-	28	.00620	5.68	.197	.59530	1.499	1.431	PER IMP= 43.00

*S
 *S BASIN OFF6B-----
 *S

COMPUTE NM HYD	129.10	-	29	.00740	6.77	.235	.59530	1.499	1.430	PER IMP= 43.00

*S
 *S BASIN OFF6C-----
 *S

COMPUTE NM HYD	130.10	-	30	.00180	2.99	.104	1.08149	1.499	2.596	PER IMP= 83.00

*S
 *S BASIN OFF6D-----
 *S

COMPUTE NM HYD	131.10	-	31	.00180	2.99	.104	1.08149	1.499	2.596	PER IMP= 83.00

*S
 *S BASIN OFF1C-----
 *S

COMPUTE NM HYD	132.10	-	32	.05209	60.27	2.161	.77785	1.532	1.808	PER IMP= 50.00

*S
 *S-----
 *S

*S ADD OFF5 AND OFF1C
 *S ASSUME THIS FLOW IS IN LADERA STORM DRAIN WITH NO BYPASS ON THE ROAD
 *S

ADD HYD	133.10	27&32	33	.05539	65.52	2.351	.79593	1.532	1.848	

*S
 *S-----
 *S

*S ROAD ROUTING FOR LADERA DRIVE AND DIVIDE OFF FLOW BY INLETS
 *S

*S
 *S INLETS ON LADERA DRIVE (STA 8+25) RECIEVED 2.80 CFS
 *S ID=34 IS INTO STORM DRAIN SYSTEM ID=35 BYPASS FLOW ON SURFACE
 *S

DIVIDE HYD	134.10	28	34	.00508	2.80	.161	.59525	1.399	.862	
	135.10	AND	35	.00112	2.88	.036	.59525	1.499	4.000	

*S
 *S-----
 *S

*S ROUTE BYPASS (ID=35) THRU OFF6B
 *S DOWN LADERA-ASSUME 6 LANE SECTION
 *S

ROUTE	136.10	35	36	.00112	2.03	.036	.59984	1.565	2.816	

*S
 *S-----
 *S

*S ADD ROUTED BYPASS (ID=36) AND OFF6B (ID=29)

*S
ADD HYD 137.10 36&29 37 .00852 8.41 .271 .59581 1.532 1.541

*S
*S
*S INLETS ON LADERA DRIVE (STA 15+40) RECIEVED 14.0 CFS
*S (5.6 CFS IN EXISTING INLETS - 7.4 CFS IN PROPOSED INLETS)
*S ID=38 IS FLOW INTO STORM DRAIN SYSTEM ID=39 BYPASS FLOW ON SURFACE
*S
DIVIDE HYD 138.10 37 38 .00852 8.41 .271 .59581 1.532 1.541
 139.10 AND 39 .00000 .00 .000 .00000 -.033 .000

*S
*S-----
*S
*S ROUTE BYPASS (ID=39) THRU OFF6C TO BOTTOM OF SUMP STA 25+70
*S DOWN LADERA-ASSUME 6 LANE SECTION
*S
ROUTE 140.10 39 40 .00000 .00 .000 .00000 -.033 .000

*S
*S-----
*S
*S ADD ROUTED BYPASS (ID=40) AND OFF6C (ID=30)
*S

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 4 NOTATION

ADD HYD	141.10 40&30	41		.00180	2.99	.104	1.08131	1.499	2.596	

*S
*S-----
*S
*S ADD BYPASS AND OFF6C (ID=41) AND OFF6D (ID=31)
*S TOTAL AMOUNT OF WATER COLLECTED AT SUMP STA 25+70
ADD HYD 142.10 41&31 42 .00360 5.98 .208 1.08131 1.499 2.596

*S
*S
*S-----
*S
*S-----
*S
*S LADERA STORM DRAIN ROUTING

*S
*S
*S ROUTING OF PIPE FLOW FROM OFFSITE (ID=33) TO LADERA STATION 8+25
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----

*S
*S ADD OFFSITE FLOW (ID=33) TO FIRST SET OF INLETS (STA 8+25) ID=34
*S
ADD HYD 144.10 33&34 44 .06047 68.32 2.512 .77908 1.532 1.766

*S
*S
*S-----
*S
*S ROUTING OF PIPE FLOW FROM LADERA STA 8+25 (ID=44) TO CASA VERDE
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----

*S
*S ADD PIPE FLOW (ID=44) TO FLOW FROM CASA VERDE (ID=24)
*S
ADD HYD 146.10 44&24 46 .09257 108.12 3.940 .79810 1.532 1.825

*S
*S
*S-----
*S
*S ROUTING OF PIPE FLOW FROM CASA VERDE (ID=44) TO LADERA STA 15+40
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----

*S
*S ADD PIPE FLOW (ID=46) TO INLETS (ID=38)
*S
ADD HYD 148.10 46&38 48 .10109 116.52 4.211 .78104 1.532 1.801

*S
 *S-----
 *S-----
 *S
 *S ROUTING OF PIPE FLOW FROM STA 15+40 (ID=48) TO TIERRA OESTE ESMT PIPE
 *S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S
 *S-----

*S
 *S ADD PIPE FLOW (ID=48) TO FLOW FROM EASMENT (ID=20)
 *S
 ADD HYD 151.10 48&20 51 .10939 127.52 4.588 .78638 1.532 1.821
 *S
 *S-----
 *S-----

*S
 *S ROUTING OF PIPE FLOW FROM TIERRA OESTE ESMT (ID=51) TO AMAFCA EASEMENT
 *S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S
 *S-----
 *S EXISTING FLOW FROM LADERA SHOWN ON PARKWAY UNIT 3 PLANS
 *S Q(100)=8.1 CFS FLOW FROM BEEHIVE= 0 CFS
 *S

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 5 NOTATION
STORE HYD	153.10	-	53	.00010	8.10	.421	79.02897	1.000	126.563	

*S
 *S-----
 *S
 *S ADD EXISTING FLOW TO NEW FLOW FROM SUMP (ID=42)
 ADD HYD 154.10 42&53 54 .00370 8.10 .588 2.98144 1.499 3.420
 *S
 *S-----
 *S-----

*S
 *S ROUTING OF PIPE FLOW LADERA SUMP (ID=54) TO AMAFCA EASMENT
 *S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S
 *S-----
 *S ADD MAIN LADERA STORM DRAIN AND STORM DRAIN FROM SUMP
 ADD HYD 156.10 51&54 56 .11309 133.25 5.176 .85820 1.532 1.841
 *S
 *S-----

*S
 *S ADD BASIN OFF7(ID=26)-RAIN THAT FALLS INTO POND TO STORM DRAIN
 ADD HYD 157.10 56&26 57 .11439 133.46 5.182 .84939 1.532 1.823
 *S
 *S-----
 *S TOTAL DISCHARGE TO AMAFCA EASEMENT
 *S
 *S-----
 *S-----

*S
 *S
 *S OFFSITE FLOW TO I-40 INTERCEPTOR
 *S BASINS OFF1A,OFF1B,OFF3,OFF4A,OFF4B,OFF8
 *S
 *S-----
 *S-----

*S
 *S COMPUTE FLOWS CONTRIBUTING TO I-40 INTERCEPTOR
 *S ASSUMPTIONS: USE FULL BUILDOUT SIX LANE SECTION FOR BASINS OFF4A&B
 *S
 *S BASIN OFF1A-----

COMPUTE NM HYD	160.10	-	60	.01730	22.02	.718	.77785	1.499	1.989	PER IMP= 50.00

*S
 *S BASIN OFF1B-----
 *S
 COMPUTE NM HYD 161.10 - 61 .03730 44.49 1.547 .77785 1.532 1.864 PER IMP= 50.00
 *S
 *S BASIN OFF3-----

COMPUTE NM HYD	162.10	-	62	.00420	6.96	.242	1.08149	1.499	2.591	PER IMP= 83.00

*S


```

*S BASIN OFF4A-----
*S
COMPUTE NM HYD      163.10  -   63      .00570      9.45      .329      1.08149      1.499      2.590 PER IMP= 83.00
*S
*S BASIN OFF4B-----
*S
COMPUTE NM HYD      164.10  -   64      .00240      3.98      .138      1.08149      1.499      2.594 PER IMP= 83.00
*S
*S BASIN OFF8-----
*S
COMPUTE NM HYD      165.10  -   65      .05090      45.36      2.112      .77785      1.632      1.393 PER IMP= 50.00
*S
*S-----
*S
*S ADD BASIN OFF1A AND OFF3
*S
ADD HYD              166.10 60&62  66      .02150      28.98      .960      .83714      1.499      2.106
*S
*S-----
*S
*S ROUTE OFF1A AND OFF3 (ID=66) THRU OFF4A (LADERA)
*S ASSUME 6 LANE SECTION
*S

```

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 6 NOTATION
ROUTE	167.10	66	67	.02150	23.33	.960	.83716	1.565	1.696	
*S-----										
*S ADD ROUTED OFF1A AND OFF3 TO OFF1B										
ADD HYD	168.10	67&61	68	.05880	66.37	2.507	.79952	1.532	1.764	
*S-----										
*S ADD ID=68 AND OFF4A										
ADD HYD	169.10	68&63	69	.06450	75.43	2.836	.82443	1.532	1.827	
*S-----										
*S ADD ID=69 AND OFF4B										
ADD HYD	170.10	69&64	70	.06690	79.26	2.974	.83365	1.532	1.851	
*S-----										
*S ROUTE COMBINED FLOW (ID=70) THROUGH OFF8 IN 3' DIA.PIPE										
ROUTE	171.10	70	71	.06690	76.91	2.974	.83366	1.565	1.796	
*S-----										
*S ADD ROUTED FLOW (ID=71) AND OFF8										
*S TOTAL DISCHARGE TO I-40 INTERCEPTOR AT THE BOTTOM OF OFF8										
ADD HYD	171.10	71&65	72	.11780	118.49	5.086	.80954	1.565	1.572	
*S										
FINISH										

②

**AHYMO
FOR
STORM DRAIN SYSTEM
DESIGN**

**FULLY DEVELOPED
100 YR. - 6 HR.**

(Appendix A)

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
*S TIERRA OSESTE SUBDIVISION DRAINAGE REVISION DATE: 2/96										
*S Compute 100-Year Flow FN:TIERRA.DAT BY:RGG										
*S COMPUTE 100YR-6HR STORM FOR FULLY DEVELOPED CONDITIONS										
*S NO POND										
*S										
*S										
START										
RAINFALL TYPE= 1										
*S										
*S COMPUTE FLOWS FROM INSIDE SUBDIVISION ONLY (OFF2,ON1,ON2 & ON3)										
*S & ROUTE TO LADERA STORM DRAIN										
*S										
*S BASIN OFF2-----										
*S										
COMPUTE NM HYD	101.10	-	1	.00770	16.81	.571	1.39061	1.499	3.411	PER IMP= 50.00
*S										
*S BASIN ON1A-----										
*S										
COMPUTE NM HYD	102.10	-	2	.00600	13.70	.474	1.48259	1.499	3.567	PER IMP= 58.00
*S										
*S BASIN ON2-----										
*S										
COMPUTE NM HYD	103.10	-	3	.01060	24.18	.838	1.48259	1.499	3.565	PER IMP= 58.00
*S										
*S BASIN ON3-----										
*S										
COMPUTE NM HYD	104.10	-	4	.00830	18.94	.656	1.48259	1.499	3.566	PER IMP= 58.00
*S										
*S BASIN ON1B-----										
*S										
COMPUTE NM HYD	105.10	-	5	.00780	17.80	.617	1.48259	1.499	3.566	PER IMP= 58.00
*S										
*S-----										
*S ROUTE BASIN OFF2 THRU ON1A										
*S										
ROUTE	106.10	1	6	.00770	15.17	.571	1.39064	1.565	3.078	
*S										
*S										
*S ADD ON1A TO ROUTED OFF2-FLOW TO BE INTERCPETED BY INLETS @ CASA ROJA										
*S & CASA MORENA										
*S										
ADD HYD	107.10	2& 6	7	.01370	28.35	1.045	1.43086	1.532	3.234	
*S										
*S										
*S INLETS ON CASA ROJA @ CASA MORENA RECIEVED 14.0 CFS-										
*S ID=8 IS FLOW INTO PIPE ID=9 BYPASS FLOW										
*S										
DIVIDE HYD	108.10	7	8	.01104	14.00	.842	1.43086	1.432	1.982	
	109.10	AND	9	.00266	14.35	.203	1.43086	1.532	8.417	
*S										
*S-----										
*S ROUTE BYPASS FLOW FROM INLETS (ID=9) THRU ON1B TO INLETS ON CASA ROJA										
*S @ CASA NEGRA										
*S										
ROUTE	110.10	9	10	.00266	13.91	.204	1.43280	1.532	8.159	
*S										
*S										
*S ADD ON1B TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ CASA ROJA										
*S & CASA NEGRA										
*S										
ADD HYD	111.10	5&10	11	.01046	31.09	.820	1.46984	1.532	4.642	
*S										
*S INLETS ON CASA ROJA @ CASA NEGRA RECIEVED 14.4 CFS										
*S ID=12 IS FLOW INTO STORM DRAIN SYSTEM ID=13 BYPASS FLOW ON SURFACE										
*S										
DIVIDE HYD	112.10	11	12	.00815	14.40	.639	1.46984	1.465	2.761	
	113.10	AND	13	.00232	16.69	.182	1.46984	1.532	11.260	
*S										
*S-----										

*S ROUTE BYPASS FLOW FROM INLETS (ID=13) THRU ON2 TO INLETS ON CASA ROJA

*S @ CASA VERDE

*S

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2 NOTATION

ROUTE	114.10	13	14	.00232	15.34	.182	1.47207	1.565	10.351	

*S

*S

*S ADD ON2 TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ CASA ROJA

*S & CASA VERDE

*S

ADD HYD	115.10	3&14	15	.01292	36.87	1.020	1.48065	1.532	4.460	

*S

*S

*S INLETS ON CASA ROJA @ CASA VERDE RECIEVED 29.19 CFS

*S ID=16 IS FLOW INTO STORM DRAIN SYSTEM ID=17 BYPASS FLOW ON SURFACE

*S

DIVIDE HYD	116.10	15	16	.01232	29.19	.973	1.48065	1.499	3.701	
	117.10	AND	17	.00059	7.68	.047	1.48065	1.532	20.248	

*S

*S-----

*S ROUTE BYPASS FLOW FROM INLETS (ID=17) THRU ON3 TO END OF 50'

*S RIGHT OF WAY ENDING AT CASA AZUL

ROUTE	118.10	17	18	.00059	7.21	.047	1.48935	1.565	19.006	

*S

*S-----

*S ROUTE BYPASS FLOW FROM INLETS (ID=18) THRU ON3 FROM END OF 50'

*S RIGHT OF WAY ENDING AT CASA AZUL TO NORTH END OF CASA ROJA

*S (CUL-DE-SAC)

ROUTE	119.10	18	19	.00059	4.61	.047	1.48935	1.598	12.160	

*S

*S-----

*S

*S ADD ON3 TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ NORTH END

*S OF CASA ROJA

*S

ADD HYD	120.10	4&19	20	.00889	19.31	.703	1.48296	1.565	3.392	

*S

*S-----

*S

*S-----

*S

*S

ROUTE STORM DRAIN IN SUBDIVISION

*S

*S-----

*S

*S-----

*S

*S ROUTING OF PIPE FLOW FROM FIRST OF INLETS (ID=8) TO SECOND SET OF INLETS

*S (ID=12) NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

*S

*S-----

*S

*S ADD FIRST SET OF INLETS (ID=8) TO SECOND SET OF INLETS (ID=12)

*S

ADD HYD	122.10	8&12	22	.01918	28.40	1.481	1.44742	1.465	2.313	

*S

*S-----

*S

*S ROUTING OF PIPE FLOW FROM 2 SETS OF INLETS (ID=22) TO THIRD SET OF INLETS

*S (ID=16) NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

*S

*S-----

*S

*S ADD FIRST TWO SETS INLETS (ID=22) TO THIRD SET OF INLETS (ID=16)

*S

ADD HYD	124.10	22&16	24	.03151	57.59	2.454	1.46041	1.499	2.856	

*S

*S-----

*S

*S ROUTING OF PIPE FLOW FROM 3 SETS OF INLETS (ID=24) TO LADERA STORM DRAIN

*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

*S

*S-----

*S

*S
 *S
 *S ROUTING OF PIPE FLOW FROM CUL-DE-SAC ON CASA ROJA (ID=20) TO LADERA STORM
 *S DRAIN NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S

*S-----
 *S-----
 *S-----

*S
 *S LADERA STORM DRAIN
 *S

*S-----
 *S-----
 *S

*S COMPUTE FLOWS CONTRIBUTING TO LADERA STORM DRAIN
 *S ASSUMPTIONS: USE FULL BUILDOUT SIX LANE SECTION

*S
 *S BASIN OFF7-----
 *S

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3 NOTATION
COMPUTE NM HYD	126.10	-	26	.00130	1.09	.030	.43919	1.532	1.308	PER IMP= .00

*S
 *S BASIN OFF5-----

COMPUTE NM HYD	127.10	-	27	.00330	8.56	.312	1.77001	1.499	4.054	PER IMP= 83.00

*S
 *S BASIN OFF6A-----

COMPUTE NM HYD	128.10	-	28	.00620	10.68	.371	1.12114	1.499	2.693	PER IMP= 43.00

*S
 *S BASIN OFF6B-----

COMPUTE NM HYD	129.10	-	29	.00740	12.75	.442	1.12114	1.499	2.692	PER IMP= 43.00

*S
 *S BASIN OFF6C-----

COMPUTE NM HYD	130.10	-	30	.00180	4.68	.170	1.77001	1.499	4.060	PER IMP= 83.00

*S
 *S BASIN OFF6D-----

COMPUTE NM HYD	131.10	-	31	.00180	4.68	.170	1.77001	1.499	4.060	PER IMP= 83.00

*S
 *S BASIN OFF1C-----

COMPUTE NM HYD	132.10	-	32	.05209	103.28	3.863	1.39062	1.532	3.098	PER IMP= 50.00

*S
 *S-----
 *S

*S ADD OFF5 AND OFF1C
 *S ASSUME THIS FLOW IS IN LADERA STORM DRAIN WITH NO BYPASS ON THE ROAD

ADD HYD	133.10	27&32	33	.05539	111.48	4.175	1.41321	1.532	3.145	

*S
 *S-----
 *S

*S ROAD ROUTING FOR LADERA DRIVE AND DIVIDE OFF FLOW BY INLETS
 *S

*S
 *S INLETS ON LADERA DRIVE (STA 8+25) RECIEVED 2.80 CFS
 *S ID=34 IS INTO STORM DRAIN SYSTEM ID=35 BYPASS FLOW ON SURFACE
 *S

DIVIDE HYD	134.10	28	34	.00373	2.80	.223	1.12109	1.365	1.173	
	135.10	AND	35	.00247	7.88	.148	1.12109	1.499	4.985	

*S
 *S-----
 *S

*S ROUTE BYPASS (ID=35) THRU OFF6B
 *S DOWN LADERA-ASSUME 6 LANE SECTION

ROUTE	136.10	35	36	.00247	6.66	.148	1.12318	1.565	4.208	

*S
 *S-----
 *S

*S ADD ROUTED BYPASS (ID=36) AND OFF6B (ID=29)
*S
ADD HYD 137.10 36&29 37 .00987 18.77 .590 1.12158 1.532 2.971
*S
*S
*S INLETS ON LADERA DRIVE (STA 15+40) RECIEVED 14.0 CFS
*S (5.6 CFS IN EXISTING INLETS - 7.4 CFS IN PROPOSED INLETS)
*S ID=38 IS FLOW INTO STORM DRAIN SYSTEM ID=39 BYPASS FLOW ON SURFACE
*S
DIVIDE HYD 138.10 37 38 .00921 14.00 .551 1.12158 1.465 2.374
 139.10 AND 39 .00066 4.77 .039 1.12158 1.532 11.326

*S
*S-----
*S
*S ROUTE BYPASS (ID=39) THRU OFF6C TO BOTTOM OF SUMP STA 25+70
*S DOWN LADERA-ASSUME 6 LANE SECTION
*S
ROUTE 140.10 39 40 .00066 4.27 .040 1.12942 1.565 10.139
*S
*S-----

*S
*S ADD ROUTED BYPASS (ID=40) AND OFF6C (ID=30)
*S

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 4 NOTATION

ADD HYD	141.10 40&30	41		.00246	8.32	.210	1.59823	1.532	5.286	

*S
*S-----
*S
*S ADD BYPASS AND OFF6C (ID=41) AND OFF6D (ID=31)
*S TOTAL AMOUNT OF WATER COLLECTED AT SUMP STA 25+70
ADD HYD 142.10 41&31 42 .00426 12.79 .379 1.67078 1.532 4.695
*S
*S
*S-----
*S-----
*S-----
*S

*S LADERA STORM DRAIN ROUTING
*S-----
*S-----
*S-----
*S

*S ROUTING OF PIPE FLOW FROM OFFSITE (ID=33) TO LADERA STATION 8+25
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----

*S
*S ADD OFFSITE FLOW (ID=33) TO FIRST SET OF INLETS (STA 8+25) ID=34
*S
ADD HYD 144.10 33&34 44 .05912 114.28 4.398 1.39478 1.532 3.020
*S
*S-----
*S-----
*S

*S ROUTING OF PIPE FLOW FROM LADERA STA 8+25 (ID=44) TO CASA VERDE
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----

*S
*S ADD PIPE FLOW (ID=44) TO FLOW FROM CASA VERDE (ID=24)
*S
ADD HYD 146.10 44&24 46 .09063 171.87 6.852 1.41760 1.532 2.963
*S
*S-----
*S-----
*S

*S ROUTING OF PIPE FLOW FROM CASA VERDE (ID=44) TO LADERA STA 15+40
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----

*S
*S ADD PIPE FLOW (ID=46) TO INLETS (ID=38)
*S
ADD HYD 148.10 46&38 48 .09984 185.87 7.403 1.39028 1.532 2.909


```

*S
*S-----
*S-----
*S
*S ROUTING OF PIPE FLOW FROM STA 15+40 (ID=48) TO TIERRA OESTE ESMT PIPE
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----
*S
*S ADD PIPE FLOW (ID=48) TO FLOW FROM EASMENT (ID=20)
*S
ADD HYD          151.10 48&20  51          .10873      204.97      8.106      1.39786      1.532      2.945
*S
*S-----
*S-----
*S
*S ROUTING OF PIPE FLOW FROM TIERRA OESTE ESMT (ID=51) TO AMAFCA EASEMENT
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----
*S
*S EXISTING FLOW FROM LADERA SHOWN ON PARKWAY UNIT 3 PLANS
*S Q(100)=8.1 CFS  FLOW FROM BEEHIVE= 0 CFS
*S

```

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 5 NOTATION
STORE HYD	153.10	-	53	.00010	8.10	.421	79.02897	1.000	126.563	
*S *S----- *S *S ADD EXISTING FLOW TO NEW FLOW FROM SUMP (ID=42) ADD HYD 154.10 42&53 54 .00436 12.79 .760 3.27049 1.532 4.588 *S *S----- *S----- *S *S ROUTING OF PIPE FLOW LADERA SUMP (ID=54) TO AMAFCA EASEMENT *S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME *S *S----- *S *S ADD MAIN LADERA STORM DRAIN AND STORM DRAIN FROM SUMP ADD HYD 156.10 51&54 56 .11309 217.76 8.866 1.47003 1.532 3.009 *S *S----- *S *S ADD BASIN OFF7(ID=26)-RAIN THAT FALLS INTO POND TO STORM DRAIN ADD HYD 157.10 56&26 57 .11439 218.85 8.897 1.45831 1.532 2.989 *S *S----- *S *S TOTAL DISCHARGE TO AMAFCA EASEMENT *S *S----- *S----- *S *S *S OFFSITE FLOW TO I-40 INTERCEPTOR *S BASINS OFF1A,OFF1B,OFF3,OFF4A,OFF4B,OFF8 *S *S----- *S----- *S *S COMPUTE FLOWS CONTRIBUTING TO I-40 INTERCEPTOR *S ASSUMPTIONS: USE FULL BUILDOUT SIX LANE SECTION FOR BASINS OFF4A&B *S *S BASIN OFF1A----- *S COMPUTE NM HYD 160.10 - 60 .01730 37.75 1.283 1.39062 1.499 3.409 PER IMP= 50.00 *S *S BASIN OFF1B----- *S COMPUTE NM HYD 161.10 - 61 .03730 76.09 2.766 1.39062 1.532 3.188 PER IMP= 50.00 *S *S BASIN OFF3----- *S COMPUTE NM HYD 162.10 - 62 .00420 10.89 .396 1.77001 1.499 4.052 PER IMP= 83.00 *S										


```

*S BASIN OFF4A-----
*S
COMPUTE NM HYD      163.10  -   63      .00570      14.78      .538      1.77001      1.499      4.051 PER IMP= 83.00
*S
*S BASIN OFF4B-----
*S
COMPUTE NM HYD      164.10  -   64      .00240      6.23      .227      1.77001      1.499      4.057 PER IMP= 83.00
*S
*S BASIN OFF8-----
*S
COMPUTE NM HYD      165.10  -   65      .05090      78.14      3.775      1.39061      1.632      2.399 PER IMP= 50.00
*S
*S-----
*S
*S ADD BASIN OFF1A AND OFF3
*S
ADD HYD      166.10 60&62  66      .02150      48.64      1.680      1.46470      1.499      3.535
*S
*S-----
*S
*S ROUTE OFF1A AND OFF3 (ID=66) THRU OFF4A (LADERA)
*S ASSUME 6 LANE SECTION
*S

```

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 6 NOTATION
ROUTE	167.10	66	67	.02150	41.05	1.680	1.46473	1.565	2.983	
*S-----										
*S ADD ROUTED OFF1A AND OFF3 TO OFF1B										
ADD HYD	168.10	67&61	68	.05880	115.51	4.446	1.41770	1.532	3.070	
*S-----										
*S ADD ID=68 AND OFF4A										
ADD HYD	169.10	68&63	69	.06450	129.66	4.984	1.44883	1.532	3.141	
*S-----										
*S ADD ID=69 AND OFF4B										
ADD HYD	170.10	69&64	70	.06690	135.63	5.211	1.46035	1.532	3.168	
*S-----										
*S ROUTE COMBINED FLOW (ID=70) THROUGH OFF8 IN 3' DIA. PIPE										
ROUTE	171.10	70	71	.06690	129.01	5.211	1.46035	1.565	3.013	
*S-----										
*S ADD ROUTED FLOW (ID=71) AND OFF8										
*S TOTAL DISCHARGE TO I-40 INTERCEPTOR AT THE BOTTOM OF OFF8										
ADD HYD	171.10	71&65	72	.11780	202.34	8.986	1.43021	1.598	2.684	
*S										
FINISH										

100yr-6hr Detailed Output

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
 RUN DATE (MON/DAY/YR) = 03/04/1996
 START TIME (HR:MIN:SEC) = 15:06:58 USER NO.= CINFRNM.101
 INPUT FILE = tierra.DAT

*S TIERRA OSESTE SUBDIVISION DRAINAGE REVISION DATE: 2/96
 *S Compute 100-Year Flow FN:TIERRA.DAT BY:RGG

*
 *
 *
 *S COMPUTE 100YR-6HR STORM FOR FULLY DEVELOPED CONDITIONS
 *S NO POND

*S
 *S
 START TIME=0.0 CODE 0 LINES -6
 *
 RAINFALL TYPE=-1 RAIN QUATER=0.0 RAIN ONE=1.87
 RAIN SIX=2.20 RAIN DAY=2.66 DT=0.0333

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
 DT = .033300 HOURS END TIME = 5.994000 HOURS

*
 *S
 *S COMPUTE FLOWS FROM INSIDE SUBDIVISION ONLY (OFF2,ON1,ON2 & ON3)
 *S & ROUTE TO LADERA STORM DRAIN

*S
 *S BASIN OFF2-----

*S
 COMPUTE NM HYD ID=1 HYD NO=101.1 DA=0.0077 SQ MI
 PER A=00.0 PER B=25.0 PER C=25.0 PER D=50.0 TP=-.133
 MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 15.234 CFS UNIT VOLUME = .9987 B = 526.28 P60 = 1.8700
 AREA = .003850 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
 UNIT PEAK = 10.267 CFS UNIT VOLUME = .9992 B = 354.67 P60 = 1.8700
 AREA = .003850 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=1 CODE=10

PARTIAL HYDROGRAPH 101.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	8.8	3.330	.1	4.995	.1	6.660	.0
.333	.0	1.998	3.3	3.663	.1	5.328	.1		
.666	.0	2.331	.8	3.996	.1	5.661	.1		
.999	.0	2.664	.3	4.329	.1	5.994	.1		
1.332	3.5	2.997	.2	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.39061 INCHES = .5711 ACRE-FEET
 PEAK DISCHARGE RATE = 16.81 CFS AT 1.499 HOURS BASIN AREA = .0077 SQ. MI.

*S
 *S BASIN ON1A-----

*S
 COMPUTE NM HYD ID=2 HYD NO=102.1 DA=0.0060 SQ MI
 PER A=00.0 PER B=21.0 PER C=21.0 PER D=58.0 TP=-.133
 MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 13.770 CFS UNIT VOLUME = .9986 B = 526.28 P60 = 1.8700
 AREA = .003480 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
 UNIT PEAK = 6.7200 CFS UNIT VOLUME = .9985 B = 354.67 P60 = 1.8700

AREA = .002520 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=10

PARTIAL HYDROGRAPH 102.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	7.1	3.330	.1	4.995	.1	6.660	.0
.333	.0	1.998	2.8	3.663	.1	5.328	.1		
.666	.0	2.331	.6	3.996	.1	5.661	.1		
.999	.0	2.664	.3	4.329	.1	5.994	.1		
1.332	3.1	2.997	.1	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.48259 INCHES = .4744 ACRE-FEET
PEAK DISCHARGE RATE = 13.70 CFS AT 1.499 HOURS BASIN AREA = .0060 SQ. MI.

*S
*S BASIN ON2-----
*S
COMPUTE NM HYD ID=3 HYD NO=103.1 DA=0.0106 SQ MI
PER A=00.0 PER B=21.0 PER C=21.0 PER D=58.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 24.327 CFS UNIT VOLUME = .9990 B = 526.28 P60 = 1.8700
AREA = .006148 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 11.872 CFS UNIT VOLUME = .9993 B = 354.67 P60 = 1.8700
AREA = .004452 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=3 CODE=10

PARTIAL HYDROGRAPH 103.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	12.5	3.330	.1	4.995	.1	6.660	.0
.333	.0	1.998	5.0	3.663	.1	5.328	.1		
.666	.0	2.331	1.1	3.996	.1	5.661	.1		
.999	.0	2.664	.5	4.329	.1	5.994	.1		
1.332	5.5	2.997	.2	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.48259 INCHES = .8382 ACRE-FEET
PEAK DISCHARGE RATE = 24.18 CFS AT 1.499 HOURS BASIN AREA = .0106 SQ. MI.

*S
*S BASIN ON3-----
*S
COMPUTE NM HYD ID=4 HYD NO=104.1 DA=0.0083 SQ MI
PER A=00.0 PER B=21.0 PER C=21.0 PER D=58.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 19.049 CFS UNIT VOLUME = .9988 B = 526.28 P60 = 1.8700
AREA = .004814 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 9.2960 CFS UNIT VOLUME = .9989 B = 354.67 P60 = 1.8700
AREA = .003486 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=4 CODE=10

PARTIAL HYDROGRAPH 104.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	9.8	3.330	.1	4.995	.1	6.660	.0
.333	.0	1.998	3.9	3.663	.1	5.328	.1		
.666	.0	2.331	.9	3.996	.1	5.661	.1		
.999	.0	2.664	.4	4.329	.1	5.994	.1		
1.332	4.3	2.997	.2	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.48259 INCHES = .6563 ACRE-FEET
 PEAK DISCHARGE RATE = 18.94 CFS AT 1.499 HOURS BASIN AREA = .0083 SQ. MI.

*S
 *S BASIN ON1B-----
 *S
 COMPUTE NM HYD ID=5 HYD NQ=105.1 DA=0.0078 SQ MI
 PER A=00.0 PER B=21.0 PER C=21.0 PER D=58.0 TP=-.133
 MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 17.901 CFS UNIT VOLUME = .9988 B = 526.28 P60 = 1.8700
 AREA = .004524 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
 UNIT PEAK = 8.7360 CFS UNIT VOLUME = .9989 B = 354.67 P60 = 1.8700
 AREA = .003276 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=5 CODE=10

PARTIAL HYDROGRAPH 105.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	9.2	3.330	.1	4.995	.1	6.660	.0
.333	.0	1.998	3.6	3.663	.1	5.328	.1		
.666	.0	2.331	.8	3.996	.1	5.661	.1		
.999	.0	2.664	.3	4.329	.1	5.994	.1		
1.332	4.0	2.997	.2	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.48259 INCHES = .6168 ACRE-FEET
 PEAK DISCHARGE RATE = 17.80 CFS AT 1.499 HOURS BASIN AREA = .0078 SQ. MI.

*S
 *S-----
 *S ROUTE BASIN OFF2 THRU ON1A
 *S
 *

COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
 MIN ELEV=00.0 MAX ELEV=0.943
 CH SLP=.0200 FL SLP=.0200
 N=.017 DIST=50.0

DIST	ELEV	DIST	ELEV	DIST	ELEV
0.0	0.84	8.37	0.67	8.83	0.67
9.00	0.00	11.00	0.125	25.0	0.41
		39.0	0.125	41.0	0.000
41.63	0.67	50.0	0.84		

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.05	.04	.04	1.61
.10	.16	.26	3.23
.15	.38	.69	6.42
.20	.82	1.73	11.32
.25	1.50	3.74	16.23
.30	2.43	7.00	21.13
.35	3.60	11.74	26.03
.40	5.01	18.18	30.93
.45	6.60	27.97	32.23

.50	8.20	40.07	32.25
.55	9.81	53.83	32.28
.60	11.41	69.13	32.30
.65	13.01	85.90	32.33
.69	14.67	98.30	35.71
.74	16.56	110.73	40.59
.79	18.70	125.87	45.48
.84	21.08	144.46	50.00
.89	23.56	173.90	50.00
.94	26.04	205.49	50.00

COMPUTE TRAVEL TIME ID=6 REACH=1 NOVS=1 L=690. SLP=.0200

TRAVEL TIME TABLE
 REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.050	.040	.04	.1882
.099	.160	.26	.1186
.149	.379	.69	.1048
.199	.820	1.73	.0909
.248	1.503	3.74	.0770
.298	2.430	7.00	.0665
.347	3.600	11.74	.0588
.397	5.014	18.18	.0529
.447	6.605	27.97	.0453
.496	8.205	40.07	.0392
.546	9.806	53.83	.0349
.596	11.409	69.13	.0316
.645	13.012	85.90	.0290
.695	14.671	98.30	.0286
.744	16.564	110.73	.0287
.794	18.700	125.87	.0285
.844	21.078	144.46	.0280
.893	23.559	173.90	.0260
.943	26.041	205.49	.0243

ROUTE ID=6 HYD=106.1 INFLOW ID=1
 PRINT HYD ID=6 CODE=10

PARTIAL HYDROGRAPH 106.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	10.8	3.330	.1	4.995	.1	6.660	.0
.333	.0	1.998	3.8	3.663	.1	5.328	.1	6.993	.0
.666	.0	2.331	1.1	3.996	.1	5.661	.1		
.999	.0	2.664	.4	4.329	.1	5.994	.1		
1.332	1.5	2.997	.2	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.39064 INCHES = .5711 ACRE-FEET
 PEAK DISCHARGE RATE = 15.17 CFS AT 1.565 HOURS BASIN AREA = .0077 SQ. MI.

*S

 *S
 *S ADD ON1A TO ROUTED OFF2-FLOW TO BE INTERCPETED BY INLETS @ CASA ROJA
 *S & CASA MORENA
 *S
 ADD HYD ID=7 HYD=107.1 ID I=2 ID II=6
 PRINT HYD ID=7 CODE=10

PARTIAL HYDROGRAPH 107.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	17.9	3.330	.2	4.995	.1	6.660	.0
.333	.0	1.998	6.6	3.663	.1	5.328	.1	6.993	.0
.666	.0	2.331	1.8	3.996	.1	5.661	.1		
.999	.0	2.664	.7	4.329	.1	5.994	.1		
1.332	4.6	2.997	.3	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.43086 INCHES = 1.0455 ACRE-FEET
 PEAK DISCHARGE RATE = 28.35 CFS AT 1.532 HOURS BASIN AREA = .0137 SQ. MI.

*S

*S
*S INLETS ON CASA ROJA @ CASA MORENA RECIEVED 14.0 CFS-
*S ID=8 IS FLOW INTO PIPE ID=9 BYPASS FLOW
*S
DIVIDE HYD ID=7 Q=14.0 ID I=8 HYD I=108.1
ID II=9 HYD II=109.1

*S
*S
*S ROUTE BYPASS FLOW FROM INLETS (ID=9) THRU ON1B TO INLETS ON CASA ROJA
*S @ CASA NEGRA
*S
COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
MIN ELEV=00.0 MAX ELEV=0.943
CH SLP=.0200 FL SLP=.0200
N=.017 DIST=50.0

	DIST	ELEV	DIST	ELEV	DIST	ELEV
0.0	0.84	8.37	0.67	8.83	0.67	
9.00	0.00	11.00	0.125	25.0	0.41	
		39.0	0.125	41.0	0.000	41.17 0.67
41.63	0.67	50.0	0.84			

RATING CURVE VALLEY SECTION 1.0				
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT	
.00	.00	.00	.00	
.05	.04	.04	1.61	
.10	.16	.26	3.23	
.15	.38	.69	6.42	
.20	.82	1.73	11.32	
.25	1.50	3.74	16.23	
.30	2.43	7.00	21.13	
.35	3.60	11.74	26.03	
.40	5.01	18.18	30.93	
.45	6.60	27.97	32.23	
.50	8.20	40.07	32.25	
.55	9.81	53.83	32.28	
.60	11.41	69.13	32.30	
.65	13.01	85.90	32.33	
.69	14.67	98.30	35.71	
.74	16.56	110.73	40.59	
.79	18.70	125.87	45.48	
.84	21.08	144.46	50.00	
.89	23.56	173.90	50.00	
.94	26.04	205.49	50.00	

COMPUTE TRAVEL TIME ID=10 REACH=1 NOVS=1 L=260. SLP=.0202

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.050	.040	.04	.0709
.099	.160	.26	.0447
.149	.379	.69	.0395
.199	.820	1.73	.0343
.248	1.503	3.74	.0290
.298	2.430	7.00	.0251
.347	3.600	11.74	.0222
.397	5.014	18.18	.0199
.447	6.605	27.97	.0171
.496	8.205	40.07	.0148
.546	9.806	53.83	.0132
.596	11.409	69.13	.0119
.645	13.012	85.90	.0109
.695	14.671	98.30	.0108
.744	16.564	110.73	.0108
.794	18.700	125.87	.0107
.844	21.078	144.46	.0105
.893	23.559	173.90	.0098
.943	26.041	205.49	.0092

ROUTE ID=10 HYD=110.1 INFLOW ID=9

PRINT HYD

ID=10 CODE=10

PARTIAL HYDROGRAPH 110.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.666	.0	1.332	.0	1.998	.0		
.333	.0	.999	.0	1.665	5.5	2.331	.0		

RUNOFF VOLUME = 1.43280 INCHES = .2036 ACRE-FEET
PEAK DISCHARGE RATE = 13.91 CFS AT 1.532 HOURS BASIN AREA = .0027 SQ. MI.

*S

*S

*S ADD ON1B TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ CASA ROJA

*S & CASA NEGRA

*S

ADD HYD ID=11 HYD=111.1 ID I=5 ID II=10

PRINT HYD ID=11 CODE=10

PARTIAL HYDROGRAPH 111.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	14.7	3.330	.1	4.995	.1	6.660	.0
.333	.0	1.998	3.7	3.663	.1	5.328	.1		
.666	.0	2.331	.8	3.996	.1	5.661	.1		
.999	.0	2.664	.3	4.329	.1	5.994	.1		
1.332	4.0	2.997	.2	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.46984 INCHES = .8203 ACRE-FEET
PEAK DISCHARGE RATE = 31.09 CFS AT 1.532 HOURS BASIN AREA = .0105 SQ. MI.

*S

*S INLETS ON CASA ROJA @ CASA NEGRA RECIEVED 14.4 CFS

*S ID=12 IS FLOW INTO STORM DRAIN SYSTEM ID=13 BYPASS FLOW ON SURFACE

*S

DIVIDE HYD ID=11 Q=14.4 ID I=12 HYD I=112.1
ID II=13 HYD II=113.1

*S

*S ROUTE BYPASS FLOW FROM INLETS (ID=13) THRU ON2 TO INLETS ON CASA ROJA

*S @ CASA VERDE

*S

COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
MIN ELEV=00.0 MAX ELEV=0.943
CH SLP=.0200 FL SLP=.0200
N=.017 DIST=50.0
DIST ELEV DIST ELEV DIST ELEV
0.0 0.84 8.37 0.67 8.83 0.67
9.00 0.00 11.00 0.125 25.0 0.41
39.0 0.125 41.0 0.000 41.17 0.67
41.63 0.67 50.0 0.84

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.05	.04	.04	1.61
.10	.16	.26	3.23
.15	.38	.69	6.42
.20	.82	1.73	11.32
.25	1.50	3.74	16.23
.30	2.43	7.00	21.13
.35	3.60	11.74	26.03
.40	5.01	18.18	30.93
.45	6.60	27.97	32.23
.50	8.20	40.07	32.25
.55	9.81	53.83	32.28
.60	11.41	69.13	32.30

.65	13.01	85.90	32.33
.69	14.67	98.30	35.71
.74	16.56	110.73	40.59
.79	18.70	125.87	45.48
.84	21.08	144.46	50.00
.89	23.56	173.90	50.00
.94	26.04	205.49	50.00

COMPUTE TRAVEL TIME ID=14 REACH=1 NOVS=1 L=400 SLP=.0202

TRAVEL TIME TABLE
 REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.050	.040	.04	.1091
.099	.160	.26	.0687
.149	.379	.69	.0607
.199	.820	1.73	.0527
.248	1.503	3.74	.0446
.298	2.430	7.00	.0386
.347	3.600	11.74	.0341
.397	5.014	18.18	.0306
.447	6.605	27.97	.0262
.496	8.205	40.07	.0227
.546	9.806	53.83	.0202
.596	11.409	69.13	.0183
.645	13.012	85.90	.0168
.695	14.671	98.30	.0166
.744	16.564	110.73	.0166
.794	18.700	125.87	.0165
.844	21.078	144.46	.0162
.893	23.559	173.90	.0151
.943	26.041	205.49	.0141

ROUTE ID=14 HYD=114.1 INFLOW ID=13
 PRINT HYD ID=14 CODE=10

PARTIAL HYDROGRAPH 114.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.666	.0	1.332	.0	1.998	.0		
.333	.0	.999	.0	1.665	4.0	2.331	.0		

RUNOFF VOLUME = 1.47207 INCHES = .1818 ACRE-FEET
 PEAK DISCHARGE RATE = 15.34 CFS AT 1.565 HOURS BASIN AREA = .0023 SQ. MI.

*S

 *S
 *S ADD ON2 TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ CASA ROJA
 *S & CASA VERDE
 *S
 ADD HYD ID=15 HYD=115.1 ID I=3 ID II=14
 PRINT HYD ID=15 CODE=10

PARTIAL HYDROGRAPH 115.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	16.5	3.330	.1	4.995	.1	6.660	.0
.333	.0	1.998	5.0	3.663	.1	5.328	.1		
.666	.0	2.331	1.1	3.996	.1	5.661	.1		
.999	.0	2.664	.5	4.329	.1	5.994	.1		
1.332	5.5	2.997	.2	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.48065 INCHES = 1.0199 ACRE-FEET
 PEAK DISCHARGE RATE = 36.87 CFS AT 1.532 HOURS BASIN AREA = .0129 SQ. MI.

*S

 *S
 *S INLETS ON CASA ROJA @ CASA VERDE RECIEVED 29.19 CFS

*S ID=16 IS FLOW INTO STORM DRAIN SYSTEM ID=17 BYPASS FLOW ON SURFACE
 *S
 DIVIDE HYD ID=15 Q=29.19 ID I=16 HYD I=116.1
 ID II=17 HYD II=117.1

*S
 *S-----
 *S ROUTE BYPASS FLOW FROM INLETS (ID=17) THRU ON3 TO END OF 50'
 *S RIGHT OF WAY ENDING AT CASA AZUL
 *

COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
 MIN ELEV=00.0 MAX ELEV=0.943
 CH SLP=.0200 FL SLP=.0200
 N=.017 DIST=50.0
 DIST ELEV DIST ELEV DIST ELEV
 0.0 0.84 8.37 0.67 8.83 0.67
 9.00 0.00 11.00 0.125 25.0 0.41
 39.0 0.125 41.0 0.000 41.17 0.67
 41.63 0.67 50.0 0.84

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.05	.04	.04	1.61
.10	.16	.26	3.23
.15	.38	.69	6.42
.20	.82	1.73	11.32
.25	1.50	3.74	16.23
.30	2.43	7.00	21.13
.35	3.60	11.74	26.03
.40	5.01	18.18	30.93
.45	6.60	27.97	32.23
.50	8.20	40.07	32.25
.55	9.81	53.83	32.28
.60	11.41	69.13	32.30
.65	13.01	85.90	32.33
.69	14.67	98.30	35.71
.74	16.56	110.73	40.59
.79	18.70	125.87	45.48
.84	21.08	144.46	50.00
.89	23.56	173.90	50.00
.94	26.04	205.49	50.00

COMPUTE TRAVEL TIME ID=18 REACH=1 NOVS=1 L=225. SLP=.0202,

TRAVEL TIME TABLE
 REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.050	.040	.04	.0614
.099	.160	.26	.0387
.149	.379	.69	.0342
.199	.820	1.73	.0297
.248	1.503	3.74	.0251
.298	2.430	7.00	.0217
.347	3.600	11.74	.0192
.397	5.014	18.18	.0172
.447	6.605	27.97	.0148
.496	8.205	40.07	.0128
.546	9.806	53.83	.0114
.596	11.409	69.13	.0103
.645	13.012	85.90	.0095
.695	14.671	98.30	.0093
.744	16.564	110.73	.0093
.794	18.700	125.87	.0093
.844	21.078	144.46	.0091
.893	23.559	173.90	.0085
.943	26.041	205.49	.0079

ROUTE ID=18 HYD=118.1 INFLOW ID=17
 PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 599 RATE = .00
 PRINT HYD ID=18 CODE=10

PARTIAL HYDROGRAPH 118.10

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW

HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	.666	.0	1.332	.0	1.998	.0		
.333	.0	.999	.0	1.665	.3	2.331	.0		

RUNOFF VOLUME = 1.48935 INCHES = .0471 ACRE-FEET
 PEAK DISCHARGE RATE = 7.21 CFS AT 1.565 HOURS BASIN AREA = .0006 SQ. MI.

*S
 *S-----
 *S ROUTE BYPASS FLOW FROM INLETS (ID=18) THRU ON3 FROM END OF 50'
 *S RIGHT OF WAY ENDING AT CASA AZUL TO NORTH END OF CASA ROJA
 *S (CUL-DE-SAC)
 *

COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
 MIN ELEV=00.0 MAX ELEV=0.943
 CH SLP=.0256 FL SLP=.0256
 N=.017 DIST=46.0
 DIST ELEV DIST ELEV DIST ELEV
 0.0 0.84 8.87 0.67 9.33 0.67
 9.5 0.00 11.5 0.125 25.0 0.36
 34.5 0.125 36.5 0.000 36.67 0.67
 37.13 0.67 46.0 0.84

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.05	.04	.05	1.61
.10	.16	.29	3.23
.15	.38	.79	6.41
.20	.82	1.95	11.30
.25	1.50	4.23	16.18
.30	2.42	7.91	21.06
.35	3.59	13.25	25.95
.40	4.93	21.77	27.20
.45	6.28	32.50	27.23
.50	7.64	44.87	27.25
.55	8.99	58.75	27.28
.60	10.34	74.05	27.30
.65	11.70	90.70	27.33
.69	13.11	101.34	30.85
.74	14.77	111.82	36.03
.79	16.69	125.60	41.21
.84	18.86	143.39	46.00
.89	21.14	173.47	46.00
.94	23.43	205.80	46.00

COMPUTE TRAVEL TIME ID=19 REACH=1 NOVS=1 L=525. SLP=.0256

TRAVEL TIME TABLE
 REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.050	.040	.05	.1266
.099	.160	.29	.0798
.149	.379	.79	.0704
.199	.819	1.95	.0611
.248	1.501	4.23	.0517
.298	2.425	7.91	.0447
.347	3.591	13.25	.0395
.397	4.933	21.77	.0330
.447	6.284	32.50	.0282
.496	7.636	44.87	.0248
.546	8.989	58.75	.0223
.596	10.343	74.05	.0204
.645	11.699	90.70	.0188
.695	13.111	101.34	.0189
.744	14.770	111.82	.0193
.794	16.687	125.60	.0194
.844	18.860	143.39	.0192
.893	21.143	173.47	.0178
.943	23.427	205.80	.0166

ROUTE ID=19 HYD=119.1 INFLOW ID=18

PRINT HYD ID=19 CODE=10

PARTIAL HYDROGRAPH 119.10

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	.666	.0	1.332	.0	1.998	.1	2.664	.0
.333	.0	.999	.0	1.665	1.8	2.331	.0		

RUNOFF VOLUME = 1.48935 INCHES = .0471 ACRE-FEET
PEAK DISCHARGE RATE = 4.61 CFS AT 1.598 HOURS BASIN AREA = .0006 SQ. MI.

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*S
*S ADD ON3 TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ NORTH END
*S OF CASA ROJA
*S
ADD HYD ID=20 HYD=120.1 ID I=4 ID II=19
PRINT HYD ID=20 CODE=10

PARTIAL HYDROGRAPH 120.10

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	1.665	11.6	3.330	.1	4.995	.1	6.660	.0
.333	.0	1.998	3.9	3.663	.1	5.328	.1		
.666	.0	2.331	.9	3.996	.1	5.661	.1		
.999	.0	2.664	.4	4.329	.1	5.994	.1		
1.332	4.3	2.997	.2	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.48296 INCHES = .7033 ACRE-FEET
PEAK DISCHARGE RATE = 19.31 CFS AT 1.565 HOURS BASIN AREA = .0089 SQ. MI.

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*S ROUTE STORM DRAIN IN SUBDIVISION
*S
*S-----
*S
*S ROUTING OF PIPE FLOW FROM FIRST OF INLETS (ID=8) TO SECOND SET OF INLETS
*S (ID=12) NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----
*S
*S ADD FIRST SET OF INLETS (ID=8) TO SECOND SET OF INLETS (ID=12)
*S
ADD HYD ID=22 HYD=122.1 ID I=8 ID II=12
PRINT HYD ID=22 CODE=10

PARTIAL HYDROGRAPH 122.10

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	1.665	28.4	3.330	.3	4.995	.2	6.660	.0
.333	.0	1.998	10.3	3.663	.2	5.328	.2	6.993	.0
.666	.0	2.331	2.6	3.996	.2	5.661	.2		
.999	.0	2.664	1.0	4.329	.2	5.994	.2		
1.332	8.6	2.997	.5	4.662	.2	6.327	.1		

RUNOFF VOLUME = 1.44742 INCHES = 1.4809 ACRE-FEET
PEAK DISCHARGE RATE = 28.40 CFS AT 1.465 HOURS BASIN AREA = .0192 SQ. MI.

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*S
*S ROUTING OF PIPE FLOW FROM 2 SETS OF INLETS (ID=22) TO THIRD SET OF INLETS

*S (ID=16) NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

*S

*S-----

*S

*S ADD FIRST TWO SETS INLETS (ID=22) TO THIRD SET OF INLETS (ID=16)

*S

ADD HYD ID=24 HYD=124.1 ID I=22 ID II=16

PRINT HYD ID=24 CODE=10

PARTIAL HYDROGRAPH 124.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	44.9	3.330	.5	4.995	.3	6.660	.0
.333	.0	1.998	15.3	3.663	.3	5.328	.3	6.993	.0
.666	.0	2.331	3.7	3.996	.3	5.661	.3		
.999	.0	2.664	1.5	4.329	.3	5.994	.4		
1.332	14.1	2.997	.7	4.662	.3	6.327	.1		

RUNOFF VOLUME = 1.46041 INCHES = 2.4541 ACRE-Feet
PEAK DISCHARGE RATE = 57.59 CFS AT 1.499 HOURS BASIN AREA = .0315 SQ. MI.

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*S ROUTING OF PIPE FLOW FROM 3 SETS OF INLETS (ID=24) TO LADERA STORM DRAIN

*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

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*S ROUTING OF PIPE FLOW FROM CUL-DE-SAC ON CASA ROJA (ID=20) TO LADERA STORM

*S DRAIN NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

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*S

*S LADERA STORM DRAIN

*S

*S-----

*S-----

*S

*S COMPUTE FLOWS CONTRIBUTING TO LADERA STORM DRAIN

*S ASSUMPTIONS: USE FULL BUILDOUT SIX LANE SECTION

*S

*S BASIN OFF7-----

*S

COMPUTE NM HYD ID=26 HYD NO=126.1 DA=0.0013 SQ MI
PER A=100. PER B=0.00 PER C=0.00 PER D=0.00 TP=-.133
MASS RAINFALL=-1

K = .163315HR TP = .133000HR K/TP RATIO = 1.227936 SHAPE CONSTANT, N = 2.899764
UNIT PEAK = 2.6737 CFS UNIT VOLUME = .9942 B = 273.54 P60 = 1.8700
AREA = .001300 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=26 CODE=10

PARTIAL HYDROGRAPH 126.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.999	.0	1.998	.1	2.997	.0		
.333	.0	1.332	.0	2.331	.1	3.330	.0		
.666	.0	1.665	.6	2.664	.0				

RUNOFF VOLUME = .43919 INCHES = .0305 ACRE-Feet
PEAK DISCHARGE RATE = 1.09 CFS AT 1.532 HOURS BASIN AREA = .0013 SQ. MI.

*S

*S BASIN OFF5-----

*S

COMPUTE NM HYD

ID=27 HYD NO=127.1 DA=0.0033 SQ MI
PER A=00.0 PER B=8.50 PER C=8.50 PER D=83.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 10.838 CFS UNIT VOLUME = .9983 B = 526.28 P60 = 1.8700
AREA = .002739 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 1.4960 CFS UNIT VOLUME = .9915 B = 354.67 P60 = 1.8700
AREA = .000561 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD

ID=27 CODE=10

PARTIAL HYDROGRAPH 127.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	4.4	3.330	.1	4.995	.0	6.660	.0
.333	.0	1.998	2.0	3.663	.0	5.328	.0		
.666	.0	2.331	.4	3.996	.0	5.661	.1		
.999	.0	2.664	.2	4.329	.0	5.994	.1		
1.332	2.4	2.997	.1	4.662	.0	6.327	.0		

RUNOFF VOLUME = 1.77001 INCHES = .3115 ACRE-FEET
PEAK DISCHARGE RATE = 8.56 CFS AT 1.499 HOURS BASIN AREA = .0033 SQ. MI.

*S

*S BASIN OFF6A-----

*S

COMPUTE NM HYD

ID=28 HYD NO=128.1 DA=0.0062 SQ MI
PER A=48.5 PER B=4.25 PER C=4.25 PER D=43.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 10.549 CFS UNIT VOLUME = .9983 B = 526.28 P60 = 1.8700
AREA = .002666 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .156582HR TP = .133000HR K/TP RATIO = 1.177309 SHAPE CONSTANT, N = 3.013793
UNIT PEAK = 7.5182 CFS UNIT VOLUME = .9979 B = 282.94 P60 = 1.8700
AREA = .003534 SQ MI IA = .61645 INCHES INF = 1.57605 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD

ID=28 CODE=10

PARTIAL HYDROGRAPH 128.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	5.6	3.330	.1	4.995	.0	6.660	.0
.333	.0	1.998	2.2	3.663	.1	5.328	.0		
.666	.0	2.331	.5	3.996	.0	5.661	.0		
.999	.0	2.664	.2	4.329	.0	5.994	.1		
1.332	2.3	2.997	.1	4.662	.0	6.327	.0		

RUNOFF VOLUME = 1.12114 INCHES = .3707 ACRE-FEET
PEAK DISCHARGE RATE = 10.68 CFS AT 1.499 HOURS BASIN AREA = .0062 SQ. MI.

*S

*S BASIN OFF6B-----

*S

COMPUTE NM HYD

ID=29 HYD NO=129.1 DA=0.0074 SQ MI
PER A=48.5 PER B=4.25 PER C=4.25 PER D=43.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 12.591 CFS UNIT VOLUME = .9985 B = 526.28 P60 = 1.8700

AREA = .003182 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .156582HR TP = .133000HR K/TP RATIO = 1.177309 SHAPE CONSTANT, N = 3.013793
UNIT PEAK = 8.9734 CFS UNIT VOLUME = .9982 B = 282.94 P60 = 1.8700
AREA = .004218 SQ MI IA = .61645 INCHES INF = 1.57605 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=29 CODE=10

PARTIAL HYDROGRAPH 129.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	6.7	3.330	.1	4.995	.1	6.660	.0
.333	.0	1.998	2.6	3.663	.1	5.328	.1		
.666	.0	2.331	.6	3.996	.1	5.661	.1		
.999	.0	2.664	.3	4.329	.1	5.994	.1		
1.332	2.7	2.997	.1	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.12114 INCHES = .4425 ACRE-FEET
PEAK DISCHARGE RATE = 12.75 CFS AT 1.499 HOURS BASIN AREA = .0074 SQ. MI.

*S
*S BASIN OFF6C-----

*S
COMPUTE NM HYD ID=30 HYD NO=130.1 DA=0.0018 SQ MI
PER A=0.00 PER B=8.50 PER C=8.50 PER D=83.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 5.9117 CFS UNIT VOLUME = .9973 B = 526.28 P60 = 1.8700
AREA = .001494 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = .81600 CFS UNIT VOLUME = .9847 B = 354.67 P60 = 1.8700
AREA = .000306 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=30 CODE=10

PARTIAL HYDROGRAPH 130.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	1.3	2.664	.1	3.996	.0	5.328	.0
.333	.0	1.665	2.4	2.997	.0	4.329	.0	5.661	.0
.666	.0	1.998	1.1	3.330	.0	4.662	.0	5.994	.0
.999	.0	2.331	.2	3.663	.0	4.995	.0	6.327	.0

RUNOFF VOLUME = 1.77001 INCHES = .1699 ACRE-FEET
PEAK DISCHARGE RATE = 4.68 CFS AT 1.499 HOURS BASIN AREA = .0018 SQ. MI.

*S
*S BASIN OFF6D-----

*S
COMPUTE NM HYD ID=31 HYD NO=131.1 DA=0.0018 SQ MI
PER A=00.0 PER B=8.50 PER C=8.50 PER D=83.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 5.9117 CFS UNIT VOLUME = .9973 B = 526.28 P60 = 1.8700
AREA = .001494 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = .81600 CFS UNIT VOLUME = .9847 B = 354.67 P60 = 1.8700
AREA = .000306 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=31 CODE=10

PARTIAL HYDROGRAPH 131.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	1.3	2.664	.1	3.996	.0	5.328	.0
.333	.0	1.665	2.4	2.997	.0	4.329	.0	5.661	.0
.666	.0	1.998	1.1	3.330	.0	4.662	.0	5.994	.0
.999	.0	2.331	.2	3.663	.0	4.995	.0	6.327	.0

RUNOFF VOLUME = 1.77001 INCHES = .1699 ACRE-FEET
PEAK DISCHARGE RATE = 4.68 CFS AT 1.499 HOURS BASIN AREA = .0018 SQ. MI.

*S

*S BASIN OFF1C-----

*S

COMPUTE NM HYD ID=32 HYD NO=132.1 DA=0.05209 SQ MI
PER A=00.0 PER B=25.0 PER C=25.0 PER D=50.0 TP=-.160
MASS RAINFALL=-1

K = .087200HR TP = .160000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 85.668 CFS UNIT VOLUME = .9994 B = 526.28 P60 = 1.8700
AREA = .026045 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .142151HR TP = .160000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 57.733 CFS UNIT VOLUME = .9998 B = 354.67 P60 = 1.8700
AREA = .026045 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=32 CODE=10

PARTIAL HYDROGRAPH 132.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	67.0	3.330	.8	4.995	.4	6.660	.0
.333	.0	1.998	24.1	3.663	.6	5.328	.5	6.993	.0
.666	.0	2.331	6.6	3.996	.5	5.661	.5	7.326	.0
.999	.0	2.664	2.8	4.329	.4	5.994	.5		
1.332	16.8	2.997	1.4	4.662	.4	6.327	.1		

RUNOFF VOLUME = 1.39062 INCHES = 3.8633 ACRE-FEET
PEAK DISCHARGE RATE = 103.28 CFS AT 1.532 HOURS BASIN AREA = .0521 SQ. MI.

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*S ADD OFF5 AND OFF1C
*S ASSUME THIS FLOW IS IN LADERA STORM DRAIN WITH NO BYPASS ON THE ROAD

*S

ADD HYD ID=33 HYD=133.1 ID I=27 ID II=32
PRINT HYD ID=33 CODE=10

PARTIAL HYDROGRAPH 133.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	71.4	3.330	.9	4.995	.5	6.660	.0
.333	.0	1.998	26.1	3.663	.6	5.328	.5	6.993	.0
.666	.0	2.331	7.0	3.996	.5	5.661	.5	7.326	.0
.999	.0	2.664	3.0	4.329	.5	5.994	.6		
1.332	19.2	2.997	1.5	4.662	.5	6.327	.1		

RUNOFF VOLUME = 1.41321 INCHES = 4.1748 ACRE-FEET
PEAK DISCHARGE RATE = 111.48 CFS AT 1.532 HOURS BASIN AREA = .0554 SQ. MI.

*S

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 *S-----
 *S ROAD ROUTING FOR LADERA DRIVE AND DIVIDE OFF FLOW BY INLETS
 *S-----
 *-----

*S
 *S INLETS ON LADERA DRIVE (STA 8+25) RECIEVED 2.80 CFS
 *S ID=34 IS INTO STORM DRAIN SYSTEM ID=35 BYPASS FLOW ON SURFACE
 *S
 DIVIDE HYD ID=28 Q=2.80 ID I=34 HYD I=134.1
 ID II=35 HYD II=135.1

*S
 *S-----
 *S
 *S ROUTE BYPASS (ID=35) THRU OFF68
 *S DOWN LADERA-ASSUME 6 LANE SECTION
 *S

COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
 MIN ELEV=00.0 MAX ELEV=0.857
 CH SLP=.0281 FL SLP=.0281
 N=.017 DIST=106.
 DIST ELEV DIST ELEV DIST ELEV
 0.0 0.857 9.37 0.67 9.83 0.67
 10.0 0.00 12.00 0.125 47.0 1.07
 47.12 1.57 58.88 1.570 59.00 1.07
 94.00 0.125 97.0 0.00 97.17 0.67
 97.63 0.667 106.0 0.857

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.05	.04	.05	1.83
.09	.16	.30	3.65
.14	.37	.85	5.83
.18	.71	1.85	9.20
.23	1.20	3.62	12.56
.27	1.84	6.31	15.92
.32	2.64	10.09	19.29
.36	3.58	15.11	22.65
.41	4.68	21.52	26.02
.45	5.93	29.44	29.38
.50	7.33	39.00	32.74
.54	8.89	50.33	36.11
.59	10.59	63.56	39.47
.63	12.45	78.78	42.84
.68	14.46	94.05	47.87
.72	16.79	109.58	55.46
.77	19.47	128.86	63.05
.81	22.48	152.04	70.63
.86	25.84	179.29	78.22

COMPUTE TRAVEL TIME ID=36 REACH=1 NOVS=1 L=820.67 SLP=.0281

TRAVEL TIME TABLE
 REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.045	.041	.05	.2000
.090	.165	.30	.1260
.135	.373	.85	.0997
.180	.712	1.85	.0875
.226	1.202	3.62	.0758
.271	1.845	6.31	.0666
.316	2.639	10.09	.0596
.361	3.585	15.11	.0541
.406	4.682	21.52	.0496
.451	5.932	29.44	.0459
.496	7.333	39.00	.0429
.541	8.886	50.33	.0402
.586	10.590	63.56	.0380
.631	12.447	78.78	.0360
.677	14.465	94.05	.0351
.722	16.795	109.58	.0349
.767	19.467	128.86	.0344

ROUTE ID=36 HYD=136.1 INFLOW ID=35
 PRINT HYD ID=36 CODE=10

PARTIAL HYDROGRAPH 136.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.666	.0	1.332	.0	1.998	.3	2.664	.0
.333	.0	.999	.0	1.665	4.3	2.331	.0	2.997	.0

RUNOFF VOLUME = 1.12318 INCHES = .1480 ACRE-Feet
 PEAK DISCHARGE RATE = 6.66 CFS AT 1.565 HOURS BASIN AREA = .0025 SQ. MI.

*S
 *S-----
 *S
 *S ADD ROUTED BYPASS (ID=36) AND OFF6B (ID=29)
 *S
 ADD HYD ID=37 HYD=137.1 ID I=36 ID II=29
 PRINT HYD ID=37 CODE=10

PARTIAL HYDROGRAPH 137.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	11.1	3.330	.1	4.995	.1	6.660	.0
.333	.0	1.998	2.8	3.663	.1	5.328	.1		
.666	.0	2.331	.7	3.996	.1	5.661	.1		
.999	.0	2.664	.3	4.329	.1	5.994	.1		
1.332	2.7	2.997	.1	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.12158 INCHES = .5905 ACRE-Feet
 PEAK DISCHARGE RATE = 18.77 CFS AT 1.532 HOURS BASIN AREA = .0099 SQ. MI.

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 *S
 *S INLETS ON LADERA DRIVE (STA 15+40) RECIEVED 14.0 CFS
 *S (5.6 CFS IN EXISTING INLETS - 7.4 CFS IN PROPOSED INLETS)
 *S ID=38 IS FLOW INTO STORM DRAIN SYSTEM ID=39 BYPASS FLOW ON SURFACE
 *S
 DIVIDE HYD ID=37 Q=14.0 ID I=38 HYD I=138.1
 ID II=39 HYD II=139.1

*S
 *S-----
 *S
 *S ROUTE BYPASS (ID=39) THRU OFF6C TO BOTTOM OF SUMP STA 25+70
 *S DOWN LADERA-ASSUME 6 LANE SECTION
 *S
 COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
 MIN ELEV=00.0 MAX ELEV=0.857
 CH SLP=.0316 FL SLP=.0316
 N=.017 DIST=106.
 DIST ELEV DIST ELEV DIST ELEV
 0.0 0.857 9.37 0.67 9.83 0.67
 10.0 0.00 12.00 0.125 47.0 1.07
 47.12 1.57 58.88 1.570 59.00 1.07
 94.00 0.125 97.0 0.00 97.17 0.67
 97.63 0.667 106.0 0.857

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.05	.04	.05	1.83
.09	.16	.32	3.65
.14	.37	.90	5.83
.18	.71	1.97	9.20
.23	1.20	3.84	12.56
.27	1.84	6.69	15.92

.32	2.64	10.70	19.29
.36	3.58	16.03	22.65
.41	4.68	22.82	26.02
.45	5.93	31.22	29.38
.50	7.33	41.36	32.74
.54	8.89	53.38	36.11
.59	10.59	67.40	39.47
.63	12.45	83.54	42.84
.68	14.46	99.74	47.87
.72	16.79	116.20	55.46
.77	19.47	136.65	63.05
.81	22.48	161.23	70.63
.86	25.84	190.13	78.22

COMPUTE TRAVEL TIME ID=40 REACH=1 NOVS=1 L=325.00 SLP=.0316

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.045	.041	.05	.0747
.090	.165	.32	.0471
.135	.373	.90	.0373
.180	.712	1.97	.0327
.226	1.202	3.84	.0283
.271	1.845	6.69	.0249
.316	2.639	10.70	.0223
.361	3.585	16.03	.0202
.406	4.682	22.82	.0185
.451	5.932	31.22	.0172
.496	7.333	41.36	.0160
.541	8.886	53.38	.0150
.586	10.590	67.40	.0142
.631	12.447	83.54	.0134
.677	14.465	99.74	.0131
.722	16.795	116.20	.0130
.767	19.467	136.65	.0129
.812	22.482	161.23	.0126
.857	25.839	190.13	.0123

ROUTE ID=40 HYD=140.1 INFLOW ID=39
PRINT HYD ID=40 CODE=10

PARTIAL HYDROGRAPH 140.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.666	.0	1.332	.0	1.998	.0		
.333	.0	.999	.0	1.665	.4	2.331	.0		

RUNOFF VOLUME = 1.12942 INCHES = .0396 ACRE-FEET
PEAK DISCHARGE RATE = 4.27 CFS AT 1.565 HOURS BASIN AREA = .0007 SQ. MI.

*S
*S-----
*S
*S ADD ROUTED BYPASS (ID=40) AND OFF6C (ID=30)
*S
ADD HYD ID=41 HYD=141.1 ID I=40 ID II=30
PRINT HYD ID=41 CODE=10

PARTIAL HYDROGRAPH 141.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	1.3	2.664	.1	3.996	.0	5.328	.0
.333	.0	1.665	2.8	2.997	.0	4.329	.0	5.661	.0
.666	.0	1.998	1.1	3.330	.0	4.662	.0	5.994	.0
.999	.0	2.331	.2	3.663	.0	4.995	.0	6.327	.0

RUNOFF VOLUME = 1.59823 INCHES = .2095 ACRE-FEET
PEAK DISCHARGE RATE = 8.32 CFS AT 1.532 HOURS BASIN AREA = .0025 SQ. MI.

*S
 *S-----
 *S
 *S ADD BYPASS AND OFF6C (ID=41) AND OFF6D (ID=31)
 *S TOTAL AMOUNT OF WATER COLLECTED AT SUMP STA 25+70
 ADD HYD ID=42 HYD=142.1 ID I=41 ID II=31
 PRINT HYD ID=42 CODE=10

PARTIAL HYDROGRAPH 142.10

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	1.332	2.6	2.664	.2	3.996	.0	5.328	.1
.333	.0	1.665	5.2	2.997	.1	4.329	.0	5.661	.1
.666	.0	1.998	2.2	3.330	.1	4.662	.0	5.994	.1
.999	.0	2.331	.5	3.663	.1	4.995	.0	6.327	.0

RUNOFF VOLUME = 1.67078 INCHES = .3794 ACRE-FEET
 PEAK DISCHARGE RATE = 12.79 CFS AT 1.532 HOURS BASIN AREA = .0043 SQ. MI.

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 *S-----
 *S LADERA STORM DRAIN ROUTING
 *S-----
 *S-----
 *S-----
 *S
 *S ROUTING OF PIPE FLOW FROM OFFSITE (ID=33) TO LADERA STATION 8+25
 *S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S
 *S-----
 *S
 *S ADD OFFSITE FLOW (ID=33) TO FIRST SET OF INLETS (STA 8+25) ID=34
 *S
 ADD HYD ID=44 HYD=144.1 ID I=33 ID II=34
 PRINT HYD ID=44 CODE=10

PARTIAL HYDROGRAPH 144.10

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	1.665	74.2	3.330	1.0	4.995	.5	6.660	.0
.333	.0	1.998	28.2	3.663	.7	5.328	.5	6.993	.0
.666	.0	2.331	7.5	3.996	.6	5.661	.6	7.326	.0
.999	.0	2.664	3.2	4.329	.5	5.994	.6		
1.332	21.5	2.997	1.6	4.662	.5	6.327	.1		

RUNOFF VOLUME = 1.39478 INCHES = 4.3977 ACRE-FEET
 PEAK DISCHARGE RATE = 114.28 CFS AT 1.532 HOURS BASIN AREA = .0591 SQ. MI.

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 *S
 *S ROUTING OF PIPE FLOW FROM LADERA STA 8+25 (ID=44) TO CASA VERDE
 *S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S
 *S-----
 *S
 *S ADD PIPE FLOW (ID=44) TO FLOW FROM CASA VERDE (ID=24)
 *S
 ADD HYD ID=46 HYD=146.1 ID I=44 ID II=24
 PRINT HYD ID=46 CODE=10

PARTIAL HYDROGRAPH 146.10

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	1.665	119.1	3.330	1.4	4.995	.8	6.660	.0
.333	.0	1.998	43.5	3.663	1.0	5.328	.9	6.993	.0

.666	.0	2.331	11.3	3.996	.9	5.661	.9	7.326	.0
.999	.0	2.664	4.7	4.329	.8	5.994	1.0		
1.332	35.6	2.997	2.3	4.662	.8	6.327	.2		

RUNOFF VOLUME = 1.41760 INCHES = 6.8518 ACRE-Feet
PEAK DISCHARGE RATE = 171.87 CFS AT 1.532 HOURS BASIN AREA = .0906 SQ. MI.

*S
*S-----
*S-----
*S
*S ROUTING OF PIPE FLOW FROM CASA VERDE (ID=44) TO LADERA STA 15+40
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S-----
*S
*S ADD PIPE FLOW (ID=46) TO INLETS (ID=38)
*S
ADD HYD ID=48 HYD=148.1 ID I=46 ID II=38
PRINT HYD ID=48 CODE=10

PARTIAL HYDROGRAPH 148.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	130.2	3.330	1.5	4.995	.9	6.660	.0
.333	.0	1.998	46.4	3.663	1.1	5.328	.9	6.993	.0
.666	.0	2.331	11.9	3.996	.9	5.661	1.0	7.326	.0
.999	.0	2.664	5.0	4.329	.9	5.994	1.1		
1.332	38.3	2.997	2.5	4.662	.8	6.327	.2		

RUNOFF VOLUME = 1.39028 INCHES = 7.4029 ACRE-Feet
PEAK DISCHARGE RATE = 185.87 CFS AT 1.532 HOURS BASIN AREA = .0998 SQ. MI.

*S
*S-----
*S-----
*S
*S ROUTING OF PIPE FLOW FROM STA 15+40 (ID=48) TO TIERRA OESTE ESMT PIPE
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S-----
*S
*S ADD PIPE FLOW (ID=48) TO FLOW FROM EASEMENT (ID=20)
*S
ADD HYD ID=51 HYD=151.1 ID I=48 ID II=20
PRINT HYD ID=51 CODE=10

PARTIAL HYDROGRAPH 151.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	141.8	3.330	1.6	4.995	1.0	6.660	.0
.333	.0	1.998	50.3	3.663	1.2	5.328	1.0	6.993	.0
.666	.0	2.331	12.8	3.996	1.0	5.661	1.1	7.326	.0
.999	.0	2.664	5.4	4.329	.9	5.994	1.2		
1.332	42.6	2.997	2.7	4.662	.9	6.327	.2		

RUNOFF VOLUME = 1.39786 INCHES = 8.1062 ACRE-Feet
PEAK DISCHARGE RATE = 204.97 CFS AT 1.532 HOURS BASIN AREA = .1087 SQ. MI.

*S
*S-----
*S-----
*S
*S ROUTING OF PIPE FLOW FROM TIERRA OESTE ESMT (ID=51) TO AMAFCA EASEMENT
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S-----
*S
*S EXISTING FLOW FROM LADERA SHOWN ON PARKWAY UNIT 3 PLANS
*S Q(100)=8.1 CFS FLOW FROM BEEHIVE= 0 CFS

*S
STORE HYD ID=53 HYD=153.1 DT=0.5HR DA=0.0001
FLOW RATE=0 0 8.1 2.1 0

*S-----

*S
*S ADD EXISTING FLOW TO NEW FLOW FROM SUMP (ID=42)
ADD HYD ID=54 HYD=154.1 ID I=42 ID II=53
PRINT HYD ID=54 CODE=10

PARTIAL HYDROGRAPH 154.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	6.7	2.664	.2	3.996	.0	5.328	.1
.333	.0	1.665	5.2	2.997	.1	4.329	.0	5.661	.1
.666	2.7	1.998	2.2	3.330	.1	4.662	.0	5.994	.1
.999	8.1	2.331	.5	3.663	.1	4.995	.0	6.327	.0

RUNOFF VOLUME = 3.27049 INCHES = .7601 ACRE-FEET
PEAK DISCHARGE RATE = 12.79 CFS AT 1.532 HOURS BASIN AREA = .0044 SQ. MI.

*S-----

*S-----

*S
*S ROUTING OF PIPE FLOW LADERA SUMP (ID=54) TO AMAFCA EASMENT
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

*S-----

*S
*S ADD MAIN LADERA STORM DRAIN AND STORM DRAIN FROM SUMP
ADD HYD ID=56 HYD=156.1 ID I=51 ID II=54
PRINT HYD ID=56 CODE=10

PARTIAL HYDROGRAPH 156.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	147.0	3.330	1.7	4.995	1.0	6.660	.0
.333	.0	1.998	52.5	3.663	1.2	5.328	1.1	6.993	.0
.666	2.7	2.331	13.3	3.996	1.0	5.661	1.1	7.326	.0
.999	8.1	2.664	5.5	4.329	1.0	5.994	1.2		
1.332	49.3	2.997	2.7	4.662	1.0	6.327	.2		

RUNOFF VOLUME = 1.47003 INCHES = 8.8664 ACRE-FEET
PEAK DISCHARGE RATE = 217.76 CFS AT 1.532 HOURS BASIN AREA = .1131 SQ. MI.

*S-----

*S-----

*S
*S ADD BASIN OFF7(ID=26)-RAIN THAT FALLS INTO POND TO STORM DRAIN

ADD HYD ID=57 HYD=157.1 ID I=56 ID II=26

*S-----

*S TOTAL DISCHARGE TO AMAFCA EASEMENT

PRINT HYD ID=56 CODE=10

PARTIAL HYDROGRAPH 156.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	147.0	3.330	1.7	4.995	1.0	6.660	.0
.333	.0	1.998	52.5	3.663	1.2	5.328	1.1	6.993	.0
.666	2.7	2.331	13.3	3.996	1.0	5.661	1.1	7.326	.0
.999	8.1	2.664	5.5	4.329	1.0	5.994	1.2		
1.332	49.3	2.997	2.7	4.662	1.0	6.327	.2		

RUNOFF VOLUME = 1.47003 INCHES = 8.8664 ACRE-FEET
PEAK DISCHARGE RATE = 217.76 CFS AT 1.532 HOURS BASIN AREA = .1131 SQ. MI.

*S-----

*S-----
 *S-----
 *S
 *S OFFSITE FLOW TO I-40 INTERCEPTOR
 *S BASINS OFF1A,OFF1B,OFF3,OFF4A,OFF4B,OFF8
 *S
 *S-----
 *S-----

*S
 *S COMPUTE FLOWS CONTRIBUTING TO I-40 INTERCEPTOR
 *S ASSUMPTIONS: USE FULL BUILDOUT SIX LANE SECTION FOR BASINS OFF4A&B
 *S
 *S BASIN OFF1A-----
 *S
 COMPUTE NM HYD ID=60 HYD NO=160.1 DA=0.0173 SQ MI
 PER A=00.0 PER B=25.0 PER C=25.0 PER D=50.0 TP=-.133
 MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 34.228 CFS UNIT VOLUME = .9991 B = 526.28 P60 = 1.8700
 AREA = .008650 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
 UNIT PEAK = 23.067 CFS UNIT VOLUME = .9999 B = 354.67 P60 = 1.8700
 AREA = .008650 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=60 CODE=10

PARTIAL HYDROGRAPH 160.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	19.7	3.330	.2	4.995	.1	6.660	.0
.333	.0	1.998	7.3	3.663	.2	5.328	.2		
.666	.0	2.331	1.7	3.996	.1	5.661	.2		
.999	.0	2.664	.7	4.329	.1	5.994	.2		
1.332	7.8	2.997	.3	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.39062 INCHES = 1.2831 ACRE-FEET
 PEAK DISCHARGE RATE = 37.75 CFS AT 1.499 HOURS BASIN AREA = .0173 SQ. MI.

*S
 *S BASIN OFF1B-----
 *S
 COMPUTE NM HYD ID=61 HYD NO=161.1 DA=0.0373 SQ MI
 PER A=0.00 PER B=25.0 PER C=25.0 PER D=50.0 TP=-.151
 MASS RAINFALL=-1

K = .082295HR TP = .151000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 65.000 CFS UNIT VOLUME = 1.000 B = 526.28 P60 = 1.8700
 AREA = .018650 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .134155HR TP = .151000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992475
 UNIT PEAK = 43.805 CFS UNIT VOLUME = .9999 B = 354.67 P60 = 1.8700
 AREA = .018650 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=61 CODE=10

PARTIAL HYDROGRAPH 161.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	46.2	3.330	.5	4.995	.3	6.660	.0
.333	.0	1.998	16.8	3.663	.4	5.328	.3	6.993	.0
.666	.0	2.331	4.4	3.996	.3	5.661	.3		
.999	.0	2.664	1.8	4.329	.3	5.994	.4		
1.332	13.5	2.997	.9	4.662	.3	6.327	.1		

RUNOFF VOLUME = 1.39062 INCHES = 2.7664 ACRE-FEET

PEAK DISCHARGE RATE = 76.09 CFS AT 1.532 HOURS BASIN AREA = .0373 SQ. MI.

*S

*S BASIN OFF3-----

*S

COMPUTE NM HYD ID=62 HYD NO=162.1 DA=0.0042 SQ MI
PER A=0.00 PER B=8.50 PER C=8.50 PER D=83.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 13.794 CFS UNIT VOLUME = .9986 B = 526.28 P60 = 1.8700
AREA = .003486 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 1.9040 CFS UNIT VOLUME = .9937 B = 354.67 P60 = 1.8700
AREA = .000714 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=62 CODE=10

PARTIAL HYDROGRAPH 162.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	5.6	3.330	.1	4.995	.1	6.660	.0
.333	.0	1.998	2.5	3.663	.1	5.328	.1		
.666	.0	2.331	.5	3.996	.1	5.661	.1		
.999	.0	2.664	.2	4.329	.1	5.994	.1		
1.332	3.0	2.997	.1	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.77001 INCHES = .3965 ACRE-FEET
PEAK DISCHARGE RATE = 10.89 CFS AT 1.499 HOURS BASIN AREA = .0042 SQ. MI.

*S

*S BASIN OFF4A-----

*S

COMPUTE NM HYD ID=63 HYD NO=163.1 DA=0.0057 SQ MI
PER A=0.00 PER B=8.50 PER C=8.50 PER D=83.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 18.720 CFS UNIT VOLUME = .9988 B = 526.28 P60 = 1.8700
AREA = .004731 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 2.5840 CFS UNIT VOLUME = .9954 B = 354.67 P60 = 1.8700
AREA = .000969 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=30 CODE=10

PARTIAL HYDROGRAPH 130.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	1.3	2.664	.1	3.996	.0	5.328	.0
.333	.0	1.665	2.4	2.997	.0	4.329	.0	5.661	.0
.666	.0	1.998	1.1	3.330	.0	4.662	.0	5.994	.0
.999	.0	2.331	.2	3.663	.0	4.995	.0	6.327	.0

RUNOFF VOLUME = 1.77001 INCHES = .1699 ACRE-FEET
PEAK DISCHARGE RATE = 4.68 CFS AT 1.499 HOURS BASIN AREA = .0018 SQ. MI.

*S

*S BASIN OFF4B-----

*S

COMPUTE NM HYD ID=64 HYD NO=164.1 DA=0.0024 SQ MI

PER A=00.0 PER B=8.50 PER C=8.50 PER D=83.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 7.8823 CFS UNIT VOLUME = .9979 B = 526.28 P60 = 1.8700
AREA = .001992 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 1.0880 CFS UNIT VOLUME = .9886 B = 354.67 P60 = 1.8700
AREA = .000408 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=64 CODE=10

PARTIAL HYDROGRAPH 164.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	1.7	2.664	.1	3.996	.0	5.328	.0
.333	.0	1.665	3.2	2.997	.1	4.329	.0	5.661	.0
.666	.0	1.998	1.5	3.330	.0	4.662	.0	5.994	.0
.999	.0	2.331	.3	3.663	.0	4.995	.0	6.327	.0

RUNOFF VOLUME = 1.77001 INCHES = .2266 ACRE-FEET
PEAK DISCHARGE RATE = 6.23 CFS AT 1.499 HOURS BASIN AREA = .0024 SQ. MI.

*S
*S BASIN OFF8-----
*S
COMPUTE NM HYD ID=65 HYD NO=165.1 DA=0.0509 SQ MI
PER A=00.0 PER B=25.0 PER C=25.0 PER D=50.0 TP=-.246
MASS RAINFALL=-1

K = .134070HR TP = .246000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 54.446 CFS UNIT VOLUME = .9999 B = 526.28 P60 = 1.8700
AREA = .025450 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .218557HR TP = .246000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 36.692 CFS UNIT VOLUME = .9996 B = 354.67 P60 = 1.8700
AREA = .025450 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=32 CODE=10

PARTIAL HYDROGRAPH 132.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	67.0	3.330	.8	4.995	.4	6.660	.0
.333	.0	1.998	24.1	3.663	.6	5.328	.5	6.993	.0
.666	.0	2.331	6.6	3.996	.5	5.661	.5	7.326	.0
.999	.0	2.664	2.8	4.329	.4	5.994	.5		
1.332	16.8	2.997	1.4	4.662	.4	6.327	.1		

RUNOFF VOLUME = 1.39062 INCHES = 3.8633 ACRE-FEET
PEAK DISCHARGE RATE = 103.28 CFS AT 1.532 HOURS BASIN AREA = .0521 SQ. MI.

*S
*S-----
*S
*S ADD BASIN OFF1A AND OFF3
*S
ADD HYD ID=66 HYD NO=166.1 ID I=60 ID II=62
PRINT HYD ID=66 CODE=10

PARTIAL HYDROGRAPH 166.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS

.000	.0	1.665	25.2	3.330	.3	4.995	.2	6.660	.0
.333	.0	1.998	9.9	3.663	.2	5.328	.2		
.666	.0	2.331	2.3	3.996	.2	5.661	.2		
.999	.0	2.664	.9	4.329	.2	5.994	.2		
1.332	10.9	2.997	.5	4.662	.2	6.327	.0		

RUNOFF VOLUME = 1.46470 INCHES = 1.6795 ACRE-FEET
PEAK DISCHARGE RATE = 48.64 CFS AT 1.499 HOURS BASIN AREA = .0215 SQ. MI.

*S
*S-----
*S
*S ROUTE OFF1A AND OFF3 (ID=66) THRU OFF4A (LADERA)
*S ASSUME 6 LANE SECTION
*S

COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
MIN ELEV=00.0 MAX ELEV=0.857
CH SLP=.0240 FL SLP=.0240
N=.017 DIST=106.
DIST ELEV DIST ELEV DIST ELEV
0.0 0.857 9.37 0.67 9.83 0.67
10.0 0.00 12.00 0.125 47.0 1.07
47.12 1.57 58.88 1.570 59.00 1.07
94.00 0.125 97.0 0.00 97.17 0.67
97.63 0.667 106.0 0.857

RATING CURVE VALLEY SECTION 1.0				
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT	
.00	.00	.00	.00	
.05	.04	.04	1.83	
.09	.16	.28	3.65	
.14	.37	.79	5.83	
.18	.71	1.71	9.20	
.23	1.20	3.34	12.56	
.27	1.84	5.83	15.92	
.32	2.64	9.33	19.29	
.36	3.58	13.97	22.65	
.41	4.68	19.88	26.02	
.45	5.93	27.20	29.38	
.50	7.33	36.04	32.74	
.54	8.89	46.52	36.11	
.59	10.59	58.74	39.47	
.63	12.45	72.81	42.84	
.68	14.46	86.92	47.87	
.72	16.79	101.27	55.46	
.77	19.47	119.09	63.05	
.81	22.48	140.51	70.63	
.86	25.84	165.70	78.22	

COMPUTE TRAVEL TIME ID=67 REACH=1 NOVS=1 L=1500.0 SLP=.0240

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.045	.041	.04	.3956
.090	.165	.28	.2492
.135	.373	.79	.1973
.180	.712	1.71	.1730
.226	1.202	3.34	.1498
.271	1.845	5.83	.1318
.316	2.639	9.33	.1179
.361	3.585	13.97	.1069
.406	4.682	19.88	.0981
.451	5.932	27.20	.0909
.496	7.333	36.04	.0848
.541	8.886	46.52	.0796
.586	10.590	58.74	.0751
.631	12.447	72.81	.0712
.677	14.465	86.92	.0693
.722	16.795	101.27	.0691
.767	19.467	119.09	.0681

ROUTE ID=67 HYD=167.1 INFLOW ID=66
PRINT HYD ID=67 CODE=10

PARTIAL HYDROGRAPH 167.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	32.3	3.330	.4	4.995	.2	6.660	.1
.333	.0	1.998	12.3	3.663	.3	5.328	.2	6.993	.0
.666	.0	2.331	3.9	3.996	.2	5.661	.2	7.326	.0
.999	.0	2.664	1.5	4.329	.2	5.994	.2	7.659	.0
1.332	3.5	2.997	.7	4.662	.2	6.327	.1	7.992	.0

RUNOFF VOLUME = 1.46473 INCHES = 1.6795 ACRE-Feet
PEAK DISCHARGE RATE = 41.05 CFS AT 1.565 HOURS BASIN AREA = .0215 SQ. MI.

*S
*S-----
*S
*S ADD ROUTED OFF1A AND OFF3 TO OFF1B
*S
ADD HYD ID=68 HYD NO=168.1 ID I=67 ID II=61
PRINT HYD ID=68 CODE=10

PARTIAL HYDROGRAPH 168.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	78.5	3.330	.9	4.995	.5	6.660	.1
.333	.0	1.998	29.0	3.663	.7	5.328	.5	6.993	.0
.666	.0	2.331	8.2	3.996	.5	5.661	.6	7.326	.0
.999	.0	2.664	3.3	4.329	.5	5.994	.6	7.659	.0
1.332	17.0	2.997	1.6	4.662	.5	6.327	.2	7.992	.0

RUNOFF VOLUME = 1.41770 INCHES = 4.4459 ACRE-Feet
PEAK DISCHARGE RATE = 115.51 CFS AT 1.532 HOURS BASIN AREA = .0588 SQ. MI.

*S
*S-----
*S
*S ADD ID=68 AND OFF4A
*S
ADD HYD ID=69 HYD NO=169.1 ID I=68 ID II=63
PRINT HYD ID=69 CODE=10

PARTIAL HYDROGRAPH 169.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	86.1	3.330	1.0	4.995	.6	6.660	.1
.333	.0	1.998	32.5	3.663	.8	5.328	.6	6.993	.0
.666	.0	2.331	9.0	3.996	.6	5.661	.7	7.326	.0
.999	.0	2.664	3.6	4.329	.6	5.994	.7	7.659	.0
1.332	21.1	2.997	1.8	4.662	.6	6.327	.2	7.992	.0

RUNOFF VOLUME = 1.44883 INCHES = 4.9839 ACRE-Feet
PEAK DISCHARGE RATE = 129.66 CFS AT 1.532 HOURS BASIN AREA = .0645 SQ. MI.

*S
*S-----
*S
*S ADD ID=69 AND OFF4B
*S
ADD HYD ID=70 HYD NO=170.1 ID I=69 ID II=64
PRINT HYD ID=70 CODE=10

PARTIAL HYDROGRAPH 170.10

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW

HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	1.665	89.3	3.330	1.1	4.995	.6	6.660	.1
.333	.0	1.998	33.9	3.663	.8	5.328	.7	6.993	.0
.666	.0	2.331	9.3	3.996	.7	5.661	.7	7.326	.0
.999	.0	2.664	3.8	4.329	.6	5.994	.8	7.659	.0
1.332	22.8	2.997	1.8	4.662	.6	6.327	.2	7.992	.0

RUNOFF VOLUME = 1.46035 INCHES = 5.2105 ACRE-FEET
 PEAK DISCHARGE RATE = 135.63 CFS AT 1.532 HOURS BASIN AREA = .0669 SQ. MI.

*S
 *S-----
 *S
 *S ROUTE COMBINED FLOW (ID=70) THROUGH OFF8 IN 3' DIA.PIPE
 *S
 COMPUTE RATING CURVE RC=1 VS NO=1 CODE=-1 SLP=0.0210
 DIA=3.0 FT N=0.013

RATING CURVE PIPE SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.16	.14	.51	1.33
.31	.39	2.20	1.83
.47	.71	5.12	2.18
.63	1.07	9.20	2.44
.78	1.46	14.37	2.63
.94	1.89	20.50	2.78
1.09	2.33	27.47	2.89
1.25	2.79	35.12	2.96
1.41	3.26	43.29	2.99
1.56	3.72	51.81	3.00
1.72	4.19	60.48	3.00
1.88	4.65	69.11	3.00
2.03	5.10	77.46	3.00
2.19	5.53	85.28	3.00
2.35	5.93	92.27	3.00
2.50	6.30	98.10	3.00
2.66	6.62	102.26	3.00
2.81	6.89	103.97	3.00
3.00	7.07	103.97	3.00

COMPUTE TRAVEL TIME ID=71 REACH=1 NOVS=1 L=1800.0 SLP=0.0210

TRAVEL TIME TABLE
 REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.156	.140	.51	.1386
.313	.391	2.20	.0888
.469	.706	5.12	.0690
.625	1.068	9.20	.0580
.782	1.465	14.37	.0510
.938	1.889	20.50	.0461
1.094	2.332	27.47	.0425
1.251	2.790	35.12	.0397
1.407	3.255	43.29	.0376
1.563	3.724	51.81	.0359
1.720	4.191	60.48	.0346
1.876	4.650	69.11	.0336
2.032	5.097	77.46	.0329
2.189	5.525	85.28	.0324
2.345	5.928	92.27	.0321
2.501	6.297	98.10	.0321
2.658	6.622	102.26	.0324
2.814	6.887	103.97	.0331
3.000	7.069	103.97	.0340

ROUTE ID=71 HYD=171.1 INFLOW ID=70
 TRAVEL TIME TABLE EXCEEDED
 PRINT HYD ID=71 CODE=10

PARTIAL HYDROGRAPH 171.10

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	1.998	36.3	3.996	.7	5.994	.7	7.992	.0
.333	.0	2.331	10.8	4.329	.6	6.327	.4	8.325	.0
.666	.0	2.664	4.2	4.662	.6	6.660	.1		
.999	.0	2.997	2.1	4.995	.6	6.993	.0		
1.332	13.0	3.330	1.2	5.328	.6	7.326	.0		
1.665	104.2	3.663	.9	5.661	.7	7.659	.0		

RUNOFF VOLUME = 1.46035 INCHES = 5.2105 ACRE-Feet
 PEAK DISCHARGE RATE = 129.01 CFS AT 1.565 HOURS BASIN AREA = .0669 SQ. MI.

*S-----
 *S
 *S ADD ROUTED FLOW (ID=71) AND OFF8
 *S TOTAL DISCHARGE TO I-40 INTERCEPTOR AT THE BOTTOM OF OFF8
 *S
 ADD HYD ID=72 HYD=171.1 ID I=71 ID II=65
 PRINT HYD ID=72 CODE=10

PARTIAL HYDROGRAPH 171.10

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	1.998	66.8	3.996	1.4	5.994	1.2	7.992	.0
.333	.0	2.331	21.7	4.329	1.2	6.327	.6	8.325	.0
.666	.0	2.664	9.2	4.662	1.1	6.660	.2		
.999	.0	2.997	4.8	4.995	1.1	6.993	.1		
1.332	18.4	3.330	2.8	5.328	1.1	7.326	.0		
1.665	179.9	3.663	1.9	5.661	1.2	7.659	.0		

RUNOFF VOLUME = 1.43021 INCHES = 8.9855 ACRE-Feet
 PEAK DISCHARGE RATE = 202.34 CFS AT 1.598 HOURS BASIN AREA = .1178 SQ. MI.

*S
 FINISH
 NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 15:07:00

③

AHYMO
FOR
PARKWAY UNIT 7
TEMPORARY POND EVALUATION

FULLY DEVELOPED
100 YR. - 24 HR.

(Appendix A)

*S ROUTE BYPASS FLOW FROM INLETS (ID=13) THRU ON2 TO INLETS ON CASA ROJA
 *S @ CASA VERDE
 *S

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2 NOTATION

ROUTE	114.10	13	14	.00194	15.11	.180	1.73867	1.550	12.157	

*S
 *S
 *S ADD ON2 TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ CASA ROJA
 *S & CASA VERDE
 *S

ADD HYD	115.10	3&14	15	.01254	36.27	1.170	1.74839	1.550	4.518	

*S
 *S
 *S INLETS ON CASA ROJA @ CASA VERDE RECIEVED 29.19 CFS
 *S ID=16 IS FLOW INTO STORM DRAIN SYSTEM ID=17 BYPASS FLOW ON SURFACE
 *S

DIVIDE HYD	116.10	15	16	.01215	29.19	1.133	1.74839	1.500	3.754	
	117.10	AND	17	.00039	7.08	.037	1.74839	1.550	28.160	

*S
 *S-----
 *S ROUTE BYPASS FLOW FROM INLETS (ID=17) THRU ON3 TO END OF 50'
 *S RIGHT OF WAY ENDING AT CASA AZUL
 *S

ROUTE	118.10	17	18	.00039	4.48	.037	1.76812	1.550	17.830	

*S
 *S-----
 *S ROUTE BYPASS FLOW FROM INLETS (ID=18) THRU ON3 FROM END OF 50'
 *S RIGHT OF WAY ENDING AT CASA AZUL TO NORTH END OF CASA ROJA
 *S (CUL-DE-SAC)
 *S

ROUTE	119.10	18	19	.00039	3.18	.037	1.76812	1.600	12.636	

*S
 *S-----
 *S
 *S ADD ON3 TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ NORTH END
 *S OF CASA ROJA
 *S

ADD HYD	120.10	4&19	20	.00869	18.81	.812	1.75096	1.500	3.382	

*S
 *S-----
 *S
 *S-----
 *S
 *S
 *S ROUTE STORM DRAIN IN SUBDIVISION
 *S

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 *S-----
 *S
 *S
 *S ROUTING OF PIPE FLOW FROM FIRST OF INLETS (ID=8) TO SECOND SET OF INLETS
 *S (ID=12) NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S

*S
 *S-----
 *S
 *S ADD FIRST SET OF INLETS (ID=8) TO SECOND SET OF INLETS (ID=12)
 *S

ADD HYD	122.10	8&12	22	.01956	28.40	1.775	1.70137	1.450	2.269	

*S
 *S-----
 *S
 *S ROUTING OF PIPE FLOW FROM 2 SETS OF INLETS (ID=22) TO THIRD SET OF INLETS
 *S (ID=16) NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S

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 *S
 *S ADD FIRST TWO SETS INLETS (ID=22) TO THIRD SET OF INLETS (ID=16)
 *S

ADD HYD	124.10	22&16	24	.03171	57.59	2.908	1.71939	1.500	2.838	

*S
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 *S
 *S ROUTING OF PIPE FLOW FROM 3 SETS OF INLETS (ID=24) TO LADERA STORM DRAIN
 *S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S

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 *S ROUTING OF PIPE FLOW FROM CUL-DE-SAC ON CASA ROJA (ID=20) TO LADERA STORM
 *S DRAIN NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S

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 *S
 *S LADERA STORM DRAIN
 *S

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*S
 *S COMPUTE FLOWS CONTRIBUTING TO LADERA STORM DRAIN
 *S ASSUMPTIONS: USE FULL BUILDOUT SIX LANE SECTION
 *S

*S BASIN OFF7-----
 *S

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3 NOTATION
COMPUTE NM HYD	126.10	-	26	.00130	1.08	.030	.43936	1.500	1.296	PER IMP= .00

*S
 *S BASIN OFF5-----
 *S

COMPUTE NM HYD	127.10	-	27	.00330	8.43	.379	2.15323	1.500	3.990	PER IMP= 83.00

*S
 *S BASIN OFF6A-----
 *S

COMPUTE NM HYD	128.10	-	28	.00620	10.57	.436	1.31906	1.500	2.665	PER IMP= 43.00

*S
 *S BASIN OFF6B-----
 *S

COMPUTE NM HYD	129.10	-	29	.00740	12.62	.521	1.31906	1.500	2.664	PER IMP= 43.00

*S
 *S BASIN OFF6C-----
 *S

COMPUTE NM HYD	130.10	-	30	.00180	4.60	.207	2.15323	1.500	3.997	PER IMP= 83.00

*S
 *S BASIN OFF6D-----
 *S

COMPUTE NM HYD	131.10	-	31	.00180	4.60	.207	2.15323	1.500	3.997	PER IMP= 83.00

*S
 *S BASIN OFF1C-----
 *S

*S
 *S COMPUTE NM HYD ID=32 HYD NO=132.1 DA=0.05209 SQ MI
 *S PER A=00.0 PER B=25.0 PER C=25.0 PER D=50.0 TP=-.180
 *S MASS RAINFALL=-1
 *S PRINT HYD ID=32 CODE=10
 *S

*S-----
 *S

*S
 *S ADD OFF5 AND OFF1C
 *S ASSUME THIS FLOW IS IN LADERA STORM DRAIN WITH NO BYPASS ON THE ROAD
 *S

*S
 *S ADD HYD ID=33 HYD=133.1 ID I=27 ID II=32
 *S PRINT HYD ID=33 CODE=10
 *S

*S-----
 *S-----

*S
 *S ROAD ROUTING FOR LADERA DRIVE AND DIVIDE OFF FLOW BY INLETS
 *S

*S
 *S INLETS ON LADERA DRIVE (STA 8+25) RECIEVED 2.80 CFS
 *S ID=34 IS FLOW INTO STORM DRAIN SYSTEM ID=35 BYPASS FLOW ON SURFACE
 *S

DIVIDE HYD	134.10	28	34	.00411	2.80	.289	1.31901	1.350	1.065	
	135.10	AND	35	.00209	7.77	.147	1.31901	1.500	5.811	

*S
 *S-----
 *S

*S
 *S ROUTE BYPASS (ID=35) THRU OFF6B
 *S DOWN LADERA-ASSUME 6 LANE SECTION
 *S

ROUTE	136.10	35	36	.00209	6.61	.147	1.32272	1.550	4.943

*S

*S-----

*S

*S ADD ROUTED BYPASS (ID=36) AND OFF6B (ID=29)

*S

ADD HYD	137.10	36&29	37	.00949	17.96	.668	1.31977	1.550	2.957

*S

*S

*S INLETS ON LADERA DRIVE (STA 15+40) RECIEVED 14.0 CFS

*S (5.6 CFS IN EXISTING INLETS - 7.4 CFS IN PROPOSED INLETS)

*S ID=38 IS FLOW INTO STORM DRAIN SYSTEM ID=39 BYPASS FLOW ON SURFACE

*S

DIVIDE HYD	138.10	37	38	.00897	14.00	.631	1.31977	1.500	2.438
	139.10	AND	39	.00052	3.96	.037	1.31977	1.550	11.909

*S

*S-----

*S

*S ROUTE BYPASS (ID=39) THRU OFF6C TO BOTTOM OF SUMP STA 25+70

*S DOWN LADERA-ASSUME 6 LANE SECTION

*S

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 4 NOTATION

ROUTE	140.10	39	40	.00052	4.23	.037	1.33468	1.550	12.730	

*S

*S-----

*S

*S ADD ROUTED BYPASS (ID=40) AND OFF6C (ID=30)

*S

ADD HYD	141.10	40&30	41	.00232	8.26	.244	1.96944	1.550	5.566

*S

*S-----

*S

*S ADD BYPASS AND OFF6C (ID=41) AND OFF6D (ID=31)

*S TOTAL AMOUNT OF WATER COLLECTED AT SUMP STA 25+70

ADD HYD	142.10	41&31	42	.00412	12.29	.450	2.04968	1.550	4.662

*S

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*S LADERA STORM DRAIN ROUTING

*S-----

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*S-----

*S

*S ROUTING OF PIPE FLOW FROM OFFSITE (ID=33) TO LADERA STATION 8+25

*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

*S

*S-----

*S

*S ADD OFFSITE FLOW (ID=33) TO FIRST SET OF INLETS (STA 8+25) ID=34

*S

*sADD HYD ID=44 HYD=144.1 ID I=33 ID II=34

*sPRINT HYD ID=44 CODE=10

*S

*S-----

*S-----

*S

*S ROUTING OF PIPE FLOW FROM LADERA STA 8+25 (ID=44) TO CASA VERDE

*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

*S

*S-----

*S

*S ADD PIPE FLOW (ID=34) TO FLOW FROM CASA VERDE (ID=24)

*S

ADD HYD	146.10	34&24	46	.03582	60.39	3.197	1.67345	1.500	2.634

*S

*S-----

*S-----

*S

*S ROUTING OF PIPE FLOW FROM CASA VERDE (ID=44) TO LADERA STA 15+40

*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

*S


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*S-----
*S
*S ADD PIPE FLOW (ID=46) TO INLETS (ID=38)
*S
ADD HYD          148.10 46&38  48      .04479      74.39      3.828      1.60261      1.500      2.595
*S
*S-----
*S-----
*S
*S ROUTING OF PIPE FLOW FROM STA 15+40 (ID=48) TO TIERRA OESTE ESMT PIPE
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----
*S
*S ADD PIPE FLOW (ID=48) TO FLOW FROM EASMENT (ID=20)
*S
ADD HYD          151.10 48&20  51      .05348      93.20      4.640      1.62672      1.500      2.723
*S
*S-----
*S-----
*S
*S ROUTING OF PIPE FLOW FROM TIERRA OESTE ESMT (ID=51) TO AMAFCA EASEMENT
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----
*S-----
*S
*S ADD PIPE FLOW (ID=51) TO FLOW FROM POND (ID=26)
*S

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COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 5 NOTATION
ADD HYD	152.10 51&26	52		.05478	94.28	4.670	1.59855	1.500	2.689	
*S----- *S *S EXISTING FLOW FROM LADERA SHOWN ON PARKWAY UNIT 3 PLANS *S Q(100)=8.1 CFS FLOW FROM BEEHIVE= 0 CFS *S STORE HYD 153.10 - 53 .00360 8.10 .421 2.19525 1.000 3.516 *S *S----- *S *S ADD EXISTING FLOW TO NEW FLOW FROM SUMP (ID=42) *S ADD HYD 154.10 42&53 54 .00772 12.29 .824 2.00164 1.550 2.488 *S *S----- *S----- *S *S ROUTING OF PIPE FLOW LADERA SUMP (ID=54) TO AMAFCA EASMENT *S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME *S----- *S *S ADD MAIN LADERA STORM DRAIN AND STORM DRAIN FROM SUMP *SD HYD ID=56 HYD=156.1 ID I=51 ID II=54 *S *S----- *S *S----- *S *S ROUTE RESERVOIR POND.007 52 57 .05478 11.23 18.069 6.18465 2.150 .320 AC-FT= 2.726 *S *S----- *S *S ADD OUTFLOW FROM RESERVOIR AND FLOW FROM SUMP FOR TOTAL DISCHARGE *S TO AMAFCA EASEMENT *S ADD HYD 158.10 57&54 58 .06250 22.62 18.893 5.66801 1.550 .565 FINISH										

100yr - 24hr Detailed Output

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
 RUN DATE (MON/DAY/YR) = 03/01/1996
 START TIME (HR:MIN:SEC) = 15:17:11 USER NO.= CINFRNM.I01
 INPUT FILE = TPOND.DAT

*S TIERRA OSESTE SUBDIVISION DRAINAGE REVISION DATE: 2/96
 *S Compute 100-Year Flow FN:TPOND.DAT BY:RGG

*S COMPUTE 100YR-24HR STORM FOR FULLY DEVELOPED CONDITIONS
 *S WITH PARKWAY UNIT 7 POND

START TIME=0.0 CODE 0 LINES -6
 RAINFALL TYPE=-2 RAIN QUATER=0.0 RAIN ONE=1.87
 RAIN SIX=2.20 RAIN DAY=2.66 DT=0.0500

COMPUTED 24-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
 DT = .050000 HOURS END TIME = 24.000000 HOURS

*S COMPUTE FLOWS FROM INSIDE SUBDIVISION ONLY (OFF2,ON1,ON2 & ON3)
 *S & ROUTE TO LADERA STORM DRAIN

*S BASIN OFF2-----
 *S COMPUTE NM HYD ID=1 HYD NO=101.1 DA=0.0077 SQ MI
 PER A=00.0 PER B=25.0 PER C=25.0 PER D=50.0 TP=-.133
 MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 15.234 CFS UNIT VOLUME = .9985 B = 526.28 P60 = 1.8700
 AREA = .003850 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
 UNIT PEAK = 10.267 CFS UNIT VOLUME = 1.000 B = 354.67 P60 = 1.8700
 AREA = .003850 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=1 CODE=10

PARTIAL HYDROGRAPH 101.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.1	10.000	.1	15.000	.1	20.000	.1
.500	.0	5.500	.1	10.500	.1	15.500	.1	20.500	.0
1.000	.0	6.000	.1	11.000	.1	16.000	.1	21.000	.0
1.500	16.6	6.500	.1	11.500	.1	16.500	.1	21.500	.0
2.000	3.2	7.000	.1	12.000	.1	17.000	.1	22.000	.0
2.500	.5	7.500	.1	12.500	.1	17.500	.1	22.500	.0
3.000	.2	8.000	.1	13.000	.1	18.000	.1	23.000	.0
3.500	.1	8.500	.1	13.500	.1	18.500	.1	23.500	.0
4.000	.1	9.000	.1	14.000	.1	19.000	.1	24.000	.0
4.500	.1	9.500	.1	14.500	.1	19.500	.1	24.500	.0

RUNOFF VOLUME = 1.62132 INCHES = .6658 ACRE-FEET
 PEAK DISCHARGE RATE = 16.61 CFS AT 1.500 HOURS BASIN AREA = .0077 SQ. MI.

*S
 *S BASIN ON1A-----
 *S COMPUTE NM HYD ID=2 HYD NO=102.1 DA=0.0060 SQ MI
 PER A=00.0 PER B=21.0 PER C=21.0 PER D=58.0 TP=-.133
 MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 13.770 CFS UNIT VOLUME = .9983 B = 526.28 P60 = 1.8700
 AREA = .003480 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 6.7200 CFS UNIT VOLUME = .9994 B = 354.67 P60 = 1.8700
AREA = .002520 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=2 CODE=10

PARTIAL HYDROGRAPH 102.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.1	10.000	.1	15.000	.1	20.000	.0
.500	.0	5.500	.1	10.500	.1	15.500	.1	20.500	.0
1.000	.0	6.000	.1	11.000	.1	16.000	.1	21.000	.0
1.500	13.5	6.500	.1	11.500	.1	16.500	.1	21.500	.0
2.000	2.8	7.000	.1	12.000	.1	17.000	.1	22.000	.0
2.500	.4	7.500	.1	12.500	.1	17.500	.0	22.500	.0
3.000	.1	8.000	.1	13.000	.1	18.000	.0	23.000	.0
3.500	.1	8.500	.1	13.500	.1	18.500	.0	23.500	.0
4.000	.1	9.000	.1	14.000	.1	19.000	.0	24.000	.0
4.500	.1	9.500	.1	14.500	.1	19.500	.0	24.500	.0

RUNOFF VOLUME = 1.75027 INCHES = .5601 ACRE-FEET
PEAK DISCHARGE RATE = 13.52 CFS AT 1.500 HOURS BASIN AREA = .0060 SQ. MI.

*S
*S BASIN ON2-----
*S
COMPUTE NM HYD ID=3 HYD NO=103.1 DA=0.0106 SQ MI
PER A=00.0 PER B=21.0 PER C=21.0 PER D=58.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 24.327 CFS UNIT VOLUME = .9987 B = 526.28 P60 = 1.8700
AREA = .006148 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 11.872 CFS UNIT VOLUME = 1.000 B = 354.67 P60 = 1.8700
AREA = .004452 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=3 CODE=10

PARTIAL HYDROGRAPH 103.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.1	10.000	.1	15.000	.1	20.000	.1
.500	.0	5.500	.1	10.500	.1	15.500	.1	20.500	.1
1.000	.0	6.000	.1	11.000	.1	16.000	.1	21.000	.1
1.500	23.9	6.500	.2	11.500	.1	16.500	.1	21.500	.1
2.000	4.9	7.000	.1	12.000	.1	17.000	.1	22.000	.1
2.500	.7	7.500	.1	12.500	.1	17.500	.1	22.500	.1
3.000	.2	8.000	.1	13.000	.1	18.000	.1	23.000	.1
3.500	.1	8.500	.1	13.500	.1	18.500	.1	23.500	.1
4.000	.1	9.000	.1	14.000	.1	19.000	.1	24.000	.1
4.500	.1	9.500	.1	14.500	.1	19.500	.1	24.500	.0

RUNOFF VOLUME = 1.75027 INCHES = .9895 ACRE-FEET
PEAK DISCHARGE RATE = 23.88 CFS AT 1.500 HOURS BASIN AREA = .0106 SQ. MI.

*S
*S BASIN ON3-----
*S
COMPUTE NM HYD ID=4 HYD NO=104.1 DA=0.0083 SQ MI
PER A=00.0 PER B=21.0 PER C=21.0 PER D=58.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 19.049 CFS UNIT VOLUME = .9986 B = 526.28 P60 = 1.8700
AREA = .004814 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 9.2960 CFS UNIT VOLUME = .9999 B = 354.67 P60 = 1.8700
AREA = .003486 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=4 CODE=10

PARTIAL HYDROGRAPH 104.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.1	10.000	.1	15.000	.1	20.000	.1
.500	.0	5.500	.1	10.500	.1	15.500	.1	20.500	.1
1.000	.0	6.000	.1	11.000	.1	16.000	.1	21.000	.1
1.500	18.7	6.500	.1	11.500	.1	16.500	.1	21.500	.1
2.000	3.8	7.000	.1	12.000	.1	17.000	.1	22.000	.1
2.500	.5	7.500	.1	12.500	.1	17.500	.1	22.500	.1
3.000	.2	8.000	.1	13.000	.1	18.000	.1	23.000	.1
3.500	.1	8.500	.1	13.500	.1	18.500	.1	23.500	.1
4.000	.1	9.000	.1	14.000	.1	19.000	.1	24.000	.1
4.500	.1	9.500	.1	14.500	.1	19.500	.1	24.500	.0

RUNOFF VOLUME = 1.75027 INCHES = .7748 ACRE-Feet
PEAK DISCHARGE RATE = 18.70 CFS AT 1.500 HOURS BASIN AREA = .0083 SQ. MI.

*S
*S BASIN ON1B-----
*S
COMPUTE NM HYD ID=5 HYD NO=105.1 DA=0.0078 SQ MI
PER A=00.0 PER B=21.0 PER C=21.0 PER D=58.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 17.901 CFS UNIT VOLUME = .9985 B = 526.28 P60 = 1.8700
AREA = .004524 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 8.7360 CFS UNIT VOLUME = .9999 B = 354.67 P60 = 1.8700
AREA = .003276 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=5 CODE=10

PARTIAL HYDROGRAPH 105.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.1	10.000	.1	15.000	.1	20.000	.1
.500	.0	5.500	.1	10.500	.1	15.500	.1	20.500	.1
1.000	.0	6.000	.1	11.000	.1	16.000	.1	21.000	.1
1.500	17.6	6.500	.1	11.500	.1	16.500	.1	21.500	.1
2.000	3.6	7.000	.1	12.000	.1	17.000	.1	22.000	.1
2.500	.5	7.500	.1	12.500	.1	17.500	.1	22.500	.1
3.000	.2	8.000	.1	13.000	.1	18.000	.1	23.000	.1
3.500	.1	8.500	.1	13.500	.1	18.500	.1	23.500	.1
4.000	.1	9.000	.1	14.000	.1	19.000	.1	24.000	.1
4.500	.1	9.500	.1	14.500	.1	19.500	.1	24.500	.0

RUNOFF VOLUME = 1.75027 INCHES = .7281 ACRE-Feet
PEAK DISCHARGE RATE = 17.57 CFS AT 1.500 HOURS BASIN AREA = .0078 SQ. MI.

*S
*S-----
*S ROUTE BASIN OFF2 THRU ON1A
*S

*
 COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
 MIN ELEV=00.0 MAX ELEV=0.943
 CH SLP=.0200 FL SLP=.0200
 N=.017 DIST=50.0
 DIST ELEV DIST ELEV DIST ELEV
 0.0 0.84 8.37 0.67 8.83 0.67
 9.00 0.00 11.00 0.125 25.0 0.41
 39.0 0.125 41.0 0.000 41.17 0.67
 41.63 0.67 50.0 0.84

RATING CURVE VALLEY SECTION 1.0				
WATER	FLOW	FLOW	TOP	
SURFACE	AREA	RATE	WIDTH	
ELEV	SQ FT	CFS	FT	
.00	.00	.00	.00	
.05	.04	.04	1.61	
.10	.16	.26	3.23	
.15	.38	.69	6.42	
.20	.82	1.73	11.32	
.25	1.50	3.74	16.23	
.30	2.43	7.00	21.13	
.35	3.60	11.74	26.03	
.40	5.01	18.18	30.93	
.45	6.60	27.97	32.23	
.50	8.20	40.07	32.25	
.55	9.81	53.83	32.28	
.60	11.41	69.13	32.30	
.65	13.01	85.90	32.33	
.69	14.67	98.30	35.71	
.74	16.56	110.73	40.59	
.79	18.70	125.87	45.48	
.84	21.08	144.46	50.00	
.89	23.56	173.90	50.00	
.94	26.04	205.49	50.00	

COMPUTE TRAVEL TIME ID=6 REACH=1 NOVS=1 L=690. SLP=.0200

TRAVEL TIME TABLE
 REACH= 1.0

WATER	AVERAGE	FLOW	TRAVEL
DEPTH	AREA	RATE	TIME
FEET	SQ. FT.	CFS	HRS
.050	.040	.04	.1882
.099	.160	.26	.1186
.149	.379	.69	.1048
.199	.820	1.73	.0909
.248	1.503	3.74	.0770
.298	2.430	7.00	.0665
.347	3.600	11.74	.0588
.397	5.014	18.18	.0529
.447	6.605	27.97	.0453
.496	8.205	40.07	.0392
.546	9.806	53.83	.0349
.596	11.409	69.13	.0316
.645	13.012	85.90	.0290
.695	14.671	98.30	.0286
.744	16.564	110.73	.0287
.794	18.700	125.87	.0285
.844	21.078	144.46	.0280
.893	23.559	173.90	.0260
.943	26.041	205.49	.0243

ROUTE ID=6 HYD=106.1 INFLOW ID=1
 PRINT HYD ID=6 CODE=10

PARTIAL HYDROGRAPH 106.10

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	5.500	.1	11.000	.1	16.500	.1	22.000	.0
.500	.0	6.000	.1	11.500	.1	17.000	.1	22.500	.0
1.000	.0	6.500	.1	12.000	.1	17.500	.1	23.000	.0
1.500	13.8	7.000	.1	12.500	.1	18.000	.1	23.500	.0
2.000	3.7	7.500	.1	13.000	.1	18.500	.1	24.000	.0
2.500	.6	8.000	.1	13.500	.1	19.000	.1	24.500	.0
3.000	.2	8.500	.1	14.000	.1	19.500	.1	25.000	.0
3.500	.1	9.000	.1	14.500	.1	20.000	.1		

4.000	.1	9.500	.1	15.000	.1	20.500	.0
4.500	.1	10.000	.1	15.500	.1	21.000	.0
5.000	.1	10.500	.1	16.000	.1	21.500	.0

RUNOFF VOLUME = 1.62138 INCHES = .6658 ACRE-FEET
 PEAK DISCHARGE RATE = 15.29 CFS AT 1.550 HOURS BASIN AREA = .0077 SQ. MI.

*S
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 *S
 *S ADD ON1A TO ROUTED OFF2-FLOW TO BE INTERCPETED BY INLETS @ CASA ROJA
 *S & CASA MORENA
 *S
 ADD HYD ID=7 HYD=107.1 ID I=2 ID II=6
 PRINT HYD ID=7 CODE=10

PARTIAL HYDROGRAPH 107.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.500	.1	11.000	.1	16.500	.1	22.000	.1
.500	.0	6.000	.2	11.500	.1	17.000	.1	22.500	.1
1.000	.0	6.500	.2	12.000	.1	17.500	.1	23.000	.1
1.500	27.3	7.000	.2	12.500	.1	18.000	.1	23.500	.1
2.000	6.5	7.500	.2	13.000	.1	18.500	.1	24.000	.1
2.500	1.0	8.000	.2	13.500	.1	19.000	.1	24.500	.0
3.000	.3	8.500	.2	14.000	.1	19.500	.1	25.000	.0
3.500	.2	9.000	.2	14.500	.1	20.000	.1		
4.000	.1	9.500	.2	15.000	.1	20.500	.1		
4.500	.1	10.000	.1	15.500	.1	21.000	.1		
5.000	.1	10.500	.1	16.000	.1	21.500	.1		

RUNOFF VOLUME = 1.67777 INCHES = 1.2259 ACRE-FEET
 PEAK DISCHARGE RATE = 27.34 CFS AT 1.500 HOURS BASIN AREA = .0137 SQ. MI.

*S
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 *S
 *S INLETS ON CASA ROJA @ CASA MORENA RECIEVED 14.0 CFS
 *S ID=8 IS FLOW INTO STORM DRAIN SYSTEM ID=9 BYPASS FLOW ON SURFACE
 *S
 DIVIDE HYD ID=7 Q=14.0 ID I=8 HYD I=108.1
 ID II=9 HYD II=109.1

*S
 *S-----
 *S ROUTE BYPASS FLOW FROM INLETS (ID=9) THRU ON1B TO INLETS ON CASA ROJA
 *S @ CASA NEGRA
 *S

COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
 MIN ELEV=00.0 MAX ELEV=0.943
 CH SLP=.0200 FL SLP=.0200
 N=.017 DIST=50.0
 DIST ELEV DIST ELEV DIST ELEV
 0.0 0.84 8.37 0.67 8.83 0.67
 9.00 0.00 11.00 0.125 25.0 0.41
 39.0 0.125 41.0 0.000 41.17 0.67
 41.63 0.67 50.0 0.84

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.05	.04	.04	1.61
.10	.16	.26	3.23
.15	.38	.69	6.42
.20	.82	1.73	11.32
.25	1.50	3.74	16.23
.30	2.43	7.00	21.13
.35	3.60	11.74	26.03
.40	5.01	18.18	30.93
.45	6.60	27.97	32.23
.50	8.20	40.07	32.25

.55	9.81	53.83	32.28
.60	11.41	69.13	32.30
.65	13.01	85.90	32.33
.69	14.67	98.30	35.71
.74	16.56	110.73	40.59
.79	18.70	125.87	45.48
.84	21.08	144.46	50.00
.89	23.56	173.90	50.00
.94	26.04	205.49	50.00

COMPUTE TRAVEL TIME ID=10 REACH=1 NOVS=1 L=260. SLP=.0202

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.050	.040	.04	.0709
.099	.160	.26	.0447
.149	.379	.69	.0395
.199	.820	1.73	.0343
.248	1.503	3.74	.0290
.298	2.430	7.00	.0251
.347	3.600	11.74	.0222
.397	5.014	18.18	.0199
.447	6.605	27.97	.0171
.496	8.205	40.07	.0148
.546	9.806	53.83	.0132
.596	11.409	69.13	.0119
.645	13.012	85.90	.0109
.695	14.671	98.30	.0108
.744	16.564	110.73	.0108
.794	18.700	125.87	.0107
.844	21.078	144.46	.0105
.893	23.559	173.90	.0098
.943	26.041	205.49	.0092

ROUTE ID=10 HYD=110.1 INFLOW ID=9
PRINT HYD ID=10 CODE=10

PARTIAL HYDROGRAPH 110.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.000	.0	2.000	.0				
.500	.0	1.500	11.4	2.500	.0				

RUNOFF VOLUME = 1.68120 INCHES = .2023 ACRE-FEET
PEAK DISCHARGE RATE = 14.29 CFS AT 1.550 HOURS BASIN AREA = .0023 SQ. MI.

*S

*S
*S ADD ON1B TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ CASA ROJA
*S & CASA NEGRA
*S
ADD HYD ID=11 HYD=111.1 ID I=5 ID II=10
PRINT HYD ID=11 CODE=10

PARTIAL HYDROGRAPH 111.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.1	10.000	.1	15.000	.1	20.000	.1
.500	.0	5.500	.1	10.500	.1	15.500	.1	20.500	.1
1.000	.0	6.000	.1	11.000	.1	16.000	.1	21.000	.1
1.500	29.0	6.500	.1	11.500	.1	16.500	.1	21.500	.1
2.000	3.6	7.000	.1	12.000	.1	17.000	.1	22.000	.1
2.500	.5	7.500	.1	12.500	.1	17.500	.1	22.500	.1
3.000	.2	8.000	.1	13.000	.1	18.000	.1	23.000	.1
3.500	.1	8.500	.1	13.500	.1	18.500	.1	23.500	.1
4.000	.1	9.000	.1	14.000	.1	19.000	.1	24.000	.1
4.500	.1	9.500	.1	14.500	.1	19.500	.1	24.500	.0

RUNOFF VOLUME = 1.73468 INCHES = .9303 ACRE-FEET
PEAK DISCHARGE RATE = 29.86 CFS AT 1.550 HOURS BASIN AREA = .0101 SQ. MI.

*-----
 *S
 *S INLETS ON CASA ROJA @ CASA NEGRA RECIEVED 14.4 CFS
 *S ID=12 IS FLOW INTO STORM DRAIN SYSTME ID=13 BYPASS FLOW ON SURFACE
 *S
 DIVIDE HYD ID=11 Q=14.4 ID I=12 HYD I=112.1
 ID II=13 HYD II=113.1

*S
 *S-----
 *S ROUTE BYPASS FLOW FROM INLETS (ID=13) THRU ON2 TO INLETS ON CASA ROJA
 *S @ CASA VERDE
 *S

COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
 MIN ELEV=00.0 MAX ELEV=0.943
 CH SLP=.0200 FL SLP=.0200
 N=.017 DIST=50.0
 DIST ELEV DIST ELEV DIST ELEV
 0.0 0.84 8.37 0.67 8.83 0.67
 9.00 0.00 11.00 0.125 25.0 0.41
 39.0 0.125 41.0 0.000 41.17 0.67
 41.63 0.67 50.0 0.84

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.05	.04	.04	1.61
.10	.16	.26	3.23
.15	.38	.69	6.42
.20	.82	1.73	11.32
.25	1.50	3.74	16.23
.30	2.43	7.00	21.13
.35	3.60	11.74	26.03
.40	5.01	18.18	30.93
.45	6.60	27.97	32.23
.50	8.20	40.07	32.25
.55	9.81	53.83	32.28
.60	11.41	69.13	32.30
.65	13.01	85.90	32.33
.69	14.67	98.30	35.71
.74	16.56	110.73	40.59
.79	18.70	125.87	45.48
.84	21.08	144.46	50.00
.89	23.56	173.90	50.00
.94	26.04	205.49	50.00

COMPUTE TRAVEL TIME ID=14 REACH=1 NOVS=1 L=400. SLP=.0202

TRAVEL TIME TABLE
 REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.050	.040	.04	.1091
.099	.160	.26	.0687
.149	.379	.69	.0607
.199	.820	1.73	.0527
.248	1.503	3.74	.0446
.298	2.430	7.00	.0386
.347	3.600	11.74	.0341
.397	5.014	18.18	.0306
.447	6.605	27.97	.0262
.496	8.205	40.07	.0227
.546	9.806	53.83	.0202
.596	11.409	69.13	.0183
.645	13.012	85.90	.0168
.695	14.671	98.30	.0166
.744	16.564	110.73	.0166
.794	18.700	125.87	.0165
.844	21.078	144.46	.0162
.893	23.559	173.90	.0151
.943	26.041	205.49	.0141

ROUTE ID=14 HYD=114.1 INFLOW ID=13

PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 584 RATE = .00
PRINT HYD ID=14 CODE=10

PARTIAL HYDROGRAPH 114.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.000	.0	2.000	.0				
.500	.0	1.500	7.1	2.500	.0				

RUNOFF VOLUME = 1.73867 INCHES = .1801 ACRE-FEET
PEAK DISCHARGE RATE = 15.11 CFS AT 1.550 HOURS BASIN AREA = .0019 SQ. MI.

*S

*S
*S ADD ON2 TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ CASA ROJA
*S & CASA VERDE
*S
ADD HYD ID=15 HYD=115.1 ID I=3 ID II=14
PRINT HYD ID=15 CODE=10

PARTIAL HYDROGRAPH 115.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.1	10.000	.1	15.000	.1	20.000	.1
.500	.0	5.500	.1	10.500	.1	15.500	.1	20.500	.1
1.000	.0	6.000	.1	11.000	.1	16.000	.1	21.000	.1
1.500	31.0	6.500	.2	11.500	.1	16.500	.1	21.500	.1
2.000	4.9	7.000	.1	12.000	.1	17.000	.1	22.000	.1
2.500	.7	7.500	.1	12.500	.1	17.500	.1	22.500	.1
3.000	.2	8.000	.1	13.000	.1	18.000	.1	23.000	.1
3.500	.1	8.500	.1	13.500	.1	18.500	.1	23.500	.1
4.000	.1	9.000	.1	14.000	.1	19.000	.1	24.000	.1
4.500	.1	9.500	.1	14.500	.1	19.500	.1	24.500	.0

RUNOFF VOLUME = 1.74839 INCHES = 1.1696 ACRE-FEET
PEAK DISCHARGE RATE = 36.27 CFS AT 1.550 HOURS BASIN AREA = .0125 SQ. MI.

*S

*S
*S INLETS ON CASA ROJA @ CASA VERDE RECIEVED 29.19 CFS
*S ID=16 IS FLOW INTO STORM DRAIN SYSTEM ID=17 BYPASS FLOW ON SURFACE
*S
DIVIDE HYD ID=15 Q=29.19 ID I=16 HYD I=116.1
ID II=17 HYD II=117.1

*S

*S ROUTE BYPASS FLOW FROM INLETS (ID=17) THRU ON3 TO END OF 50'
*S RIGHT OF WAY ENDING AT CASA AZUL
*

COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
MIN ELEV=00.0 MAX ELEV=0.943
CH SLP=.0200 FL SLP=.0200
N=.017 DIST=50.0
DIST ELEV DIST ELEV DIST ELEV
0.0 0.84 8.37 0.67 8.83 0.67
9.00 0.00 11.00 0.125 25.0 0.41
39.0 0.125 41.0 0.000 41.17 0.67
41.63 0.67 50.0 0.84

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.05	.04	.04	1.61
.10	.16	.26	3.23
.15	.38	.69	6.42
.20	.82	1.73	11.32
.25	1.50	3.74	16.23

.30	2.43	7.00	21.13
.35	3.60	11.74	26.03
.40	5.01	18.18	30.93
.45	6.60	27.97	32.23
.50	8.20	40.07	32.25
.55	9.81	53.83	32.28
.60	11.41	69.13	32.30
.65	13.01	85.90	32.33
.69	14.67	98.30	35.71
.74	16.56	110.73	40.59
.79	18.70	125.87	45.48
.84	21.08	144.46	50.00
.89	23.56	173.90	50.00
.94	26.04	205.49	50.00

COMPUTE TRAVEL TIME ID=18 REACH=1 NOVS=1 L=225. SLP=.0202

TRAVEL TIME TABLE
 REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.050	.040	.04	.0614
.099	.160	.26	.0387
.149	.379	.69	.0342
.199	.820	1.73	.0297
.248	1.503	3.74	.0251
.298	2.430	7.00	.0217
.347	3.600	11.74	.0192
.397	5.014	18.18	.0172
.447	6.605	27.97	.0148
.496	8.205	40.07	.0128
.546	9.806	53.83	.0114
.596	11.409	69.13	.0103
.645	13.012	85.90	.0095
.695	14.671	98.30	.0093
.744	16.564	110.73	.0093
.794	18.700	125.87	.0093
.844	21.078	144.46	.0091
.893	23.559	173.90	.0085
.943	26.041	205.49	.0079

ROUTE ID=18 HYD=118.1 INFLOW ID=17
 PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 582 RATE = .00
 PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 599 RATE = .00
 PRINT HYD ID=18 CODE=10

PARTIAL HYDROGRAPH 118.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.000	.0	2.000	.0				
.500	.0	1.500	.6	2.500	.0				

RUNOFF VOLUME = 1.76812 INCHES = .0370 ACRE-FEET
 PEAK DISCHARGE RATE = 4.48 CFS AT 1.550 HOURS BASIN AREA = .0004 SQ. MI.

*S
 *S-----
 *S ROUTE BYPASS FLOW FROM INLETS (ID=18) THRU ON3 FROM END OF 50'
 *S RIGHT OF WAY ENDING AT CASA AZUL TO NORTH END OF CASA ROJA
 *S (CUL-DE-SAC)
 *

COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
 MIN ELEV=00.0 MAX ELEV=0.943
 CH SLP=.0256 FL SLP=.0256
 N=.017 DIST=46.0
 DIST ELEV DIST ELEV DIST ELEV
 0.0 0.84 8.87 0.67 9.33 0.67
 9.5 0.00 11.5 0.125 25.0 0.36
 34.5 0.125 36.5 0.000 36.67 0.67
 37.13 0.67 46.0 0.84

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE	FLOW AREA	FLOW RATE	TOP WIDTH

ELEV	SQ FT	CFS	FT
.00	.00	.00	.00
.05	.04	.05	1.61
.10	.16	.29	3.23
.15	.38	.79	6.41
.20	.82	1.95	11.30
.25	1.50	4.23	16.18
.30	2.42	7.91	21.06
.35	3.59	13.25	25.95
.40	4.93	21.77	27.20
.45	6.28	32.50	27.23
.50	7.64	44.87	27.25
.55	8.99	58.75	27.28
.60	10.34	74.05	27.30
.65	11.70	90.70	27.33
.69	13.11	101.34	30.85
.74	14.77	111.82	36.03
.79	16.69	125.60	41.21
.84	18.86	143.39	46.00
.89	21.14	173.47	46.00
.94	23.43	205.80	46.00

COMPUTE TRAVEL TIME ID=19 REACH=1 NOV5=1 L=525. SLP=.0256

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.050	.040	.05	.1266
.099	.160	.29	.0798
.149	.379	.79	.0704
.199	.819	1.95	.0611
.248	1.501	4.23	.0517
.298	2.425	7.91	.0447
.347	3.591	13.25	.0395
.397	4.933	21.77	.0330
.447	6.284	32.50	.0282
.496	7.636	44.87	.0248
.546	8.989	58.75	.0223
.596	10.343	74.05	.0204
.645	11.699	90.70	.0188
.695	13.111	101.34	.0189
.744	14.770	111.82	.0193
.794	16.687	125.60	.0194
.844	18.860	143.39	.0192
.893	21.143	173.47	.0178
.943	23.427	205.80	.0166

ROUTE ID=19 HYD=119.1 INFLOW ID=18
 PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 587 RATE = .00
 PRINT HYD ID=19 CODE=10

PARTIAL HYDROGRAPH 119.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.000	.0	2.000	.0				
.500	.0	1.500	.1	2.500	.0				

RUNOFF VOLUME = 1.76812 INCHES = .0370 ACRE-FEET
 PEAK DISCHARGE RATE = 3.18 CFS AT 1.600 HOURS BASIN AREA = .0004 SQ. MI.

*S
 *S-----
 *S
 *S ADD ON3 TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ NORTH END
 *S OF CASA ROJA
 *S
 ADD HYD ID=20 HYD=120.1 ID I=4 ID II=19
 PRINT HYD ID=20 CODE=10

PARTIAL HYDROGRAPH 120.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS

.000	.0	5.000	.1	10.000	.1	15.000	.1	20.000	.1
.500	.0	5.500	.1	10.500	.1	15.500	.1	20.500	.1
1.000	.0	6.000	.1	11.000	.1	16.000	.1	21.000	.1
1.500	18.8	6.500	.1	11.500	.1	16.500	.1	21.500	.1
2.000	3.8	7.000	.1	12.000	.1	17.000	.1	22.000	.1
2.500	.5	7.500	.1	12.500	.1	17.500	.1	22.500	.1
3.000	.2	8.000	.1	13.000	.1	18.000	.1	23.000	.1
3.500	.1	8.500	.1	13.500	.1	18.500	.1	23.500	.1
4.000	.1	9.000	.1	14.000	.1	19.000	.1	24.000	.1
4.500	.1	9.500	.1	14.500	.1	19.500	.1	24.500	.0

RUNOFF VOLUME = 1.75096 INCHES = .8118 ACRE-FEET
 PEAK DISCHARGE RATE = 18.81 CFS AT 1.500 HOURS BASIN AREA = .0087 SQ. MI.

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*S
*S-----
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*S
*S      ROUTE STORM DRAIN IN SUBDIVISION
*S
*S-----
*S-----
*S
*S ROUTING OF PIPE FLOW FROM FIRST OF INLETS (ID=8) TO SECOND SET OF INLETS
*S (ID=12) NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----
*S
*S ADD FIRST SET OF INLETS (ID=8) TO SECOND SET OF INLETS (ID=12)
*S
ADD HYD      ID=22 HYD=122.1 ID I=8 ID II=12
PRINT HYD    ID=22 CODE=10
  
```

PARTIAL HYDROGRAPH 122.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.500	.2	11.000	.2	16.500	.2	22.000	.1
.500	.0	6.000	.2	11.500	.2	17.000	.2	22.500	.1
1.000	.0	6.500	.3	12.000	.2	17.500	.2	23.000	.1
1.500	28.4	7.000	.3	12.500	.2	18.000	.2	23.500	.1
2.000	10.0	7.500	.3	13.000	.2	18.500	.2	24.000	.1
2.500	1.5	8.000	.3	13.500	.2	19.000	.2	24.500	.0
3.000	.5	8.500	.3	14.000	.2	19.500	.2	25.000	.0
3.500	.3	9.000	.3	14.500	.2	20.000	.2		
4.000	.2	9.500	.2	15.000	.2	20.500	.2		
4.500	.2	10.000	.2	15.500	.2	21.000	.1		
5.000	.2	10.500	.2	16.000	.2	21.500	.1		

RUNOFF VOLUME = 1.70137 INCHES = 1.7746 ACRE-FEET
 PEAK DISCHARGE RATE = 28.40 CFS AT 1.450 HOURS BASIN AREA = .0196 SQ. MI.

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*S
*S-----
*S-----
*S
*S ROUTING OF PIPE FLOW FROM 2 SETS OF INLETS (ID=22) TO THIRD SET OF INLETS
*S (ID=16) NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----
*S
*S ADD FIRST TWO SETS INLETS (ID=22) TO THIRD SET OF INLETS (ID=16)
*S
ADD HYD      ID=24 HYD=124.1 ID I=22 ID II=16
PRINT HYD    ID=24 CODE=10
  
```

PARTIAL HYDROGRAPH 124.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.500	.3	11.000	.3	16.500	.3	22.000	.2
.500	.0	6.000	.4	11.500	.3	17.000	.3	22.500	.2
1.000	.0	6.500	.4	12.000	.3	17.500	.3	23.000	.2

1.500	57.6	7.000	.4	12.500	.3	18.000	.2	23.500	.2
2.000	14.9	7.500	.4	13.000	.3	18.500	.2	24.000	.2
2.500	2.2	8.000	.4	13.500	.3	19.000	.2	24.500	.0
3.000	.7	8.500	.4	14.000	.3	19.500	.2	25.000	.0
3.500	.4	9.000	.4	14.500	.3	20.000	.2		
4.000	.3	9.500	.4	15.000	.3	20.500	.2		
4.500	.3	10.000	.4	15.500	.3	21.000	.2		
5.000	.3	10.500	.4	16.000	.3	21.500	.2		

RUNOFF VOLUME = 1.71939 INCHES = 2.9076 ACRE-FEET
PEAK DISCHARGE RATE = 57.59 CFS AT 1.500 HOURS BASIN AREA = .0317 SQ. MI.

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*S
*S-----
*S
*S ROUTING OF PIPE FLOW FROM 3 SETS OF INLETS (ID=24) TO LADERA STORM DRAIN
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----
*S-----
*S
*S
*S ROUTING OF PIPE FLOW FROM CUL-DE-SAC ON CASA ROJA (ID=20) TO LADERA STORM
*S DRAIN NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----
*S-----
*S-----
*S
*S
*S          LADERA STORM DRAIN
*S
*S-----
*S-----
*S
*S COMPUTE FLOWS CONTRIBUTING TO LADERA STORM DRAIN
*S ASSUMPTIONS: USE FULL BUILDOUT SIX LANE SECTION
*S
*S BASIN OFF7-----
*S
COMPUTE NM HYD      ID=26 HYD NO=126.1 DA=0.0013 SQ MI
                    PER A=100. PER B=0.00 PER C=0.00 PER D=0.00 TP=-.133
                    MASS RAINFALL=-1

K = .163315HR    TP = .133000HR    K/TP RATIO = 1.227936    SHAPE CONSTANT, N = 2.899764
UNIT PEAK = 2.6737 CFS    UNIT VOLUME = .9928    B = 273.54    P60 = 1.8700
AREA = .001300 SQ MI    IA = .65000 INCHES    INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

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PRINT HYD ID=26 CODE=10

PARTIAL HYDROGRAPH 126.10

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	1.000	.0	2.000	.1	3.000	.0		
.500	.0	1.500	1.1	2.500	.0	3.500	.0		

RUNOFF VOLUME = .43936 INCHES = .0305 ACRE-FEET
PEAK DISCHARGE RATE = 1.08 CFS AT 1.500 HOURS BASIN AREA = .0013 SQ. MI.

```

*S
*S BASIN OFF5-----
*S
COMPUTE NM HYD      ID=27 HYD NO=127.1 DA=0.0033 SQ MI
                    PER A=00.0 PER B=8.50 PER C=8.50 PER D=83.0 TP=-.133
                    MASS RAINFALL=-1

K = .072485HR    TP = .133000HR    K/TP RATIO = .545000    SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 10.838 CFS    UNIT VOLUME = .9981    B = 526.28    P60 = 1.8700
AREA = .002739 SQ MI    IA = .10000 INCHES    INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

```


K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 1.4960 CFS UNIT VOLUME = .9926 B = 354.67 P60 = 1.8700
AREA = .000561 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=27 CODE=10

PARTIAL HYDROGRAPH 127.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.0	10.000	.1	15.000	.0	20.000	.0
.500	.0	5.500	.1	10.500	.1	15.500	.0	20.500	.0
1.000	.0	6.000	.1	11.000	.1	16.000	.0	21.000	.0
1.500	8.4	6.500	.1	11.500	.1	16.500	.0	21.500	.0
2.000	2.0	7.000	.1	12.000	.0	17.000	.0	22.000	.0
2.500	.3	7.500	.1	12.500	.0	17.500	.0	22.500	.0
3.000	.1	8.000	.1	13.000	.0	18.000	.0	23.000	.0
3.500	.1	8.500	.1	13.500	.0	18.500	.0	23.500	.0
4.000	.0	9.000	.1	14.000	.0	19.000	.0	24.000	.0
4.500	.0	9.500	.1	14.500	.0	19.500	.0	24.500	.0

RUNOFF VOLUME = 2.15323 INCHES = .3790 ACRE-Feet
PEAK DISCHARGE RATE = 8.43 CFS AT 1.500 HOURS BASIN AREA = .0033 SQ. MI.

*S
*S BASIN OFF6A-----
*S
COMPUTE NM HYD ID=28 HYD NO=128.1 DA=0.0062 SQ MI
PER A=48.5 PER B=4.25 PER C=4.25 PER D=43.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 10.549 CFS UNIT VOLUME = .9981 B = 526.28 P60 = 1.8700
AREA = .002666 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .156582HR TP = .133000HR K/TP RATIO = 1.177309 SHAPE CONSTANT, N = 3.013793
UNIT PEAK = 7.5182 CFS UNIT VOLUME = .9971 B = 282.94 P60 = 1.8700
AREA = .003534 SQ MI IA = .61645 INCHES INF = 1.57605 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=28 CODE=10

PARTIAL HYDROGRAPH 128.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.0	10.000	.1	15.000	.0	20.000	.0
.500	.0	5.500	.1	10.500	.1	15.500	.0	20.500	.0
1.000	.0	6.000	.1	11.000	.1	16.000	.0	21.000	.0
1.500	10.6	6.500	.1	11.500	.0	16.500	.0	21.500	.0
2.000	2.1	7.000	.1	12.000	.0	17.000	.0	22.000	.0
2.500	.3	7.500	.1	12.500	.0	17.500	.0	22.500	.0
3.000	.1	8.000	.1	13.000	.0	18.000	.0	23.000	.0
3.500	.1	8.500	.1	13.500	.0	18.500	.0	23.500	.0
4.000	.0	9.000	.1	14.000	.0	19.000	.0	24.000	.0
4.500	.0	9.500	.1	14.500	.0	19.500	.0	24.500	.0

RUNOFF VOLUME = 1.31906 INCHES = .4362 ACRE-Feet
PEAK DISCHARGE RATE = 10.57 CFS AT 1.500 HOURS BASIN AREA = .0062 SQ. MI.

*S
*S BASIN OFF6B-----
*S
COMPUTE NM HYD ID=29 HYD NO=129.1 DA=0.0074 SQ MI
PER A=48.5 PER B=4.25 PER C=4.25 PER D=43.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 12.591 CFS UNIT VOLUME = .9983 B = 526.28 P60 = 1.8700
AREA = .003182 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .156582HR TP = .133000HR K/TP RATIO = 1.177309 SHAPE CONSTANT, N = 3.013793
UNIT PEAK = 8.9734 CFS UNIT VOLUME = .9974 B = 282.94 P60 = 1.8700
AREA = .004218 SQ MI IA = .61645 INCHES INF = 1.57605 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=29 CODE=10

PARTIAL HYDROGRAPH 129.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.1	10.000	.1	15.000	.0	20.000	.0
.500	.0	5.500	.1	10.500	.1	15.500	.0	20.500	.0
1.000	.0	6.000	.1	11.000	.1	16.000	.0	21.000	.0
1.500	12.6	6.500	.1	11.500	.1	16.500	.0	21.500	.0
2.000	2.5	7.000	.1	12.000	.1	17.000	.0	22.000	.0
2.500	.4	7.500	.1	12.500	.1	17.500	.0	22.500	.0
3.000	.1	8.000	.1	13.000	.1	18.000	.0	23.000	.0
3.500	.1	8.500	.1	13.500	.1	18.500	.0	23.500	.0
4.000	.1	9.000	.1	14.000	.1	19.000	.0	24.000	.0
4.500	.1	9.500	.1	14.500	.1	19.500	.0	24.500	.0

RUNOFF VOLUME = 1.31906 INCHES = .5206 ACRE-FEET
PEAK DISCHARGE RATE = 12.62 CFS AT 1.500 HOURS BASIN AREA = .0074 SQ. MI.

*S

*S BASIN OFF6C-----

*S

COMPUTE NM HYD ID=30 HYD NO=130.1 DA=0.0018 SQ MI
PER A=0.00 PER B=8.50 PER C=8.50 PER D=83.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 5.9117 CFS UNIT VOLUME = .9971 B = 526.28 P60 = 1.8700
AREA = .001494 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = .81600 CFS UNIT VOLUME = .9860 B = 354.67 P60 = 1.8700
AREA = .000306 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=30 CODE=10

PARTIAL HYDROGRAPH 130.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.0	10.000	.0	15.000	.0	20.000	.0
.500	.0	5.500	.0	10.500	.0	15.500	.0	20.500	.0
1.000	.0	6.000	.0	11.000	.0	16.000	.0	21.000	.0
1.500	4.6	6.500	.0	11.500	.0	16.500	.0	21.500	.0
2.000	1.1	7.000	.0	12.000	.0	17.000	.0	22.000	.0
2.500	.1	7.500	.0	12.500	.0	17.500	.0	22.500	.0
3.000	.0	8.000	.0	13.000	.0	18.000	.0	23.000	.0
3.500	.0	8.500	.0	13.500	.0	18.500	.0	23.500	.0
4.000	.0	9.000	.0	14.000	.0	19.000	.0	24.000	.0
4.500	.0	9.500	.0	14.500	.0	19.500	.0		

RUNOFF VOLUME = 2.15323 INCHES = .2067 ACRE-FEET
PEAK DISCHARGE RATE = 4.60 CFS AT 1.500 HOURS BASIN AREA = .0018 SQ. MI.

*S

*S BASIN OFF6D-----

*S

COMPUTE NM HYD ID=31 HYD NO=131.1 DA=0.0018 SQ MI
PER A=00.0 PER B=8.50 PER C=8.50 PER D=83.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 5.9117 CFS UNIT VOLUME = .9971 B = 526.28 P60 = 1.8700
 AREA = .001494 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
 UNIT PEAK = .81600 CFS UNIT VOLUME = .9860 B = 354.67 P60 = 1.8700
 AREA = .000306 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=31 CODE=10

PARTIAL HYDROGRAPH 131.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.0	10.000	.0	15.000	.0	20.000	.0
.500	.0	5.500	.0	10.500	.0	15.500	.0	20.500	.0
1.000	.0	6.000	.0	11.000	.0	16.000	.0	21.000	.0
1.500	4.6	6.500	.0	11.500	.0	16.500	.0	21.500	.0
2.000	1.1	7.000	.0	12.000	.0	17.000	.0	22.000	.0
2.500	.1	7.500	.0	12.500	.0	17.500	.0	22.500	.0
3.000	.0	8.000	.0	13.000	.0	18.000	.0	23.000	.0
3.500	.0	8.500	.0	13.500	.0	18.500	.0	23.500	.0
4.000	.0	9.000	.0	14.000	.0	19.000	.0	24.000	.0
4.500	.0	9.500	.0	14.500	.0	19.500	.0		

RUNOFF VOLUME = 2.15323 INCHES = .2067 ACRE-FEET
 PEAK DISCHARGE RATE = 4.60 CFS AT 1.500 HOURS BASIN AREA = .0018 SQ. MI.

*S
 *S BASIN OFF1C-----
 *S
 *S COMPUTE NM HYD ID=32 HYD NO=132.1 DA=0.05209 SQ MI
 *S PER A=00.0 PER B=25.0 PER C=25.0 PER D=50.0 TP=-.180
 *S MASS RAINFALL=-1
 *S PRINT HYD ID=32 CODE=10
 *S

*S
 *S ADD OFF5 AND OFF1C
 *S ASSUME THIS FLOW IS IN LADERA STORM DRAIN WITH NO BYPASS ON THE ROAD
 *S

*S ADD HYD ID=33 HYD=133.1 ID I=27 ID II=32
 *S PRINT HYD ID=33 CODE=10
 *S

*S
 *S ROAD ROUTING FOR LADERA DRIVE AND DIVIDE OFF FLOW BY INLETS
 *S
 *S

*S
 *S INLETS ON LADERA DRIVE (STA 8+25) RECIEVED 2.80 CFS
 *S ID=34 IS FLOW INTO STORM DRAIN SYSTEM ID=35 BYPASS FLOW ON SURFACE
 *S

DIVIDE HYD ID=28 Q=2.80 ID I=34 HYD I=134.1
 ID II=35 HYD II=135.1

*S
 *S
 *S ROUTE BYPASS (ID=35) THRU OFF6B
 *S DOWN LADERA-ASSUME 6 LANE SECTION
 *S

COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
 MIN ELEV=00.0 MAX ELEV=0.857
 CH SLP=.0281 FL SLP=.0281
 N=.017 DIST=106.
 DIST ELEV DIST ELEV DIST ELEV
 0.0 0.857 9.37 0.67 9.83 0.67
 10.0 0.00 12.00 0.125 47.0 1.07
 47.12 1.57 58.88 1.570 59.00 1.07
 94.00 0.125 97.0 0.00 97.17 0.67
 97.63 0.667 106.0 0.857

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.05	.04	.05	1.83
.09	.16	.30	3.65
.14	.37	.85	5.83
.18	.71	1.85	9.20
.23	1.20	3.62	12.56
.27	1.84	6.31	15.92
.32	2.64	10.09	19.29
.36	3.58	15.11	22.65
.41	4.68	21.52	26.02
.45	5.93	29.44	29.38
.50	7.33	39.00	32.74
.54	8.89	50.33	36.11
.59	10.59	63.56	39.47
.63	12.45	78.78	42.84
.68	14.46	94.05	47.87
.72	16.79	109.58	55.46
.77	19.47	128.86	63.05
.81	22.48	152.04	70.63
.86	25.84	179.29	78.22

COMPUTE TRAVEL TIME ID=36 REACH=1 NOVS=1 L=820.67 SLP=.0281

TRAVEL TIME TABLE
 REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.045	.041	.05	.2000
.090	.165	.30	.1260
.135	.373	.85	.0997
.180	.712	1.85	.0875
.226	1.202	3.62	.0758
.271	1.845	6.31	.0666
.316	2.639	10.09	.0596
.361	3.585	15.11	.0541
.406	4.682	21.52	.0496
.451	5.932	29.44	.0459
.496	7.333	39.00	.0429
.541	8.886	50.33	.0402
.586	10.590	63.56	.0380
.631	12.447	78.78	.0360
.677	14.465	94.05	.0351
.722	16.795	109.58	.0349
.767	19.467	128.86	.0344
.812	22.482	152.04	.0337
.857	25.839	179.29	.0329

ROUTE ID=36 HYD=136.1 INFLOW ID=35
 PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 591 RATE = .00
 PRINT HYD ID=36 CODE=10

PARTIAL HYDROGRAPH 136.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.000	.0	2.000	.2	3.000	.0		
.500	.0	1.500	5.3	2.500	.0				

RUNOFF VOLUME = 1.32272 INCHES = .1475 ACRE-FEET
 PEAK DISCHARGE RATE = 6.61 CFS AT 1.550 HOURS BASIN AREA = .0021 SQ. MI.

*S
 *S-----
 *S
 *S ADD ROUTED BYPASS (ID=36) AND OFF6B (ID=29)
 *S
 ADD HYD ID=37 HYD=137.1 ID I=36 ID II=29
 PRINT HYD ID=37 CODE=10

PARTIAL HYDROGRAPH 137.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.1	10.000	.1	15.000	.0	20.000	.0
.500	.0	5.500	.1	10.500	.1	15.500	.0	20.500	.0
1.000	.0	6.000	.1	11.000	.1	16.000	.0	21.000	.0
1.500	17.9	6.500	.1	11.500	.1	16.500	.0	21.500	.0
2.000	2.8	7.000	.1	12.000	.1	17.000	.0	22.000	.0
2.500	.4	7.500	.1	12.500	.1	17.500	.0	22.500	.0
3.000	.1	8.000	.1	13.000	.1	18.000	.0	23.000	.0
3.500	.1	8.500	.1	13.500	.1	18.500	.0	23.500	.0
4.000	.1	9.000	.1	14.000	.1	19.000	.0	24.000	.0
4.500	.1	9.500	.1	14.500	.1	19.500	.0	24.500	.0

RUNOFF VOLUME = 1.31977 INCHES = .6680 ACRE-FEET
PEAK DISCHARGE RATE = 17.96 CFS AT 1.550 HOURS BASIN AREA = .0095 SQ. MI.

*S

*S

*S INLETS ON LADERA DRIVE (STA 15+40) RECIEVED 14.0 CFS
*S (5.6 CFS IN EXISTING INLETS - 7.4 CFS IN PROPOSED INLETS)
*S ID=38 IS FLOW INTO STORM DRAIN SYSTEM ID=39 BYPASS FLOW ON SURFACE

*S

DIVIDE HYD ID=37 Q=14.0 ID I=38 HYD I=138.1
ID II=39 HYD II=139.1

*S

*S

*S

*S ROUTE BYPASS (ID=39) THRU OFF6C TO BOTTOM OF SUMP STA 25+70
*S DOWN LADERA-ASSUME 6 LANE SECTION

*S

COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
MIN ELEV=00.0 MAX ELEV=0.857
CH SLP=.0316 FL SLP=.0316
N=.017 DIST=106.
DIST ELEV DIST ELEV DIST ELEV
0.0 0.857 9.37 0.67 9.83 0.67
10.0 0.00 12.00 0.125 47.0 1.07
47.12 1.57 58.88 1.570 59.00 1.07
94.00 0.125 97.0 0.00 97.17 0.67
97.63 0.667 106.0 0.857

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.05	.04	.05	1.83
.09	.16	.32	3.65
.14	.37	.90	5.83
.18	.71	1.97	9.20
.23	1.20	3.84	12.56
.27	1.84	6.69	15.92
.32	2.64	10.70	19.29
.36	3.58	16.03	22.65
.41	4.68	22.82	26.02
.45	5.93	31.22	29.38
.50	7.33	41.36	32.74
.54	8.89	53.38	36.11
.59	10.59	67.40	39.47
.63	12.45	83.54	42.84
.68	14.46	99.74	47.87
.72	16.79	116.20	55.46
.77	19.47	136.65	63.05
.81	22.48	161.23	70.63
.86	25.84	190.13	78.22

COMPUTE TRAVEL TIME ID=40 REACH=1 NOVS=1 L=325.00 SLP=.0316

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.045	.041	.05	.0747

.090	.165	.32	.0471
.135	.373	.90	.0373
.180	.712	1.97	.0327
.226	1.202	3.84	.0283
.271	1.845	6.69	.0249
.316	2.639	10.70	.0223
.361	3.585	16.03	.0202
.406	4.682	22.82	.0185
.451	5.932	31.22	.0172
.496	7.333	41.36	.0160
.541	8.886	53.38	.0150
.586	10.590	67.40	.0142
.631	12.447	83.54	.0134
.677	14.465	99.74	.0131
.722	16.795	116.20	.0130
.767	19.467	136.65	.0129
.812	22.482	161.23	.0126
.857	25.839	190.13	.0123

ROUTE ID=40 HYD=140.1 INFLOW ID=39
 PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 589 RATE = .00
 PRINT HYD ID=40 CODE=10

PARTIAL HYDROGRAPH 140.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.000	.0	2.000	.0				
.500	.0	1.500	1.3	2.500	.0				

RUNOFF VOLUME = 1.33468 INCHES = .0370 ACRE-FEET
 PEAK DISCHARGE RATE = 4.23 CFS AT 1.550 HOURS BASIN AREA = .0005 SQ. MI.

*S
 *S-----
 *S
 *S ADD ROUTED BYPASS (ID=40) AND OFF6C (ID=30)
 *S
 ADD HYD ID=41 HYD=141.1 ID I=40 ID II=30
 PRINT HYD ID=41 CODE=10

PARTIAL HYDROGRAPH 141.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.0	10.000	.0	15.000	.0	20.000	.0
.500	.0	5.500	.0	10.500	.0	15.500	.0	20.500	.0
1.000	.0	6.000	.0	11.000	.0	16.000	.0	21.000	.0
1.500	5.9	6.500	.0	11.500	.0	16.500	.0	21.500	.0
2.000	1.1	7.000	.0	12.000	.0	17.000	.0	22.000	.0
2.500	.1	7.500	.0	12.500	.0	17.500	.0	22.500	.0
3.000	.0	8.000	.0	13.000	.0	18.000	.0	23.000	.0
3.500	.0	8.500	.0	13.500	.0	18.500	.0	23.500	.0
4.000	.0	9.000	.0	14.000	.0	19.000	.0	24.000	.0
4.500	.0	9.500	.0	14.500	.0	19.500	.0		

RUNOFF VOLUME = 1.96944 INCHES = .2436 ACRE-FEET
 PEAK DISCHARGE RATE = 8.26 CFS AT 1.550 HOURS BASIN AREA = .0023 SQ. MI.

*S
 *S-----
 *S
 *S ADD BYPASS AND OFF6C (ID=41) AND OFF6D (ID=31)
 *S TOTAL AMOUNT OF WATER COLLECTED AT SUMP STA 25+70
 ADD HYD ID=42 HYD=142.1 ID I=41 ID II=31
 PRINT HYD ID=42 CODE=10

PARTIAL HYDROGRAPH 142.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.1	10.000	.1	15.000	.0	20.000	.0
.500	.0	5.500	.1	10.500	.1	15.500	.0	20.500	.0
1.000	.0	6.000	.1	11.000	.1	16.000	.0	21.000	.0

1.500	10.5	6.500	.1	11.500	.1	16.500	.0	21.500	.0
2.000	2.1	7.000	.1	12.000	.1	17.000	.0	22.000	.0
2.500	.3	7.500	.1	12.500	.1	17.500	.0	22.500	.0
3.000	.1	8.000	.1	13.000	.1	18.000	.0	23.000	.0
3.500	.1	8.500	.1	13.500	.0	18.500	.0	23.500	.0
4.000	.1	9.000	.1	14.000	.0	19.000	.0	24.000	.0
4.500	.0	9.500	.1	14.500	.0	19.500	.0		

RUNOFF VOLUME = 2.04968 INCHES = .4503 ACRE-FEET
PEAK DISCHARGE RATE = 12.29 CFS AT 1.550 HOURS BASIN AREA = .0041 SQ. MI.

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*S-----
*S      LADERA STORM DRAIN ROUTING
*S-----
*S-----
*S-----
*S
*S ROUTING OF PIPE FLOW FROM OFFSITE (ID=33) TO LADERA STATION 8+25
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----
*S
*S ADD OFFSITE FLOW (ID=33) TO FIRST SET OF INLETS (STA 8+25) ID=34
*S
*sADD HYD          ID=44 HYD=144.1 ID I=33 ID II=34
*sPRINT HYD        ID=44 CODE=10
*S
*S-----
*S-----
*S
*S ROUTING OF PIPE FLOW FROM LADERA STA 8+25 (ID=44) TO CASA VERDE
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----
*S
*S ADD PIPE FLOW (ID=34) TO FLOW FROM CASA VERDE (ID=24)
*S
ADD HYD          ID=46 HYD=146.1 ID I=34 ID II=24
PRINT HYD        ID=46 CODE=10

```

PARTIAL HYDROGRAPH 146.10

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	5.500	.4	11.000	.4	16.500	.3	22.000	.3
.500	.0	6.000	.4	11.500	.4	17.000	.3	22.500	.3
1.000	.0	6.500	.5	12.000	.4	17.500	.3	23.000	.2
1.500	60.4	7.000	.5	12.500	.4	18.000	.3	23.500	.2
2.000	17.1	7.500	.5	13.000	.4	18.500	.3	24.000	.2
2.500	2.6	8.000	.5	13.500	.3	19.000	.3	24.500	.0
3.000	.8	8.500	.5	14.000	.3	19.500	.3	25.000	.0
3.500	.5	9.000	.4	14.500	.3	20.000	.3		
4.000	.4	9.500	.4	15.000	.3	20.500	.3		
4.500	.3	10.000	.4	15.500	.3	21.000	.3		
5.000	.4	10.500	.4	16.000	.3	21.500	.3		

RUNOFF VOLUME = 1.67345 INCHES = 3.1967 ACRE-FEET
PEAK DISCHARGE RATE = 60.39 CFS AT 1.500 HOURS BASIN AREA = .0358 SQ. MI.

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*S
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*S
*S ROUTING OF PIPE FLOW FROM CASA VERDE (ID=44) TO LADERA STA 15+40
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----
*S
*S ADD PIPE FLOW (ID=46) TO INLETS (ID=38)

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*S
ADD HYD ID=48 HYD=148.1 ID I=46 ID II=38
PRINT HYD ID=48 CODE=10

PARTIAL HYDROGRAPH 148.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.500	.4	11.000	.5	16.500	.4	22.000	.3
.500	.0	6.000	.5	11.500	.4	17.000	.3	22.500	.3
1.000	.0	6.500	.6	12.000	.4	17.500	.3	23.000	.3
1.500	74.4	7.000	.6	12.500	.4	18.000	.3	23.500	.3
2.000	19.8	7.500	.6	13.000	.4	18.500	.3	24.000	.3
2.500	3.0	8.000	.5	13.500	.4	19.000	.3	24.500	.0
3.000	1.0	8.500	.5	14.000	.4	19.500	.3	25.000	.0
3.500	.5	9.000	.5	14.500	.4	20.000	.3		
4.000	.4	9.500	.5	15.000	.4	20.500	.3		
4.500	.4	10.000	.5	15.500	.4	21.000	.3		
5.000	.4	10.500	.5	16.000	.4	21.500	.3		

RUNOFF VOLUME = 1.60261 INCHES = 3.8281 ACRE-Feet
PEAK DISCHARGE RATE = 74.39 CFS AT 1.500 HOURS BASIN AREA = .0448 SQ. MI.

*S
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*S
*S ROUTING OF PIPE FLOW FROM STA 15+40 (ID=48) TO TIERRA OESTE ESMT PIPE
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----
*S

*S ADD PIPE FLOW (ID=48) TO FLOW FROM EASMENT (ID=20)
*S
ADD HYD ID=51 HYD=151.1 ID I=48 ID II=20
PRINT HYD ID=51 CODE=10

PARTIAL HYDROGRAPH 151.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.500	.5	11.000	.5	16.500	.4	22.000	.4
.500	.0	6.000	.6	11.500	.5	17.000	.4	22.500	.3
1.000	.0	6.500	.7	12.000	.5	17.500	.4	23.000	.3
1.500	93.2	7.000	.7	12.500	.5	18.000	.4	23.500	.3
2.000	23.7	7.500	.7	13.000	.5	18.500	.4	24.000	.3
2.500	3.5	8.000	.6	13.500	.5	19.000	.4	24.500	.0
3.000	1.1	8.500	.6	14.000	.5	19.500	.4	25.000	.0
3.500	.6	9.000	.6	14.500	.5	20.000	.4		
4.000	.5	9.500	.6	15.000	.4	20.500	.4		
4.500	.5	10.000	.6	15.500	.4	21.000	.4		
5.000	.5	10.500	.6	16.000	.4	21.500	.4		

RUNOFF VOLUME = 1.62672 INCHES = 4.6399 ACRE-Feet
PEAK DISCHARGE RATE = 93.20 CFS AT 1.500 HOURS BASIN AREA = .0535 SQ. MI.

*S
*S-----
*S-----
*S
*S ROUTING OF PIPE FLOW FROM TIERRA OESTE ESMT (ID=51) TO AMAFCA EASEMENT
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----
*S

*S ADD PIPE FLOW (ID=51) TO FLOW FROM POND (ID=26)
*S
ADD HYD ID=52 HYD=152.1 ID I=51 ID II=26
PRINT HYD ID=52 CODE=10

PARTIAL HYDROGRAPH 152.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.500	.5	11.000	.5	16.500	.4	22.000	.4
.500	.0	6.000	.6	11.500	.5	17.000	.4	22.500	.3
1.000	.0	6.500	.7	12.000	.5	17.500	.4	23.000	.3
1.500	94.3	7.000	.7	12.500	.5	18.000	.4	23.500	.3
2.000	23.8	7.500	.7	13.000	.5	18.500	.4	24.000	.3
2.500	3.5	8.000	.6	13.500	.5	19.000	.4	24.500	.0
3.000	1.2	8.500	.6	14.000	.5	19.500	.4	25.000	.0
3.500	.6	9.000	.6	14.500	.5	20.000	.4		
4.000	.5	9.500	.6	15.000	.4	20.500	.4		
4.500	.5	10.000	.6	15.500	.4	21.000	.4		
5.000	.5	10.500	.6	16.000	.4	21.500	.4		

RUNOFF VOLUME = 1.59855 INCHES = 4.6703 ACRE-FEET
 PEAK DISCHARGE RATE = 94.28 CFS AT 1.500 HOURS BASIN AREA = .0548 SQ. MI.

*S
 *S-----
 *S
 *S EXISTING FLOW FROM LADERA SHOWN ON PARKWAY UNIT 3 PLANS
 *S Q(100)=8.1 CFS FLOW FROM BEEHIVE= 0 CFS
 *S
 STORE HYD ID=53 HYD=153.1 DT=0.50HR DA=0.0036
 FLOW RATE=0 0 8.1 2.1 0
 *S
 *S-----
 *S
 *S ADD EXISTING FLOW TO NEW FLOW FROM SUMP (ID=42)
 *S
 ADD HYD ID=54 HYD=154.1 ID I=42 ID II=53
 PRINT HYD ID=54 CODE=10

PARTIAL HYDROGRAPH 154.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.1	10.000	.1	15.000	.0	20.000	.0
.500	.0	5.500	.1	10.500	.1	15.500	.0	20.500	.0
1.000	8.1	6.000	.1	11.000	.1	16.000	.0	21.000	.0
1.500	10.5	6.500	.1	11.500	.1	16.500	.0	21.500	.0
2.000	2.1	7.000	.1	12.000	.1	17.000	.0	22.000	.0
2.500	.3	7.500	.1	12.500	.1	17.500	.0	22.500	.0
3.000	.1	8.000	.1	13.000	.1	18.000	.0	23.000	.0
3.500	.1	8.500	.1	13.500	.0	18.500	.0	23.500	.0
4.000	.1	9.000	.1	14.000	.0	19.000	.0	24.000	.0
4.500	.0	9.500	.1	14.500	.0	19.500	.0		

RUNOFF VOLUME = 2.00164 INCHES = .8241 ACRE-FEET
 PEAK DISCHARGE RATE = 12.29 CFS AT 1.550 HOURS BASIN AREA = .0077 SQ. MI.

*S
 *S-----
 *S
 *S
 *S ROUTING OF PIPE FLOW LADERA SUMP (ID=54) TO AMAFCA EASMENT
 *S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S-----
 *S
 *S ADD MAIN LADERA STORM DRAIN AND STORM DRAIN FROM SUMP
 *SD HYD ID=56 HYD=156.1 ID I=51 ID II=54
 *S
 *S-----
 *S
 *S-----
 *S
 *S
 ROUTE RESERVOIR ID=57 HYD=POND.007 INFLOW ID=52 CODE=10
 OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)
 6.74 0.00 5191
 7.23 0.00 5192
 7.69 0.00 5193
 8.13 0.00 5194

	8.94	8.54	0.00	5195
	9.32	0.00	5196	
	9.68	0.0	5197	
		0.35	5198	
	10.03	0.74	5199	
	10.37	1.20	5200	
	10.69	1.71	5201	
	11.01	2.28	5202	
	11.32	2.92	5203	
	11.62	3.62	5204	

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	5177.25	.000	.00
.50	.00	5191.00	.000	6.74
1.00	.00	5191.00	.000	6.74
1.50	94.28	5199.12	.794	10.07
2.00	23.78	5202.55	2.633	11.18
2.50	3.55	5202.48	2.590	11.16
3.00	1.16	5201.89	2.218	10.98
3.50	.63	5201.17	1.804	10.74
4.00	.49	5200.37	1.388	10.49
4.50	.47	5199.52	.980	10.21
5.00	.49	5198.60	.584	9.89
5.50	.54	5197.58	.204	9.53
6.00	.60	5191.00	.000	6.74
6.50	.70	5191.00	.000	6.74
7.00	.69	5191.00	.000	6.74
7.50	.67	5191.00	.000	6.74
8.00	.65	5191.00	.000	6.74
8.50	.63	5191.00	.000	6.74
9.00	.60	5191.00	.000	6.74
9.50	.59	5191.00	.000	6.74
10.00	.57	5191.00	.000	6.74
10.50	.56	5191.00	.000	6.74
11.00	.54	5191.00	.000	6.74
11.50	.53	5191.00	.000	6.74
12.00	.52	5191.00	.000	6.74
12.50	.50	5191.00	.000	6.74
13.00	.50	5191.00	.000	6.74
13.50	.48	5191.00	.000	6.74
14.00	.47	5191.00	.000	6.74
14.50	.46	5191.00	.000	6.74
15.00	.45	5191.00	.000	6.74
15.50	.44	5191.00	.000	6.74
16.00	.43	5191.00	.000	6.74
16.50	.43	5191.00	.000	6.74
17.00	.42	5191.00	.000	6.74
17.50	.41	5191.00	.000	6.74
18.00	.40	5191.00	.000	6.74
18.50	.39	5191.00	.000	6.74
19.00	.39	5191.00	.000	6.74
19.50	.38	5191.00	.000	6.74
20.00	.37	5191.00	.000	6.74
20.50	.37	5191.00	.000	6.74
21.00	.36	5191.00	.000	6.74
21.50	.36	5191.00	.000	6.74
22.00	.35	5191.00	.000	6.74
22.50	.35	5191.00	.000	6.74
23.00	.34	5191.00	.000	6.74
23.50	.33	5191.00	.000	6.74
24.00	.33	5191.00	.000	6.74
24.50	.02	5191.00	.000	6.74
25.00	.00	5191.00	.000	6.74
25.50	.00	5191.00	.000	6.74
26.00	.00	5191.00	.000	6.74
26.50	.00	5191.00	.000	6.74
27.00	.00	5191.00	.000	6.74
27.50	.00	5191.00	.000	6.74

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
28.00	.00	5191.00	.000	6.74

28.50 .00 5191.00 .000 6.74
29.00 .00 5191.00 .000 6.74
29.50 .00 5191.00 .000 6.74
PEAK DISCHARGE = 11.226 CFS - PEAK OCCURS AT HOUR 2.15
MAXIMUM WATER SURFACE ELEVATION = 5202.697
MAXIMUM STORAGE = 2.7259 AC-FT INCREMENTAL TIME= .050000HRS

*S
*S-----
*S
*S ADD OUTFLOW FROM RESERVOIR AND FLOW FROM SUMP FOR TOTAL DISCHARGE
*S TO AMAFCA EASEMENT
*S
ADD HYD ID=58 HYD=158.1 ID I=57 ID II=54
PRINT HYD ID=58 HYD=158.1

PARTIAL HYDROGRAPH 158.10

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	6.000	6.8	12.000	6.8	18.000	6.8	24.000	6.8
1.000	14.8	7.000	6.8	13.000	6.8	19.000	6.8	25.000	6.7
2.000	13.3	8.000	6.8	14.000	6.8	20.000	6.8	26.000	6.7
3.000	11.1	9.000	6.8	15.000	6.8	21.000	6.8	27.000	6.7
4.000	10.5	10.000	6.8	16.000	6.8	22.000	6.8	28.000	6.7
5.000	9.9	11.000	6.8	17.000	6.8	23.000	6.8	29.000	6.7

RUNOFF VOLUME = 5.66801 INCHES = 18.8932 ACRE-FEET
PEAK DISCHARGE RATE = 22.62 CFS AT 1.550 HOURS BASIN AREA = .0625 SQ. MI.

FINISH
NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 15:17:13

:

APPENDIX B

UNIT 1 - CONSTRUCTED

**- TEMPORARY SEDIMENT POND
UNIT 2**

100 YR. - 24 HR.

TEMPORARY SEDIMENT POND

1. Contributing drainage basins -

$$\text{OFF 2} - 0.00767 \text{ sm} = 4.91 \text{ ac}$$

$$\text{ON 1B} - 0.0133 \text{ sm} = 8.51 \text{ ac}$$

$$\text{Total} = 13.42 \text{ ac}$$

2. Land Treatment -

Use 100% Type A - no development
- no grading

3. Time of Concentration -

Use 12 minutes 6 hour storm

$$Q_{100} = 13.42 \times 1.29 = 17.31 \text{ cfs}$$

$$V_{100} = 13.42 \times 0.44 / 12 = 0.49 \text{ ac-ft}$$

Note: $V_{100} (24\text{-hr}) = V_{100} (6\text{-hr})$ since there
is no Type D soil

Provide ponding for 2 * 100 yr Storm Volume

$$\text{Volume to be Provided} = 2 * .49 = 0.98 \text{ ac-ft}$$

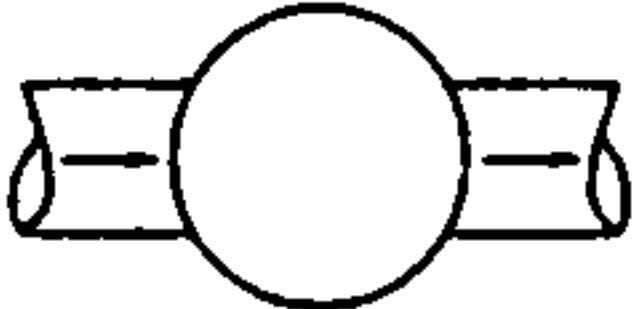
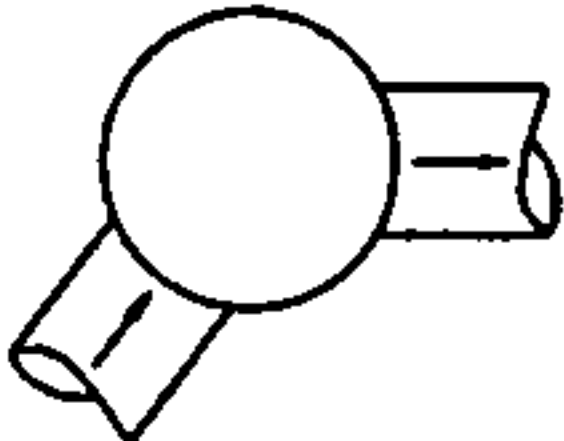
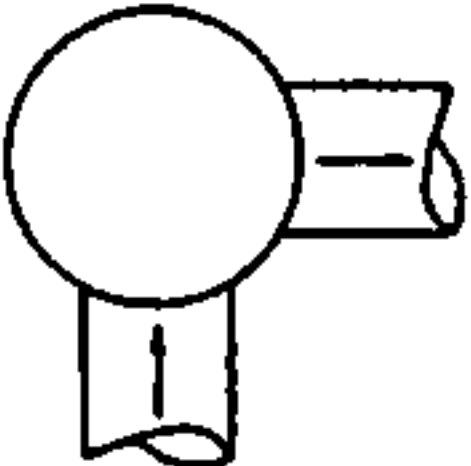
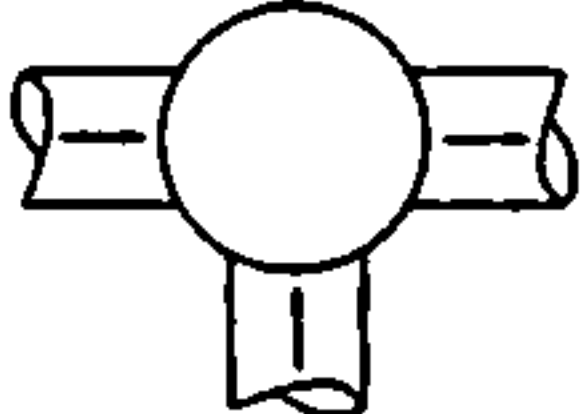
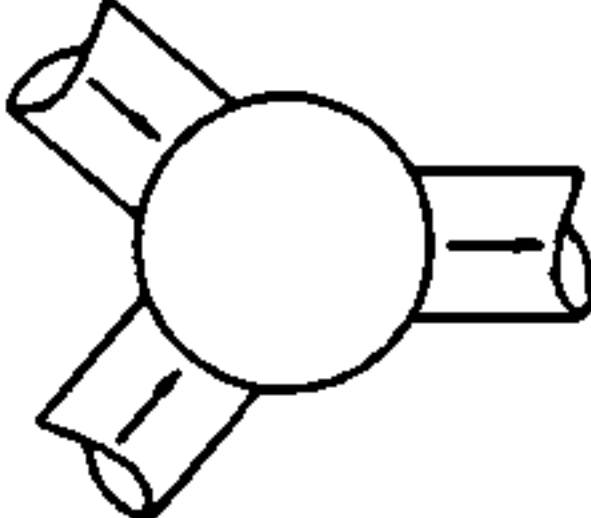
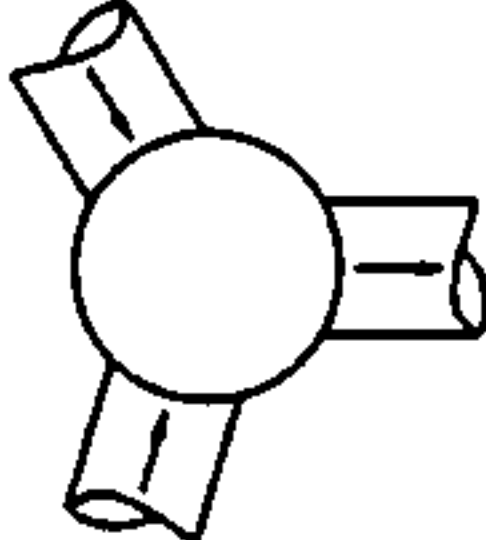
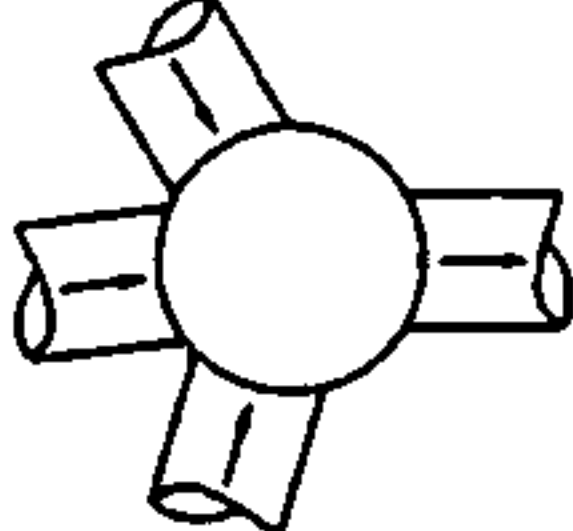
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APPENDIX C

STORM DRAIN SYSTEM DESIGN

Headloss Coefficients for Manholes and Junctions

These are typical headloss coefficients used in the standard method for estimating headloss through manholes and junctions.

Type of Manhole	Diagram	Headloss Coefficient
Trunkline only with no bend at the junction		0.5
Trunkline only with 45 degree bend at junction		0.6
Trunkline only with 90 degree bend at junction		0.8
Trunkline with one lateral		Small 0.6 Large 0.7
Two roughly equivalent entrance lines with angle of < 90 degrees between lines		0.8
Two roughly equivalent entrance lines with angle of > 90 degrees between lines		0.9
Three or more entrance lines		1.0

1

STORM DRAIN DESIGN

**CASA ROJA PL.
&
CASA VERDE AVE.**

(Appendix C)

INLET DESIGN

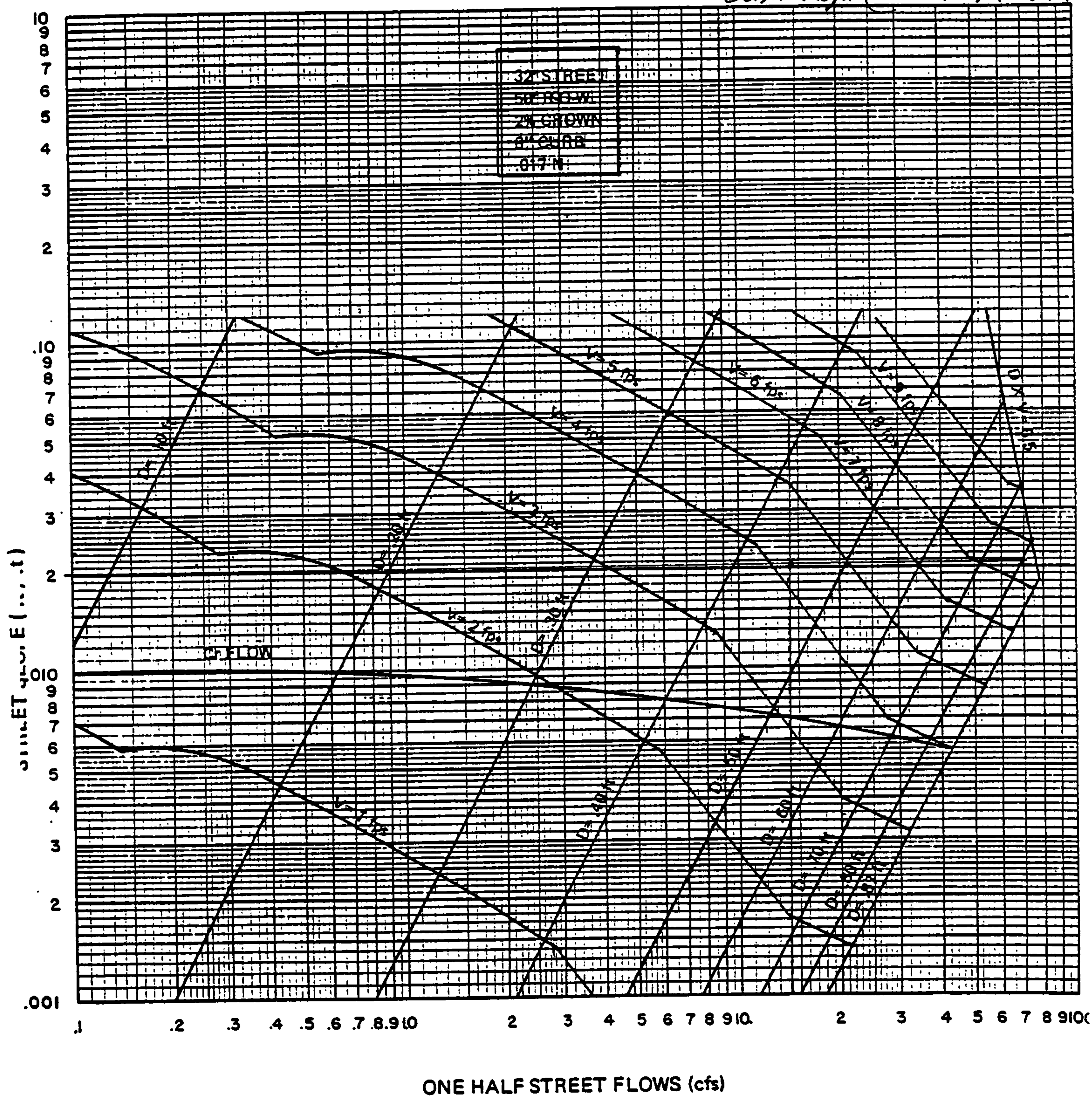
ASSUMPTION: FLOW IS EVENLY DIVIDED BETWEEN BOTH SIDES OF THE STREET

INLETS LOCATION:		CASA ROJA @ UPSTREAM OF CASA MORENA	
Q(FULL)	28.35 cfs	SLOPE	2.02%
Q(1/2 STREET)	14.18 cfs		
FROM PLATE 22.3 D-1:			
VELOCITY	4.2 ft/s	DEPTH	0.45 ft
ENERGY GRADE	0.72 ft		
ROW ELEVATION	0.84 ft	OK	
TYPE 'A' INLET	Q(INLET)	7.00 cfs	
	Q(BYPASS)	7.18 cfs	

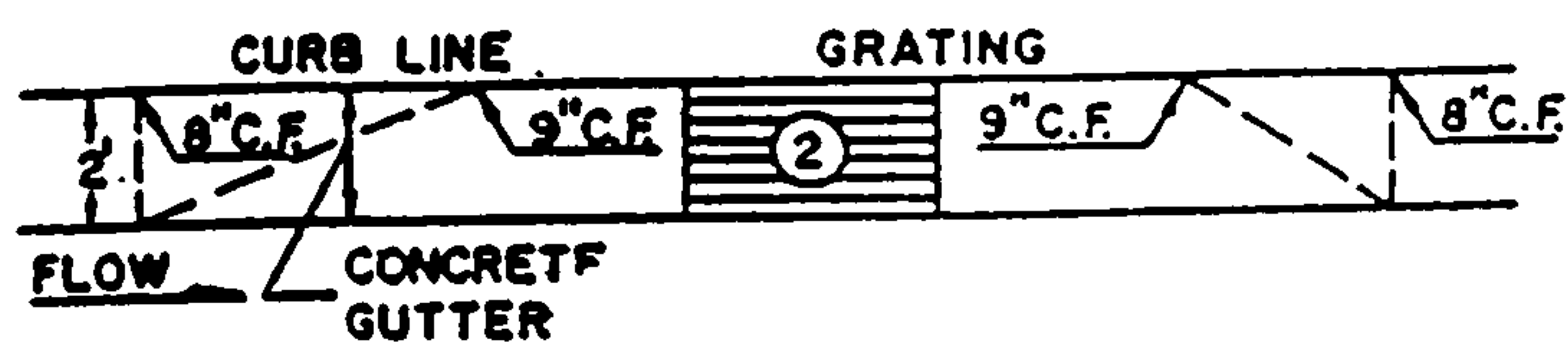
LET 7.18 CFS BYPASS TO NEXT INLET LOCATION

STREET CAPACITY

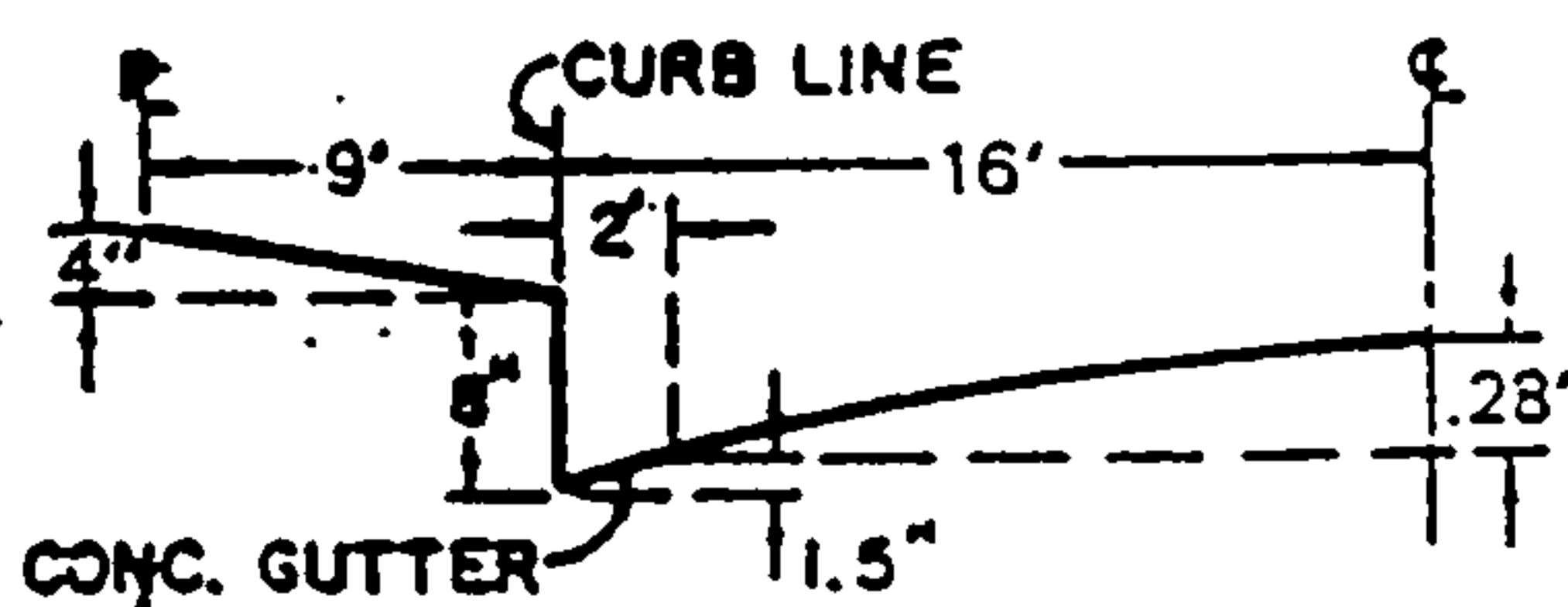
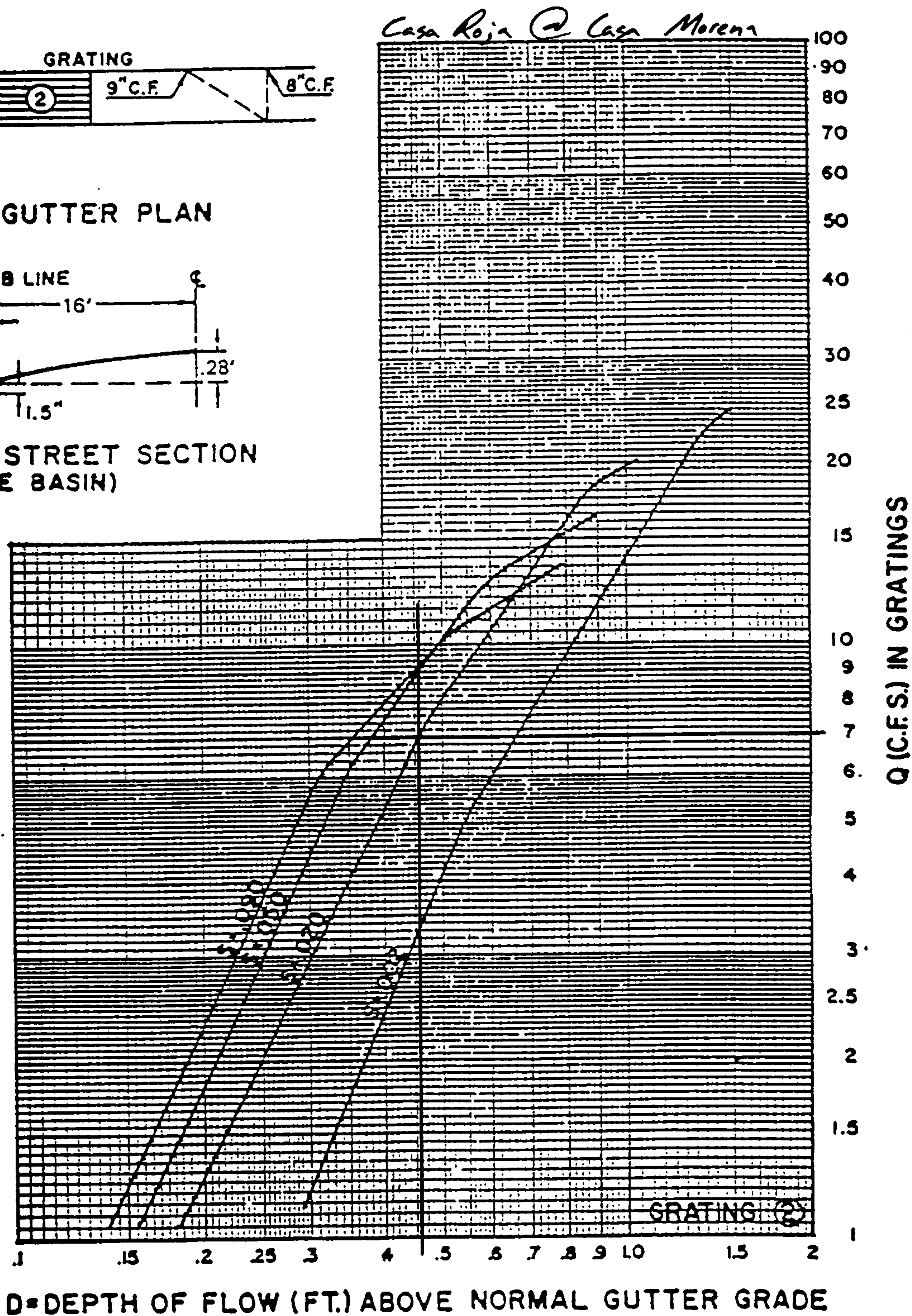
Casa Roja @ Casa Morena



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



GRATING & GUTTER PLAN

TYPICAL HALF STREET SECTION
(ABOVE BASIN)

INLET DESIGN

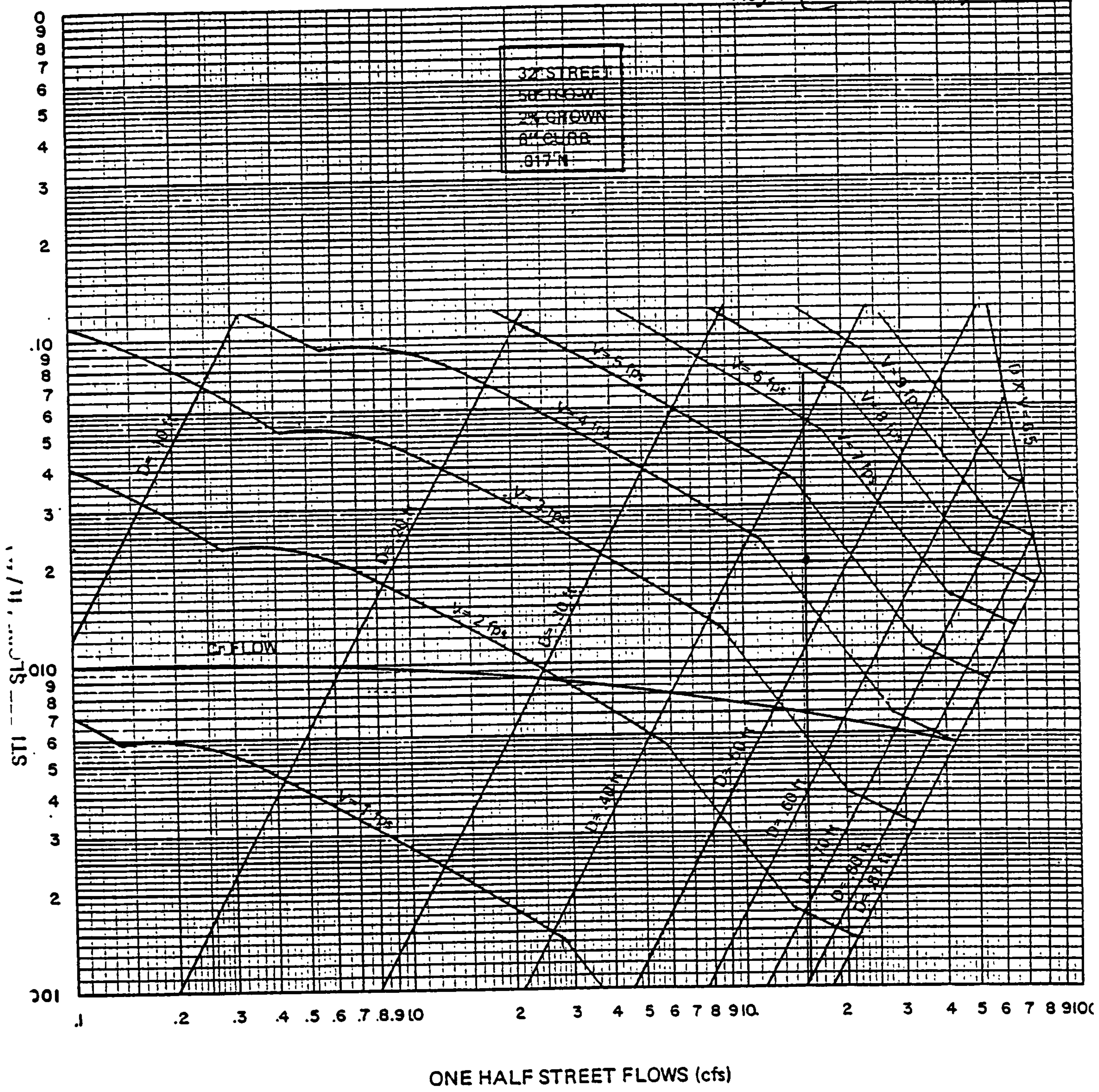
ASSUMPTION: FLOW IS EVENLY DIVIDED BETWEEN BOTH SIDES OF THE STREET

INLETS LOCATION:		CASA ROJA @ UPSTREAM OF CASA NEGRA	
Q(FULL)	31.09 cfs	SLOPE	2.02%
Q(1/2 STREET)	15.55 cfs		
FROM PLATE 22.3 D-1:			
VELOCITY	4.4 ft/s	DEPTH	0.46 ft
ENERGY GRADE	0.76 ft		
ROW ELEVATION	0.84 ft	OK	
TYPE 'A' INLET	Q(INLET)	7.20 cfs	
	Q(BYPASS)	8.35 cfs	

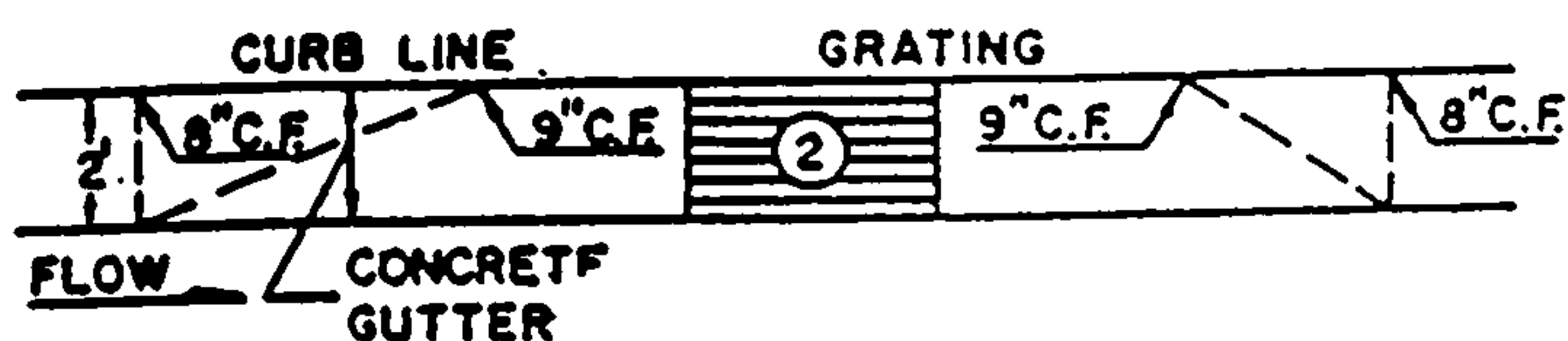
LET 8.35 CFS BYPASS TO NEXT INLET LOCATION

STREET CAPACITY

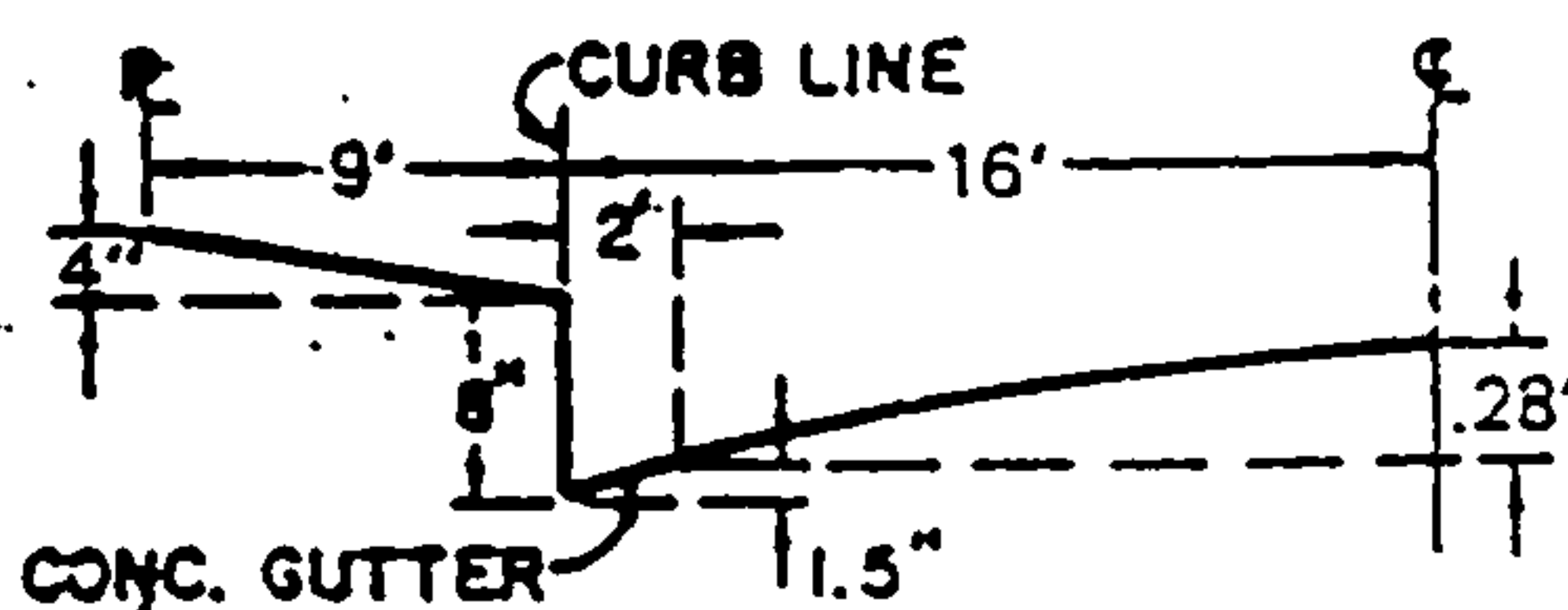
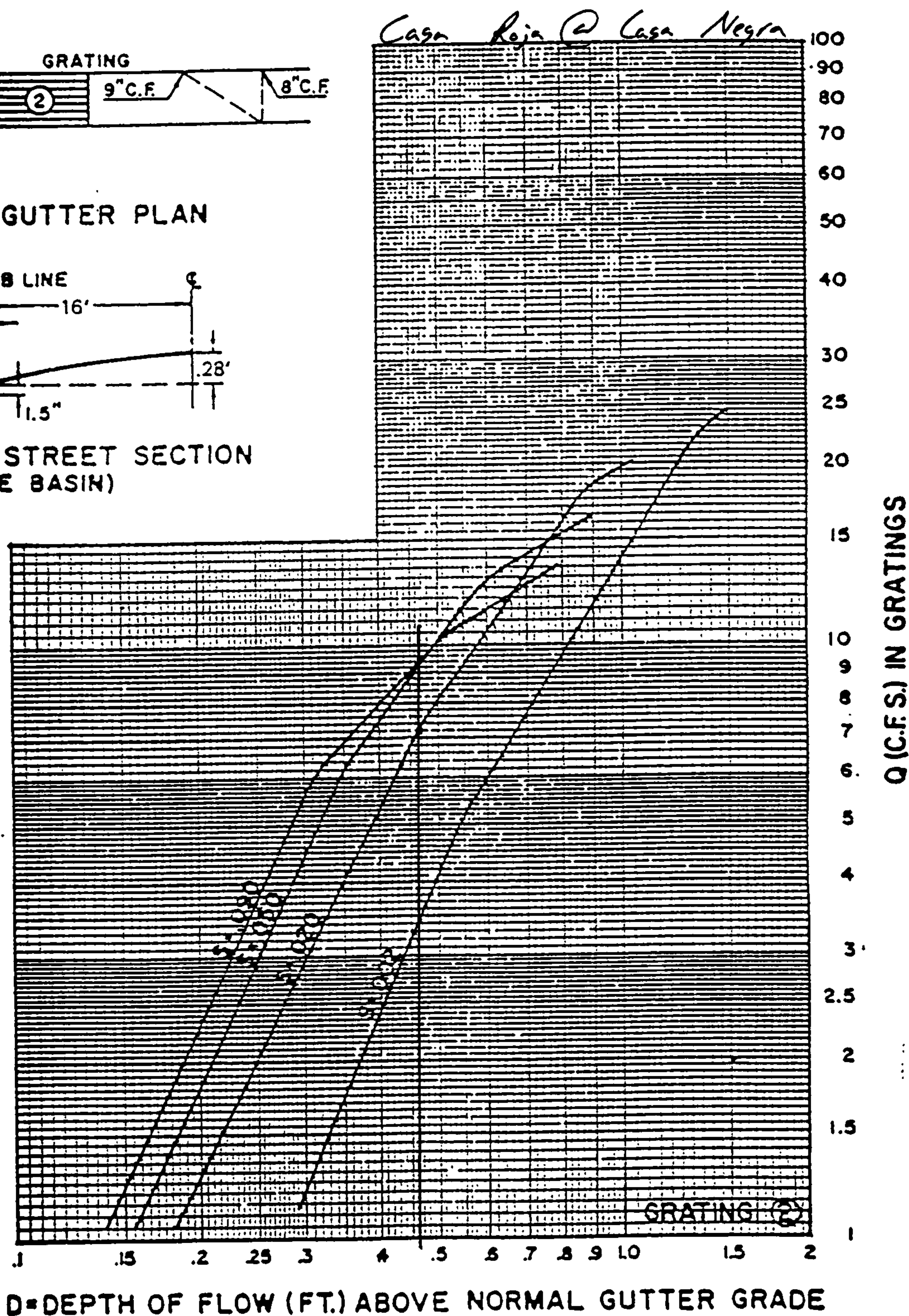
Casa Roja @ Casa Negra



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



GRATING & GUTTER PLAN

TYPICAL HALF STREET SECTION
(ABOVE BASIN)

INLET DESIGN

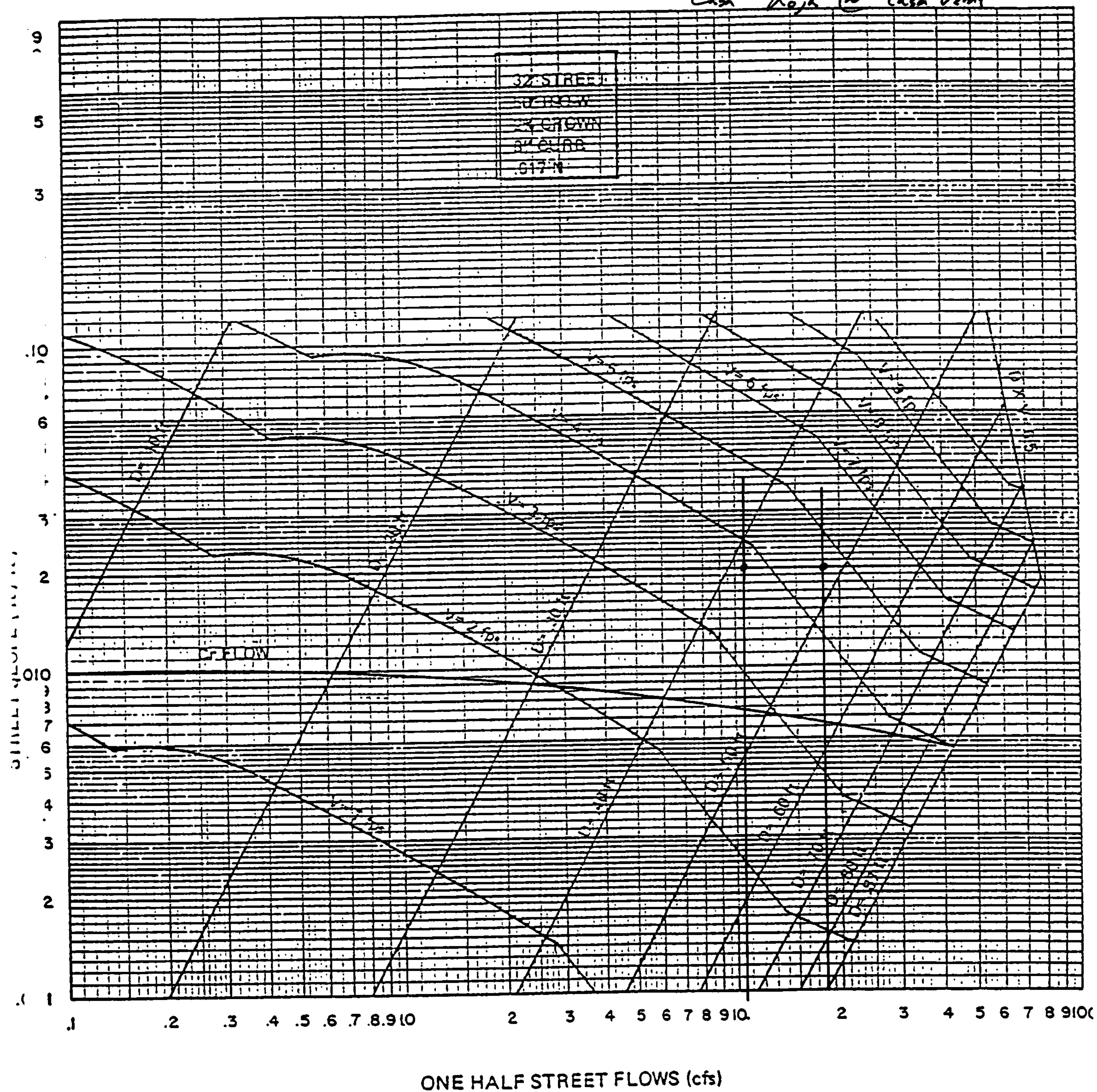
ASSUMPTION: FLOW IS EVENLY DIVIDED BETWEEN BOTH SIDES OF THE STREET

INLETS LOCATION:		CASA ROJA @ UPSTREAM OF CASA VERDE	
Q(FULL)	36.87 cfs	SLOPE	2.02%
Q(1/2 STREET)	18.44 cfs		
FROM PLATE 22.3 D-1: VELOCITY	4.7 ft/s	DEPTH	0.48 ft
ENERGY GRADE	0.82 ft		
ROW ELEVATION	0.84 ft	OK	
TYPE 'A' INLET	Q(INLET)	7.60 cfs	
	Q(BYPASS)	10.84 cfs	
FROM PLATE 22.3 D-1: VELOCITY	3.8 ft/s	DEPTH	0.42 ft
ENERGY GRADE	0.64 ft		
ROW ELEVATION	0.84 ft	OK	
TYPE DOUBLE	Q(INLET)	7.00 cfs	
'C' INLET	Q(BYPASS)	3.83 cfs	

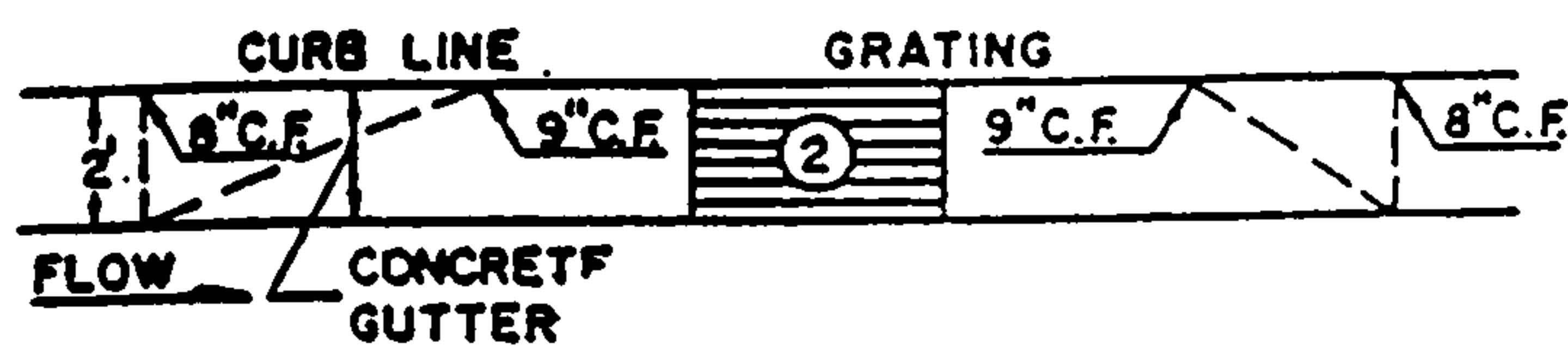
LET 3.83 CFS BYPASS TO NEXT INLET LOCATION

STREET CAPACITY

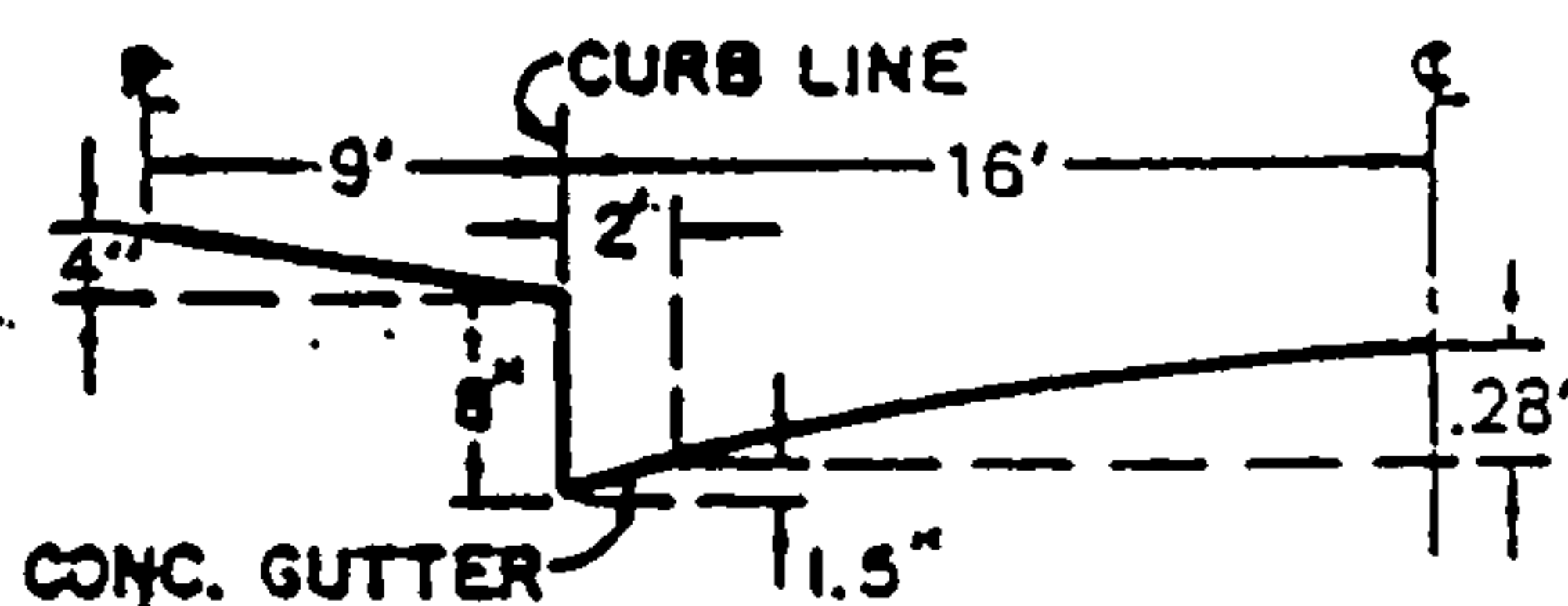
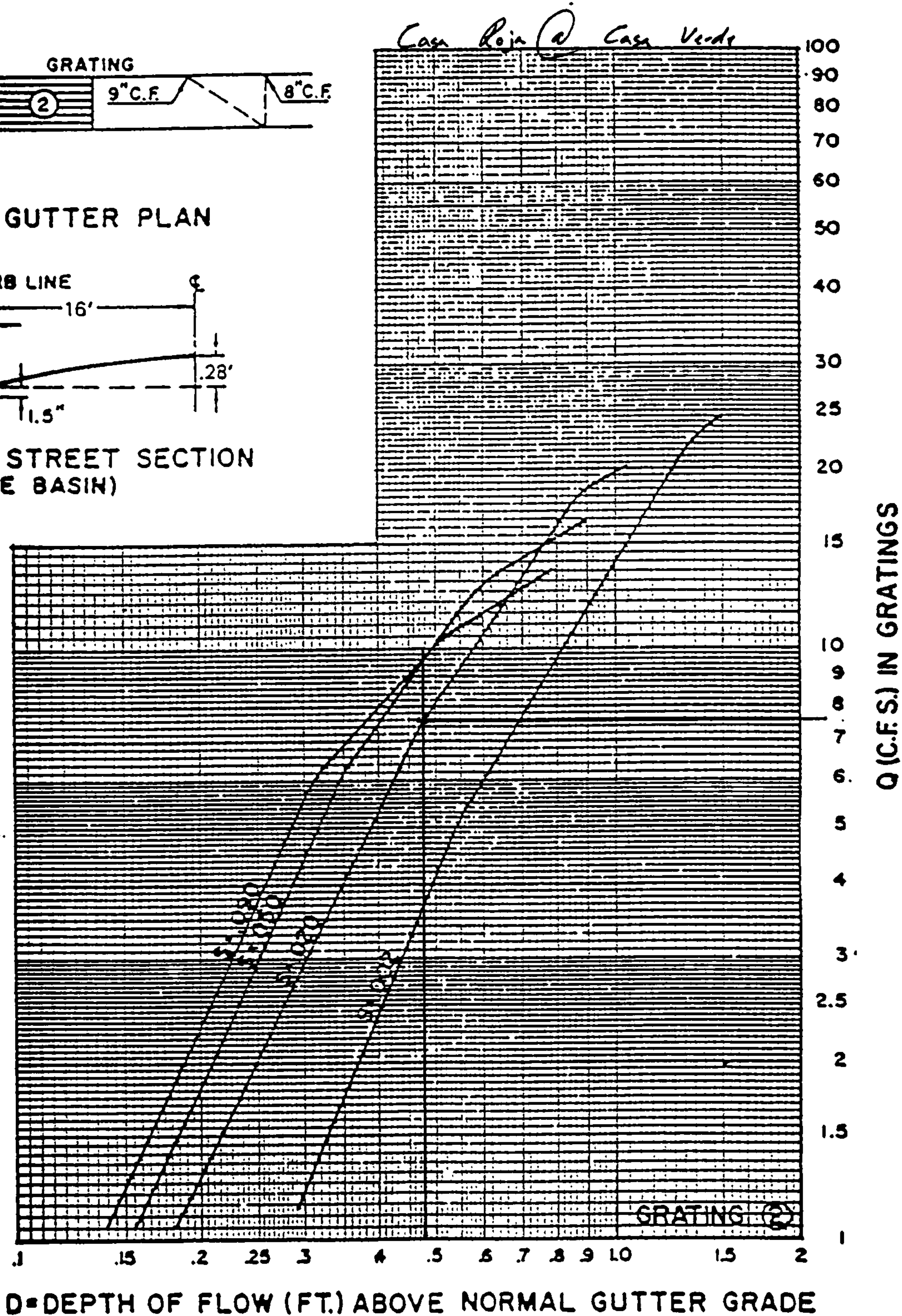
Casa Raja @ Casa Verde



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

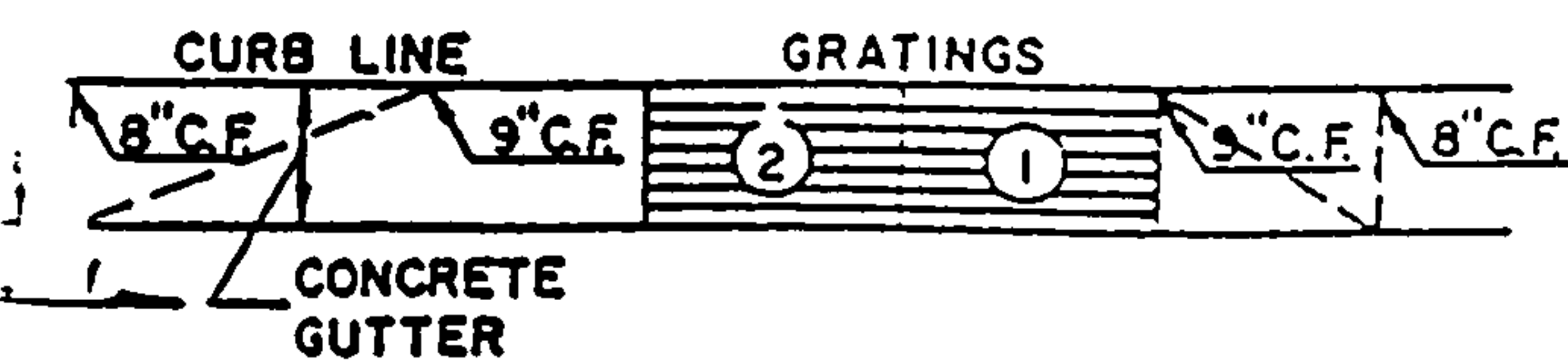


GRATING & GUTTER PLAN

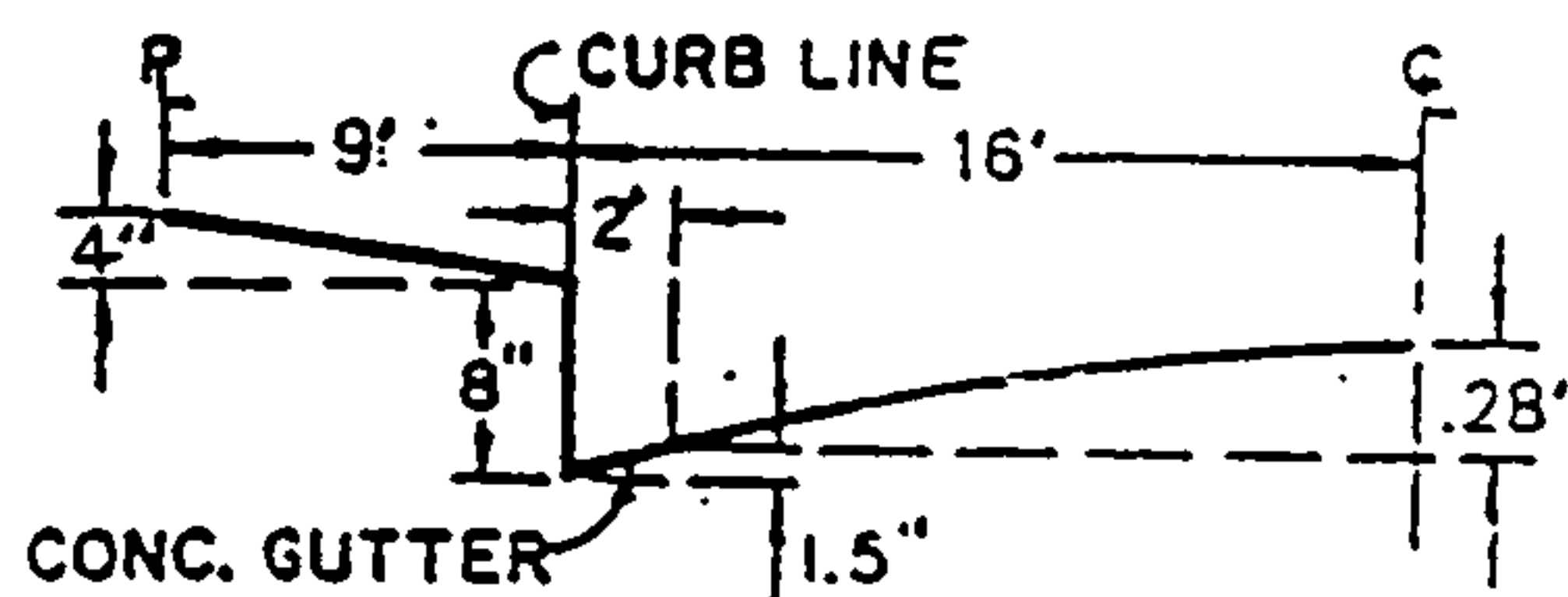
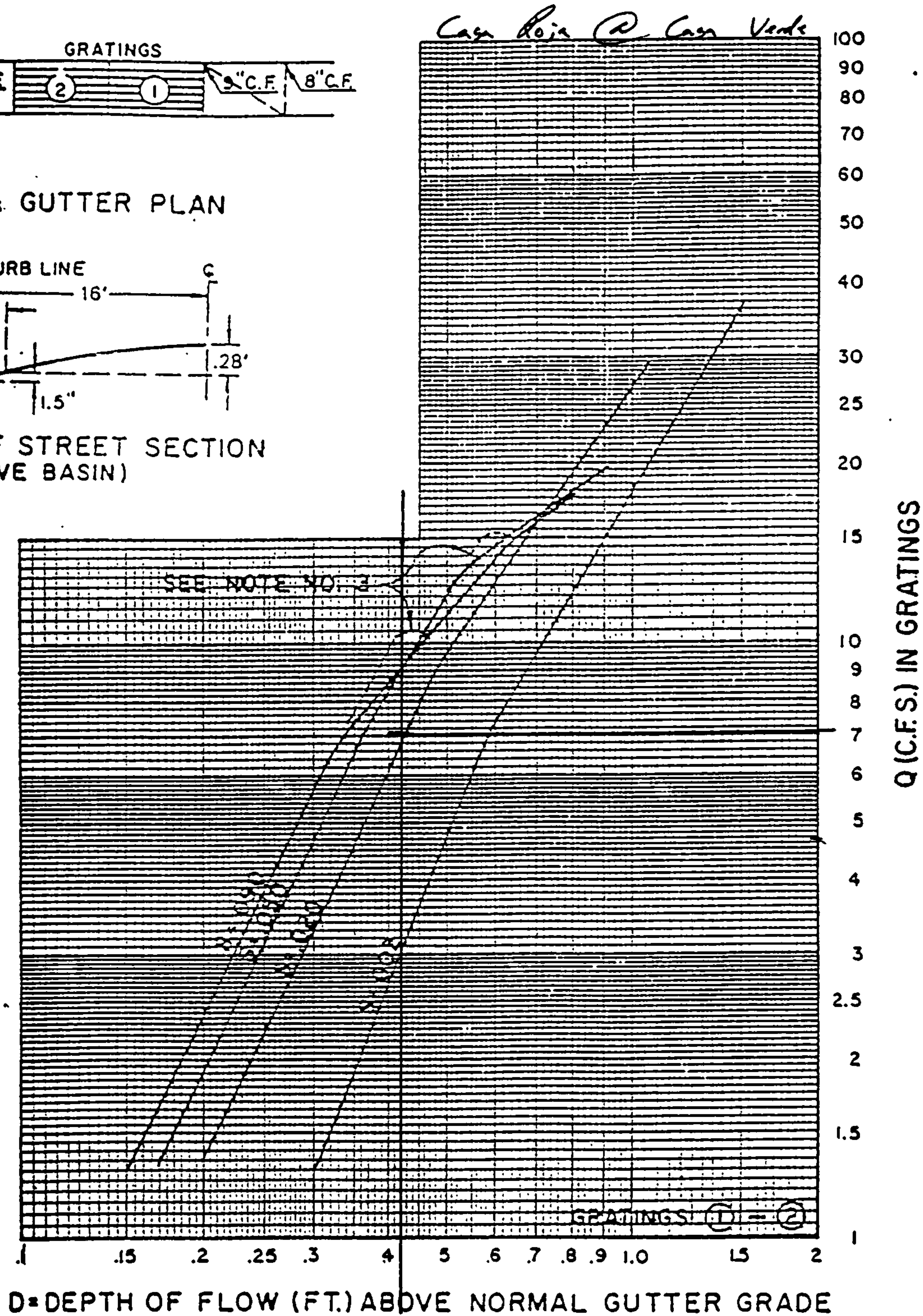
TYPICAL HALF STREET SECTION
(ABOVE BASIN)

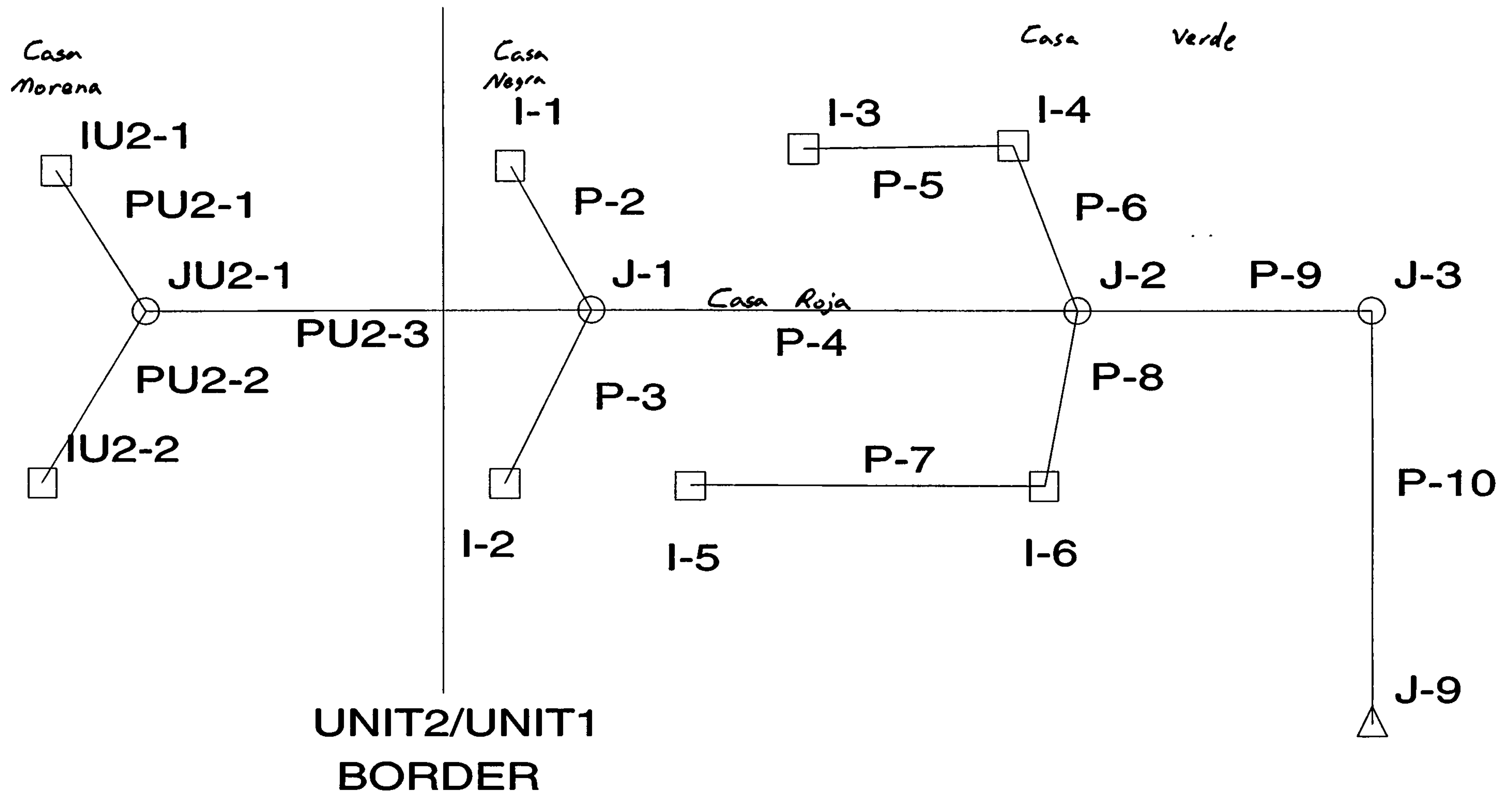
GRATING CAPACITIES FOR TYPE DOUBLE

"C," AND "D"



GRATING & GUTTER PLAN

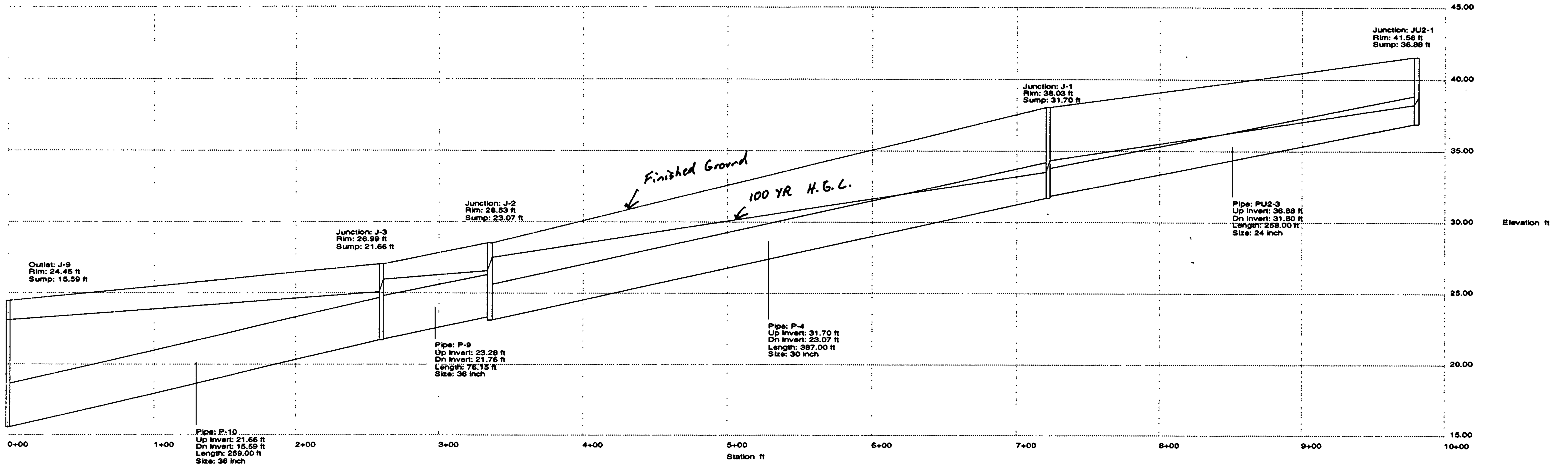
TYPICAL HALF STREET SECTION
(ABOVE BASIN)



NOTE: PIPE PU2-3 IS ALSO PIPE #1 FOR UNIT 1

STORM DRAIN SYSTEM

Pipe	Up Node	Dn Node	S (ft/ft)	Length (ft)	Size	Q (cfs)	Cap (cfs)	V avg (ft/s)	Up Rim (ft)	Up Invert (ft)	Up Cover (ft)	Up HGL (ft)	Up EGL (ft)	Dn Rim (ft)	Dn Invert (ft)	Dn Cover (ft)	Dn HGL (ft)	Dn EGL (ft)	Add. Q (cfs)
PU2-1	IU2-1	JU2-1	0.056376	7.45	18 inch	7.00	24.94	4.04	41.40	37.40	2.50	38.78	39.04	41.56	36.98	3.08	38.77	39.01	7.00
PU2-2	IU2-2	JU2-1	0.019858	21.15	18 inch	7.00	14.80	3.98	41.40	37.40	2.50	38.86	39.11	41.56	36.98	3.08	38.77	39.01	7.00
PU2-3	JU2-1	J-1	0.019690	258.00	24 inch	14.00	31.74	5.34	41.56	36.88	2.68	38.23	38.83	38.03	31.80	4.23	34.29	34.60	N/A
P-2	I-1	J-1	0.056376	7.45	18 inch	7.20	24.94	4.07	36.22	32.22	2.50	34.32	34.58	38.03	31.80	4.73	34.29	34.55	7.20
P-3	I-2	J-1	0.019858	21.15	18 inch	7.20	14.80	4.07	36.22	32.22	2.50	34.39	34.65	38.03	31.80	4.73	34.29	34.55	7.20
P-4	J-1	J-2	0.022300	387.00	30 inch	28.40	61.25	6.61	38.03	31.70	3.83	33.52	34.38	28.53	23.07	2.96	27.46	27.98	N/A
P-5	I-3	I-4	0.048887	20.66	18 inch	7.60	23.22	4.30	28.91	24.91	2.50	27.66	27.95	28.40	23.90	3.00	27.56	27.84	7.60
P-6	I-4	J-2	0.056376	7.45	24 inch	14.60	53.71	4.65	28.40	23.80	2.60	27.49	27.82	28.53	23.38	3.15	27.46	27.79	7.00
P-7	I-5	I-6	0.036339	36.60	18 inch	7.60	20.02	4.30	29.23	25.23	2.50	27.80	28.09	28.40	23.90	3.00	27.61	27.90	7.60
P-8	I-6	J-2	0.019858	21.15	24 inch	14.60	31.88	4.65	28.40	23.80	2.60	27.55	27.88	28.53	23.38	3.15	27.46	27.79	7.00
P-9	J-2	J-3	0.019961	76.15	36 inch	57.60	94.23	8.15	28.53	23.28	2.25	26.53	27.56	26.99	21.76	2.23	25.96	26.99	N/A
P-10	J-3	J-9	0.023436	259.00	36 inch	57.60	102.10	8.15	26.99	21.66	2.33	25.03	26.06	24.45	15.59	5.86	23.10	24.13	N/A



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STORM DRAIN DESIGN

**CASA ROJA PL.
@
NORTH CUL-DE-SAC**

(Appendix C)

INLET DESIGN

ASSUMPTION: FLOW IS EVENLY DIVIDED BETWEEN BOTH SIDES OF THE STREET

INLETS LOCATION:	CASA ROJA @ NORTH CUL-DE-SAC		
Q(FULL)	19.31 cfs		
		SLOPE	2.56%
Q(1/2 STREET)	9.66 cfs		
FROM PLATE 22.3 D-1:	:		
VELOCITY	4.00 ft/s	DEPTH	0.39 ft
ENERGY GRADE		0.64 ft	
ROW ELEVATION		0.84 ft	OK
TYPE 'A' INLET	Q(INLET)	5.50 cfs	
	Q(BYPASS)	4.16 cfs	
FROM PLATE 22.3 D-1:			
VELOCITY	3.3 ft/s	DEPTH	0.3 ft
ENERGY GRADE		0.47 ft	
ROW ELEVATION		0.84 ft	OK
TOTAL FLOW	8.31 cfs		
DEPTH	0.44 ft	BASED ON WIER EQUATION	

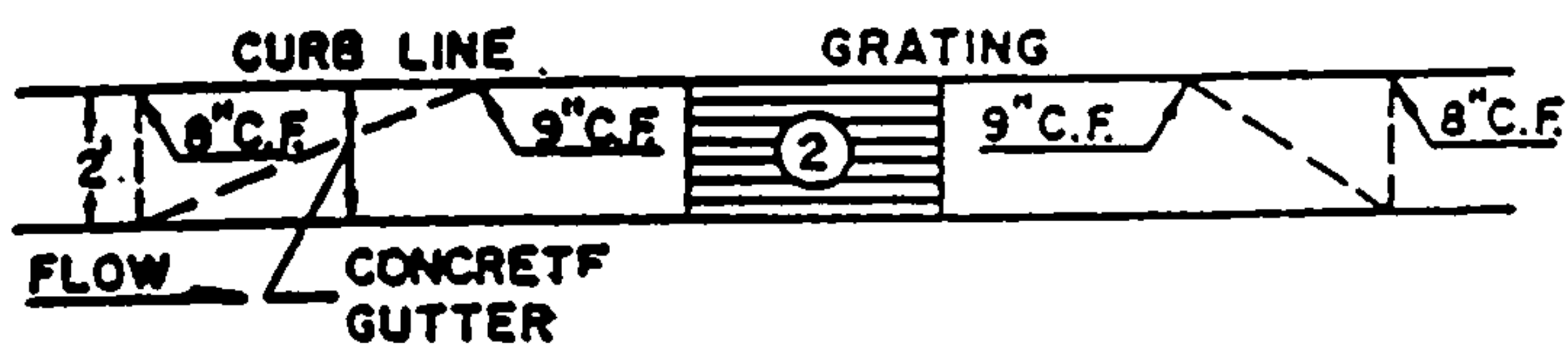
THEREFORE, ONE DOUBLE 'C' IS CAPABLE OF HANDLING 8.31 CFS
IN SUMP CONDITION

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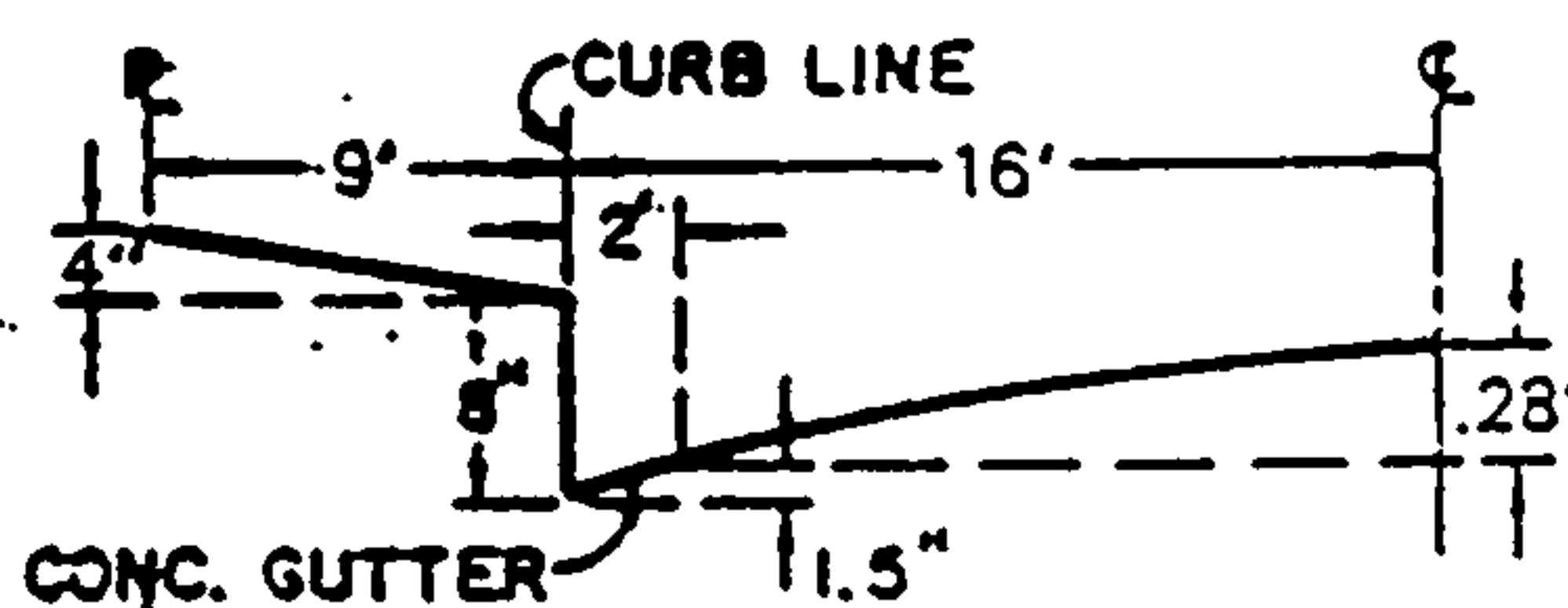
North East- Case Reg.



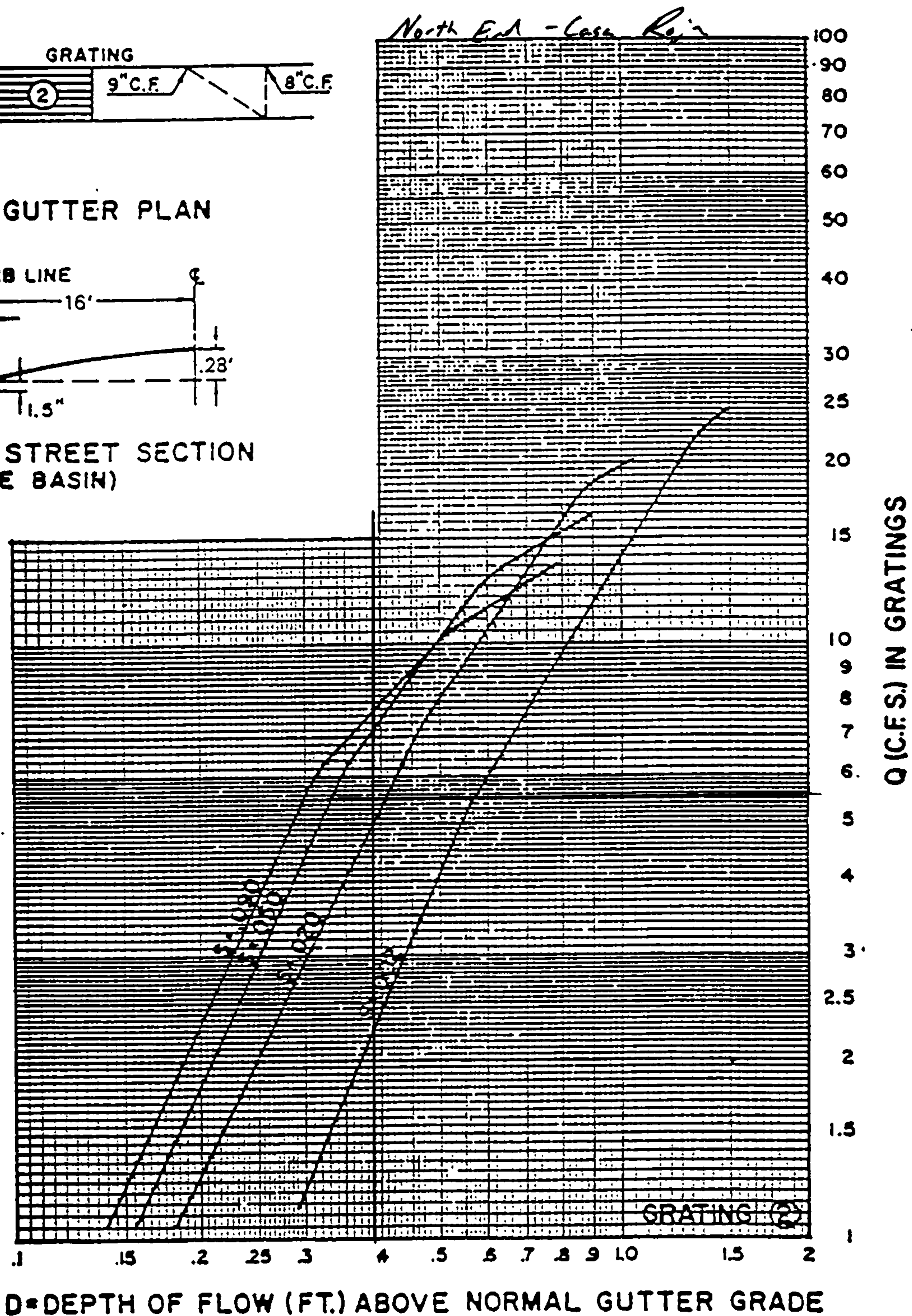
GRATING CAPACITIES FOR TYPE "A", "C" and "D"

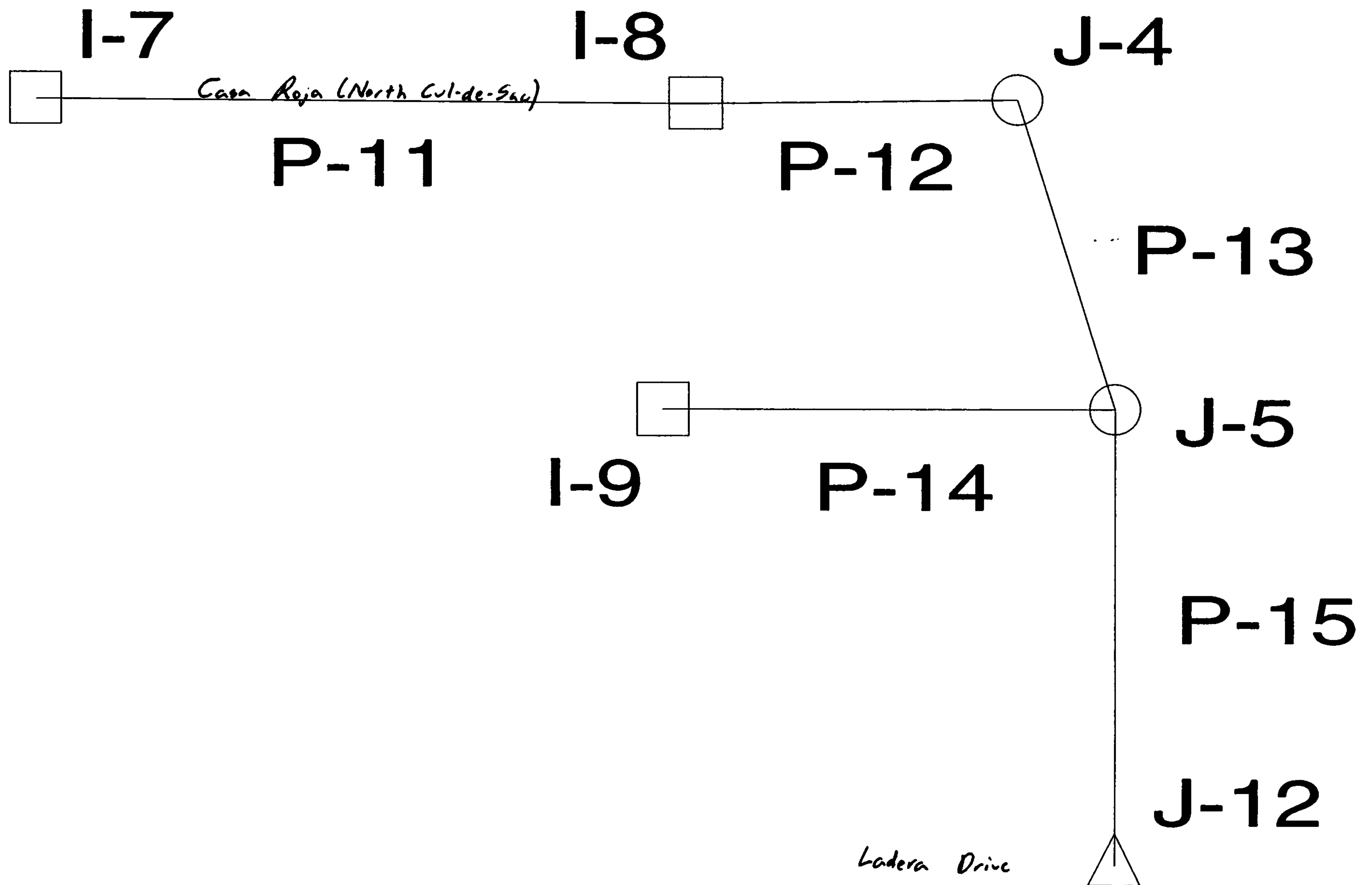


GRATING & GUTTER PLAN



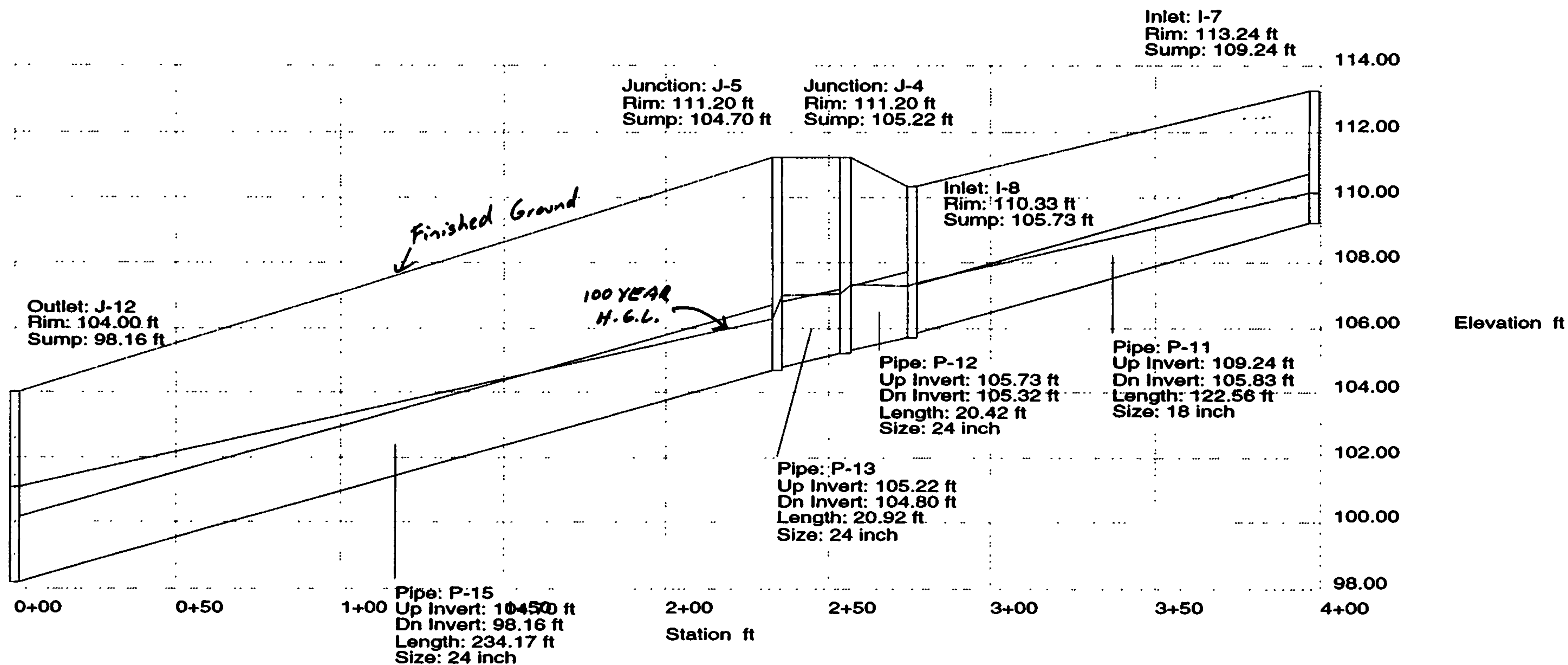
**TYPICAL HALF STREET SECTION
(ABOVE BASIN)**





STORM DRAIN SYSTEM

Pipe	Up Node	Dn Node	S (ft/ft)	Length (ft)	Size	Q (cfs)	Cap (cfs)	V avg (ft/s)	Up Rim (ft)	Up Invert (ft)	Up Cover (ft)	Up HGL (ft)	Up EGL (ft)	Dn Rim (ft)	Dn Invert (ft)	Dn Cover (ft)	Dn HGL (ft)	Dn EGL (ft)	Add. Q (cfs)
P-11	I-7	I-8	0.027823	122.56	18 inch	5.50	17.52	4.03	113.24	109.24	2.50	110.14	110.52	110.33	105.83	3.00	107.40	107.55	5.50
P-12	I-8	J-4	0.020078	20.42	24 inch	13.81	32.05	4.78	110.33	105.73	2.60	107.32	107.73	111.20	105.32	3.88	107.36	107.66	8.31
P-13	J-4	J-5	0.020076	20.92	24 inch	13.81	32.05	4.47	111.20	105.22	3.98	107.07	107.39	111.20	104.80	4.40	107.02	107.32	N/A
P-14	I-9	J-5	0.047381	37.99	18 inch	5.50	22.86	4.03	110.60	106.60	2.50	107.50	107.88	111.20	104.80	4.90	107.02	107.17	5.50
P-15	J-5	J-12	0.027928	234.17	24 inch	19.31	37.80	6.70	111.20	104.70	4.50	106.28	107.10	104.00	98.16	3.84	101.06	101.65	N/A



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STORM DRAIN DESIGN

LADERA DRIVE

(Appendix C)

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
INPUT FILE = LAD100.DAT

RUN DATE (MON/DAY/YR) =02/23/1996
USER NO.= CINFRNM.101

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
*S TIERRA OSESTE SUBDIVISION DRAINAGE REVISION DATE: 2/96											
*S Compute 100 Year Flow FN:LAD100.DAT BY:RGG											
*S COMPUTE 100YR-6HR STORM FOR LADERA BLVD-4 LANE SECTION											
*S FOR INLET SPACING-FULL BUILDOUT											
*S											
*S											
START											
RAINFALL TYPE= 1										TIME=	.00
										RAIN6=	2.200
*S											
*S COMPUTE FLOWS CONTRIBUTING TO LADERA STORM DRAIN											
*S											
*S											
*S BASIN OFF5-----											
*S											
COMPUTE NM HYD	101.10	-	1	.00330	7.62	.265	1.50558	1.499	3.609	PER IMP=	60.00
*S											
*S BASIN OFF6A-----											
*S											
COMPUTE NM HYD	102.10	-	2	.00620	11.11	.376	1.13713	1.499	2.799	PER IMP=	40.00
*S											
*S BASIN OFF6B-----											
*S											
COMPUTE NM HYD	103.10	-	3	.00740	13.25	.449	1.13713	1.499	2.798	PER IMP=	40.00
*S											
*S BASIN OFF6C-----											
*S											
COMPUTE NM HYD	104.10	-	4	.00180	4.16	.145	1.50558	1.499	3.615	PER IMP=	60.00
*S											
*S BASIN OFF6D-----											
*S											
COMPUTE NM HYD	105.10	-	5	.00220	5.09	.177	1.50558	1.499	3.612	PER IMP=	60.00
*S											
FINISH											

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
INPUT FILE = LADERA10.DAT

RUN DATE (MON/DAY/YR) =02/23/1996
USER NO.= CINFRNNM.101

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION

*S TIERRA OSESTE SUBDIVISION DRAINAGE REVISION DATE: 2/96
*S Compute 10-Year Flow FN:LADERA.DAT BY:RGG
*S COMPUTE 10YR-6HR STORM FOR LADERA BLVD-4 LANE SECTION
*S FOR INLET SPACING-FULL BUILDOUT
*S
*S
START
RAINFALL TYPE= 1
*S
*S COMPUTE FLOWS CONTRIBUTING TO LADERA STORM DRAIN
*S
*S
*S BASIN OFF5-----
*S
COMPUTE NM HYD 101.10 - 1 .00330 4.59 .153 .86986 1.499 2.174 PER IMP= 60.00
*S
*S BASIN OFF6A-----
*S
COMPUTE NM HYD 102.10 - 2 .00620 5.89 .198 .59861 1.499 1.485 PER IMP= 40.00
*S
*S BASIN OFF6B-----
*S
COMPUTE NM HYD 103.10 - 3 .00740 7.03 .236 .59861 1.499 1.484 PER IMP= 40.00
*S
*S BASIN OFF6C-----
*S
COMPUTE NM HYD 104.10 - 4 .00180 2.51 .084 .86986 1.499 2.178 PER IMP= 60.00
*S
*S BASIN OFF6D-----
*S
COMPUTE NM HYD 105.10 - 5 .00220 3.06 .102 .86986 1.499 2.176 PER IMP= 60.00
*S
FINISH

TIME= .00
RAIN6= 1.470

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
*S TIERRA OSESTE SUBDIVISION DRAINAGE REVISION DATE: 2/96										
*S Compute 10-Year Flow FN:LADERA.DAT BY:RGG										
*S COMPUTE 10YR-6HR STORM FOR LADERA BLVD-6 LANE SECTION										
*S FOR INLET SPACING-FULL BUILDOUT										
*S										
*S										
START										
RAINFALL TYPE= 1										
*S										
*S COMPUTE FLOWS CONTRIBUTING TO LADERA STORM DRAIN										
*S										
*S										
*S BASIN OFF5-----										
*S										
COMPUTE NM HYD	101.10	-	1	.00330	5.47	.190	1.08149	1.499	2.592 PER IMP=	83.00
*S										
*S BASIN OFF6A-----										
*S										
COMPUTE NM HYD	102.10	-	2	.00620	5.68	.197	.59530	1.499	1.431 PER IMP=	43.00
*S										
*S BASIN OFF6B-----										
*S										
COMPUTE NM HYD	103.10	-	3	.00740	6.77	.235	.59530	1.499	1.430 PER IMP=	43.00
*S										
*S BASIN OFF6C-----										
*S										
COMPUTE NM HYD	104.10	-	4	.00180	2.99	.104	1.08149	1.499	2.596 PER IMP=	83.00
*S										
*S BASIN OFF6D-----										
*S										
COMPUTE NM HYD	105.10	-	5	.00220	3.65	.127	1.08149	1.499	2.594 PER IMP=	83.00
*S										
FINISH										

TIME= .00
RAIN6= 1.470

RUN DATE (MON/DAY/YR) =02/23/1996
USER NO.= CINFRNM.101

```
TIME=      .00
RAIN6=    2.200
```


PROJECT: _____

DATE: _____



CALCULATIONS

By: _____ Pg: ____ of ____

Ladera Blvd - Storm Drain Design

- Check For 1 Lane Dry in 10 year storm For both
Proposed 4 Lane Section & Future 6 Lane Section

4 Lane Road

$$\text{Lane width} = 13' - 2' (\text{Gutter}) = 11' \quad 12' \text{ Width}$$

$$D = 0.125 + 11(0.02) = \underline{0.345'} \quad \checkmark$$

6 Lane Road

$$\text{Lane width} = (13' - 2') + 12' = 23'$$

$$D = 0.125 + 23'(0.02) = \underline{0.585'}$$

- For 100 yr Storm - Keep Energy Grade Line within
Ladera Right of Way

$$\text{Max E.G.} = (10' - 7.5''/12)(0.02) + 0.667 = \underline{0.85'}$$

$F_L \rightarrow P_L$

Top of Curb
Width

10 yr Storm

- Assumption

1) Match Inlets @ Sta 15+40 (Existing)

2) Work ~~Back~~ Upstream From Sta 15+40
to place next set of inlets @ maximum
Distance away From Sta 15+40

- STA 15+40

- Basin OFF6A

From ANYMO

$$Q \text{ For 4 Lane Road} = 1.484 \text{ cfs/Acre}$$

$$Q \text{ For 6 Lane Road} = 1.930 \text{ cfs/Acre}$$

PROJECT: _____

DATE: _____



CALCULATIONS

By: _____ Pg: _____ of _____

Inlet Controls For 10 yr Storm - 4 Lane or 6 Lane

Use Basin OFF CC For Example

AHYMO Run $Q = 2.18 \text{ cfs/acre} - 4 \text{ lane}$ $Q = 2.60 \text{ cfs/acre} - 6 \text{ lane}$ From Plate 22.3 For $S = 3.16\%$ $D = 0.345' (4 \text{ Lane})$
 $D = 0.585' (6 \text{ Lane})$.5' max $Q_{max} = 6.5 \text{ cfs}$ For 4 lane Road $Q_{max} = 38 \text{ cfs}$ For 6 lane Road- Convert $\text{cfs/acre} \Rightarrow \text{cfs/L.F. of ROAD/ACRE}$

$$4\text{-Lane} = \frac{2.18}{\left(\frac{43560}{105\%}\right)} = 0.0027 \text{ cfs/L.F.}$$

$$6\text{-Lane} = \frac{2.60}{\left(\frac{43560}{105\%}\right)} = 0.0032 \text{ cfs/L.F.}$$

$$\text{SPACING For 4 Lane Road} = \frac{6.5}{0.0027} = 2407'$$

$$\text{For 6 Lane Road} = \frac{38}{0.0032} = 11,875'$$

 $\therefore$ 4 Lane Road Controls

PROJECT: _____

DATE: _____



CALCULATIONS

By: _____ Pg: ____ of ____

- STA 15+40 (cont)

$$\textcircled{a} \text{ STA } 15+40 \quad S = 3.16\%$$

$$\text{- From Plate 22.3 For } D = 0.345' \text{ \& } S = 3.16\%$$

$$Q_{\max} = 6.5 \text{ cfs}$$

- Linear feet of Roadway / Acre

$$(106/2) + 100' \text{ Easement} = 153'$$

$$1 \text{ acre} = 43560 \text{ Ft}^2$$

$$43560 / 153 = 284.7' \text{ of Roadway} = 1 \text{ Acre}$$

$$\text{From AHYMO } \text{cfs/Acre} = 1.484$$

$$\text{- cfs/Linear Foot of Road} = \frac{1.484}{284.7} = \underline{0.0052 \text{ cfs per L.F.}}$$

$$\text{For } S = 3.16\% \quad \text{Spacing of Inlets} =$$

$$\frac{6.5}{0.0052} = 1250'$$

$$\text{STA } 15+40 - 1250' = \text{STA } 2+90$$

$$\text{From STA } 10+80 \text{ - } 714+00 \quad S = 0.753\% \text{ (Controls)}$$

$$\text{From STA } 10+00 \text{ - } 74+60 \quad S = 1.93\%$$

$$\textcircled{a} \quad S = 0.753\% \text{ \& } D = 0.345'$$

$$Q_{\max} = 3.0 \text{ cfs - Plate 22.3}$$

$\therefore$ Since $S = 0.753\%$ is ~~the~~ smallest slope
Set inlets For $Q = 3 \text{ cfs}$ @ STA 14+00 ($S = 0.75\%$)

$$\text{Spacing} = \frac{3}{0.0052} \approx 576.9' \Rightarrow \text{USE } 575'$$

$$\text{STA } 14+00 - 575 = \text{STA } 8+25'$$

Set Inlets @ STA 8+25'

$$10\text{-yr Flow @ STA } 18+40$$

$$\text{Distance} = 15+40 - 8+25 = 715'$$

$$Q = 715' (0.0052)$$

$$= \underline{3.72 \text{ cfs}} < 6.5 \text{ cfs} \quad \therefore \text{OK}$$

PROJECT: _____

DATE: _____



CALCULATIONS

By: _____ Pg: ____ of ____

- Inlets Upstream From STA 8+25

- Assumptions

$S = 1.93\%$ Before STA 4+63 (START OF PROJECT)

From Plate 22.3 For $D = 0.345'$ & $S = 1.93\%$

$$Q = 4.8 \text{ cfs}$$

$$\therefore \text{Spacing} = \frac{4.8}{0.0052} \approx 920'$$

920' upstream From STA 8+25 is outside of Project Limits. This is for information only

- Inlets Downstream From STA 15+40

For Slope = 3.16% & $D = 0.345'$ Spacing = 1250' - From Previous sheet

$$\text{STA } 15+40 + 1250' = \text{STA } 27+90$$

- Bottom of Sump in Road is @ STA 25+70

$\therefore$ Sump Controls

- Inlets @ STA 25+70

- Inlets ~~up~~ Up-Station From Sump (STA 25+70)

$$\text{Top of Basin} = \text{STA } 31+20 \quad S = 0.50\% \\ L = 550'$$

From A.H.Y.M.O For Basin OFFCD $Q = 2.18 \text{ cfs/A.L.R.}$
This is For Lateral Right-of-Way only

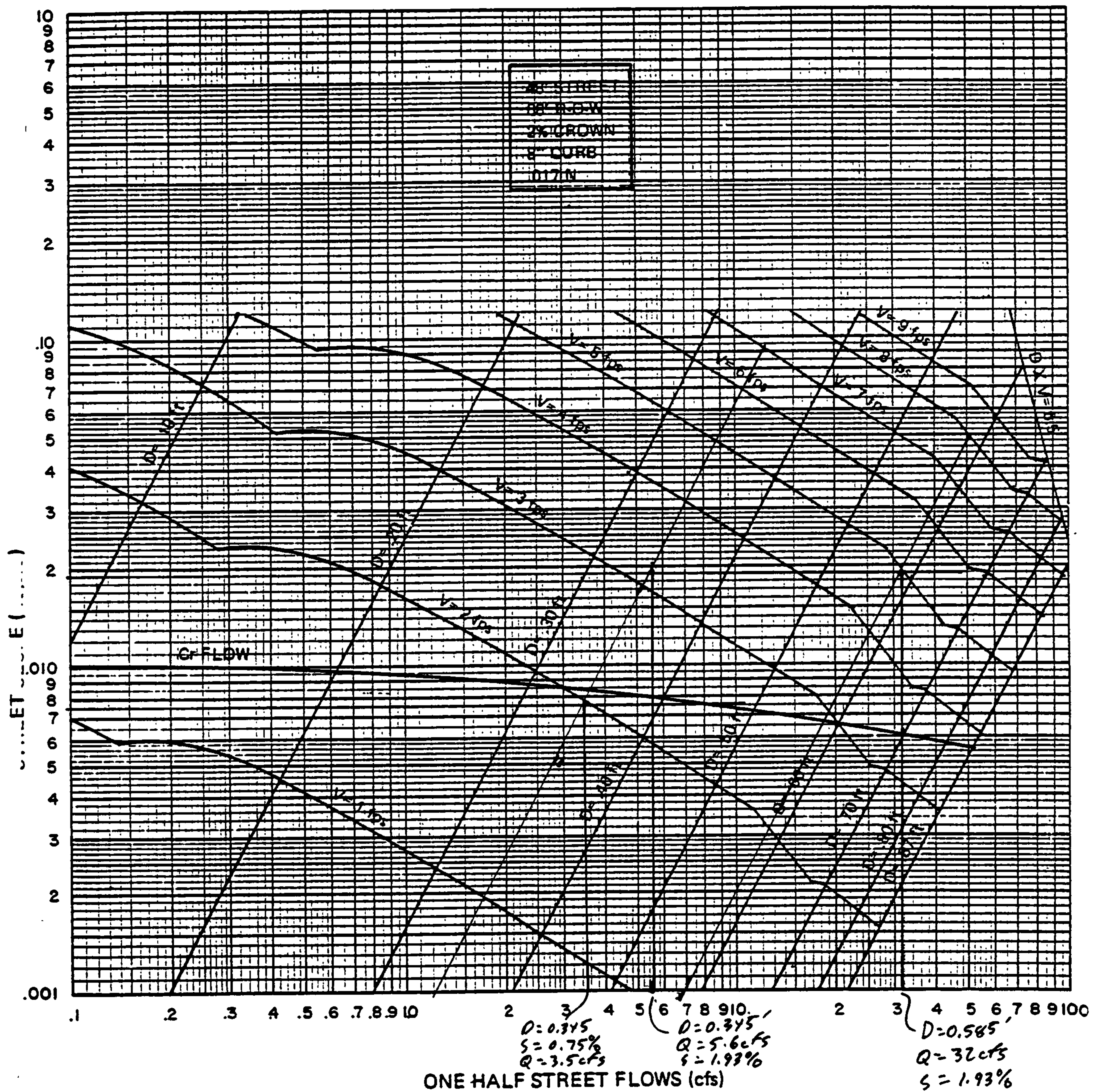
$$\therefore Q \text{ per Linear Foot of Road} = \frac{2.18}{\left(\frac{43560}{106/2}\right)} = 0.0027 \text{ cfs per L.F.}$$

From Plate 22.3 For $S = 0.5\%$ & $D = 0.345'$
 $Q_{\text{max}} = 2.5 \text{ cfs}$

$$\text{Inlet spacing} = \frac{2.5}{0.0027} = 942' > 550'$$

$\therefore$ No Inlets Required Up-Station From STA 25+70

STREET CAPACITY



INLET DESIGN

INLETS LOCATION: LADERA DRIVE - STATION 8+25

ASSUMPTIONS: NO BYPASS FLOW FROM BASIN OFF5 TO OFF6A

FROM AHYMO: BASIN OFF6A 2.693 cfs/acre

TAKE 1/2 OF ROAD AND PNM EASEMENT: 100'+53'=153'
LINEAR FEET OF ROAD PER ACRE: 43560/153=284.71'

CONVERT FLOW FROM CFS PER ACRE TO 2.693/284.71=
TO CFS PER LINEAR FEET OF ROAD: 0.0095 cfs/l.f.

LENGTH OF ROAD FROM TOP OF BASIN STA 8+25 - STA 4+63.5=
TO STA 8+25 361.5'

FLOW AT STA 8+25: 361.15 ft*0.0095 cfs/l.f.=3.42 cfs

Q(1/2 STREET) 3.42 cfs SLOPE 1.93%

FROM PLATE 22.3 D-3:
VELOCITY 2.8 ft/s DEPTH 0.3

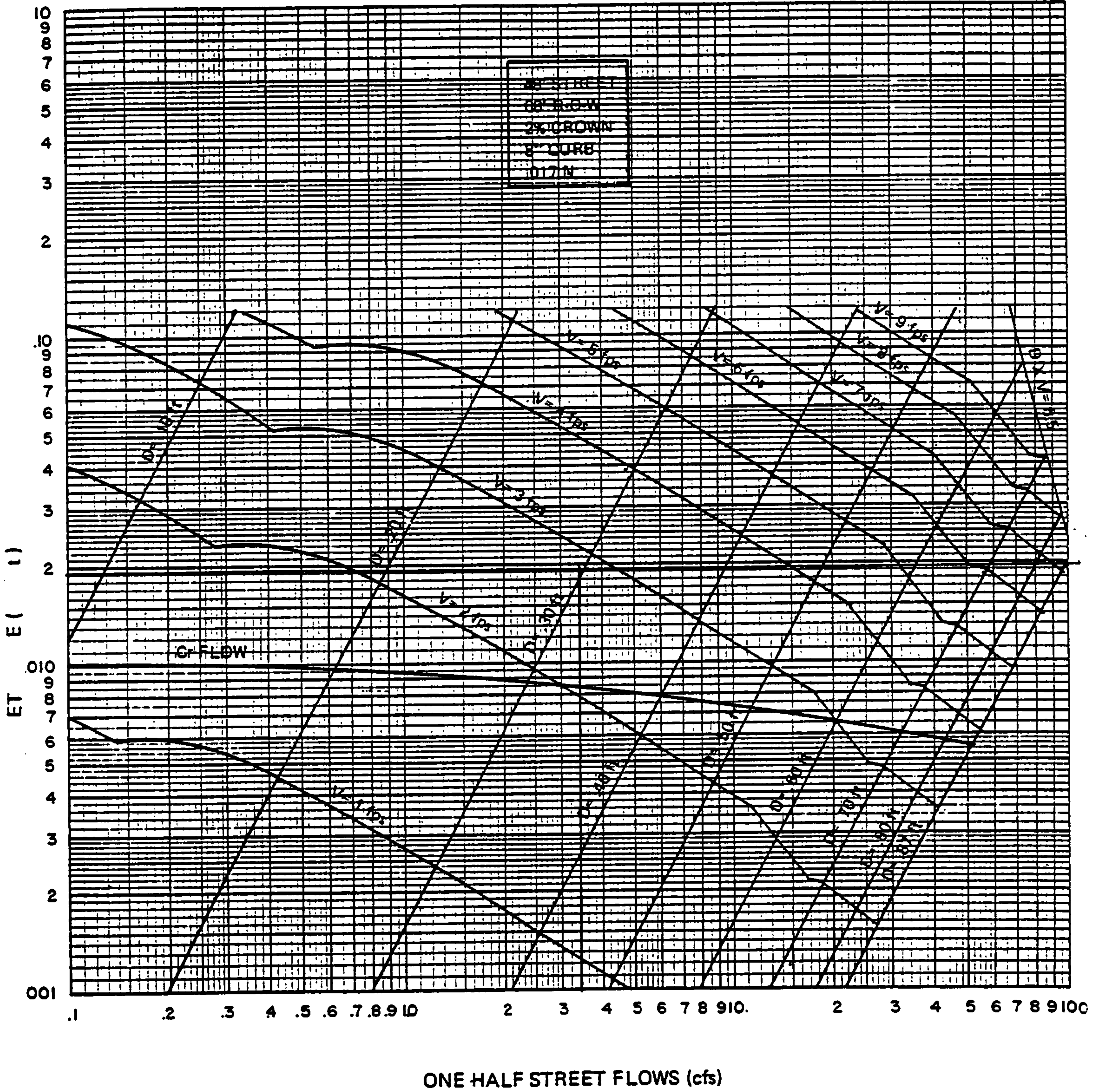
ENERGY GRADE 0.42 ft
ROW ELEVATION 0.85 ft OK

TYPE 'A' INLET Q(INLET) 2.80 cfs
Q(BYPASS) 0.62 cfs

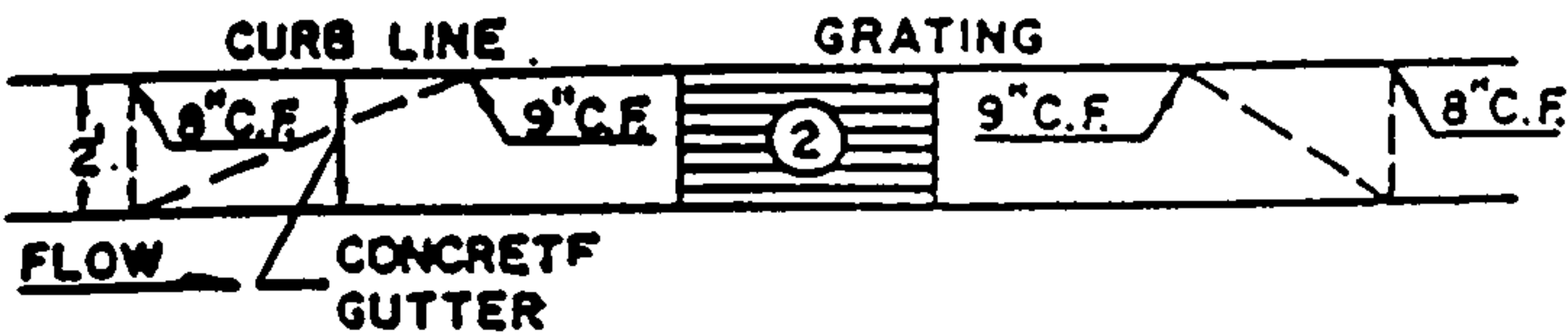
LET 0.62 CFS BYPASS TO NEXT INLET LOCATION

STREET CAPACITY

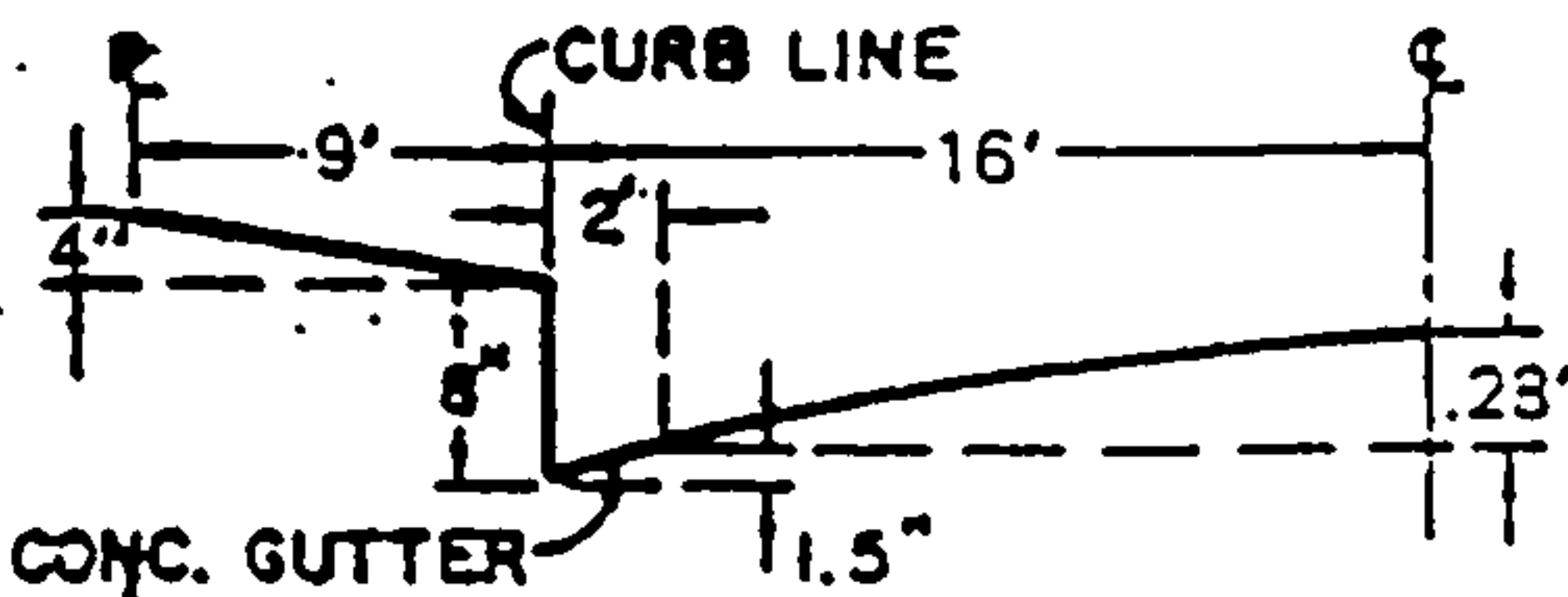
STA 8+25



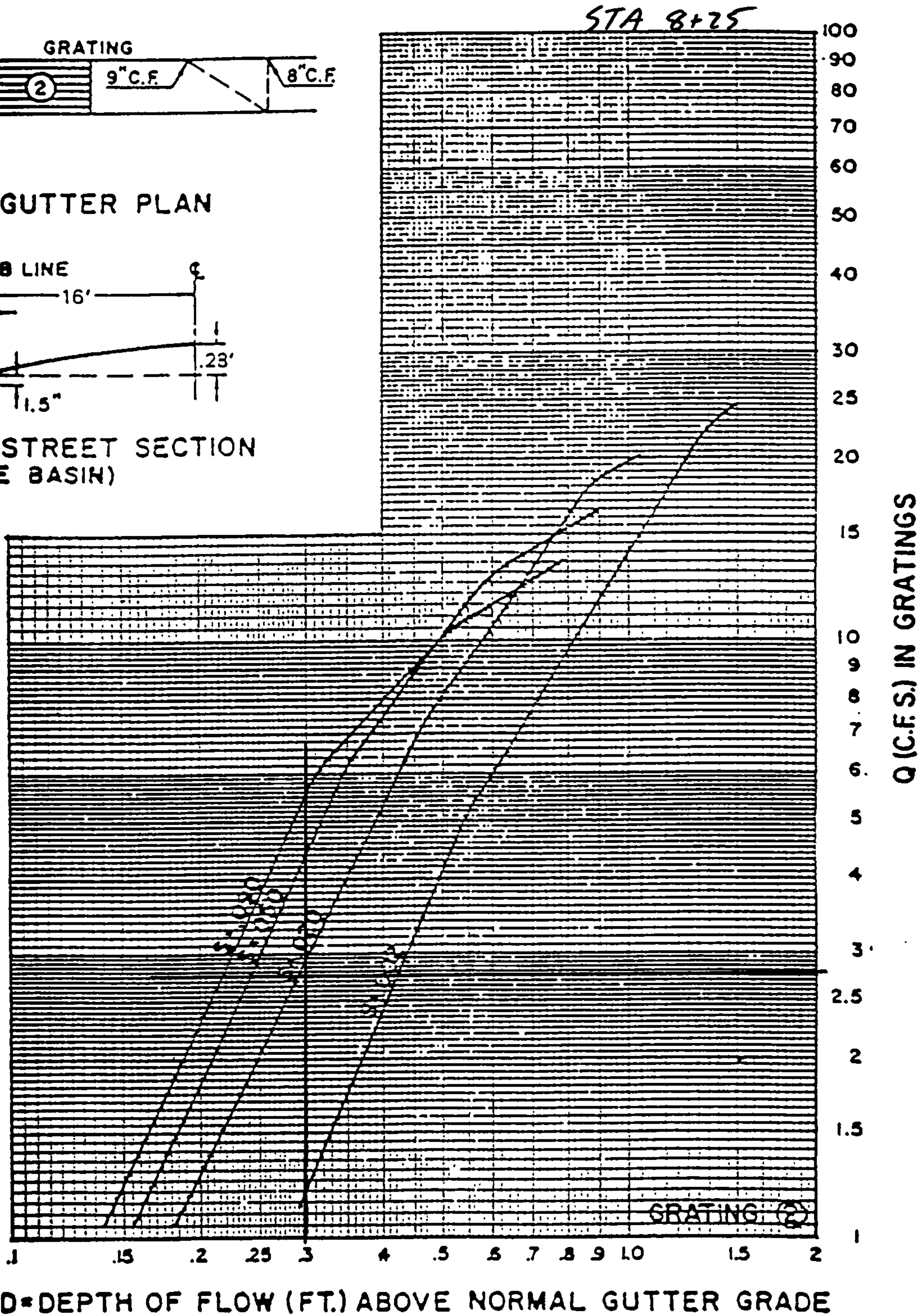
GRATING CAPACITIES FOR TYPE 'A', 'C' and 'D'



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)

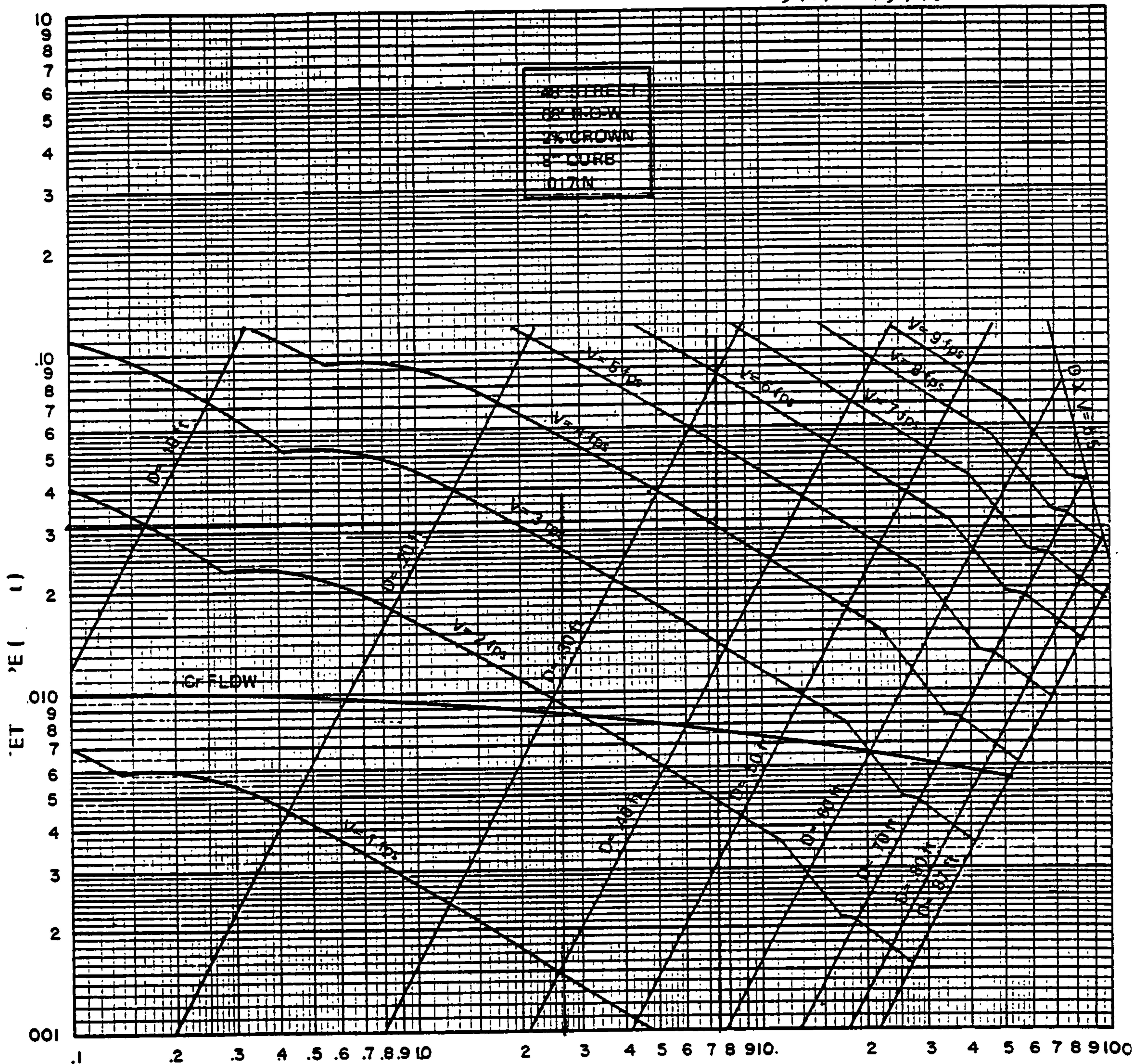


INLET DESIGN

INLETS LOCATION:		LADERA DRIVE - STATION 15+40	
FROM AHYMO: BASIN OFF6A & OFF6B		2.693 cfs/acre	
TAKE 1/2 OF ROAD AND PNM EASEMENT:		100'+53'=153'	
LINEAR FEET OF ROAD PER ACRE:		43560/153=284.71'	
CONVERT FLOW FROM CFS PER ACRE TO TO CFS PER LINEAR FEET OF ROAD:		2.693/284.71= 0.0095 cfs/l.f.	
LENGTH OF ROAD FROM TOP OF BASIN TO STA 15+40		STA 15+40 - STA 8+25= 715.0'	
FLOW AT STA 15+40:		715 ft*0.0095 cfs/l.f.=6.79 cfs+0.62 cfs (BYPASS)	
Q(1/2 STREET)	7.41 cfs	SLOPE	3.16%
FROM PLATE 22.3 D-3: VELOCITY	4.1 ft/s	DEPTH	0.35
ENERGY GRADE ROW ELEVATION	0.61 ft 0.85 ft	OK	
TYPE 'A' INLET	Q(INLET) Q(BYPASS)	4.75 cfs 2.66 cfs	
FROM PLATE 22.3 D-1: VELOCITY	3.3 ft/s	DEPTH	0.26
ENERGY GRADE ROW ELEVATION	0.43 ft 0.84 ft	OK	
TYPE DOUBLE 'C' INLET	Q(INLET) Q(BYPASS)	2.70 cfs 0.00 cfs	

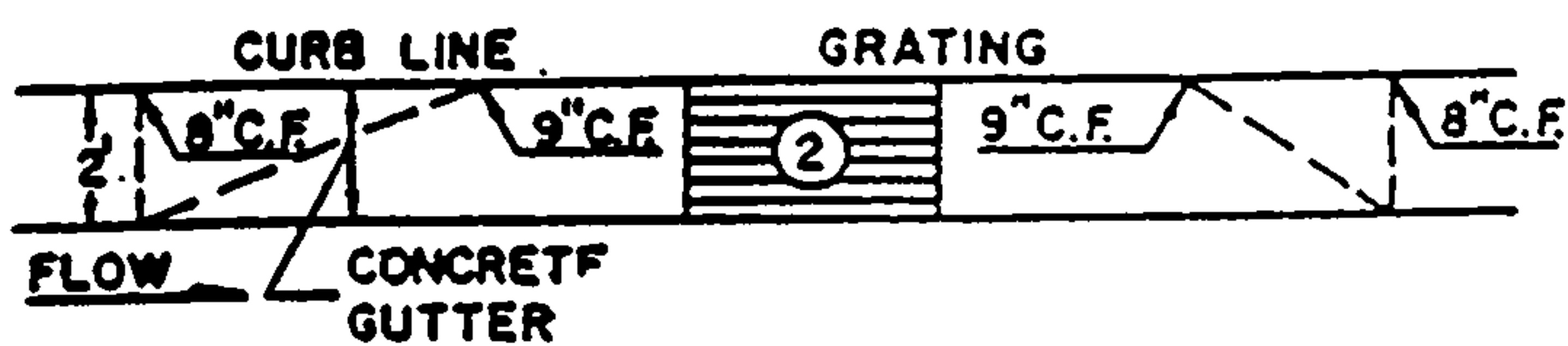
STREET CAPACITY

STA 15+40

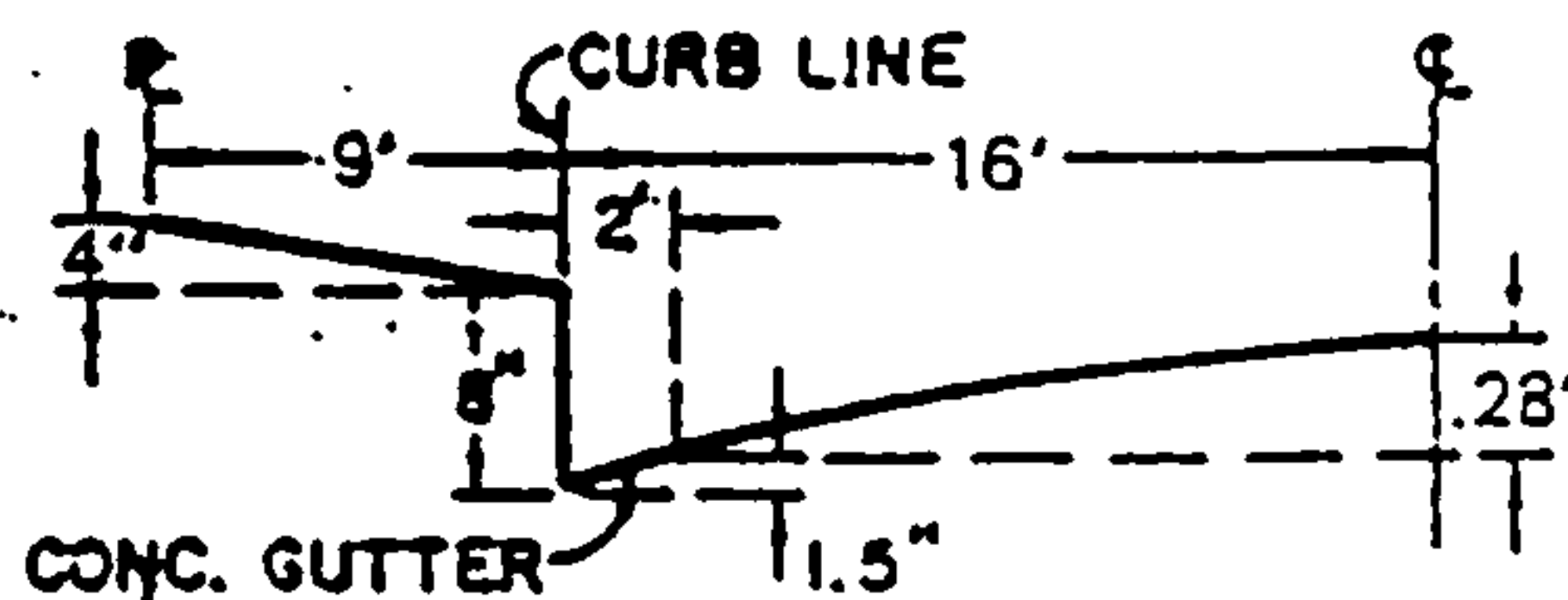
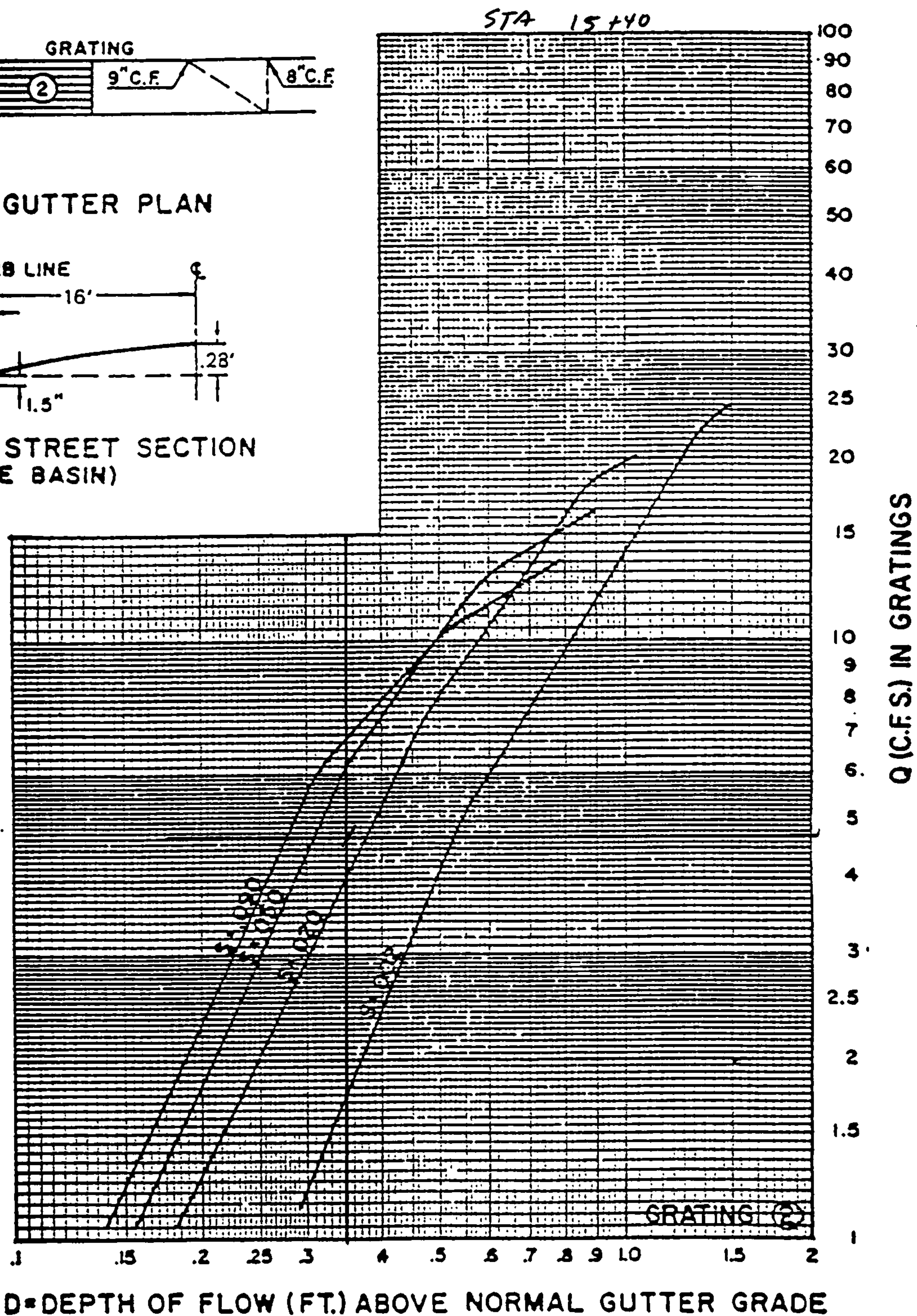


ONE HALF STREET FLOWS (cfs)

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

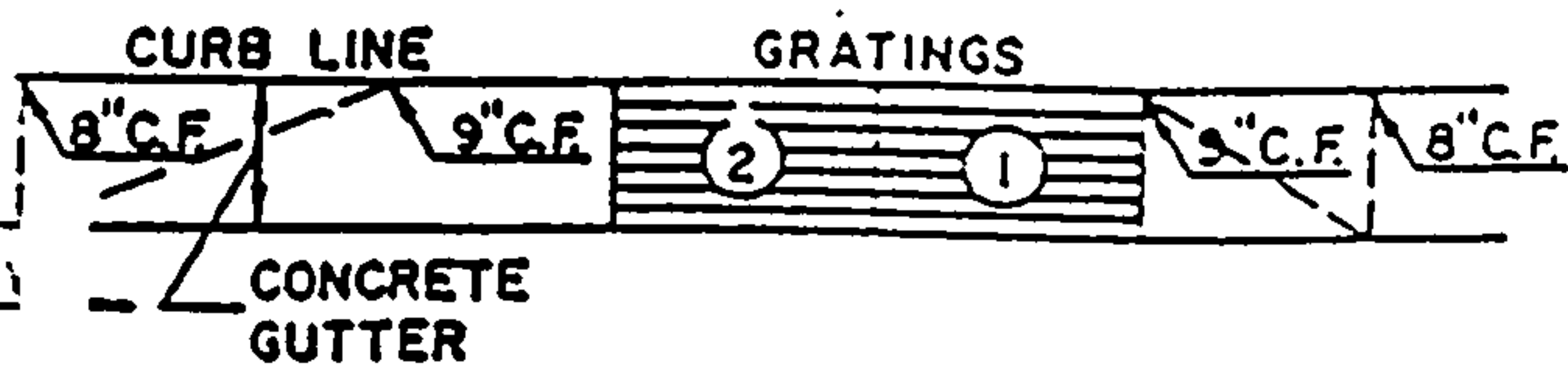


GRATING & GUTTER PLAN

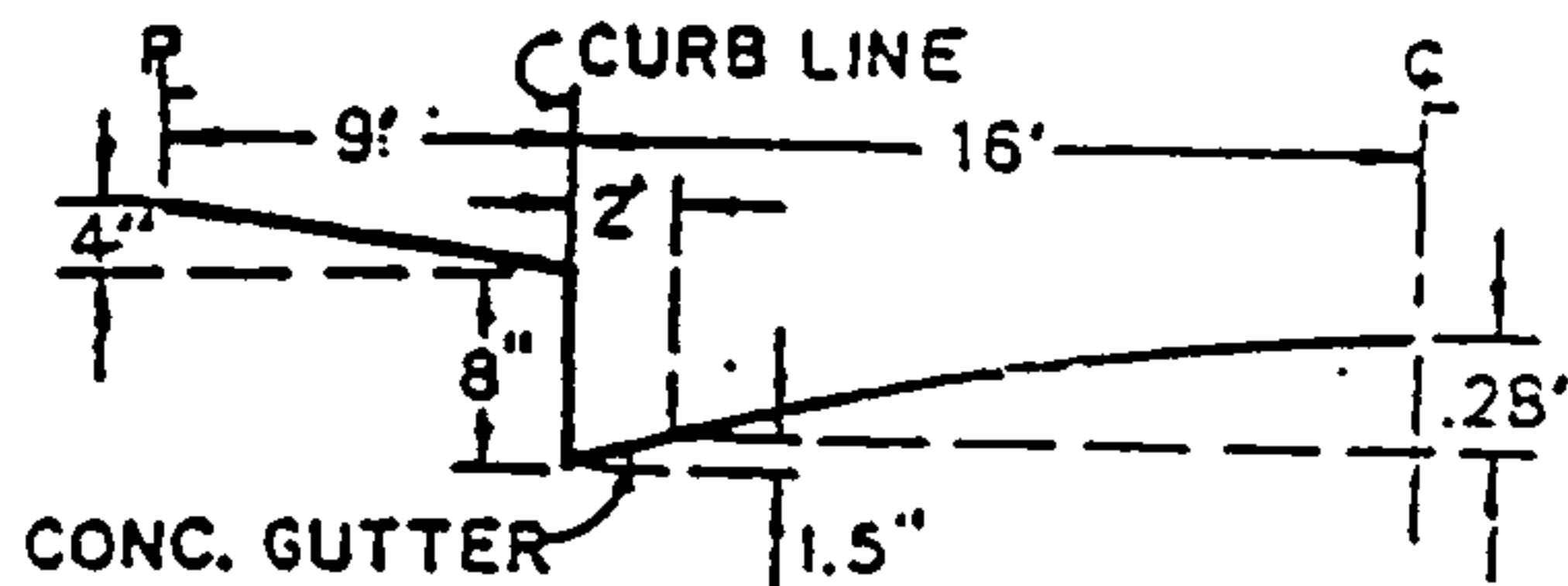
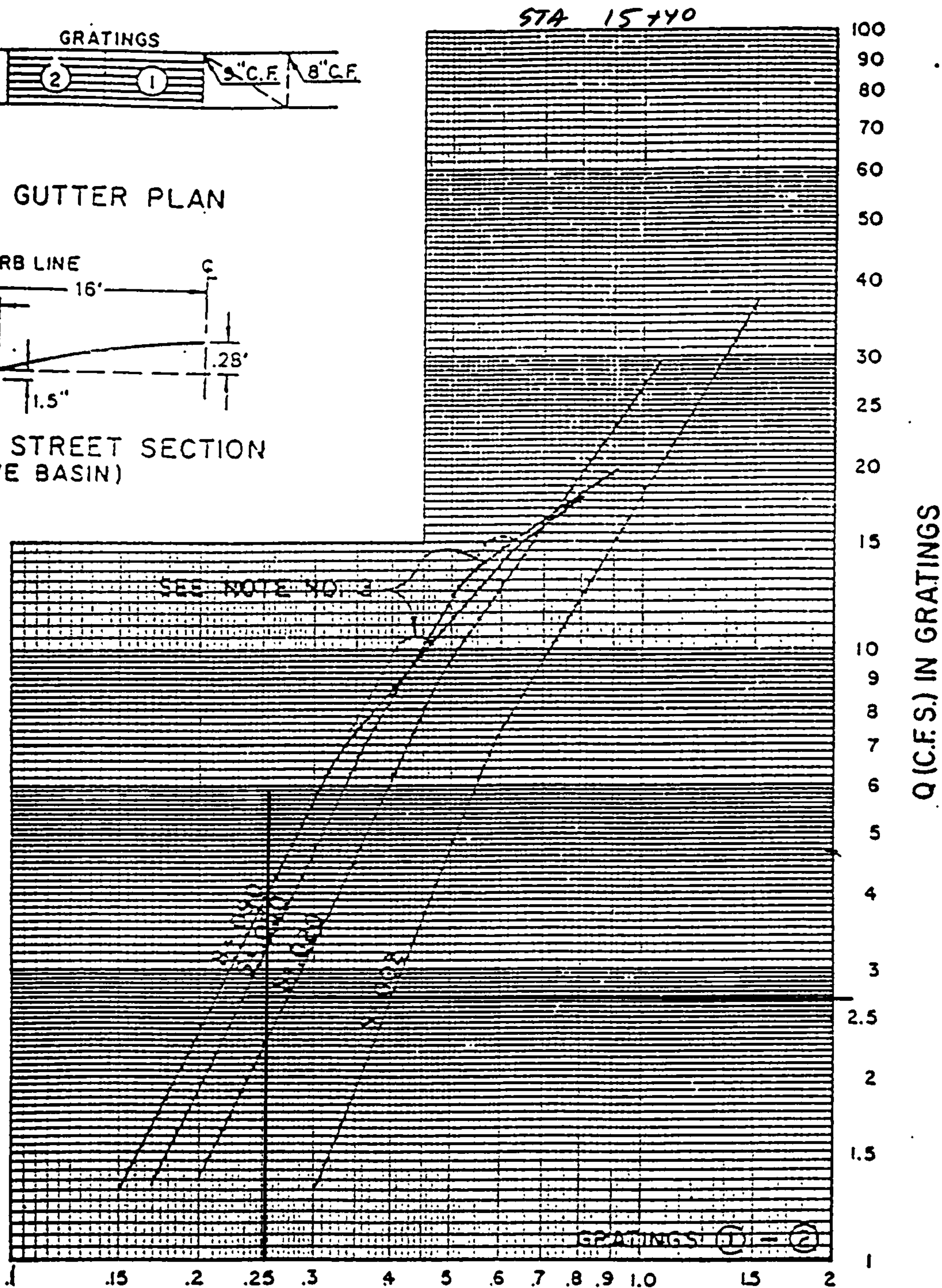
TYPICAL HALF STREET SECTION
(ABOVE BASIN)

GRATING CAPACITIES FOR TYPE DOUBLE

"C," AND "D"



GRATING & GUTTER PLAN

TYPICAL HALF STREET SECTION
(ABOVE BASIN)

INLET DESIGN

INLETS LOCATION: LADERA DRIVE - STATION 25+70 (SUMP)

FROM AHYMO: BASIN OFF6C 4.06 cfs/acre

TAKE 1/2 OF ROAD : 53'
LINEAR FEET OF ROAD PER ACRE: 43560/53=821.9'

CONVERT FLOW FROM CFS PER ACRE TO 4.06/821.9=
TO CFS PER LINEAR FEET OF ROAD: 0.0049 cfs/l.f.

LENGTH OF ROAD FROM TOP OF BASIN (WEST) STA 25+70 - STA 15+40=1030'
TO STA 25+70 (WEST AND EAST SIDES (EAST) STA 31+20 - STA 25+70=550'

FLOW AT STA 25+70 (WEST SIDE): 8.22 cfs
FLOW AT STA 25+70 (EAST SIDE): 4.68 cfs

WEST SIDE

Q(1/2 STREET) 8.22 cfs SLOPE 3.16%

FROM PLATE 22.3 D-3:
VELOCITY 4.2 ft/s DEPTH 0.36 ft

ENERGY GRADE 0.63 ft
ROW ELEVATION 0.85 ft OK

TYPE 'A' INLET Q(INLET) 5.00 cfs
Q(BYPASS) 3.22 cfs

TYPE 'A' INLET IN SUMP

ADD EAST FLOW AND BYPASS 7.9 cfs

FROM PLATE 22.3 D-1:
VELOCITY 4.1 ft/s DEPTH 0.35 ft

ENERGY GRADE 0.61 ft
ROW ELEVATION 0.84 ft OK

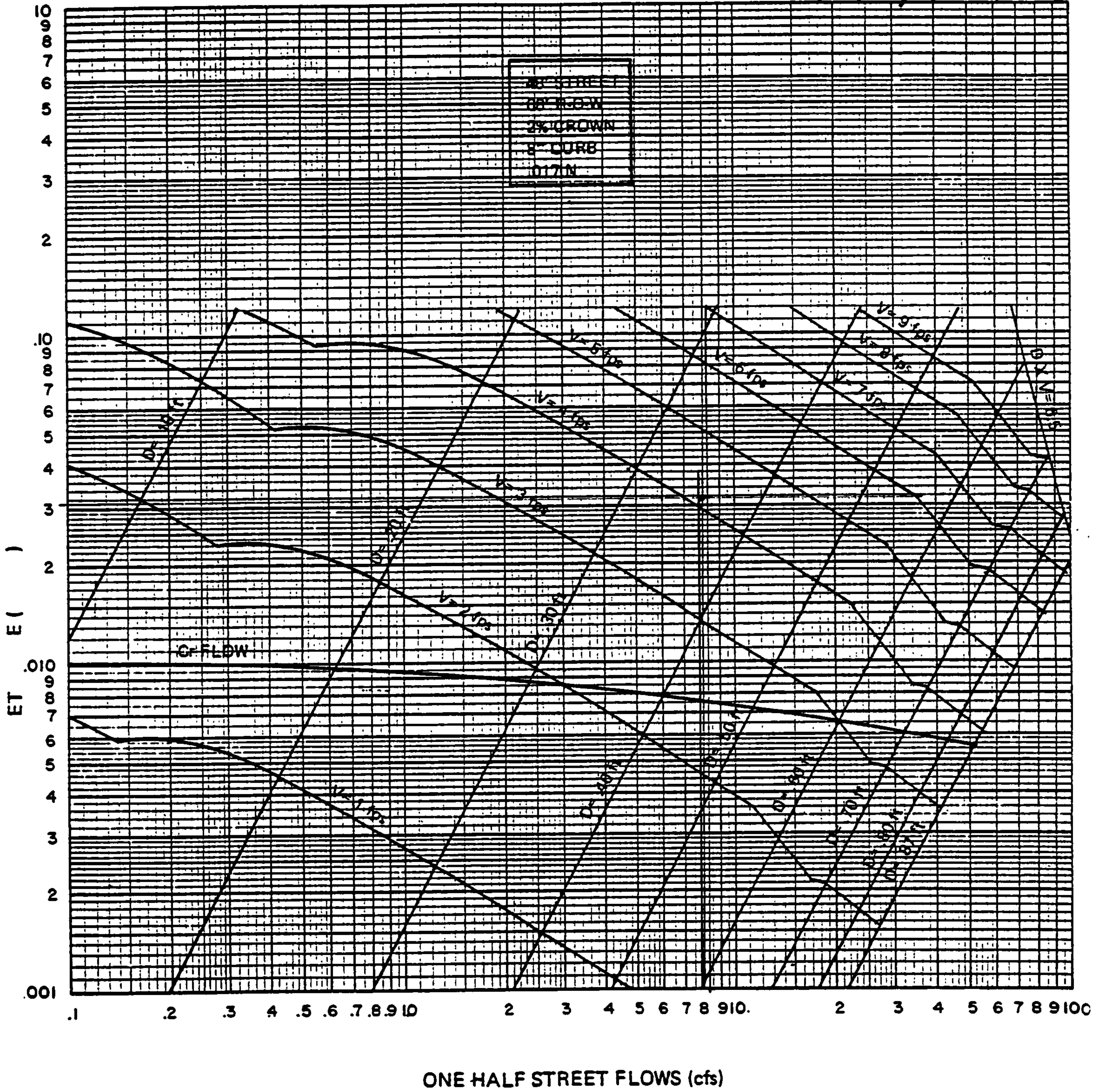
TOTAL FLOW 7.9 cfs

DEPTH 0.42 ft BASED ON WIER EQUATION

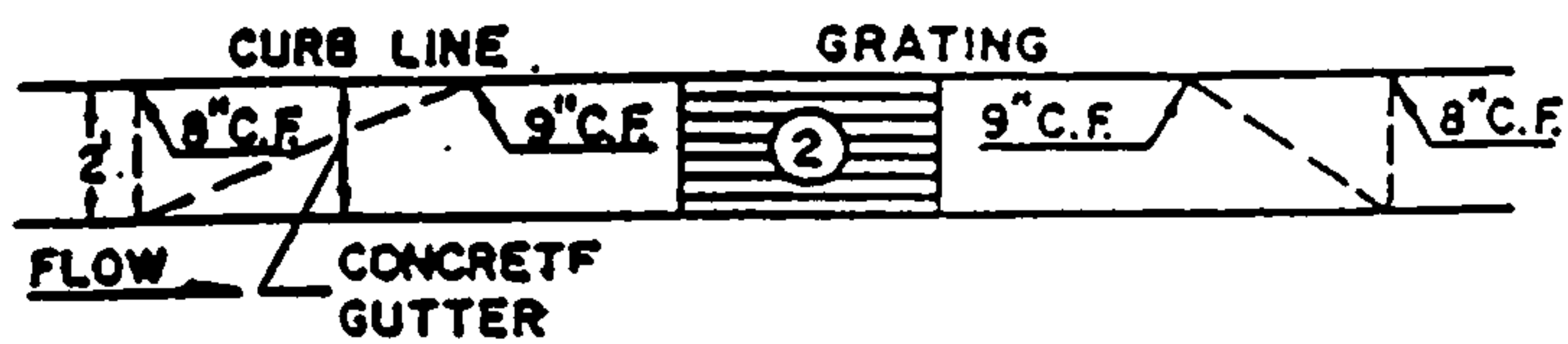
THEREFORE, ONE DOUBLE 'C' IS CAPABLE OF HANDLING 7.9 CFS
IN SUMP CONDITION

STREET CAPACITY

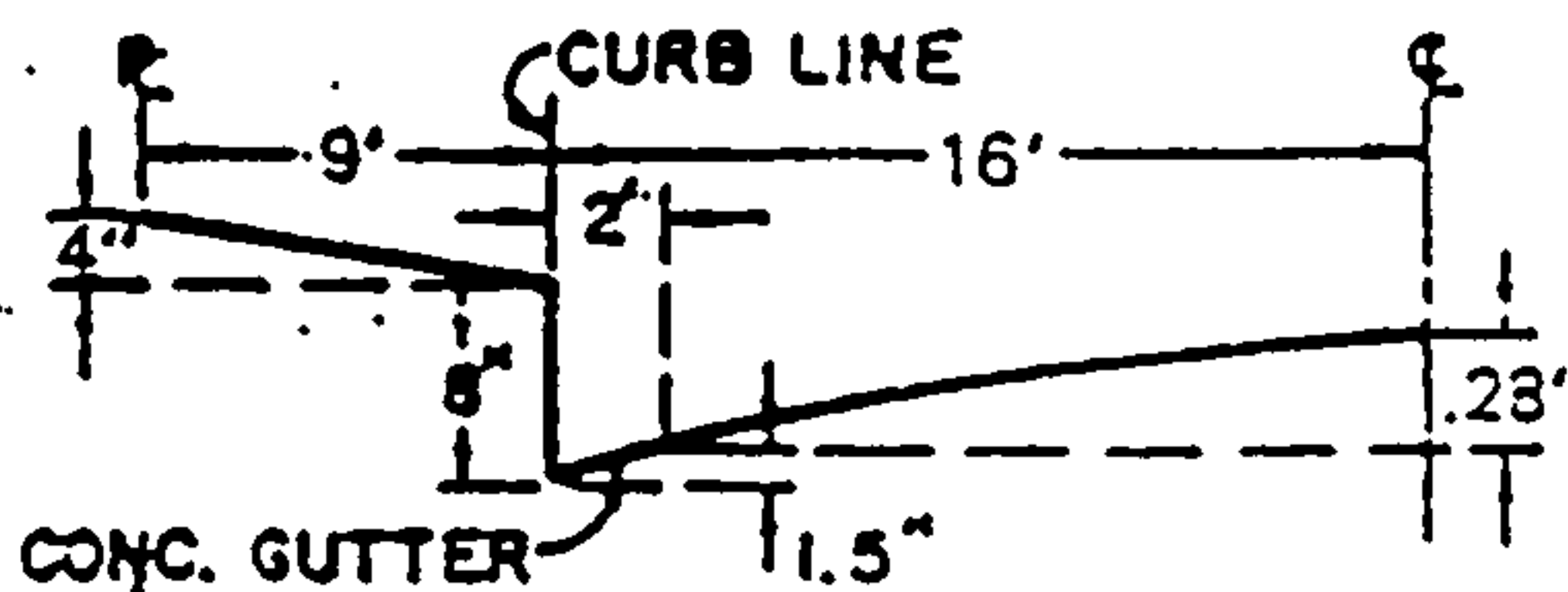
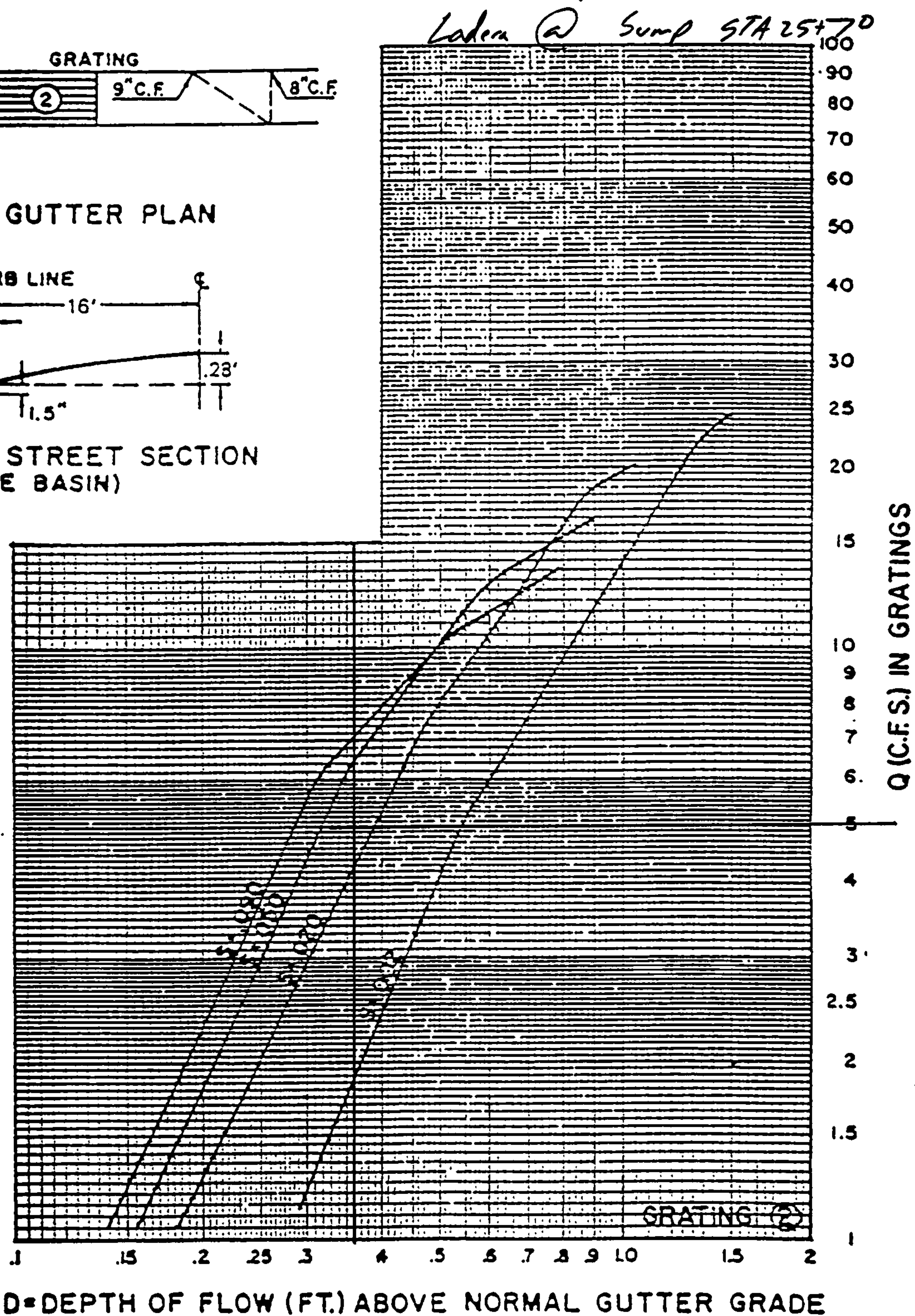
Ladera @ Sunny STA 25+70

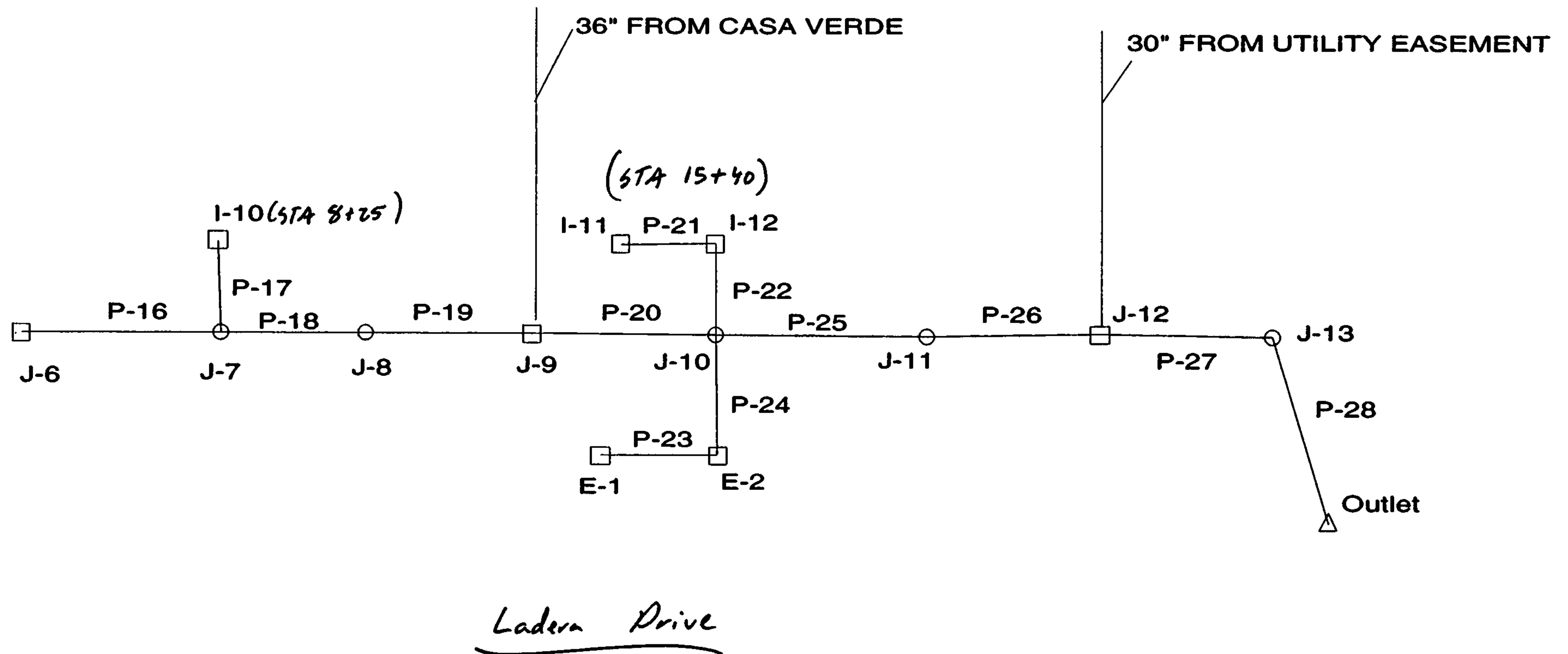


GRATING CAPACITIES FOR TYPE "A", "C" and "D"



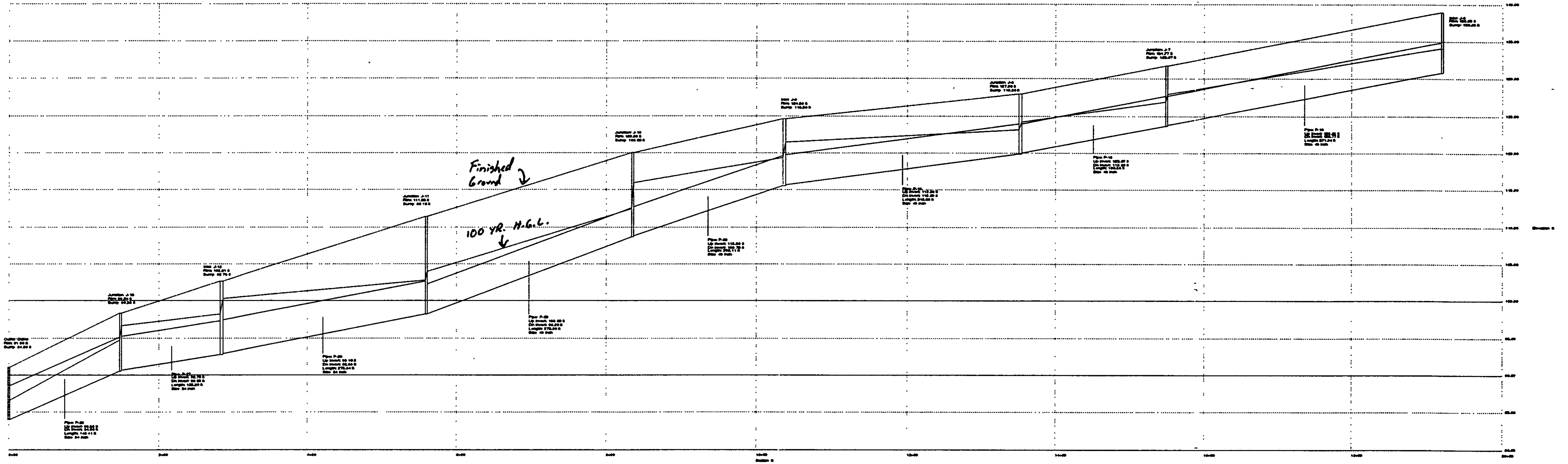
GRATING & GUTTER PLAN

TYPICAL HALF STREET SECTION
(ABOVE BASIN)



STORM DRAIN SYSTEM

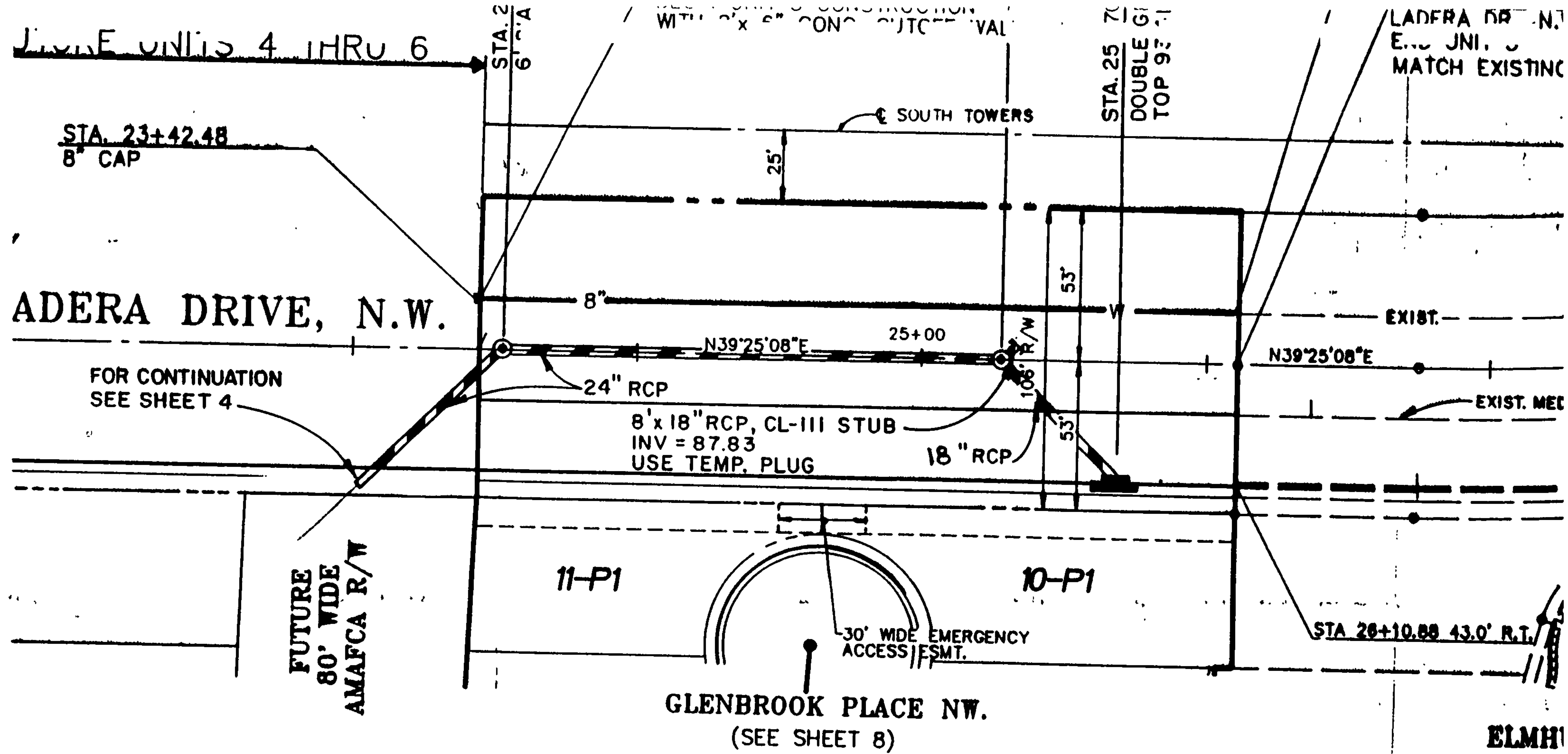
Pipe	Up Node	Dn Node	S (ft/ft)	Length (ft)	Size	Q (cfs)	Cap (cfs)	V avg (ft/s)	Up Rim (ft)	Up Invert (ft)	Up Cover (ft)	Up HGL (ft)	Up EGL (ft)	Dn Rim (ft)	Dn Invert (ft)	Dn Cover (ft)	Dn HGL (ft)	Dn EGL (ft)	Add. Q (cfs)
P-16	J-6	J-7	0.019040	371.84	48 inch	112.39	198.20	9.68	138.95	130.85	4.10	134.05	135.74	131.77	123.77	4.00	127.95	129.19	112.39
P-17	I-10	J-7	0.496923	6.50	18 inch	2.80	74.04	2.76	131.60	127.50	2.60	128.14	128.38	131.77	124.27	6.00	127.95	127.99	2.80
P-18	J-7	J-8	0.018873	196.58	48 inch	115.19	197.32	9.87	131.77	123.67	4.10	126.91	128.64	127.96	119.96	4.00	124.14	125.45	N/A
P-19	J-8	J-9	0.013210	315.68	48 inch	115.19	165.08	9.87	127.96	119.86	4.10	123.10	124.83	124.58	115.69	4.89	121.51	122.81	N/A
P-20	J-9	J-10	0.033942	202.11	48 inch	172.79	264.62	13.94	124.58	115.59	4.99	119.33	122.44	120.00	108.73	7.27	116.02	118.96	57.60
P-21	I-11	I-12	0.046796	9.83	18 inch	4.75	22.72	4.13	120.29	116.29	2.50	117.13	117.47	119.83	115.83	2.50	116.88	117.08	4.75
P-22	I-12	J-10	0.232308	6.50	18 inch	7.45	50.63	4.91	119.83	115.73	2.60	116.79	117.27	120.00	114.22	4.28	116.02	116.30	2.70
P-23	E-1	E-2	0.046796	9.83	18 inch	4.50	22.72	4.03	120.29	116.29	2.50	117.10	117.43	119.83	115.83	2.50	116.86	117.05	4.50
P-24	E-2	J-10	0.020000	75.50	18 inch	7.20	14.85	4.79	119.83	115.73	2.60	116.77	117.24	120.00	114.22	4.28	116.02	116.28	2.70
P-25	J-10	J-11	0.037709	275.00	48 inch	187.44	278.92	15.05	120.00	108.63	7.37	112.44	116.02	111.33	98.26	9.07	103.90	107.36	N/A
P-26	J-11	J-12	0.019142	275.84	54 inch	187.44	272.06	11.79	111.33	98.16	8.67	102.82	104.98	102.61	92.88	5.23	100.32	102.48	N/A
P-27	J-12	J-13	0.015744	135.29	54 inch	218.53	246.73	13.74	102.61	92.78	5.33	98.26	101.20	98.34	90.65	3.19	96.59	99.53	31.09
P-28	J-13	Outlet	0.044134	148.41	54 inch	218.53	413.10	18.48	98.34	90.55	3.29	94.70	97.86	91.00	84.00	2.50	86.62	94.63	N/A



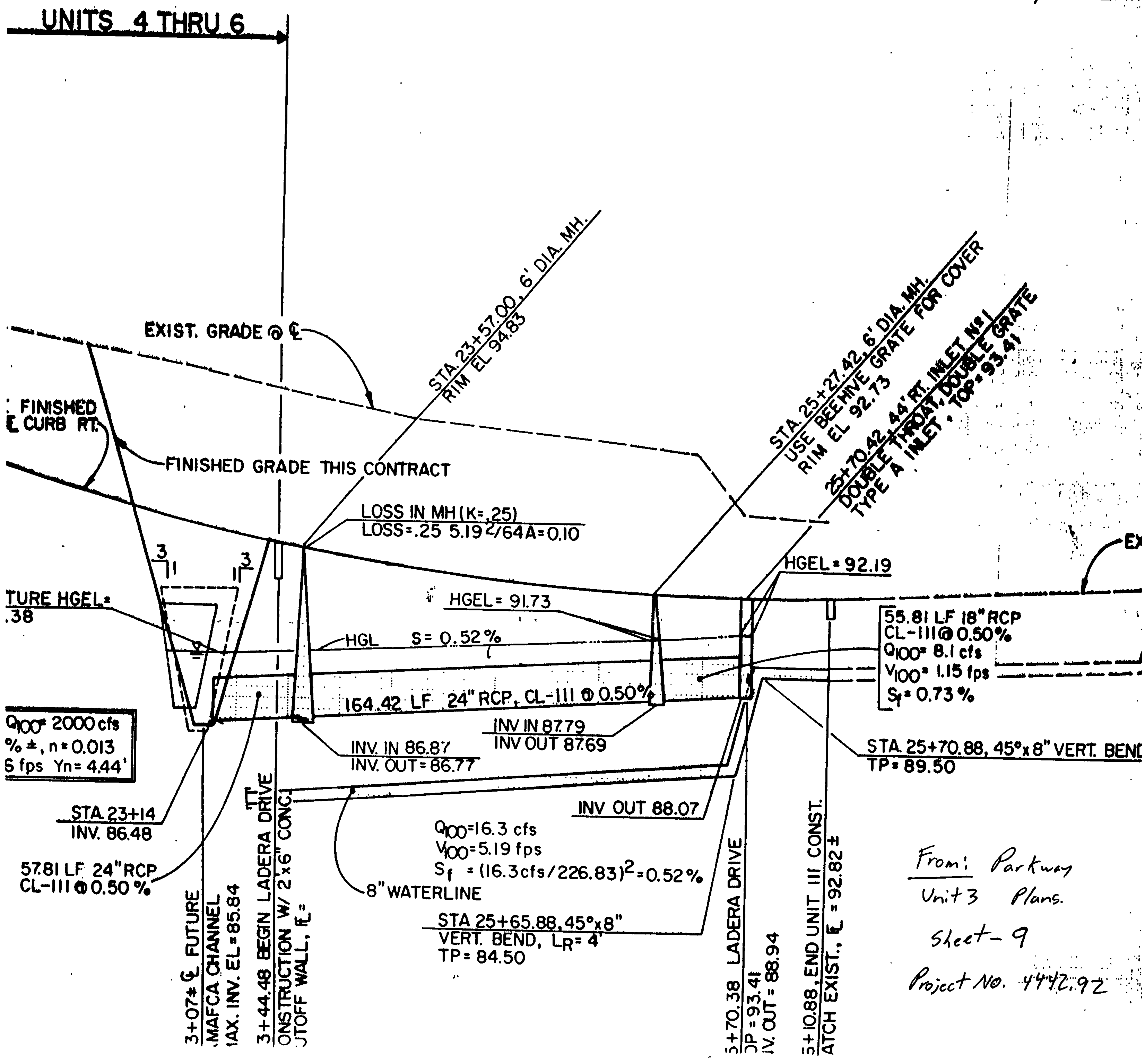
APPENDIX D

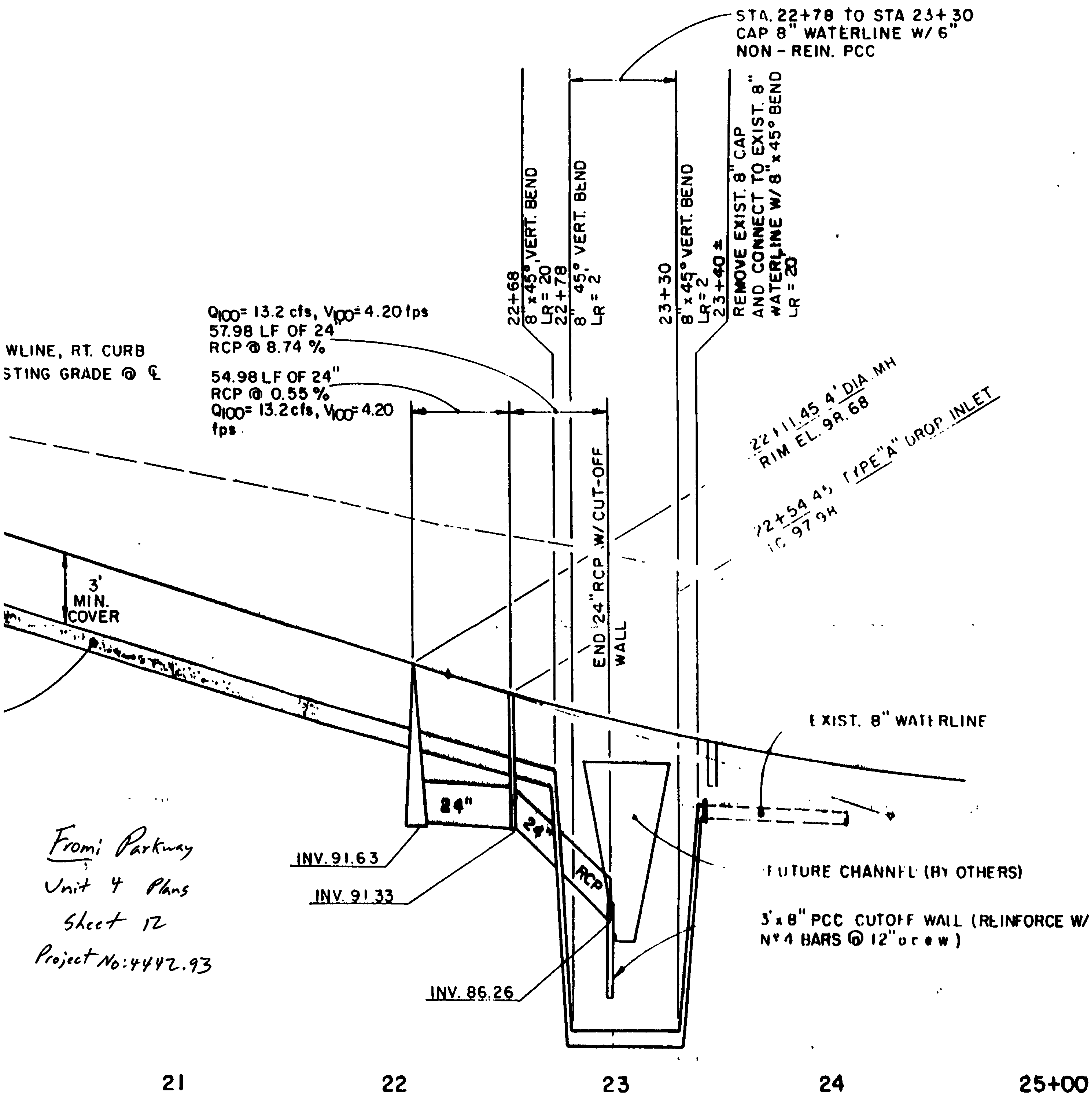
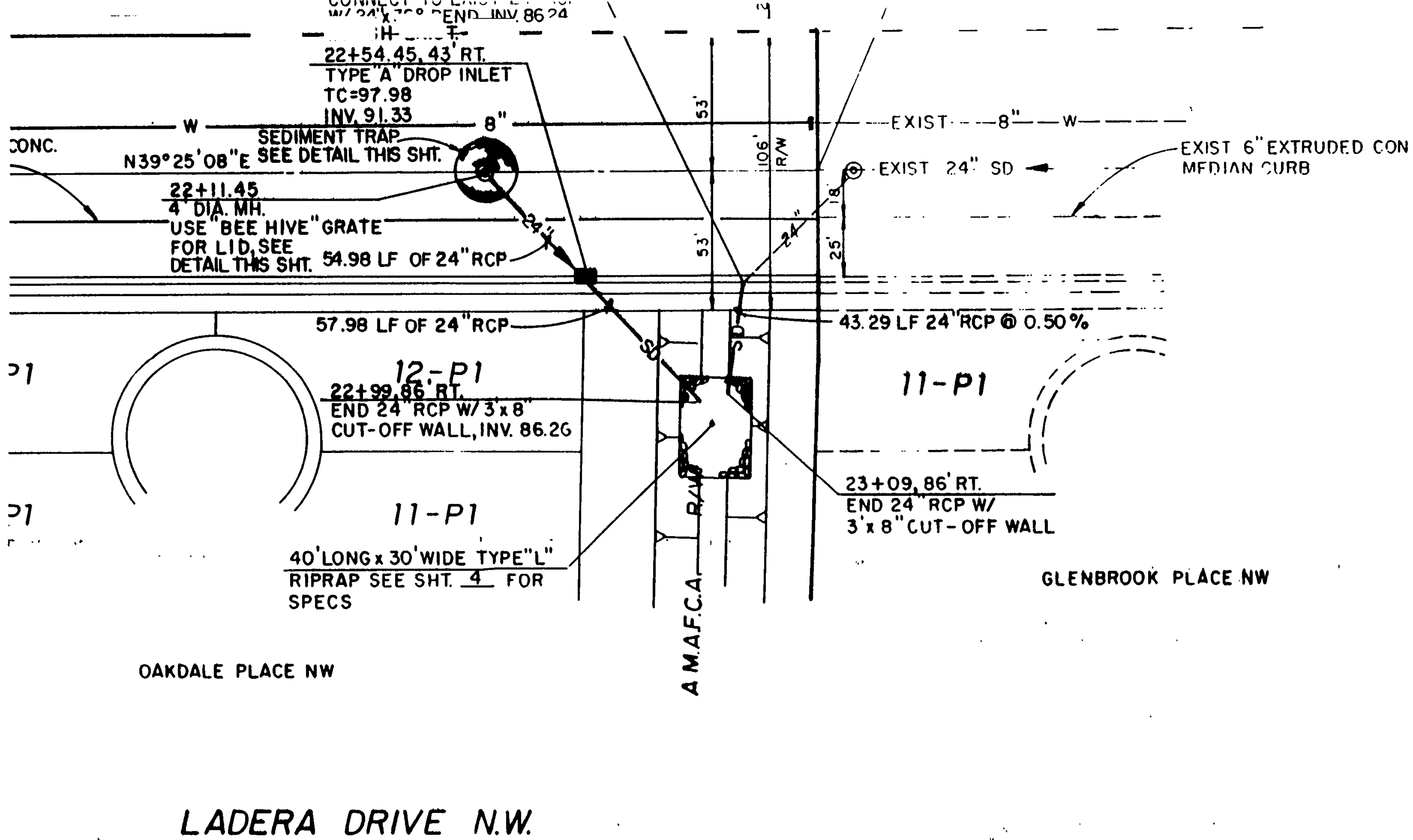
EXISTING STORM DRAIN PLANS

**FROM COMMUNITY SCIENCES CORP.
PARKWAY UNITS 3 & 4**



LADERA DRIVE, N.E.
(STANDARD CURB AND GUTTER W/ARTERIAL)





APPENDIX E

AHYMO
HISTORICAL FLOWS
10 YR. & 100 YR.

10 YR-6HR HISTORIC Summary

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
INPUT FILE = tohist.DAT

RUN DATE (MON/DAY/YR) =03/04/1996
USER NO.= CINFRNM.101

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
*S	TIERRA OSESTE SUBDIVISION DRAINAGE REVISION	DATE: 2/96								
*S	Compute 10-Year Flow	FN:TIERRA.DAT	BY:RGG							
*S	COMPUTE 10YR-6HR STORM FOR HISTORICAL FLOWS									
*S										
*S										
*S	START									TIME= .00
*S	RAINFALL TYPE= 1									RAIN6= 1.470
*S										
*S										
*S	BASIN ON1A-----									
*S	COMPUTE NM HYD	101.10	- 1	.00600	.95	.027	.08298	1.532	.248 PER IMP=	.00
*S										
*S	BASIN ON1B-----									
*S	COMPUTE NM HYD	102.10	- 2	.00780	1.24	.035	.08298	1.532	.248 PER IMP=	.00
*S										
*S	BASIN ON2-----									
*S	COMPUTE NM HYD	103.10	- 3	.01060	1.68	.047	.08298	1.532	.248 PER IMP=	.00
*S										
*S	BASIN ON3-----									
*S	COMPUTE NM HYD	104.10	- 4	.00830	1.32	.037	.08298	1.532	.248 PER IMP=	.00
*S										
*S	BASIN OFF1A-----									
*S	COMPUTE NM HYD	105.10	- 5	.01730	2.75	.077	.08298	1.532	.248 PER IMP=	.00
*S										
*S	BASIN OFF1B-----									
*S	COMPUTE NM HYD	106.10	- 6	.03730	4.63	.165	.08298	1.565	.194 PER IMP=	.00
*S										
*S	BASIN OFF1C-----									
*S	COMPUTE NM HYD	107.10	- 7	.05209	6.07	.231	.08298	1.565	.182 PER IMP=	.00
*S										
*S	BASIN OFF2-----									
*S	COMPUTE NM HYD	108.10	- 8	.00770	1.17	.034	.08298	1.532	.237 PER IMP=	.00
*S										
*S	BASIN OFF3-----									
*S	COMPUTE NM HYD	109.10	- 9	.00420	.67	.019	.08298	1.532	.248 PER IMP=	.00
*S										
*S	BASIN OFF4A-----									
*S	COMPUTE NM HYD	110.10	- 10	.00570	.91	.025	.08298	1.532	.248 PER IMP=	.00
*S										
*S	BASIN OFF4B-----									
*S	COMPUTE NM HYD	111.10	- 11	.00240	.38	.011	.08298	1.532	.249 PER IMP=	.00
*S										
*S	BASIN OFF5-----									
*S	COMPUTE NM HYD	112.10	- 12	.00330	.52	.015	.08298	1.532	.248 PER IMP=	.00
*S										
*S	BASIN OFF6A-----									
*S	COMPUTE NM HYD	113.10	- 13	.00620	.98	.027	.08298	1.532	.248 PER IMP=	.00
*S										
*S	BASIN OFF6B-----									
*S	COMPUTE NM HYD	114.10	- 14	.00740	1.17	.033	.08298	1.532	.248 PER IMP=	.00
*S										
*S	BASIN OFF6C-----									
*S	COMPUTE NM HYD	115.10	- 15	.00180	.29	.008	.08298	1.532	.249 PER IMP=	.00

★§

FINISH

100 YR-6 HR Summary
Historic

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
INPUT FILE = TOHIST.DAT

RUN DATE (MON/DAY/YR) =03/01/1996
USER NO.= CINFRNM.I01

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
*S TIERRA OSESTE SUBDIVISION DRAINAGE REVISION DATE: 2/96										
*S Compute 100-Year Flow FN:TIERRA.DAT BY:RGG										
*S COMPUTE 100YR-6HR STORM FOR HISTORICAL FLOWS										
*S										
*S										
*S										
START									TIME=	.00
RAINFALL TYPE= 1									RAIN6=	2.200
*S										
*S										
*S										
*S BASIN ON1A-----										
*S										
COMPUTE NM HYD	101.10	-	1	.00600	5.00	.141	.43919	1.532	1.302 PER IMP=	.00
*S										
*S BASIN ON1B-----										
*S										
COMPUTE NM HYD	102.10	-	2	.00780	6.50	.183	.43919	1.532	1.302 PER IMP=	.00
*S										
*S BASIN ON2-----										
*S										
COMPUTE NM HYD	103.10	-	3	.01060	8.83	.248	.43919	1.532	1.301 PER IMP=	.00
*S										
*S BASIN ON3-----										
*S										
COMPUTE NM HYD	104.10	-	4	.00830	6.91	.194	.43919	1.532	1.302 PER IMP=	.00
*S										
*S BASIN OFF1A-----										
*S										
COMPUTE NM HYD	105.10	-	5	.01730	14.41	.405	.43919	1.532	1.301 PER IMP=	.00
*S										
*S BASIN OFF1B-----										
*S										
COMPUTE NM HYD	106.10	-	6	.03730	25.08	.874	.43919	1.565	1.050 PER IMP=	.00
*S										
*S BASIN OFF1C-----										
*S										
COMPUTE NM HYD	107.10	-	7	.05209	33.26	1.220	.43919	1.565	.998 PER IMP=	.00
*S										
*S BASIN OFF2-----										
*S										
COMPUTE NM HYD	108.10	-	8	.00770	6.20	.180	.43919	1.532	1.257 PER IMP=	.00
*S										
*S BASIN OFF3-----										
*S										
COMPUTE NM HYD	109.10	-	9	.00420	3.50	.098	.43919	1.532	1.303 PER IMP=	.00
*S										
*S BASIN OFF4A-----										
*S										
COMPUTE NM HYD	110.10	-	10	.00570	4.75	.134	.43919	1.532	1.302 PER IMP=	.00
*S										
*S BASIN OFF4B-----										
*S										
COMPUTE NM HYD	111.10	-	11	.00240	2.00	.056	.43919	1.532	1.304 PER IMP=	.00
*S										
*S BASIN OFF5-----										
*S										
COMPUTE NM HYD	112.10	-	12	.00330	2.75	.077	.43919	1.532	1.303 PER IMP=	.00
*S										
*S BASIN OFF6A-----										
*S										
COMPUTE NM HYD	113.10	-	13	.00620	5.17	.145	.43919	1.532	1.302 PER IMP=	.00
*S										
*S BASIN OFF6B-----										
*S										
COMPUTE NM HYD	114.10	-	14	.00740	6.17	.173	.43919	1.532	1.302 PER IMP=	.00
*S										
*S BASIN OFF6C-----										
*S										
COMPUTE NM HYD	115.10	-	15	.00180	1.50	.042	.43919	1.532	1.306 PER IMP=	.00

*S
*S BASIN OFF60-----
*S

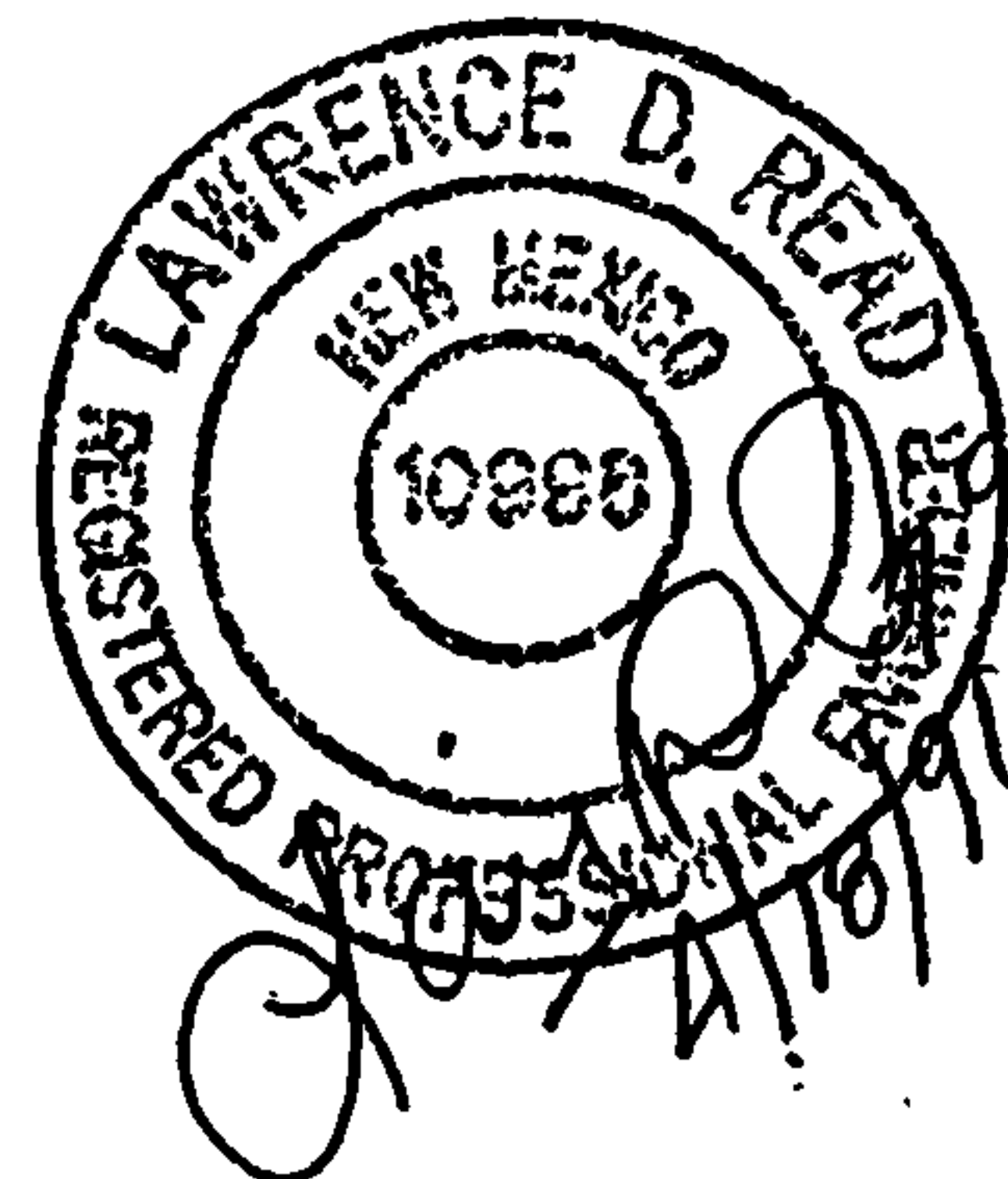
COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2 NOTATION
COMPUTE NM HYD	116.10	-	16	.00180	1.50	.042	.43919	1.532	1.306	PER IMP= .00
*S										
*S BASIN OFF7	-----									
*S										
COMPUTE NM HYD	117.10	-	17	.00130	1.09	.030	.43919	1.532	1.308	PER IMP= .00
*S										
*S BASIN OFF8	-----									
*S										
COMPUTE NM HYD	118.10	-	18	.05090	19.45	1.192	.43919	1.698	.597	PER IMP= .00
*S										
*S										
FINISH										

FINAL
DRAINAGE REPORT
TIERRA OESTE SUBDIVISION
ALBUQUERQUE, NEW MEXICO

FOR

TIERRA OESTE LIMITED CO.
6201 UPTOWN BLVD. NE, SUITE 204
ALBUQUERQUE, NEW MEXICO 87110

JANUARY, 1995
REV4. APRIL, 1996



5-09/10/15



ENGINEERING
INC.

Land Planning & Development

Surveying

Civil Engineering

333 Rio Rancho Dr. N.E., Ste. 101
Rio Rancho, New Mexico 87124

DRAINAGE INFORMATION SHEET

J-09/0015

PROJECT TITLE: Tierra Oeste

ZONE ATLAS/DRNG. FILE J-9 & H-9

LEGAL DESCRIPTION: Town of Artrisco Grant, Unplatted Lands of Westland Development Co. Inc.

CITY ADDRESS: West of Unser Blvd., North of I-40, North of Ladera Dr.

ENGINEERING FIRM: Cinfran Engineering Inc. **CONTACT:** Larry D. Read

ADDRESS: 333 Rio Rancho Dr. NE, #101 **PHONE:** 892-5141

OWNER: Tierra Oeste Limited Co. **CONTACT:** Ed Boyle

ADDRESS: 6201 Uptown Blvd. NE, Suite 204 **PHONE:** 889-0080

ARCHITECT: N/A **CONTACT:** N/A

ADDRESS: N/A **CONTACT:** N/A

SURVEYOR: Cinfran Engineering Inc. **CONTACT:** Dan Holmes

ADDRESS: 333 Rio Rancho Dr. NE, #101 **PHONE:** 892-5141

CONTRACTOR: N/A **CONTACT:** N/A

ADDRESS: N/A **PHONE:** N/A

PRE-DESIGN MEETING:

☒ **YES**
☐ **NO**

DRB NO. 94-443
EPC NO. _____

☐ **COPY OF CONFERENCE RECAP SHEET PROVIDED PROJ. NO.** _____

TYPE OF SUBMITTAL:

CHECK TYPE OF APPROVAL SOUGHT:

☒ **DRAINAGE REPORT**

☐ **SKETCH PLAT APPROVAL**

☒ **DRAINAGE PLAN**

☐ **PRELIMINARY PLAT APPROVAL**

☐ **PRELIMINARY GRADING AND DRAINAGE PLAN**

☐ **SITE DEVELOPMENT PLAN APPROVAL**

☒ **GRADING PLAN**

☐ **FINAL PLAT APPROVAL**

☐ **EROSION CONTROL PLAN**

☒ **BUILDING PERMIT APPROVAL**

☐ **ENGINEER'S CERTIFICATION**

☐ **FOUNDATION PERMIT APPROVAL**

☐ **CERTIFICATE OF OCCUPANCY APPROVAL**

☐ **ROUGH GRADING PERMIT APPROVAL**

☐ **GRADING/PAVING PERMIT APPROVAL**

☐ **OTHER** _____ **(SPECIFY)**

DATE SUBMITTED: April 18, 1996

BY: Larry D. Read

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FINAL DRAINAGE REPORT TIERRA OESTE SUBDIVISION

DESCRIPTION and LOCATION

The proposed Tierra Oeste Subdivision incorporates approximately 24.5 acres northwest of the future Ladera Drive extension and southeast of Ladera Ponds Number 10 and 11. The site is shown on City of Albuquerque Zone Atlas Pages H-9-Z and J-9-Z.

This proposed subdivision is on the unplatted lands of Westland Development Co. within the Town of Atrisco Grant Boundaries and is west of the Parkway Unit 7 that is now under construction.

The proposed site will be subdivided into approximately 128 single-family type lots for townhouse construction. The resulting density will be about 6.2 dwelling units per acre. The construction will be conducted in two phases as shown on the Conceptual Grading and Drainage Plan in the pocket at the rear of this report. Phase I will include 72 Lots on approximately 12.3 acres. Phase II will include 56 Lots on approximately 8.5 acres.

EXISTING CONDITIONS

The site is presently not subdivided and is unimproved. The existing drainage is surface flow toward the east. Natural slope ranges from 1 percent to 5 percent toward the east.

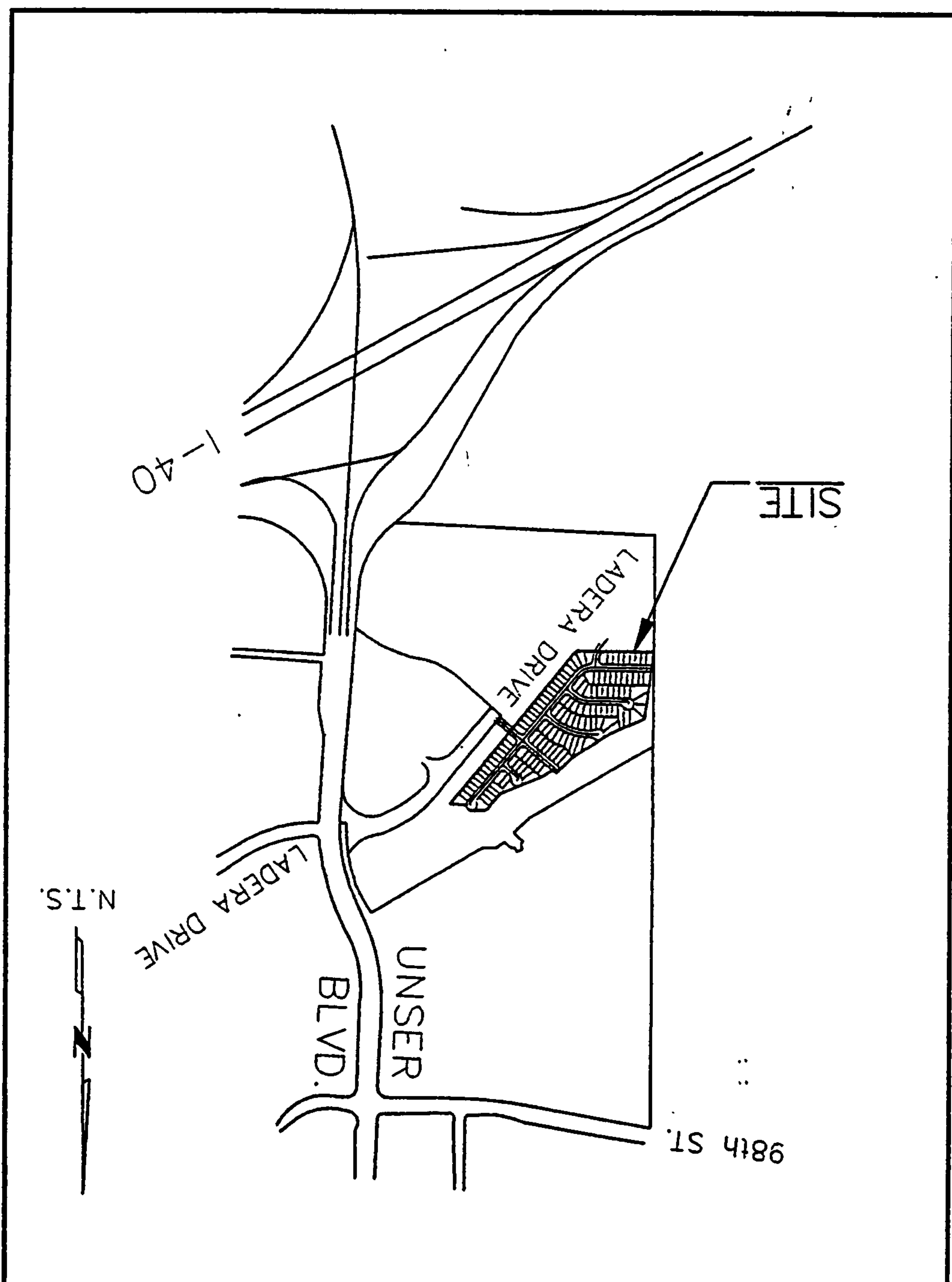
The site is shown on Panels 350002-0021 and 350002-0027 of the Flood Insurance Rate Maps, City of Albuquerque, Bernalillo County. The site is not included within any designated flood boundary per the referenced plates dated October 14, 1983.

The Soil Survey of Bernalillo County shows the site at the interface between soils classified as Pajarito Loamy Fine Sand (hydrologic soil group B) and Bluepoint-KoKan (hydrologic soil group A). In its natural state, the surface is vegetated with desert grasses covering 25 to 40 percent of the surface.

Construction of the Ladera Pond system west of the site has intercepted most of the off-site runoff from the northwest before it could enter the subject property. Small areas of off-site runoff, mainly west of the site, will be intercepted and routed through the site.

There are two existing manholes northeast of the site near the future alignment of Ladera Drive. These manholes are fitted with a beehive type inlet grates and are located near the bottom of a natural northwest/southeast swale. The discharge from the inlet/manholes is via short sections of 24" storm drain to an AMAFCA easement south of Ladera Drive between existing Parkway Units 3 and 4. This easement is currently operating as a series of small detention ponds with very limited discharge capacity.

VICINITY MAP



ADJACENT PROJECTS

This project is northwest of the Parkway Unit 7 Subdivision which has completed construction. Due to the proximity of the two projects, the Drainage Report for Parkway Unit 7 was reviewed for any conflicts or requirements with this project. The construction of earthen channel and the detention pond as dictated by the Parkway Unit 7 Drainage Report have been completed. The channel was designed to intercept runoff from offsite basins above the Parkway Unit 7 Subdivision. The pond is connected to an existing beehive manhole (Ladera Drive Sta. 22+26) which discharges directly to the AMAFCA Easement.

PROPOSED CONDITIONS

As described above, the proposed development will include approximately 128 townhouse type lots constructed in two phases.

This subdivision is required to build the northwest portion of Ladera Drive from the intersection of Ladera Drive with Unser Blvd. to the portion adjacent to the subdivision's frontage. The earthen berm/channel constructed with Parkway Unit 7 must be removed in order to build this half of Ladera Drive. Once the earthen channel is removed, all the undeveloped lands to the west will not be able to drain into the Unit 7 pond because of the topography constraints of the area. Therefore, construction of the proposed subdivision would render the Unit 7 pond useless for its previous purpose.

Proposed drainage of the subdivision is by surface flow to a proposed storm drain system which conveys the runoff to the Parkway Unit 7 Detention Pond discussed previously. The design of the pond is shown in the Drainage Report for Parkway Unit 7 Subdivision prepared by Community Sciences Corporation stamped 7-29-94. It is located in an existing 100-foot wide utility easement for the Public Service Company of New Mexico. The pond was designed to have a maximum storage capacity of 5 acre-feet and will ultimately discharge directly to the AMAFCA easement. Until improvements have been made to this easement, the discharge must be limited to a total of 29.5 cfs. This number was obtained from the utility plans for Parkway Units 3 & 4. From the Parkway Unit 3 plans, the maximum discharge allowed from the inlet at the sump in Ladera Drive (approx. Sta. 25+70) and the beehive type inlet connected to the same storm drain is 16.3 cfs. The Parkway Unit 4 plans show a maximum of 13.2 cfs being released from the other beehive inlet that is connected to the Parkway Unit 7 pond mentioned previously. A copy of these plans showing both these locations is included in Appendix D.

We propose to use the Unit 7 pond as a temporary detention facility for the developed runoff from this subdivision and from the existing and the proposed sections of Ladera Drive until such time as AMAFCA builds an improved channel downstream from the pond in the easement between Parkway Units 3 and 4. The only changes needed to the existing pond is the emergency overflow spillway needs to be regraded and the discharge standpipe needs to be lowered. As the spillway is constructed now, it would be in the middle of the new north side pavement for Ladera Drive. The flow will be controlled with an orifice plate in the last manhole before the outlet structure to the easement and pressure rated manholes (where needed). The orifice plate will restrict the discharge to the AMAFCA easement forcing the remaining flow to backup into the Unit 7 Pond until it can be released at historical rates (13.2 cfs). At such time when the channel is improved, the proposed subdivision can allow free discharge into the easement.

During the construction of Phase I, it is proposed to construct a temporary sediment pond in the east corner of the Phase II area. This pond will intercept all undeveloped runoff from Basins OFF2, ON1A & ON1B. This pond will remain until Phase II is constructed and the drainage can function as described above for the full build out. This pond is desirable because it keeps sediment laden runoff away from the completed streets in Phase I thereby reducing the maintenance of the completed subdivision. The temporary sediment pond will remain under the ownership of Westland Development Company until Phase II is constructed and the pond is no longer needed. Likewise, Westland Development Company will be responsible for the pond while it exists. See the Drainage Area map in the pocket at the back of this report for the location sizing and drainage analysis of this pond.

DESIGN CRITERIA

The drainage plan presented in this report has been designed to comply with the City of Albuquerque Drainage Ordinance and has used the procedures documented in the January 1993 revision of Section 22.2 of the City of Albuquerque Development Process Manual (DPM).

All hydrology calculations have been prepared using AMAFCA's January 1994 revision of the AHYMO computer model. For the storm drain design of the proposed subdivision, the 100-year frequency, 6-hour duration storm was used. For the design of the Parkway Unit 7 pond as a temporary detention facility and sizing of the orifice plate, the 100-year frequency, 24-hour duration storm was used. For the inlet spacing on Ladera Drive, the 10-year frequency, 6-hour duration storm was used for spacing and confirmed for the peak flow for the 100-year frequency, 6-hour duration storm.

The proposed subdivision and surrounding areas are within Zone 1 as shown in Figure A-1 in the DPM Section 22.2. Therefore, the specific rainfall parameters are as follows:

RAIN FALL	1-HOUR	6-HOUR	24-HOUR
10-YEAR	1.25"	1.47"	1.77"
100-YEAR	1.87"	2.20"	2.66"

The inlet and storm drain design were calculated with the following design criteria:

1. 10-year storm:
 - a. Local Street - velocity times depth less than 6.5
 - b. Arterial Streets
 - i. The energy grade to be less than the depth at the right-of-way
 - ii. Velocity times depth not to exceed 6.5
 - iii. At least on driving lane free of stormwater in each direction

2. 100-year storm
 - a. The energy grade to be less than the depth at the right-of-way
 - b. The hydraulic jump is to be contained in the right-of-way
3. Per the DPM, the hydraulic grade line in the storm drain pipe must be less than two feet above the finished ground elevation. In areas where the hydraulic grade line is designed to be above the finished ground elevation, pressure rated manholes have been proposed.

The storm drain system was designed using Haestad Method's "StormCAD." This program is designed to compute all of the hydraulic parameters for a storm drain system including hydraulic and energy gradelines. A loss coefficient for the inlets of 0.2 was used and manhole losses were obtained from the table included in Appendix C.

All drainage areas and the resulting runoff are shown on the Drainage Area Plate in the back of this report.

OFF-SITE DRAINAGE

For Off-Site Drainage Basins OFF1A, OFF1B, OFF1C, OFF2 & OFF8, this report assumed a density of 5 du's/acre, which is conservative compared to the proposed 4.5 du's/acre as shown in the Preliminary Sector Development Plan for this area. The remaining off-site basins, except for OFF7, are for the Ladera Drive corridor. This report assumed a future 6-lane section for Ladera Drive, which is more conservative than the proposed 4-lane section. Basin OFF7 is the Parkway Unit 7 Pond. The remaining portion of Ladera Drive to the northeast drains to Unser Blvd. and is collected in the inlets on Unser Blvd. at the I-40 Interceptor. A valley gutter is proposed on Ladera Drive at Unser Blvd. to better convey flows across this intersection.

In both their natural and developed state, Drainage Basins OFF1A & B, OFF3, OFF4A & B, and OFF8 all drain to the southeast, such that the runoff bypasses the proposed site and Parkway Unit 7, and drains to the I-40 Interceptor channel. Therefore, they are not considered as part of the on-site calculations.

Drainage Basins OFF1C and OFF5 both drain away from the proposed site and Parkway Unit 7 in their natural state. However, once these basins are developed they will contribute flows to Ladera Drive and the proposed Ladera storm drain system. Due to the limited capacity of the Parkway Unit 7 Pond, development of these basins will require at least one of the following:

- continue runoff to the south bypassing Parkway Unit 7,
- increase the size of the Parkway Unit 7 Pond in the PNM Easement,
- the AMAFCA channel in their easement must be constructed, or
- the runoff must be ponded onsite and released below historical rates

Drainage Basin OFF2 includes 4.91 acres of undeveloped land between Ladera Pond 10 and the west boundary of the proposed site. The natural slope is to the east, such that if it is not addressed, it would drain through the western most lots in Tierra Oeste Unit 2. To control the runoff prior to development of this basin, we propose to construct an earthen berm at the west boundary of Tierra Oeste to direct the runoff to Casa Amarilla Road where it will be combined with the on-site flow. For the purpose of designing the storm drain system, Basin OFF2 was considered fully developed with a density of 5 du's/acre with street surface flow discharging to Casa Amarilla Road.

Drainage Basins OFF6A & OFF6B collect water from Ladera Drive and the 100' wide PNM Easement. The flow from these basins is collected via inlets in Ladera Drive and conveyed in the Ladera Drive storm drain. The storm drain systems from the proposed subdivision connect into this storm drain which empties into the Parkway Unit 7 Pond.

Drainage Basins OFF6C & OFF6D collect water that drains to the sump in Ladera Drive (approx. Sta 25+70). The water is collected with inlets and directly discharges to the AMAFCA easement through an existing 24" storm drain. The existing beehive type inlet connected to the existing 24" storm drain is to be removed and replaced with a typical manhole lid because the beehive inlet is no longer needed once Ladera Drive is constructed.

The ownership and maintenance of the temporary detention pond will remain as proposed for the Parkway Unit 7 Subdivision since all the lands involved in that area are owned by Westland Development Company. This responsibility will carry forward until such time as the pond is no longer necessary and is reclaimed.

ON-SITE DRAINAGE

Drainage Basins ON1A & B, ON2 & ON3 make up the proposed development site of this project. The developed runoff from these basins and Basin OFF2 will collect on Casa Roja Place, the main southeast/northwest street in the subdivision. Flow will be collected in two separate storm drain systems. The first storm drain system collects surface flows with inlets on Casa Roja Place located upstream of Casa Morena Place, upstream of Casa Negra Place, and upstream of Casa Verde Avenue. This storm drain runs down Casa Roja Place and then turns down Casa Verde Avenue where it connects to the Ladera Drive storm drain. The second storm drain system is located at the northeast cul-de-sac on Casa Roja Place. The flow is collected with inlets and conveyed to the Ladera Drive storm drain by running through both the AMAFCA Easement and the 100' PNM Easement.

Once the flow reaches the Ladera Drive storm drain, it runs down to the Parkway Unit 7 Pond where it is held and released at historic rates. See Table 1 for a detailed breakdown of the storm drain system.

STREET HYDRAULICS

Based on the proposed grading plan included in the back pocket of this report, the storm water contribution for all the inlet locations on Casa Roja Place and Ladera Drive has been calculated. The grades on the streets contributing to Casa Roja Place are all steeper than Casa Roja Place, therefore, the critical analysis points are at the inlet locations. All of the calculations were based on Plates 22.3 from the DPM. The plate for one half the width of 48' fl-fl typical street section was used for Ladera Drive, since the half-section for Ladera Drive is 25' fl-fl.

All street flows in the proposed subdivision are in compliance with DPM requirements.

EROSION CONTROL

Soil erosion during construction of this project will be controlled by utilizing standard construction methods augmented with the use of earthen berms and/or silt fence at the project limits.

These measures will prevent the transport of sediment laden runoff from directly entering the public right-of-way.

TABLE 1
HYDROLOGY PARAMETERS
DEVELOPED CONDITION W/ PARKWAY UNIT 7 POND

				LAND TREATMENTS				DEVELOPED			PIPE	
BASIN #	AREA (SQ. MI.)	LENGTH (FT)	SLOPE (%)	A	B	C	D	Tc (MIN)	Q10 (CFS)	Q100 (CFS)	FLOW (CFS)	
ON1A	0.0060	700	2	0	21	21	58	12	8.2	13.7		
OFF2	0.0077	650	2.5	0	25	25	50	12	9.8	16.81		
AP1	COMBINE OFF2 AND ON1A AND ROUTE TO INLETS @ CASA ROJA & CASA MORENA									30.51 (28.35)		
	FLOW COLLECTED IN TWO TYPE 'A' INLETS										14	
	SURFACE BYPASS FLOW TO NEXT INLET LOCATION									14.35		
ON1B	0.0078	760	2	0	21	21	58	12	10.66	17.8		
AP2	COMBINE BYPASS AND ON1B AND ROUTE TO INLETS @ CASA ROJA & CASA NEGRA									32.15 (31.09)		
	FLOW COLLECTED IN TWO TYPE 'A' INLETS										14.4	
	SURFACE BYPASS FLOW TO NEXT INLET LOCATION									16.69		
ON2	0.0106	1025	2	0	21	21	58	12	14.48	24.18		
AP3	COMBINE BYPASS AND ON2 AND ROUTE TO INLETS @ CASA ROJA & CASA VERDE									40.87 (36.87)		
	FLOW COLLECTED IN TWO TYPE 'A' & TWO TYPE DOUBLE 'C' INLETS										29.2	
	SURFACE BYPASS FLOW TO NEXT INLET LOCATION									7.67		
ON3	0.0083	1300	2	0	21	21	58	12	11.34	18.94		
AP4	COMBINE BYPASS AND ON3 AND ROUTE TO INLETS @ NORTH CUL-DE-SAC OF CASA ROJA									26.61 (19.31)		
	FLOW COLLECTED IN TWO TYPE 'A' & ONE TYPE DOUBLE 'C' INLETS										19.31	
	SURFACE BYPASS FLOW TO NEXT INLET LOCATION									0		
LADERA DRIVE												
OFF6A	0.0062	815	1.8	48.5	4.25	4.25	43	12	5.68	10.68		
AP6	FLOW COLLECTED IN ONE TYPE 'A' INLET @ STA 8+25										2.8	
	SURFACE BYPASS FLOW TO NEXT INLET LOCATION									7.88		
OFF6B	0.0074	820	1.8	48.5	4.25	4.25	43	12	6.77	12.75		
AP7	FLOW COLLECTED IN TWO TYPE 'A' & ONE TYPE DOUBLE 'C' INLETS										14	
OFF6C	0.0018	325	1.8	0	8.5	8.5	83	12	2.99	8.22		
OFF6D	0.0022	675	1.8	0	8.5	8.5	83	12	2.99	4.68		
AP8	FLOW COLLECTED IN SUMP AT STA 25+70 (BYPASSES POND-SEE BELC										12.9	
OFF7	0.0013	600	1	100	0	0	0	12	0.21	1.09	1.09	
AP9	TOTAL DISCHARGE TO PARKWAY UNIT 7 POND										94.8 (94.28)	
TOTAL DISCHARGE FROM POND THRU ORIFICE TO EASEMENT											11.23	
TOTAL DISCHARGE FROM OFF6D (BYPASSES POND)											12.9	
TOTAL DISCHARGE TO AMAFCA EASEMENT											24.13 (22.62)	

AP# ANALYSIS POINTS PER DRAINAGE AREA MAP

NOTE: ALL OTHER BASINS ARE UNDEVELOPED AND FLOW TO THE I-40 INTERCEPTOR

**SUMMARY OF PEAK RUNOFF RATES
DEVELOPED CONDITIONS W/ PARKWAY UNIT 7 POND
TABLE 2**

ON-SITE DRAINAGE BASINS

		UNDEVELOPED			DEVELOPED			INCREASE	
	AREA	Tc	Q10	Q100	Tc	Q10	Q100	Q10	Q100
	(Sq. Mi.)	(Min)	(cfs)	(cfs)	(Min)	(cfs)	(cfs)	(cfs)	(cfs)
ON-1A	0.0060	12	0.95	5.00	12	8.20	13.70	7.25	8.70
ON-1B	0.0078	12	1.24	6.50	12	10.66	17.80	9.42	11.30
ON-2	0.0106	12	1.68	8.83	12	14.48	24.18	12.80	15.35
ON-3	0.0083	12	1.32	6.91	12	11.34	18.94	10.02	12.03

OFF-SITE DRAINAGE BASINS

OFF-1A	0.0173	12	2.75	14.41	12	22.02	37.75	19.27	23.34
OFF-1B	0.0373	15	4.63	25.08	14	44.49	76.09	39.86	51.01
OFF-1C	0.0521	16	6.07	33.26	14	60.27	103.28	54.20	70.02
OFF-2	0.0077	12	1.17	6.20	12	9.80	16.81	8.63	10.61
OFF-3	0.0042	13	0.67	3.50	12	6.96	10.89	6.29	7.39
OFF-4A	0.0057	13	0.91	4.75	12	9.86	14.78	8.95	10.03
OFF-4B	0.0057	12	0.38	2.00	12	9.45	6.23	9.07	4.23
OFF-5	0.0182	12	0.52	2.75	12	5.47	8.56	4.95	5.81
OFF-6A	0.0182	12	0.98	5.17	12	5.68	10.68	4.70	5.51
OFF-6B	0.0182	12	1.17	6.17	12	6.77	12.75	5.60	6.58
OFF-6C	0.0182	12	0.29	1.50	12	2.99	4.68	2.70	3.18
OFF-6D	0.0182	12	0.29	1.50	12	2.99	4.68	2.70	3.18
OFF-7	0.0013	12	0.21	1.09	12	0.21	1.09	0.00	0.00
OFF-8	0.0013	28	3.46	19.45	22	45.36	78.14	41.90	58.69

* SEE AHYMO MODEL PRINTOUT IN APPENDIX OF REPORT

SUMMARY OF RUNOFF VOLUMES
DEVELOPED CONDITIONS W/ PARKWAY UNIT 7 POND
TABLE 3

ON-SITE DRAINAGE BASINS

		UNDEVELOPED			DEVELOPED			INCREASE	
	AREA	Tc	V1Q	V100	Tc	V10	V100	V10	V100
	(Sq. Mi.)	(Min)	(ac-ft)	(ac-ft)	(Min)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)
ON-1A	0.0060	12	0.03	0.14	12	0.27	0.47	0.25	0.33
ON-1B	0.0078	12	0.04	0.18	12	0.35	0.62	0.32	0.43
ON-2	0.0106	12	0.05	0.25	12	0.48	0.84	0.43	0.59
ON-3	0.0083	12	0.04	0.19	12	0.38	0.66	0.34	0.46

OFF-SITE DRAINAGE BASINS

OFF-1A	0.0173	12	0.08	0.41	12	0.72	1.28	0.64	0.88
OFF-1B	0.0373	15	0.17	0.87	14	1.55	2.77	1.38	1.89
OFF-1C	0.0521	16	0.23	1.22	14	2.13	3.86	1.90	2.64
OFF-2	0.0077	12	0.03	0.18	12	0.24	0.57	0.21	0.39
OFF-3	0.0042	13	0.02	0.10	12	0.26	0.40	0.25	0.30
OFF-4A	0.0057	13	0.03	0.13	12	0.33	0.54	0.30	0.40
OFF-4B	0.0057	12	0.01	0.06	12	0.14	0.23	0.13	0.17
OFF-5	0.0182	12	0.02	0.08	12	0.19	0.31	0.18	0.24
OFF-6A	0.0182	12	0.03	0.15	12	0.20	0.37	0.17	0.23
OFF-6B	0.0182	12	0.03	0.17	12	0.24	0.44	0.20	0.27
OFF-6C	0.0182	12	0.01	0.04	12	0.10	0.17	0.10	0.13
OFF-6D	0.0182	12	0.01	0.04	12	0.10	0.17	0.10	0.13
OFF-7	0.0013	12	0.01	0.03	12	0.01	0.03	0.00	0.00
OFF-8	0.0013	28	0.23	1.19	22	2.11	3.78	1.89	2.58

* SEE AHYMO MODEL PRINTOUT IN APPENDIX OF REPORT

TABLE 4
HYDROLOGY PARAMETERS
FULLY DEVELOPED CONDITION

				LAND TREATMENTS				DEVELOPED			PIPE
BASIN #	AREA (SQ. MI.)	LENGTH (FT)	SLOPE (%)	A	B	C	D	Tc (MIN)	Q10 (CFS)	Q100 (CFS)	FLOW (CFS)
ON1A	0.0060	700	2	0	21	21	58	12	8.2	13.7	
OFF2	0.0077	650	2.5	0	25	25	50	12	9.8	16.81	
AP1	COMBINE OFF2 AND ON1A AND ROUTE TO INLETS @ CASA ROJA & CASA MORENA									30.51 (28.35)	
	FLOW COLLECTED IN TWO TYPE 'A' INLETS										14
	SURFACE BYPASS FLOW TO NEXT INLET LOCATION									14.35	
ON1B	0.0078	760	2	0	21	21	58	12	10.66	17.8	
AP2	COMBINE BYPASS AND ON1B AND ROUTE TO INLETS @ CASA ROJA & CASA NEGRA									32.15 (31.09)	
	FLOW COLLECTED IN TWO TYPE 'A' INLETS										14.4
	SURFACE BYPASS FLOW TO NEXT INLET LOCATION									16.69	
ON2	0.0106	1025	2	0	21	21	58	12	14.48	24.18	
AP3	COMBINE BYPASS AND ON2 AND ROUTE TO INLETS @ CASA ROJA & CASA VERDE									40.87 (36.87)	
	FLOW COLLECTED IN TWO TYPE 'A' & TWO TYPE DOUBLE 'C' INLETS										29.2
	SURFACE BYPASS FLOW TO NEXT INLET LOCATION									7.67	
ON3	0.0083	1300	2	0	21	21	58	12	11.34	18.94	
AP4	COMBINE BYPASS AND ON3 AND ROUTE TO INLETS @ NORTH CUL-DE-SAC OF CASA ROJA									26.61 (19.31)	
	FLOW COLLECTED IN TWO TYPE 'A' & ONE TYPE DOUBLE 'C' INLETS										19.31
	SURFACE BYPASS FLOW TO NEXT INLET LOCATION									0	
LADERA DRIVE											
OFF1C	0.0521	2500	2.5	0	25	25	50	14	60.27	103.3	
OFF5	0.0033	870	1.8	0	8.5	8.5	83	12	5.47	8.56	
AP5	ASSUME OFF1C AND OFF5 ARE IN LADERA STORM DRAIN PIPE										111.48
OFF6A	0.0062	815	1.8	48.5	4.25	4.25	43	12	5.68	10.68	
AP6	FLOW COLLECTED IN ONE TYPE 'A' INLET @ STA 8+25										2.8
	SURFACE BYPASS FLOW TO NEXT INLET LOCATION									7.88	
OFF6B	0.0074	820	1.8	48.5	4.25	4.25	43	12	6.77	12.75	
AP7	FLOW COLLECTED IN TWO TYPE 'A' & ONE TYPE DOUBLE 'C' INLETS										14
OFF6C	0.0018	325	1.8	0	8.5	8.5	83	12	2.99	8.22	
OFF6D	0.0022	675	1.8	0	8.5	8.5	83	12	2.99	4.68	
AP8	FLOW COLLECTED IN SUMP AT STA 25+70										12.9
OFF7	0.0013	600	1	100	0	0	0	12	0.21	1.09	1.09
AP9	TOTAL DISCHARGE TO AMAFCA EASEMENT									219.18 (218.85)	
FLOW TO I-40 INTERCEPTOR											
OFF1A	0.0173	1200	3	0	25	25	50	12	22.02	37.75	
OFF1B	0.0373	2500	2.8	0	25	25	50	14	44.49	76.09	
OFF3	0.0042	1100	1.5	0	8.5	8.5	83	12	6.96	10.89	
OFF4A	0.0057	1500	2.4	0	8.5	8.5	83	12	9.86	14.78	
OFF4B	0.0024	640	2.4	0	8.5	8.5	83	12	9.45	6.23	
OFF8	0.0509	2900	2.5	0	25	25	50	22	45.36	78.14	
AP10	TOTAL DISCHARGE TO I-40 INTERCEPTOR									223.9 (202.34)	

AP# ANALYSIS POINTS PER DRAINAGE AREA MAP

STREET HYDRAULICS

TABLE 5

STREET	LOCATION	WIDTH FL-FL (FT)	CURB & GUTTER TYPE	SLOPE (%)	Q100 (CFS)	Dn (FT)	Vn (FT/S)	E.G. (FT)
Casa Roja Pl.	@ Casa Morena Ave	32'	STD	2.02	28.35	0.45	4.2	0.72
Casa Roja Pl.	@ Casa Negra	32'	STD	2.02	31.09	0.46	4.4	0.76
Casa Roja Pl.	@ Casa Verde	32'	STD	2.02	36.87	0.48	4.7	0.82
Casa Roja Pl.	@ North Cul-de-Sac	32'	STD	2.56	19.31	0.39	4	0.64
Ladera Blvd	@ Sta. 8+25	25' (1/2 Street)	STD	1.93	3.42	0.3	2.8	0.42
Ladera Blvd	@ Sta. 15+40	25' (1/2 Street)	STD	3.16	7.41	0.35	4.1	0.61
Ladera Blvd	@ Sta. 25+70 (Sump)	25' (1/2 Street)	STD	8.22	8.22	0.36	4.2	0.63

NOTES: NORMAL DEPTH AND VELOCITY WERE OBTAINED FROM PLATE 22.3.

APPENDIX A

AHYMO RUNS

Summary and Detailed Output

TIME TO PEAK CALCULATIONS

USE EQUATION B-1: $T_c = (L_1/V_1 + L_2/V_2 + \dots) / 3600$ $T_c = 0.2$ hr (MINIMUM)

WHERE: $V = K \cdot (S \cdot 100)^{0.5} = 10 \cdot K \cdot (S)^{0.5}$ $S = \text{SLOPE}$

FOR $L < 400'$ $K = 0.7$ (HISTORICAL CONDITONS)

$K = 1.0$ (DEVELOPED CONDITONS)

FOR $400' < L < 2000'$ $K = 2.0$

FOR $2000' < L < 4000'$ $K = 3.0$

TIME TO PEAK $T_p = 2/3 \cdot T_c$

HISTORICAL CONDITONS

BASIN #	AREA (SQ. MI.)	LENGTH (FT)	SLOPE (FT/FT)	L1/V1	L2/V2	L3/V3	CALCULATED Tc (HR)	ADJUSTED Tc (HR)	Tp (HR)
ON1A	0.0060	700	0.02	404	106	-	0.142	0.200	0.133
ON1B	0.0078	760	0.02	404	127	-	0.148	0.200	0.133
ON2	0.0106	1025	0.02	404	221	-	0.174	0.200	0.133
ON3	0.0083	1300	0.02	404	318	-	0.201	-	0.134
								0.200	
OFF1A	0.0173	1200	0.03	330	231	-	0.156	0.200	0.133
OFF1B	0.0373	2500	0.028	341	478	100	0.255	-	0.170
OFF1C	0.0521	2500	0.025	361	506	105	0.270	-	0.180
OFF2	0.0077	650	0.025	361	79	-	0.122	0.200	0.133
OFF3	0.0042	1100	0.015	467	286	-	0.209	-	0.139
OFF4A	0.0057	1500	0.024	369	355	-	0.201	-	0.134
OFF4B	0.0024	640	0.024	369	77	-	0.124	0.200	0.133
OFF5	0.0033	870	0.018	426	175	-	0.167	0.200	0.133
OFF6A	0.0062	815	0.018	426	155	-	0.161	0.200	0.133
OFF6B	0.0074	820	0.018	426	157	-	0.162	0.200	0.133
OFF6C	0.0018	470	0.018	426	26	-	0.126	0.200	0.133
OFF6D	0.0018	550	0.018	426	56	-	0.134	0.200	0.133
OFF7	0.0013	600	0.01	571	100	-	0.187	0.200	0.133
OFF8	0.0509	2900	0.01	571	800	300	0.464	-	0.310

DEVELOPED CONDITONS

BASIN #	AREA (SQ. MI.)	LENGTH (FT)	SLOPE (FT/FT)	L1/V1	L2/V2	L3/V3	CALCULATED Tc (HR)	ADJUSTED Tc (HR)	Tp (HR)
ON1A	0.0060	700	0.02	283	106	-	0.108	0.200	0.133
ON1B	0.0078	760	0.022	270	121	-	0.109	0.200	0.133
ON2	0.0106	1025	0.025	253	198	-	0.125	0.200	0.133
ON3	0.0083	1300	0.025	253	285	-	0.149	0.200	0.133
OFF1A	0.0173	1200	0.03	231	231	-	0.128	0.200	0.133
OFF1B	0.0373	2500	0.028	239	478	100	0.227	-	0.151
OFF1C	0.0521	2500	0.025	253	506	105	0.240	-	0.160
OFF2	0.0077	650	0.025	253	79	-	0.092	0.200	0.133
OFF3	0.0042	1100	0.015	327	286	-	0.170	0.200	0.133
OFF4A	0.0057	1500	0.024	258	355	-	0.170	0.200	0.133
OFF4B	0.0024	640	0.024	258	77	-	0.093	0.200	0.133
OFF5	0.0033	870	0.018	298	175	-	0.131	0.200	0.133
OFF6A	0.0062	815	0.019	290	151	-	0.122	0.200	0.133
OFF6B	0.0074	820	0.019	290	152	-	0.123	0.200	0.133
OFF6C	0.0018	325	0.03	188	-	-	0.052	0.200	0.133
OFF6D	0.0018	675	0.05	179	61	-	0.067	0.200	0.133
OFF7	0.0013	600	0.01	400	100	-	0.139	0.200	0.133
OFF8	0.0509	2900	0.025	253	506	569	0.369	-	0.246

PROJECT: _____

DATE: _____



CALCULATIONS

By: _____ Pg: _____ of _____

Land Treatments

- Onsite Basins

$$24.5 \text{ acres} - 3.87 \text{ ac (PAM Easement)} = 20.63 \text{ ac}$$

$$\frac{128 \text{ units}}{20.63 \text{ ac}} = 6.2 \text{ D.U./Acre}$$

- % D - Table A-5

$$7 \pm \sqrt{N^2 + 5N}$$

$$7 \pm \sqrt{6.2^2 + 5(6.2)}$$

$$\%D = 58\%$$

- Breakout by Square Footage

$$\text{House} \approx 1750 \text{ FT}^2$$

$$\text{Garage} \approx 400 \text{ FT}^2$$

$$\text{Driveway} = 18'(20') = 360 \text{ FT}^2$$

$$\text{Street} = 25'(43') = 1075 \text{ FT}^2$$

$$\text{Walk} = 43'(4') = 172 \text{ FT}^2$$

$$\text{Total} = 3757 \text{ Sq FT}$$

$$\%D = \frac{6.2(3757)}{435.60} = 53.5\% < 58\%$$

$$\therefore \text{Use } \%D = 58\%$$

$$\%B = 21.0\%$$

$$\%C = 21.0\%$$

- OFFSITE Basins

$$\text{USE } 5 \text{ D.U./Acre}$$

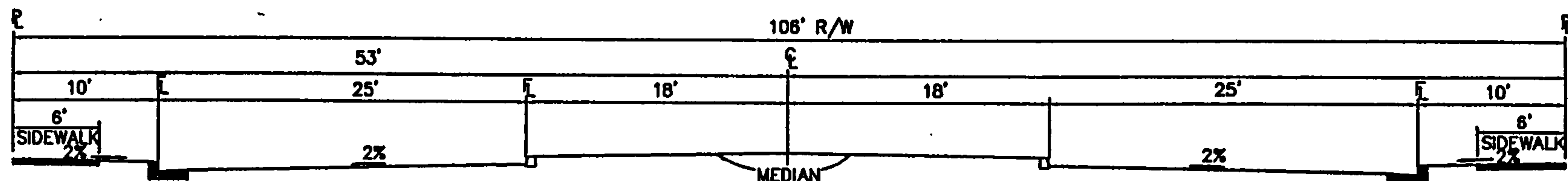
$$\text{Table A-5 } \%D = 7 \pm \sqrt{5^2 + 5(5)}$$

$$= 49.5\%$$

$$\therefore \text{USE } \%D = 50\%$$

$$\%B = 25\%$$

$$\%C = 25\%$$



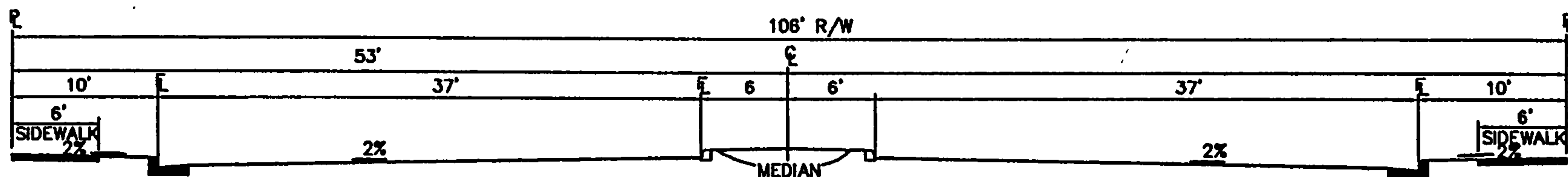
LADERA DRIVE
TYPICAL SECTION - PROPOSED SECTION
NTS

LAND TREATMENT D - LADERA RIGHT OF WAY ONLY

PAVEMENT= 50'
STD CURB= 2(7.5")
PINNED CURB= 2(8")
SIDEWALK= 2(6")
TOTAL= 64.0'
TOTAL WIDTH = 106'
XD: $64.0'/106' = 60.0\%$
SPLIT BALANCE BETWEEN B & C
XB: 20.0%
XC: 20.0%

LAND TREATMENT D - LADERA RIGHT OF WAY & PNM EASEMENT

PAVEMENT= 50'
STD CURB= 2(7.5")
PINNED CURB= 2(8")
SIDEWALK= 2(6")
TOTAL= 64.0'
TOTAL WIDTH = $106' + 100' = 206'$
XD: $64.0'/206' = 31.0\%$
EASEMENT ALL TYPE A
XA: $100'/206' = 48.5\%$
SPLIT BALANCE BETWEEN B & C
XB: 10.25%
XC: 10.25%



LADERA DRIVE
TYPICAL SECTION - FULL BUILDOUT
NTS

LAND TREATMENT D - LADERA RIGHT OF WAY ONLY

PAVEMENT= 74'
STD CURB= 2(7.5")
PINNED CURB= 2(8")
SIDEWALK= 2(6")
TOTAL= 88.0'
TOTAL WIDTH = 106'
XD: $88.0'/106' = 83.0\%$
SPLIT BALANCE BETWEEN B & C
XB: 8.5%
XC: 8.5%

LAND TREATMENT D - LADERA RIGHT OF WAY & PNM EASEMENT

PAVEMENT= 74'
STD CURB= 2(7.5")
PINNED CURB= 2(8")
SIDEWALK= 2(6")
TOTAL= 88.0'
TOTAL WIDTH = $106' + 100' = 206'$
XD: $88.0'/206' = 43.0\%$
EASEMENT ALL TYPE A
XA: $100'/206' = 48.5\%$
SPLIT BALANCE BETWEEN B & C
XB: 4.25%
XC: 4.25%

Ladera Drive
Land Treatments

RESERVOIR ROUTING CURVE

NOTE: THIS DETENTION POND WAS DESIGNED BY
COMMUNITY SCIENCES CORPORATION FOR
THE PARKWAY UNIT 7 SUBDIVISION.

MAXIMUM DISCHARGE TO AMAFCA
EASEMENT=13.2 CFS

POND BOTTOM ELEVATION 5197.00
SPILLWAY ELEVATION 5204.00

ORIFICE DIAMETER 0.83 FEET
10.00 INCHES

HEIGHT IS MEASURED FROM WATER SURFACE ELEVATION
TO CENTER OF ORIFICE

ORIFICE EQUATION: $Q=C*A*(2*G*H)^{0.5}$
WHERE C=0.60

ELEVATION	HEIGHT	WETTED AREA	ORIFICE (CFS)
5184.42	0.42	0.27	0.85
5185.00	0.58	0.41	1.50
5186.00	1.58	0.55	3.30
5187.00	2.58	0.55	4.22
5188.00	3.58	0.55	4.97
5189.00	4.58	0.55	5.62
5190.00	5.58	0.55	6.21
5191.00	6.58	0.55	6.74
5192.00	7.58	0.55	7.23
5193.00	8.58	0.55	7.69
5194.00	9.58	0.55	8.13
5195.00	10.58	0.55	8.54
5196.00	11.58	0.55	8.94
5197.00	12.58	0.55	9.32
5198.00	13.58	0.55	9.68
5199.00	14.58	0.55	10.03
5200.00	15.58	0.55	10.37
5201.00	16.58	0.55	10.69
5202.00	17.58	0.55	11.01
5203.00	18.58	0.55	11.32
5204.00	19.58	0.55	11.62

①

**AHYMO
FULLY DEVELOPED
10 YR. - 6 HR.**

**FOR LADERA DRIVE
STORM DRAIN INLET SPACING**

(Appendix A)

10yr- 6hr Developed
Summary

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
INPUT FILE = tierra.DAT

RUN DATE (MON/DAY/YR) =03/04/1996
USER NO.= CINFRNM.101

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
*S TIERRA OSESTE SUBDIVISION DRAINAGE REVISION DATE: 2/96										
*S Compute 10-Year Flow FN:TIERRA.DAT BY:RGG										
*S COMPUTE 10YR-6HR STORM FOR FULLY DEVELOPED CONDITIONS										
*S NO POND										
*S										
*S										
START										
RAINFALL TYPE= 1										
*S										
*S COMPUTE FLOWS FROM INSIDE SUBDIVISION ONLY (OFF2,ON1,ON2 & ON3)										
*S & ROUTE TO LADERA STORM DRAIN										
*S										
*S BASIN OFF2-----										
*S										
COMPUTE NM HYD	101.10	-	1	.00770	9.80	.319	.77785	1.499	1.990 PER IMP=	50.00
*S										
*S BASIN ON1A-----										
*S										
COMPUTE NM HYD	102.10	-	2	.00600	8.20	.272	.85146	1.499	2.135 PER IMP=	58.00
*S										
*S BASIN ON2-----										
*S										
COMPUTE NM HYD	103.10	-	3	.01060	14.48	.481	.85146	1.499	2.134 PER IMP=	58.00
*S										
*S BASIN ON3-----										
*S										
COMPUTE NM HYD	104.10	-	4	.00830	11.34	.377	.85146	1.499	2.135 PER IMP=	58.00
*S										
*S BASIN ON1B-----										
*S										
COMPUTE NM HYD	105.10	-	5	.00780	10.66	.354	.85146	1.499	2.135 PER IMP=	58.00
*S										
*S										
*S ROUTE BASIN OFF2 THRU ON1A										
*S										
ROUTE	106.10	1	6	.00770	8.65	.319	.77788	1.565	1.756	
*S										
*S										
*S ADD ON1A TO ROUTED OFF2-FLOW TO BE INTERCPETED BY INLETS @ CASA ROJA										
*S & CASA MORENA										
*S										
ADD HYD	107.10	2& 6	7	.01370	16.39	.592	.81005	1.532	1.869	
*S										
*S										
*S INLETS ON CASA ROJA @ CASA MORENA RECIEVED 14.0 CFS-										
*S ID=8 IS FLOW INTO PIPE ID=9 BYPASS FLOW										
*S										
DIVIDE HYD	108.10	7	8	.01336	14.00	.577	.81005	1.499	1.638	
	109.10	AND	9	.00034	2.39	.015	.81005	1.532	10.830	
*S										
*S										
*S ROUTE BYPASS FLOW FROM INLETS (ID=9) THRU ON1B TO INLETS ON CASA ROJA										
*S @ CASA NEGRA										
*S										
ROUTE	110.10	9	10	.00034	1.87	.015	.82503	1.565	8.471	
*S										
*S										
*S ADD ON1B TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ CASA ROJA										
*S & CASA NEGRA										
*S										
ADD HYD	111.10	5&10	11	.00814	11.76	.369	.85025	1.532	2.255	
*S										
*S INLETS ON CASA ROJA @ CASA NEGRA RECIEVED 14.4 CFS										
*S ID=12 IS FLOW INTO STORM DRAIN SYSTEM ID=13 BYPASS FLOW ON SURFACE										
*S										
DIVIDE HYD	112.10	11	12	.00814	11.76	.369	.85025	1.532	2.255	
	113.10	AND	13	.00000	.00	.000	.00000	-.033	.000	
*S										
*S										

*S ROUTE BYPASS FLOW FROM INLETS (ID=13) THRU ON2 TO INLETS ON CASA ROJA
 *S @ CASA VERDE
 *S

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2 NOTATION

ROUTE	114.10	13	14	.00000	.00	.000	.00000	-.033	.000	

*S
 *S
 *S ADD ON2 TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ CASA ROJA
 *S & CASA VERDE
 *S

ADD HYD	115.10	3&14	15	.01060	14.48	.481	.85143	1.499	2.134	

*S
 *S
 *S INLETS ON CASA ROJA @ CASA VERDE RECIEVED 29.19 CFS
 *S ID=16 IS FLOW INTO STORM DRAIN SYSTEM ID=17 BYPASS FLOW ON SURFACE
 *S

DIVIDE HYD	116.10	15	16	.01060	14.48	.481	.85143	1.499	2.134	
	117.10	AND	17	.00000	.00	.000	.00000	-.033	.000	

*S
 *S
 *S ROUTE BYPASS FLOW FROM INLETS (ID=17) THRU ON3 TO END OF 50'
 *S RIGHT OF WAY ENDING AT CASA AZUL

ROUTE	118.10	17	18	.00000	.00	.000	.00000	-.033	.000	

*S
 *S
 *S ROUTE BYPASS FLOW FROM INLETS (ID=18) THRU ON3 FROM END OF 50'
 *S RIGHT OF WAY ENDING AT CASA AZUL TO NORTH END OF CASA ROJA
 *S (CUL-DE-SAC)

ROUTE	119.10	18	19	.00000	.00	.000	.00000	-.033	.000	

*S
 *S
 *S
 *S ADD ON3 TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ NORTH END
 *S OF CASA ROJA
 *S

ADD HYD	120.10	4&19	20	.00830	11.34	.377	.85142	1.499	2.135	

*S
 *S
 *S
 *S
 *S
 *S ROUTE STORM DRAIN IN SUBDIVISION
 *S
 *S

*S
 *S
 *S ROUTING OF PIPE FLOW FROM FIRST OF INLETS (ID=8) TO SECOND SET OF INLETS
 *S (ID=12) NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S
 *S

*S
 *S
 *S ADD FIRST SET OF INLETS (ID=8) TO SECOND SET OF INLETS (ID=12)
 *S

ADD HYD	122.10	8&12	22	.02150	25.76	.946	.82528	1.532	1.872	

*S
 *S
 *S ROUTING OF PIPE FLOW FROM 2 SETS OF INLETS (ID=22) TO THIRD SET OF INLETS
 *S (ID=16) NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S
 *S

*S
 *S
 *S ADD FIRST TWO SETS INLETS (ID=22) TO THIRD SET OF INLETS (ID=16)
 *S

ADD HYD	124.10	22&16	24	.03210	39.79	1.428	.83392	1.532	1.937	

*S
 *S
 *S ROUTING OF PIPE FLOW FROM 3 SETS OF INLETS (ID=24) TO LADERA STORM DRAIN
 *S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S
 *S

*S
 *S
 *S

*S
 *S
 *S ROUTING OF PIPE FLOW FROM CUL-DE-SAC ON CASA ROJA (ID=20) TO LADERA STORM
 *S DRAIN NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S

LADERA STORM DRAIN

*S
 *S COMPUTE FLOWS CONTRIBUTING TO LADERA STORM DRAIN
 *S ASSUMPTIONS: USE FULL BUILDOUT SIX LANE SECTION
 *S

*S BASIN OFF7-----
 *S

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3 NOTATION
COMPUTE NM HYD	126.10	-	26	.00130	.21	.006	.08298	1.532	.249	PER IMP= .00
*S BASIN OFF5-----										
COMPUTE NM HYD	127.10	-	27	.00330	5.47	.190	1.08149	1.499	2.592	PER IMP= 83.00
*S BASIN OFF6A-----										
COMPUTE NM HYD	128.10	-	28	.00620	5.68	.197	.59530	1.499	1.431	PER IMP= 43.00
*S BASIN OFF6B-----										
COMPUTE NM HYD	129.10	-	29	.00740	6.77	.235	.59530	1.499	1.430	PER IMP= 43.00
*S BASIN OFF6C-----										
COMPUTE NM HYD	130.10	-	30	.00180	2.99	.104	1.08149	1.499	2.596	PER IMP= 83.00
*S BASIN OFF6D-----										
COMPUTE NM HYD	131.10	-	31	.00180	2.99	.104	1.08149	1.499	2.596	PER IMP= 83.00
*S BASIN OFF1C-----										
COMPUTE NM HYD	132.10	-	32	.05209	60.27	2.161	.77785	1.532	1.808	PER IMP= 50.00

*S
 *S ADD OFF5 AND OFF1C
 *S ASSUME THIS FLOW IS IN LADERA STORM DRAIN WITH NO BYPASS ON THE ROAD
 *S

ADD HYD	133.10	27&32	33	.05539	65.52	2.351	.79593	1.532	1.848	

*S
 *S ROAD ROUTING FOR LADERA DRIVE AND DIVIDE OFF FLOW BY INLETS
 *S

*S
 *S INLETS ON LADERA DRIVE (STA 8+25) RECIEVED 2.80 CFS
 *S ID=34 IS INTO STORM DRAIN SYSTEM ID=35 BYPASS FLOW ON SURFACE
 *S

DIVIDE HYD	134.10	28	34	.00508	2.80	.161	.59525	1.399	.862	
	135.10	AND	35	.00112	2.88	.036	.59525	1.499	4.000	

*S
 *S ROUTE BYPASS (ID=35) THRU OFF6B
 *S DOWN LADERA-ASSUME 6 LANE SECTION
 *S

ROUTE	136.10	35	36	.00112	2.03	.036	.59984	1.565	2.816	

*S ADD ROUTED BYPASS (ID=36) AND OFF6B (ID=29)

*S
ADD HYD 137.10 36&29 37 (.00852 8.41 .271 .59581 1.532 1.541

*S

*S

*S INLETS ON LADERA DRIVE (STA 15+40) RECIEVED 14.0 CFS

*S (5.6 CFS IN EXISTING INLETS - 7.4 CFS IN PROPOSED INLETS)

*S ID=38 IS FLOW INTO STORM DRAIN SYSTEM ID=39 BYPASS FLOW ON SURFACE

*S

DIVIDE HYD 138.10 37 38 .00852 8.41 .271 .59581 1.532 1.541
 139.10 AND 39 .00000 .00 .000 .00000 -.033 .000

*S

*S-----

*S

*S ROUTE BYPASS (ID=39) THRU OFF6C TO BOTTOM OF SUMP STA 25+70

*S DOWN LADERA-ASSUME 6 LANE SECTION

*S

ROUTE 140.10 39 40 .00000 .00 .000 .00000 -.033 .000

*S

*S-----

*S

*S ADD ROUTED BYPASS (ID=40) AND OFF6C (ID=30)

*S

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 4 NOTATION

ADD HYD	141.10 40&30	41		.00180	2.99	.104	1.08131	1.499	2.596	

*S

*S-----

*S

*S ADD BYPASS AND OFF6C (ID=41) AND OFF6D (ID=31)

*S TOTAL AMOUNT OF WATER COLLECTED AT SUMP STA 25+70

ADD HYD	142.10 41&31	42		.00360	5.98	.208	1.08131	1.499	2.596	

*S

*S

*S-----

*S-----

*S-----

*S-----

*S LADERA STORM DRAIN ROUTING

*S-----

*S-----

*S-----

*S

*S ROUTING OF PIPE FLOW FROM OFFSITE (ID=33) TO LADERA STATION 8+25

*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

*S

*S-----

*S

*S ADD OFFSITE FLOW (ID=33) TO FIRST SET OF INLETS (STA 8+25) ID=34

*S

ADD HYD	144.10 33&34	44		.06047	68.32	2.512	.77908	1.532	1.766	

*S

*S-----

*S-----

*S

*S ROUTING OF PIPE FLOW FROM LADERA STA 8+25 (ID=44) TO CASA VERDE

*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

*S

*S-----

*S

*S ADD PIPE FLOW (ID=44) TO FLOW FROM CASA VERDE (ID=24)

*S

ADD HYD	146.10 44&24	46		.09257	108.12	3.940	.79810	1.532	1.825	

*S

*S-----

*S-----

*S

*S ROUTING OF PIPE FLOW FROM CASA VERDE (ID=44) TO LADERA STA 15+40

*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

*S

*S-----

*S

*S ADD PIPE FLOW (ID=46) TO INLETS (ID=38)

*S

ADD HYD	148.10 46&38	48		.10109	116.52	4.211	.78104	1.532	1.801	

*S
 *S-----
 *S-----
 *S
 *S ROUTING OF PIPE FLOW FROM STA 15+40 (ID=48) TO TIERRA OESTE ESMT PIPE
 *S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S

*S-----
 *S
 *S ADD PIPE FLOW (ID=48) TO FLOW FROM EASMENT (ID=20)
 *S

ADD HYD	151.10	48&20	51	.10939	127.52	4.588	.78638	1.532	1.821

*S-----
 *S-----
 *S
 *S ROUTING OF PIPE FLOW FROM TIERRA OESTE ESMT (ID=51) TO AMAFCA EASEMENT
 *S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S

*S-----
 *S
 *S EXISTING FLOW FROM LADERA SHOWN ON PARKWAY UNIT 3 PLANS
 *S Q(100)=8.1 CFS FLOW FROM BEEHIVE= 0 CFS
 *S

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 5 NOTATION

STORE HYD	153.10	-	53	.00010	8.10	.421	79.02897	1.000	126.563	

*S-----
 *S
 *S ADD EXISTING FLOW TO NEW FLOW FROM SUMP (ID=42)
 *S

ADD HYD	154.10	42&53	54	.00370	8.10	.588	2.98144	1.499	3.420

*S-----
 *S-----
 *S
 *S ROUTING OF PIPE FLOW LADERA SUMP (ID=54) TO AMAFCA EASEMENT
 *S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S

*S
 *S ADD MAIN LADERA STORM DRAIN AND STORM DRAIN FROM SUMP
 *S

ADD HYD	156.10	51&54	56	.11309	133.25	5.176	.85820	1.532	1.841

*S-----
 *S
 *S ADD BASIN OFF7 (ID=26)-RAIN THAT FALLS INTO POND TO STORM DRAIN
 *S

ADD HYD	157.10	56&26	57	.11439	133.46	5.182	.84939	1.532	1.823

*S-----
 *S
 *S TOTAL DISCHARGE TO AMAFCA EASEMENT
 *S

*S-----
 *S
 *S
 *S OFFSITE FLOW TO I-40 INTERCEPTOR
 *S BASINS OFF1A, OFF1B, OFF3, OFF4A, OFF4B, OFF8
 *S

*S-----
 *S
 *S
 *S COMPUTE FLOWS CONTRIBUTING TO I-40 INTERCEPTOR
 *S ASSUMPTIONS: USE FULL BUILDOUT SIX LANE SECTION FOR BASINS OFF4A&B
 *S

*S BASIN OFF1A-----

COMPUTE NM HYD	160.10	-	60	.01730	22.02	.718	.77785	1.499	1.989 PER IMP= 50.00

*S BASIN OFF1B-----

COMPUTE NM HYD	161.10	-	61	.03730	44.49	1.547	.77785	1.532	1.864 PER IMP= 50.00

*S BASIN OFF3-----

COMPUTE NM HYD	162.10	-	62	.00420	6.96	.242	1.08149	1.499	2.591 PER IMP= 83.00

*S BASIN OFF4A-----
 *S
 COMPUTE NM HYD 163.10 - 63 .00570 9.45 .329 1.08149 1.499 2.590 PER IMP= 83.00
 *S

*S BASIN OFF4B-----
 *S
 COMPUTE NM HYD 164.10 - 64 .00240 3.98 .138 1.08149 1.499 2.594 PER IMP= 83.00
 *S

*S BASIN OFF8-----
 *S
 COMPUTE NM HYD 165.10 - 65 .05090 45.36 2.112 .77785 1.632 1.393 PER IMP= 50.00
 *S

*S-----
 *S
 *S ADD BASIN OFF1A AND OFF3
 *S
 ADD HYD 166.10 60&62 66 .02150 28.98 .960 .83714 1.499 2.106
 *S

*S-----
 *S
 *S ROUTE OFF1A AND OFF3 (ID=66) THRU OFF4A (LADERA)
 *S ASSUME 6 LANE SECTION
 *S

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 6 NOTATION
ROUTE	167.10	66	67	.02150	23.33	.960	.83716	1.565	1.696	

*S-----
 *S
 *S ADD ROUTED OFF1A AND OFF3 TO OFF1B
 *S
 ADD HYD 168.10 67&61 68 .05880 66.37 2.507 .79952 1.532 1.764
 *S

*S-----
 *S
 *S ADD ID=68 AND OFF4A
 *S
 ADD HYD 169.10 68&63 69 .06450 75.43 2.836 .82443 1.532 1.827
 *S

*S-----
 *S
 *S ADD ID=69 AND OFF4B
 *S
 ADD HYD 170.10 69&64 70 .06690 79.26 2.974 .83365 1.532 1.851
 *S

*S-----
 *S
 *S ROUTE COMBINED FLOW (ID=70) THROUGH OFF8 IN 3' DIA.PIPE
 *S
 ROUTE 171.10 70 71 .06690 76.91 2.974 .83366 1.565 1.796
 *S

*S-----
 *S
 *S ADD ROUTED FLOW (ID=71) AND OFF8
 *S TOTAL DISCHARGE TO I-40 INTERCEPTOR AT THE BOTTOM OF OFF8
 *S
 ADD HYD 171.10 71&65 72 .11780 118.49 5.086 .80954 1.565 1.572
 *S
 FINISH

②

AHYMO
FOR
STORM DRAIN SYSTEM
DESIGN

FULLY DEVELOPED
100 YR. - 6 HR.

(Appendix A)

RUN DATE (MON/DAY/YR) =03/01/1996
USER NO.= CINFRNM.101

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE #	1 NOTATION
*S TIERRA OSESTE SUBDIVISION DRAINAGE REVISION DATE: 2/96											
*S Compute 100-Year Flow FN:TIERRA.DAT BY:RGG											
*S COMPUTE 100YR-6HR STORM FOR FULLY DEVELOPED CONDITIONS											
*S NO POND											
*S											
*S											
START											
RAINFALL TYPE= 1										TIME=	.00
										RAIN6=	2.200
*S											
*S COMPUTE FLOWS FROM INSIDE SUBDIVISION ONLY (OFF2,ON1,ON2 & ON3)											
*S & ROUTE TO LADERA STORM DRAIN											
*S											
*S BASIN OFF2-----											
*S											
COMPUTE NM HYD	101.10	-	1	.00770	16.81	.571	1.39061	1.499	3.411 PER IMP=	50.00	
*S											
*S BASIN ON1A-----											
*S											
COMPUTE NM HYD	102.10	-	2	.00600	13.70	.474	1.48259	1.499	3.567 PER IMP=	58.00	
*S											
*S BASIN ON2-----											
*S											
COMPUTE NM HYD	103.10	-	3	.01060	24.18	.838	1.48259	1.499	3.565 PER IMP=	58.00	
*S											
*S BASIN ON3-----											
*S											
COMPUTE NM HYD	104.10	-	4	.00830	18.94	.656	1.48259	1.499	3.566 PER IMP=	58.00	
*S											
*S BASIN ON1B-----											
*S											
COMPUTE NM HYD	105.10	-	5	.00780	17.80	.617	1.48259	1.499	3.566 PER IMP=	58.00	
*S											
*S-----											
*S ROUTE BASIN OFF2 THRU ON1A											
*S											
ROUTE	106.10	1	6	.00770	15.17	.571	1.39064	1.565	3.078		
*S											
*S											
*S ADD ON1A TO ROUTED OFF2-FLOW TO BE INTERCPETED BY INLETS @ CASA ROJA											
*S & CASA MORENA											
*S											
ADD HYD	107.10	2& 6	7	.01370	28.35	1.045	1.43086	1.532	3.234		
*S											
*S											
*S INLETS ON CASA ROJA @ CASA MORENA RECIEVED 14.0 CFS-											
*S ID=8 IS FLOW INTO PIPE ID=9 BYPASS FLOW											
*S											
DIVIDE HYD	108.10	7	8	.01104	14.00	.842	1.43086	1.432	1.982		
	109.10	AND	9	.00266	14.35	.203	1.43086	1.532	8.417		
*S											
*S-----											
*S ROUTE BYPASS FLOW FROM INLETS (ID=9) THRU ON1B TO INLETS ON CASA ROJA											
*S @ CASA NEGRA											
*S											
ROUTE	110.10	9	10	.00266	13.91	.204	1.43280	1.532	8.159		
*S											
*S											
*S ADD ON1B TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ CASA ROJA											
*S & CASA NEGRA											
*S											
ADD HYD	111.10	5&10	11	.01046	31.09	.820	1.46984	1.532	4.642		
*S											
*S INLETS ON CASA ROJA @ CASA NEGRA RECIEVED 14.4 CFS											
*S ID=12 IS FLOW INTO STORM DRAIN SYSTEM ID=13 BYPASS FLOW ON SURFACE											
*S											
DIVIDE HYD	112.10	11	12	.00815	14.40	.639	1.46984	1.465	2.761		
	113.10	AND	13	.00232	16.69	.182	1.46984	1.532	11.260		
*S											
*S-----											

*S ROUTE BYPASS FLOW FROM INLETS (ID=13) THRU ON2 TO INLETS ON CASA ROJA
 *S @ CASA VERDE
 *S

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2 NOTATION

ROUTE	114.10	13	14	.00232	15.34	.182	1.47207	1.565	10.351	

*S
 *S
 *S ADD ON2 TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ CASA ROJA
 *S & CASA VERDE
 *S

ADD HYD	115.10	3&14	15	.01292	36.87	1.020	1.48065	1.532	4.460	

*S
 *S
 *S INLETS ON CASA ROJA @ CASA VERDE RECIEVED 29.19 CFS
 *S ID=16 IS FLOW INTO STORM DRAIN SYSTEM ID=17 BYPASS FLOW ON SURFACE
 *S

DIVIDE HYD	116.10	15	16	.01232	29.19	.973	1.48065	1.499	3.701	
	117.10	AND	17	.00059	7.68	.047	1.48065	1.532	20.248	

*S
 *S-----
 *S ROUTE BYPASS FLOW FROM INLETS (ID=17) THRU ON3 TO END OF 50'
 *S RIGHT OF WAY ENDING AT CASA AZUL

ROUTE	118.10	17	18	.00059	7.21	.047	1.48935	1.565	19.006	

*S
 *S-----
 *S ROUTE BYPASS FLOW FROM INLETS (ID=18) THRU ON3 FROM END OF 50'
 *S RIGHT OF WAY ENDING AT CASA AZUL TO NORTH END OF CASA ROJA
 *S (CUL-DE-SAC)

ROUTE	119.10	18	19	.00059	4.61	.047	1.48935	1.598	12.160	

*S
 *S-----
 *S
 *S ADD ON3 TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ NORTH END
 *S OF CASA ROJA
 *S

ADD HYD	120.10	4&19	20	.00889	19.31	.703	1.48296	1.565	3.392	

*S
 *S-----
 *S
 *S
 *S
 *S
 *S ROUTE STORM DRAIN IN SUBDIVISION
 *S
 *S-----

*S
 *S
 *S ROUTING OF PIPE FLOW FROM FIRST OF INLETS (ID=8) TO SECOND SET OF INLETS
 *S (ID=12) NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S
 *S-----

*S
 *S
 *S ADD FIRST SET OF INLETS (ID=8) TO SECOND SET OF INLETS (ID=12)
 *S

ADD HYD	122.10	8&12	22	.01918	28.40	1.481	1.44742	1.465	2.313	

*S
 *S-----
 *S
 *S ROUTING OF PIPE FLOW FROM 2 SETS OF INLETS (ID=22) TO THIRD SET OF INLETS
 *S (ID=16) NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S
 *S-----

*S
 *S
 *S ADD FIRST TWO SETS INLETS (ID=22) TO THIRD SET OF INLETS (ID=16)
 *S

ADD HYD	124.10	22&16	24	.03151	57.59	2.454	1.46041	1.499	2.856	

*S
 *S-----
 *S
 *S ROUTING OF PIPE FLOW FROM 3 SETS OF INLETS (ID=24) TO LADERA STORM DRAIN
 *S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S
 *S-----
 *S-----

*S
 *S
 *S ROUTING OF PIPE FLOW FROM CUL-DE-SAC ON CASA ROJA (ID=20) TO LADERA STORM
 *S DRAIN NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S

LADERA STORM DRAIN

*S
 *S COMPUTE FLOWS CONTRIBUTING TO LADERA STORM DRAIN
 *S ASSUMPTIONS: USE FULL BUILDOUT SIX LANE SECTION
 *S

*S BASIN OFF7-----
 *S

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3 NOTATION
COMPUTE NM HYD	126.10	-	26	.00130	1.09	.030	.43919	1.532	1.308	PER IMP= .00
*S BASIN OFF5-----										
COMPUTE NM HYD	127.10	-	27	.00330	8.56	.312	1.77001	1.499	4.054	PER IMP= 83.00
*S BASIN OFF6A-----										
COMPUTE NM HYD	128.10	-	28	.00620	10.68	.371	1.12114	1.499	2.693	PER IMP= 43.00
*S BASIN OFF6B-----										
COMPUTE NM HYD	129.10	-	29	.00740	12.75	.442	1.12114	1.499	2.692	PER IMP= 43.00
*S BASIN OFF6C-----										
COMPUTE NM HYD	130.10	-	30	.00180	4.68	.170	1.77001	1.499	4.060	PER IMP= 83.00
*S BASIN OFF6D-----										
COMPUTE NM HYD	131.10	-	31	.00180	4.68	.170	1.77001	1.499	4.060	PER IMP= 83.00
*S BASIN OFF1C-----										
COMPUTE NM HYD	132.10	-	32	.05209	103.28	3.863	1.39062	1.532	3.098	PER IMP= 50.00

*S
 *S ADD OFF5 AND OFF1C
 *S ASSUME THIS FLOW IS IN LADERA STORM DRAIN WITH NO BYPASS ON THE ROAD
 *S

ADD HYD	133.10	27&32	33	.05539	111.48	4.175	1.41321	1.532	3.145	

*S
 *S ROAD ROUTING FOR LADERA DRIVE AND DIVIDE OFF FLOW BY INLETS
 *S

*S
 *S INLETS ON LADERA DRIVE (STA 8+25) RECIEVED 2.80 CFS
 *S ID=34 IS INTO STORM DRAIN SYSTEM ID=35 BYPASS FLOW ON SURFACE
 *S

DIVIDE HYD	134.10	28	34	.00373	2.80	.223	1.12109	1.365	1.173	
	135.10	AND	35	.00247	7.88	.148	1.12109	1.499	4.985	

*S
 *S ROUTE BYPASS (ID=35) THRU OFF6B
 *S DOWN LADERA-ASSUME 6 LANE SECTION
 *S

ROUTE	136.10	35	36	.00247	6.66	.148	1.12318	1.565	4.208	

*S ADD ROUTED BYPASS (ID=36) AND OFF6B (ID=29)

*S
ADD HYD 137.10 36&29 37 .00987 18.77 .590 1.12158 1.532 2.971

*S

*S

*S INLETS ON LADERA DRIVE (STA 15+40) RECIEVED 14.0 CFS

*S (5.6 CFS IN EXISTING INLETS - 7.4 CFS IN PROPOSED INLETS)

*S ID=38 IS FLOW INTO STORM DRAIN SYSTEM ID=39 BYPASS FLOW ON SURFACE

*S

DIVIDE HYD 138.10 37 38 .00921 14.00 .551 1.12158 1.465 2.374
 139.10 AND 39 .00066 4.77 .039 1.12158 1.532 11.326

*S

*S-----

*S

*S ROUTE BYPASS (ID=39) THRU OFF6C TO BOTTOM OF SUMP STA 25+70

*S DOWN LADERA-ASSUME 6 LANE SECTION

*S

ROUTE 140.10 39 40 .00066 4.27 .040 1.12942 1.565 10.139

*S

*S-----

*S

*S ADD ROUTED BYPASS (ID=40) AND OFF6C (ID=30)

*S

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 4 NOTATION

ADD HYD	141.10 40&30	41		.00246	8.32	.210	1.59823	1.532	5.286	

*S

*S-----

*S

*S ADD BYPASS AND OFF6C (ID=41) AND OFF6D (ID=31)

*S TOTAL AMOUNT OF WATER COLLECTED AT SUMP STA 25+70

ADD HYD	142.10 41&31	42		.00426	12.79	.379	1.67078	1.532	4.695	

*S

*S

*S-----

*S-----

*S-----

*S LADERA STORM DRAIN ROUTING

*S-----

*S-----

*S-----

*S

*S ROUTING OF PIPE FLOW FROM OFFSITE (ID=33) TO LADERA STATION 8+25

*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

*S

*S-----

*S

*S ADD OFFSITE FLOW (ID=33) TO FIRST SET OF INLETS (STA 8+25) ID=34

ADD HYD	144.10 33&34	44		.05912	114.28	4.398	1.39478	1.532	3.020	

*S

*S-----

*S-----

*S

*S ROUTING OF PIPE FLOW FROM LADERA STA 8+25 (ID=44) TO CASA VERDE

*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

*S

*S-----

*S

*S ADD PIPE FLOW (ID=44) TO FLOW FROM CASA VERDE (ID=24)

ADD HYD	146.10 44&24	46		.09063	171.87	6.852	1.41760	1.532	2.963	

*S

*S-----

*S-----

*S

*S ROUTING OF PIPE FLOW FROM CASA VERDE (ID=44) TO LADERA STA 15+40

*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

*S

*S-----

*S

*S ADD PIPE FLOW (ID=46) TO INLETS (ID=38)

ADD HYD	148.10 46&38	48		.09984	185.87	7.403	1.39028	1.532	2.909	

*S

ADD HYD	151.10	48&20	51	.10873	204.97	8.106	1.39786	1.532	2.945

*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

*S Q(100)=8.1 CFS FLOW FROM BEEHIVE= 0 CFS

COMMAND	IDENTIFICATION	NO.	NO.	(SQ MI)	(CFS)	(AC-FT)	(INCHES)	(HOURS)	ACRE	NOTATION

*§

ADD HYD	154.10 42&53 54	.00436	12.79	.760	3.27049	1.532	4.588

*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

ADD HYD	156.10	51&54	56	.11309	217.76	8.866	1.47003	1.532	3.009

ADD HYD	157.10	56&26	57	.11439	218.85	8.897	1.45831	1.532	2.989

***S TOTAL DISCHARGE TO AMAFCA EASEMENT**

**OFFSITE FLOW TO I-40 INTERCEPTOR
BASINS OFF1A, OFF1B, OFF3, OFF4A, OFF4B, OFF8**

***S ASSUMPTIONS: USE FULL BUILDOUT SIX LANE SECTION FOR BASINS OFF4A&B**

COMPUTE NM HYD	160.10	-	60	.01730	37.75	1.283	1.39062	1.499	3.409	PER IMP=	50.00

COMPUTE NM HYD	161.10	-	61	.03730	76.09	2.766	1.39062	1.532	3.188	PER IMP=	50.00

COMPUTE NM HYD	162.10	-	62	.00420	10.89	.396	1.77001	1.499	4.052	PER IMP=	83.00


```

*S BASIN OFF4A-----
*S
COMPUTE NM HYD      163.10  -   63      .00570      14.78      .538      1.77001      1.499      4.051 PER IMP= 83.00
*S
*S BASIN OFF4B-----
*S
COMPUTE NM HYD      164.10  -   64      .00240      6.23      .227      1.77001      1.499      4.057 PER IMP= 83.00
*S
*S BASIN OFF8-----
*S
COMPUTE NM HYD      165.10  -   65      .05090      78.14      3.775      1.39061      1.632      2.399 PER IMP= 50.00
*S
*S-----
*S
*S ADD BASIN OFF1A AND OFF3
*S
ADD HYD              166.10 60&62 66      .02150      48.64      1.680      1.46470      1.499      3.535
*S
*S-----
*S
*S ROUTE OFF1A AND OFF3 (ID=66) THRU OFF4A (LADERA)
*S ASSUME 6 LANE SECTION
*S

```

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 6 NOTATION
ROUTE	167.10	66	67	.02150	41.05	1.680	1.46473	1.565	2.983	
*S-----										
*S ADD ROUTED OFF1A AND OFF3 TO OFF1B										
ADD HYD	168.10	67&61	68	.05880	115.51	4.446	1.41770	1.532	3.070	
*S-----										
*S ADD ID=68 AND OFF4A										
ADD HYD	169.10	68&63	69	.06450	129.66	4.984	1.44883	1.532	3.141	
*S-----										
*S ADD ID=69 AND OFF4B										
ADD HYD	170.10	69&64	70	.06690	135.63	5.211	1.46035	1.532	3.168	
*S-----										
*S ROUTE COMBINED FLOW (ID=70) THROUGH OFF8 IN 3' DIA.PIPE										
ROUTE	171.10	70	71	.06690	129.01	5.211	1.46035	1.565	3.013	
*S-----										
*S ADD ROUTED FLOW (ID=71) AND OFF8										
*S TOTAL DISCHARGE TO I-40 INTERCEPTOR AT THE BOTTOM OF OFF8										
ADD HYD	171.10	71&65	72	.11780	202.34	8.986	1.43021	1.598	2.684	
*S										
FINISH										

100yr-6hr Detailed Output

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
 RUN DATE (MON/DAY/YR) = 03/04/1996
 START TIME (HR:MIN:SEC) = 15:06:58 USER NO.= CINFRNM.101
 INPUT FILE = tierra.DAT

*S TIERRA OSESTE SUBDIVISION DRAINAGE REVISION DATE: 2/96
 *S Compute 100-Year Flow FN:TIERRA.DAT BY:RGG

*
 *
 *
 *S COMPUTE 100YR-6HR STORM FOR FULLY DEVELOPED CONDITIONS
 *S NO POND
 *S

*S
 START TIME=0.0 CODE 0 LINES -6
 *

RAINFALL TYPE=-1 RAIN QUATER=0.0 RAIN ONE=1.87
 RAIN SIX=2.20 RAIN DAY=2.66 DT=0.0333

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
 DT = .033300 HOURS END TIME = 5.994000 HOURS

*
 *S
 *S COMPUTE FLOWS FROM INSIDE SUBDIVISION ONLY (OFF2,ON1,ON2 & ON3)
 *S & ROUTE TO LADERA STORM DRAIN
 *S

*S BASIN OFF2-----
 *S
 COMPUTE NM HYD ID=1 HYD NO=101.1 DA=0.0077 SQ MI
 PER A=00.0 PER B=25.0 PER C=25.0 PER D=50.0 TP=-.133
 MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 15.234 CFS UNIT VOLUME = .9987 B = 526.28 P60 = 1.8700
 AREA = .003850 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
 UNIT PEAK = 10.267 CFS UNIT VOLUME = .9992 B = 354.67 P60 = 1.8700
 AREA = .003850 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=1 CODE=10

PARTIAL HYDROGRAPH 101.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	8.8	3.330	.1	4.995	.1	6.660	.0
.333	.0	1.998	3.3	3.663	.1	5.328	.1		
.666	.0	2.331	.8	3.996	.1	5.661	.1		
.999	.0	2.664	.3	4.329	.1	5.994	.1		
1.332	3.5	2.997	.2	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.39061 INCHES = .5711 ACRE-Feet
 PEAK DISCHARGE RATE = 16.81 CFS AT 1.499 HOURS BASIN AREA = .0077 SQ. MI.

*S
 *S BASIN ON1A-----
 *S
 COMPUTE NM HYD ID=2 HYD NO=102.1 DA=0.0060 SQ MI
 PER A=00.0 PER B=21.0 PER C=21.0 PER D=58.0 TP=-.133
 MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 13.770 CFS UNIT VOLUME = .9986 B = 526.28 P60 = 1.8700
 AREA = .003480 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
 UNIT PEAK = 6.7200 CFS UNIT VOLUME = .9985 B = 354.67 P60 = 1.8700

AREA = .002520 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=10

PARTIAL HYDROGRAPH 102.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	7.1	3.330	.1	4.995	.1	6.660	.0
.333	.0	1.998	2.8	3.663	.1	5.328	.1		
.666	.0	2.331	.6	3.996	.1	5.661	.1		
.999	.0	2.664	.3	4.329	.1	5.994	.1		
1.332	3.1	2.997	.1	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.48259 INCHES = .4744 ACRE-Feet
PEAK DISCHARGE RATE = 13.70 CFS AT 1.499 HOURS BASIN AREA = .0060 SQ. MI.

*S
*S BASIN ON2-----
*S
COMPUTE NM HYD ID=3 HYD NO=103.1 DA=0.0106 SQ MI
PER A=00.0 PER B=21.0 PER C=21.0 PER D=58.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 24.327 CFS UNIT VOLUME = .9990 B = 526.28 P60 = 1.8700
AREA = .006148 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 11.872 CFS UNIT VOLUME = .9993 B = 354.67 P60 = 1.8700
AREA = .004452 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=3 CODE=10

PARTIAL HYDROGRAPH 103.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	12.5	3.330	.1	4.995	.1	6.660	.0
.333	.0	1.998	5.0	3.663	.1	5.328	.1		
.666	.0	2.331	1.1	3.996	.1	5.661	.1		
.999	.0	2.664	.5	4.329	.1	5.994	.1		
1.332	5.5	2.997	.2	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.48259 INCHES = .8382 ACRE-Feet
PEAK DISCHARGE RATE = 24.18 CFS AT 1.499 HOURS BASIN AREA = .0106 SQ. MI.

*S
*S BASIN ON3-----
*S
COMPUTE NM HYD ID=4 HYD NO=104.1 DA=0.0083 SQ MI
PER A=00.0 PER B=21.0 PER C=21.0 PER D=58.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 19.049 CFS UNIT VOLUME = .9988 B = 526.28 P60 = 1.8700
AREA = .004814 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 9.2960 CFS UNIT VOLUME = .9989 B = 354.67 P60 = 1.8700
AREA = .003486 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=4 CODE=10

PARTIAL HYDROGRAPH 104.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	9.8	3.330	.1	4.995	.1	6.660	.0
.333	.0	1.998	3.9	3.663	.1	5.328	.1		
.666	.0	2.331	.9	3.996	.1	5.661	.1		
.999	.0	2.664	.4	4.329	.1	5.994	.1		
1.332	4.3	2.997	.2	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.48259 INCHES = .6563 ACRE-Feet
PEAK DISCHARGE RATE = 18.94 CFS AT 1.499 HOURS BASIN AREA = .0083 SQ. MI.

*S
*S BASIN ON1B-----
*S
COMPUTE NM HYD ID=5 HYD NQ=105.1 DA=0.0078 SQ MI
PER A=00.0 PER B=21.0 PER C=21.0 PER D=58.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 17.901 CFS UNIT VOLUME = .9988 B = 526.28 P60 = 1.8700
AREA = .004524 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 8.7360 CFS UNIT VOLUME = .9989 B = 354.67 P60 = 1.8700
AREA = .003276 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=5 CODE=10

PARTIAL HYDROGRAPH 105.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	9.2	3.330	.1	4.995	.1	6.660	.0
.333	.0	1.998	3.6	3.663	.1	5.328	.1		
.666	.0	2.331	.8	3.996	.1	5.661	.1		
.999	.0	2.664	.3	4.329	.1	5.994	.1		
1.332	4.0	2.997	.2	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.48259 INCHES = .6168 ACRE-Feet
PEAK DISCHARGE RATE = 17.80 CFS AT 1.499 HOURS BASIN AREA = .0078 SQ. MI.

*S
*S-----
*S ROUTE BASIN OFF2 THRU ON1A
*S
*
COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
MIN ELEV=00.0 MAX ELEV=0.943
CH SLP=.0200 FL SLP=.0200
N=.017 DIST=50.0
DIST ELEV DIST ELEV DIST ELEV
0.0 0.84 8.37 0.67 8.83 0.67
9.00 0.00 11.00 0.125 25.0 0.41
39.0 0.125 41.0 0.000 41.17 0.67
41.63 0.67 50.0 0.84

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.05	.04	.04	1.61
.10	.16	.26	3.23
.15	.38	.69	6.42
.20	.82	1.73	11.32
.25	1.50	3.74	16.23
.30	2.43	7.00	21.13
.35	3.60	11.74	26.03
.40	5.01	18.18	30.93
.45	6.60	27.97	32.23

.50	8.20	40.07	32.25
.55	9.81	53.83	32.28
.60	11.41	69.13	32.30
.65	13.01	85.90	32.33
.69	14.67	98.30	35.71
.74	16.56	110.73	40.59
.79	18.70	125.87	45.48
.84	21.08	144.46	50.00
.89	23.56	173.90	50.00
.94	26.04	205.49	50.00

COMPUTE TRAVEL TIME ID=6 REACH=1 NOVS=1 L=690. SLP=.0200

TRAVEL TIME TABLE
 REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.050	.040	.04	.1882
.099	.160	.26	.1186
.149	.379	.69	.1048
.199	.820	1.73	.0909
.248	1.503	3.74	.0770
.298	2.430	7.00	.0665
.347	3.600	11.74	.0588
.397	5.014	18.18	.0529
.447	6.605	27.97	.0453
.496	8.205	40.07	.0392
.546	9.806	53.83	.0349
.596	11.409	69.13	.0316
.645	13.012	85.90	.0290
.695	14.671	98.30	.0286
.744	16.564	110.73	.0287
.794	18.700	125.87	.0285
.844	21.078	144.46	.0280
.893	23.559	173.90	.0260
.943	26.041	205.49	.0243

ROUTE ID=6 HYD=106.1 INFLOW ID=1
 PRINT HYD ID=6 CODE=10

PARTIAL HYDROGRAPH 106.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	10.8	3.330	.1	4.995	.1	6.660	.0
.333	.0	1.998	3.8	3.663	.1	5.328	.1	6.993	.0
.666	.0	2.331	1.1	3.996	.1	5.661	.1		
.999	.0	2.664	.4	4.329	.1	5.994	.1		
1.332	1.5	2.997	.2	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.39064 INCHES = .5711 ACRE-FEET
 PEAK DISCHARGE RATE = 15.17 CFS AT 1.565 HOURS BASIN AREA = .0077 SQ. MI.

*S

 *S
 *S ADD ON1A TO ROUTED OFF2-FLOW TO BE INTERCPETED BY INLETS @ CASA ROJA
 *S & CASA MORENA
 *S
 ADD HYD ID=7 HYD=107.1 ID I=2 ID II=6
 PRINT HYD ID=7 CODE=10

PARTIAL HYDROGRAPH 107.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	17.9	3.330	.2	4.995	.1	6.660	.0
.333	.0	1.998	6.6	3.663	.1	5.328	.1	6.993	.0
.666	.0	2.331	1.8	3.996	.1	5.661	.1		
.999	.0	2.664	.7	4.329	.1	5.994	.1		
1.332	4.6	2.997	.3	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.43086 INCHES = 1.0455 ACRE-FEET
 PEAK DISCHARGE RATE = 28.35 CFS AT 1.532 HOURS BASIN AREA = .0137 SQ. MI.

*S

*S

*S INLETS ON CASA ROJA @ CASA MORENA RECIEVED 14.0 CFS-

*S ID=8 IS FLOW INTO PIPE ID=9 BYPASS FLOW

*S

DIVIDE HYD ID=7 Q=14.0 ID I=8 HYD I=108.1
ID II=9 HYD II=109.1

*S

*S

*S ROUTE BYPASS FLOW FROM INLETS (ID=9) THRU ON1B TO INLETS ON CASA ROJA

*S @ CASA NEGRA

*S

COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
MIN ELEV=00.0 MAX ELEV=0.943
CH SLP=.0200 FL SLP=.0200
N=.017 DIST=50.0
DIST ELEV DIST ELEV DIST ELEV
0.0 0.84 8.37 0.67 8.83 0.67
9.00 0.00 11.00 0.125 25.0 0.41
39.0 0.125 41.0 0.000 41.17 0.67
41.63 0.67 50.0 0.84

RATING CURVE VALLEY SECTION 1.0				
WATER	FLOW	FLOW	TOP	
SURFACE	AREA	RATE	WIDTH	
ELEV	SQ FT	CFS	FT	
.00	.00	.00	.00	
.05	.04	.04	1.61	
.10	.16	.26	3.23	
.15	.38	.69	6.42	
.20	.82	1.73	11.32	
.25	1.50	3.74	16.23	
.30	2.43	7.00	21.13	
.35	3.60	11.74	26.03	
.40	5.01	18.18	30.93	
.45	6.60	27.97	32.23	
.50	8.20	40.07	32.25	
.55	9.81	53.83	32.28	
.60	11.41	69.13	32.30	
.65	13.01	85.90	32.33	
.69	14.67	98.30	35.71	
.74	16.56	110.73	40.59	
.79	18.70	125.87	45.48	
.84	21.08	144.46	50.00	
.89	23.56	173.90	50.00	
.94	26.04	205.49	50.00	

COMPUTE TRAVEL TIME ID=10 REACH=1 NOVS=1 L=260. SLP=.0202

TRAVEL TIME TABLE
REACH= 1.0

WATER	AVERAGE	FLOW	TRAVEL
DEPTH	AREA	RATE	TIME
FEET	SQ. FT.	CFS	HRS
.050	.040	.04	.0709
.099	.160	.26	.0447
.149	.379	.69	.0395
.199	.820	1.73	.0343
.248	1.503	3.74	.0290
.298	2.430	7.00	.0251
.347	3.600	11.74	.0222
.397	5.014	18.18	.0199
.447	6.605	27.97	.0171
.496	8.205	40.07	.0148
.546	9.806	53.83	.0132
.596	11.409	69.13	.0119
.645	13.012	85.90	.0109
.695	14.671	98.30	.0108
.744	16.564	110.73	.0108
.794	18.700	125.87	.0107
.844	21.078	144.46	.0105
.893	23.559	173.90	.0098
.943	26.041	205.49	.0092

ROUTE ID=10 HYD=110.1 INFLOW ID=9

PRINT HYD

ID=10 CODE=10

PARTIAL HYDROGRAPH 110.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.666	.0	1.332	.0	1.998	.0		
.333	.0	.999	.0	1.665	5.5	2.331	.0		

RUNOFF VOLUME = 1.43280 INCHES = .2036 ACRE-FEET
PEAK DISCHARGE RATE = 13.91 CFS AT 1.532 HOURS BASIN AREA = .0027 SQ. MI.

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*S ADD ON1B TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ CASA ROJA

*S & CASA NEGRA

*S

ADD HYD ID=11 HYD=111.1 ID I=5 ID II=10

PRINT HYD ID=11 CODE=10

PARTIAL HYDROGRAPH 111.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	14.7	3.330	.1	4.995	.1	6.660	.0
.333	.0	1.998	3.7	3.663	.1	5.328	.1		
.666	.0	2.331	.8	3.996	.1	5.661	.1		
.999	.0	2.664	.3	4.329	.1	5.994	.1		
1.332	4.0	2.997	.2	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.46984 INCHES = .8203 ACRE-FEET
PEAK DISCHARGE RATE = 31.09 CFS AT 1.532 HOURS BASIN AREA = .0105 SQ. MI.

*S

*S INLETS ON CASA ROJA @ CASA NEGRA RECIEVED 14.4 CFS

*S ID=12 IS FLOW INTO STORM DRAIN SYSTEM ID=13 BYPASS FLOW ON SURFACE

*S

DIVIDE HYD ID=11 Q=14.4 ID I=12 HYD I=112.1
ID II=13 HYD II=113.1

*S

*S

*S ROUTE BYPASS FLOW FROM INLETS (ID=13) THRU ON2 TO INLETS ON CASA ROJA

*S @ CASA VERDE

*S

COMPUTE RATING CURVE

RC=1 VS NO=1 NO SEGS=1

MIN ELEV=00.0 MAX ELEV=0.943

CH SLP=.0200 FL SLP=.0200

N=.017 DIST=50.0

DIST	ELEV	DIST	ELEV	DIST	ELEV
0.0	0.84	8.37	0.67	8.83	0.67
9.00	0.00	11.00	0.125	25.0	0.41
		39.0	0.125	41.0	0.000
41.63	0.67	50.0	0.84		

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.05	.04	.04	1.61
.10	.16	.26	3.23
.15	.38	.69	6.42
.20	.82	1.73	11.32
.25	1.50	3.74	16.23
.30	2.43	7.00	21.13
.35	3.60	11.74	26.03
.40	5.01	18.18	30.93
.45	6.60	27.97	32.23
.50	8.20	40.07	32.25
.55	9.81	53.83	32.28
.60	11.41	69.13	32.30

.65	13.01	85.90	32.33
.69	14.67	98.30	35.71
.74	16.56	110.73	40.59
.79	18.70	125.87	45.48
.84	21.08	144.46	50.00
.89	23.56	173.90	50.00
.94	26.04	205.49	50.00

COMPUTE TRAVEL TIME ID=14 REACH=1 NOVS=1 L=400. SLP=.0202

TRAVEL TIME TABLE
 REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.050	.040	.04	.1091
.099	.160	.26	.0687
.149	.379	.69	.0607
.199	.820	1.73	.0527
.248	1.503	3.74	.0446
.298	2.430	7.00	.0386
.347	3.600	11.74	.0341
.397	5.014	18.18	.0306
.447	6.605	27.97	.0262
.496	8.205	40.07	.0227
.546	9.806	53.83	.0202
.596	11.409	69.13	.0183
.645	13.012	85.90	.0168
.695	14.671	98.30	.0166
.744	16.564	110.73	.0166
.794	18.700	125.87	.0165
.844	21.078	144.46	.0162
.893	23.559	173.90	.0151
.943	26.041	205.49	.0141

ROUTE ID=14 HYD=114.1 INFLOW ID=13
 PRINT HYD ID=14 CODE=10

PARTIAL HYDROGRAPH 114.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.666	.0	1.332	.0	1.998	.0		
.333	.0	.999	.0	1.665	4.0	2.331	.0		

RUNOFF VOLUME = 1.47207 INCHES = .1818 ACRE-FeET
 PEAK DISCHARGE RATE = 15.34 CFS AT 1.565 HOURS BASIN AREA = .0023 SQ. MI.

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 *S ADD ON2 TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ CASA ROJA
 *S & CASA VERDE
 *S
 ADD HYD ID=15 HYD=115.1 ID I=3 ID II=14
 PRINT HYD ID=15 CODE=10

PARTIAL HYDROGRAPH 115.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	16.5	3.330	.1	4.995	.1	6.660	.0
.333	.0	1.998	5.0	3.663	.1	5.328	.1		
.666	.0	2.331	1.1	3.996	.1	5.661	.1		
.999	.0	2.664	.5	4.329	.1	5.994	.1		
1.332	5.5	2.997	.2	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.48065 INCHES = 1.0199 ACRE-FeET
 PEAK DISCHARGE RATE = 36.87 CFS AT 1.532 HOURS BASIN AREA = .0129 SQ. MI.

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 *S INLETS ON CASA ROJA @ CASA VERDE RECIEVED 29.19 CFS

*S ID=16 IS FLOW INTO STORM DRAIN SYSTEM ID=17 BYPASS FLOW ON SURFACE
 *S
 DIVIDE HYD ID=15 Q=29.19 ID I=16 HYD I=116.1
 ID II=17 HYD II=117.1

*S
 *S-----
 *S ROUTE BYPASS FLOW FROM INLETS (ID=17) THRU ON3 TO END OF 50'
 *S RIGHT OF WAY ENDING AT CASA AZUL
 *

COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
 MIN ELEV=00.0 MAX ELEV=0.943
 CH SLP=.0200 FL SLP=.0200
 N=.017 DIST=50.0
 DIST ELEV DIST ELEV DIST ELEV
 0.0 0.84 8.37 0.67 8.83 0.67
 9.00 0.00 11.00 0.125 25.0 0.41
 39.0 0.125 41.0 0.000 41.17 0.67
 41.63 0.67 50.0 0.84

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.05	.04	.04	1.61
.10	.16	.26	3.23
.15	.38	.69	6.42
.20	.82	1.73	11.32
.25	1.50	3.74	16.23
.30	2.43	7.00	21.13
.35	3.60	11.74	26.03
.40	5.01	18.18	30.93
.45	6.60	27.97	32.23
.50	8.20	40.07	32.25
.55	9.81	53.83	32.28
.60	11.41	69.13	32.30
.65	13.01	85.90	32.33
.69	14.67	98.30	35.71
.74	16.56	110.73	40.59
.79	18.70	125.87	45.48
.84	21.08	144.46	50.00
.89	23.56	173.90	50.00
.94	26.04	205.49	50.00

COMPUTE TRAVEL TIME ID=18 REACH=1 NOVS=1 L=225. SLP=.0202

TRAVEL TIME TABLE
 REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.050	.040	.04	.0614
.099	.160	.26	.0387
.149	.379	.69	.0342
.199	.820	1.73	.0297
.248	1.503	3.74	.0251
.298	2.430	7.00	.0217
.347	3.600	11.74	.0192
.397	5.014	18.18	.0172
.447	6.605	27.97	.0148
.496	8.205	40.07	.0128
.546	9.806	53.83	.0114
.596	11.409	69.13	.0103
.645	13.012	85.90	.0095
.695	14.671	98.30	.0093
.744	16.564	110.73	.0093
.794	18.700	125.87	.0093
.844	21.078	144.46	.0091
.893	23.559	173.90	.0085
.943	26.041	205.49	.0079

ROUTE ID=18 HYD=118.1 INFLOW ID=17
 PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 599 RATE = .00
 PRINT HYD ID=18 CODE=10

PARTIAL HYDROGRAPH 118.10

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW

HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	.666	.0	1.332	.0	1.998	.0		
.333	.0	.999	.0	1.665	.3	2.331	.0		

RUNOFF VOLUME = 1.48935 INCHES = .0471 ACRE-Feet
 PEAK DISCHARGE RATE = 7.21 CFS AT 1.565 HOURS BASIN AREA = .0006 SQ. MI.

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 *S ROUTE BYPASS FLOW FROM INLETS (ID=18) THRU ON3 FROM END OF 50'
 *S RIGHT OF WAY ENDING AT CASA AZUL TO NORTH END OF CASA ROJA
 *S (CUL-DE-SAC)
 *

COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
 MIN ELEV=00.0 MAX ELEV=0.943
 CH SLP=.0256 FL SLP=.0256
 N=.017 DIST=46.0

	DIST	ELEV	DIST	ELEV	DIST	ELEV
0.0	0.84	8.87	0.67	9.33	0.67	
9.5	0.00	11.5	0.125	25.0	0.36	
	34.5	0.125	36.5	0.000	36.67	0.67
37.13	0.67	46.0	0.84			

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.05	.04	.05	1.61
.10	.16	.29	3.23
.15	.38	.79	6.41
.20	.82	1.95	11.30
.25	1.50	4.23	16.18
.30	2.42	7.91	21.06
.35	3.59	13.25	25.95
.40	4.93	21.77	27.20
.45	6.28	32.50	27.23
.50	7.64	44.87	27.25
.55	8.99	58.75	27.28
.60	10.34	74.05	27.30
.65	11.70	90.70	27.33
.69	13.11	101.34	30.85
.74	14.77	111.82	36.03
.79	16.69	125.60	41.21
.84	18.86	143.39	46.00
.89	21.14	173.47	46.00
.94	23.43	205.80	46.00

COMPUTE TRAVEL TIME ID=19 REACH=1 NOVS=1 L=525. SLP=.0256

TRAVEL TIME TABLE
 REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.050	.040	.05	.1266
.099	.160	.29	.0798
.149	.379	.79	.0704
.199	.819	1.95	.0611
.248	1.501	4.23	.0517
.298	2.425	7.91	.0447
.347	3.591	13.25	.0395
.397	4.933	21.77	.0330
.447	6.284	32.50	.0282
.496	7.636	44.87	.0248
.546	8.989	58.75	.0223
.596	10.343	74.05	.0204
.645	11.699	90.70	.0188
.695	13.111	101.34	.0189
.744	14.770	111.82	.0193
.794	16.687	125.60	.0194
.844	18.860	143.39	.0192
.893	21.143	173.47	.0178
.943	23.427	205.80	.0166

ROUTE ID=19 HYD=119.1 INFLOW ID=18

PRINT HYD

ID=19 CODE=10

PARTIAL HYDROGRAPH 119.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.666	.0	1.332	.0	1.998	.1	2.664	.0
.333	.0	.999	.0	1.665	1.8	2.331	.0		

RUNOFF VOLUME = 1.48935 INCHES = .0471 ACRE-Feet
PEAK DISCHARGE RATE = 4.61 CFS AT 1.598 HOURS BASIN AREA = .0006 SQ. MI.

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*S ADD ON3 TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ NORTH END

*S OF CASA ROJA

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ADD HYD ID=20 HYD=120.1 ID I=4 ID II=19

PRINT HYD ID=20 CODE=10

PARTIAL HYDROGRAPH 120.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	11.6	3.330	.1	4.995	.1	6.660	.0
.333	.0	1.998	3.9	3.663	.1	5.328	.1		
.666	.0	2.331	.9	3.996	.1	5.661	.1		
.999	.0	2.664	.4	4.329	.1	5.994	.1		
1.332	4.3	2.997	.2	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.48296 INCHES = .7033 ACRE-Feet
PEAK DISCHARGE RATE = 19.31 CFS AT 1.565 HOURS BASIN AREA = .0089 SQ. MI.

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ROUTE STORM DRAIN IN SUBDIVISION

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*S ROUTING OF PIPE FLOW FROM FIRST OF INLETS (ID=8) TO SECOND SET OF INLETS

*S (ID=12) NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

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*S ADD FIRST SET OF INLETS (ID=8) TO SECOND SET OF INLETS (ID=12)

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ADD HYD ID=22 HYD=122.1 ID I=8 ID II=12

PRINT HYD ID=22 CODE=10

PARTIAL HYDROGRAPH 122.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	28.4	3.330	.3	4.995	.2	6.660	.0
.333	.0	1.998	10.3	3.663	.2	5.328	.2	6.993	.0
.666	.0	2.331	2.6	3.996	.2	5.661	.2		
.999	.0	2.664	1.0	4.329	.2	5.994	.2		
1.332	8.6	2.997	.5	4.662	.2	6.327	.1		

RUNOFF VOLUME = 1.44742 INCHES = 1.4809 ACRE-Feet
PEAK DISCHARGE RATE = 28.40 CFS AT 1.465 HOURS BASIN AREA = .0192 SQ. MI.

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*S ROUTING OF PIPE FLOW FROM 2 SETS OF INLETS (ID=22) TO THIRD SET OF INLETS

*S (ID=16) NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

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*S ADD FIRST TWO SETS INLETS (ID=22) TO THIRD SET OF INLETS (ID=16)

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ADD HYD ID=24 HYD=124.1 ID I=22 ID II=16

PRINT HYD ID=24 CODE=10

PARTIAL HYDROGRAPH 124.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	44.9	3.330	.5	4.995	.3	6.660	.0
.333	.0	1.998	15.3	3.663	.3	5.328	.3	6.993	.0
.666	.0	2.331	3.7	3.996	.3	5.661	.3		
.999	.0	2.664	1.5	4.329	.3	5.994	.4		
1.332	14.1	2.997	.7	4.662	.3	6.327	.1		

RUNOFF VOLUME = 1.46041 INCHES = 2.4541 ACRE-Feet
PEAK DISCHARGE RATE = 57.59 CFS AT 1.499 HOURS BASIN AREA = .0315 SQ. MI.

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*S ROUTING OF PIPE FLOW FROM 3 SETS OF INLETS (ID=24) TO LADERA STORM DRAIN

*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

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*S ROUTING OF PIPE FLOW FROM CUL-DE-SAC ON CASA ROJA (ID=20) TO LADERA STORM

*S DRAIN NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

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*S LADERA STORM DRAIN

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*S COMPUTE FLOWS CONTRIBUTING TO LADERA STORM DRAIN

*S ASSUMPTIONS: USE FULL BUILDOUT SIX LANE SECTION

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*S BASIN OFF7-----

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COMPUTE NM HYD ID=26 HYD NO=126.1 DA=0.0013 SQ MI
PER A=100. PER B=0.00 PER C=0.00 PER D=0.00 TP=-.133
MASS RAINFALL=-1

K = .163315HR TP = .133000HR K/TP RATIO = 1.227936 SHAPE CONSTANT, N = 2.899764
UNIT PEAK = 2.6737 CFS UNIT VOLUME = .9942 B = 273.54 P60 = 1.8700
AREA = .001300 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=26 CODE=10

PARTIAL HYDROGRAPH 126.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.999	.0	1.998	.1	2.997	.0		
.333	.0	1.332	.0	2.331	.1	3.330	.0		
.666	.0	1.665	.6	2.664	.0				

RUNOFF VOLUME = .43919 INCHES = .0305 ACRE-Feet
PEAK DISCHARGE RATE = 1.09 CFS AT 1.532 HOURS BASIN AREA = .0013 SQ. MI.

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*S BASIN OFF5-----

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COMPUTE NM HYD

ID=27 HYD NO=127.1 DA=0.0033 SQ MI
PER A=00.0 PER B=8.50 PER C=8.50 PER D=83.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 10.838 CFS UNIT VOLUME = .9983 B = 526.28 P60 = 1.8700
AREA = .002739 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 1.4960 CFS UNIT VOLUME = .9915 B = 354.67 P60 = 1.8700
AREA = .000561 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD

ID=27 CODE=10

PARTIAL HYDROGRAPH 127.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	4.4	3.330	.1	4.995	.0	6.660	.0
.333	.0	1.998	2.0	3.663	.0	5.328	.0		
.666	.0	2.331	.4	3.996	.0	5.661	.1		
.999	.0	2.664	.2	4.329	.0	5.994	.1		
1.332	2.4	2.997	.1	4.662	.0	6.327	.0		

RUNOFF VOLUME = 1.77001 INCHES = .3115 ACRE-FEET
PEAK DISCHARGE RATE = 8.56 CFS AT 1.499 HOURS BASIN AREA = .0033 SQ. MI.

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*S BASIN OFF6A-----

*S

COMPUTE NM HYD

ID=28 HYD NO=128.1 DA=0.0062 SQ MI
PER A=48.5 PER B=4.25 PER C=4.25 PER D=43.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 10.549 CFS UNIT VOLUME = .9983 B = 526.28 P60 = 1.8700
AREA = .002666 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .156582HR TP = .133000HR K/TP RATIO = 1.177309 SHAPE CONSTANT, N = 3.013793
UNIT PEAK = 7.5182 CFS UNIT VOLUME = .9979 B = 282.94 P60 = 1.8700
AREA = .003534 SQ MI IA = .61645 INCHES INF = 1.57605 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD

ID=28 CODE=10

PARTIAL HYDROGRAPH 128.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	5.6	3.330	.1	4.995	.0	6.660	.0
.333	.0	1.998	2.2	3.663	.1	5.328	.0		
.666	.0	2.331	.5	3.996	.0	5.661	.0		
.999	.0	2.664	.2	4.329	.0	5.994	.1		
1.332	2.3	2.997	.1	4.662	.0	6.327	.0		

RUNOFF VOLUME = 1.12114 INCHES = .3707 ACRE-FEET
PEAK DISCHARGE RATE = 10.68 CFS AT 1.499 HOURS BASIN AREA = .0062 SQ. MI.

*S

*S BASIN OFF6B-----

*S

COMPUTE NM HYD

ID=29 HYD NO=129.1 DA=0.0074 SQ MI
PER A=48.5 PER B=4.25 PER C=4.25 PER D=43.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 12.591 CFS UNIT VOLUME = .9985 B = 526.28 P60 = 1.8700

AREA = .003182 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .156582HR TP = .133000HR K/TP RATIO = 1.177309 SHAPE CONSTANT, N = 3.013793
UNIT PEAK = 8.9734 CFS UNIT VOLUME = .9982 B = 282.94 P60 = 1.8700
AREA = .004218 SQ MI IA = .61645 INCHES INF = 1.57605 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=29 CODE=10

PARTIAL HYDROGRAPH 129.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	6.7	3.330	.1	4.995	.1	6.660	.0
.333	.0	1.998	2.6	3.663	.1	5.328	.1		
.666	.0	2.331	.6	3.996	.1	5.661	.1		
.999	.0	2.664	.3	4.329	.1	5.994	.1		
1.332	2.7	2.997	.1	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.12114 INCHES = .4425 ACRE-FEET
PEAK DISCHARGE RATE = 12.75 CFS AT 1.499 HOURS BASIN AREA = .0074 SQ. MI.

*S
*S BASIN OFF6C-----
*S
COMPUTE NM HYD ID=30 HYD NO=130.1 DA=0.0018 SQ MI
PER A=0.00 PER B=8.50 PER C=8.50 PER D=83.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 5.9117 CFS UNIT VOLUME = .9973 B = 526.28 P60 = 1.8700
AREA = .001494 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = .81600 CFS UNIT VOLUME = .9847 B = 354.67 P60 = 1.8700
AREA = .000306 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=30 CODE=10

PARTIAL HYDROGRAPH 130.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	1.3	2.664	.1	3.996	.0	5.328	.0
.333	.0	1.665	2.4	2.997	.0	4.329	.0	5.661	.0
.666	.0	1.998	1.1	3.330	.0	4.662	.0	5.994	.0
.999	.0	2.331	.2	3.663	.0	4.995	.0	6.327	.0

RUNOFF VOLUME = 1.77001 INCHES = .1699 ACRE-FEET
PEAK DISCHARGE RATE = 4.68 CFS AT 1.499 HOURS BASIN AREA = .0018 SQ. MI.

*S
*S BASIN OFF6D-----
*S
COMPUTE NM HYD ID=31 HYD NO=131.1 DA=0.0018 SQ MI
PER A=00.0 PER B=8.50 PER C=8.50 PER D=83.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 5.9117 CFS UNIT VOLUME = .9973 B = 526.28 P60 = 1.8700
AREA = .001494 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = .81600 CFS UNIT VOLUME = .9847 B = 354.67 P60 = 1.8700
AREA = .000306 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD

ID=31 CODE=10

PARTIAL HYDROGRAPH 131.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	1.3	2.664	.1	3.996	.0	5.328	.0
.333	.0	1.665	2.4	2.997	.0	4.329	.0	5.661	.0
.666	.0	1.998	1.1	3.330	.0	4.662	.0	5.994	.0
.999	.0	2.331	.2	3.663	.0	4.995	.0	6.327	.0

RUNOFF VOLUME = 1.77001 INCHES = .1699 ACRE-Feet
PEAK DISCHARGE RATE = 4.68 CFS AT 1.499 HOURS BASIN AREA = .0018 SQ. MI.

*S

*S BASIN OFF1C-----

*S

COMPUTE NM HYD

ID=32 HYD NO=132.1 DA=0.05209 SQ MI
PER A=00.0 PER B=25.0 PER C=25.0 PER D=50.0 TP=-.160
MASS RAINFALL=-1

K = .087200HR TP = .160000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 85.668 CFS UNIT VOLUME = .9994 B = 526.28 P60 = 1.8700
AREA = .026045 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .142151HR TP = .160000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 57.733 CFS UNIT VOLUME = .9998 B = 354.67 P60 = 1.8700
AREA = .026045 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD

ID=32 CODE=10

PARTIAL HYDROGRAPH 132.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	67.0	3.330	.8	4.995	.4	6.660	.0
.333	.0	1.998	24.1	3.663	.6	5.328	.5	6.993	.0
.666	.0	2.331	6.6	3.996	.5	5.661	.5	7.326	.0
.999	.0	2.664	2.8	4.329	.4	5.994	.5		
1.332	16.8	2.997	1.4	4.662	.4	6.327	.1		

RUNOFF VOLUME = 1.39062 INCHES = 3.8633 ACRE-Feet
PEAK DISCHARGE RATE = 103.28 CFS AT 1.532 HOURS BASIN AREA = .0521 SQ. MI.

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*S ADD OFF5 AND OFF1C

*S ASSUME THIS FLOW IS IN LADERA STORM DRAIN WITH NO BYPASS ON THE ROAD

*S

ADD HYD

ID=33 HYD=133.1 ID I=27 ID II=32

PRINT HYD

ID=33 CODE=10

PARTIAL HYDROGRAPH 133.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	71.4	3.330	.9	4.995	.5	6.660	.0
.333	.0	1.998	26.1	3.663	.6	5.328	.5	6.993	.0
.666	.0	2.331	7.0	3.996	.5	5.661	.5	7.326	.0
.999	.0	2.664	3.0	4.329	.5	5.994	.6		
1.332	19.2	2.997	1.5	4.662	.5	6.327	.1		

RUNOFF VOLUME = 1.41321 INCHES = 4.1748 ACRE-Feet
PEAK DISCHARGE RATE = 111.48 CFS AT 1.532 HOURS BASIN AREA = .0554 SQ. MI.

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 *S ROAD ROUTING FOR LADERA DRIVE AND DIVIDE OFF FLOW BY INLETS
 *S-----
 *S-----

*S
 *S INLETS ON LADERA DRIVE (STA 8+25) RECIEVED 2.80 CFS
 *S ID=34 IS INTO STORM DRAIN SYSTEM ID=35 BYPASS FLOW ON SURFACE
 *S
 DIVIDE HYD ID=28 Q=2.80 ID I=34 HYD I=134.1
 ID II=35 HYD II=135.1

*S-----
 *S-----

*S
 *S ROUTE BYPASS (ID=35) THRU OFF6B
 *S DOWN LADERA-ASSUME 6 LANE SECTION
 *S

COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
 MIN ELEV=00.0 MAX ELEV=0.857
 CH SLP=.0281 FL SLP=.0281
 N=.017 DIST=106.
 DIST ELEV DIST ELEV DIST ELEV
 0.0 0.857 9.37 0.67 9.83 0.67
 10.0 0.00 12.00 0.125 47.0 1.07
 47.12 1.57 58.88 1.570 59.00 1.07
 94.00 0.125 97.0 0.00 97.17 0.67
 97.63 0.667 106.0 0.857

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.05	.04	.05	1.83
.09	.16	.30	3.65
.14	.37	.85	5.83
.18	.71	1.85	9.20
.23	1.20	3.62	12.56
.27	1.84	6.31	15.92
.32	2.64	10.09	19.29
.36	3.58	15.11	22.65
.41	4.68	21.52	26.02
.45	5.93	29.44	29.38
.50	7.33	39.00	32.74
.54	8.89	50.33	36.11
.59	10.59	63.56	39.47
.63	12.45	78.78	42.84
.68	14.46	94.05	47.87
.72	16.79	109.58	55.46
.77	19.47	128.86	63.05
.81	22.48	152.04	70.63
.86	25.84	179.29	78.22

COMPUTE TRAVEL TIME ID=36 REACH=1 NOVS=1 L=820.67 SLP=.0281

TRAVEL TIME TABLE
 REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.045	.041	.05	.2000
.090	.165	.30	.1260
.135	.373	.85	.0997
.180	.712	1.85	.0875
.226	1.202	3.62	.0758
.271	1.845	6.31	.0666
.316	2.639	10.09	.0596
.361	3.585	15.11	.0541
.406	4.682	21.52	.0496
.451	5.932	29.44	.0459
.496	7.333	39.00	.0429
.541	8.886	50.33	.0402
.586	10.590	63.56	.0380
.631	12.447	78.78	.0360
.677	14.465	94.05	.0351
.722	16.795	109.58	.0349
.767	19.467	128.86	.0344

ROUTE ID=36 HYD=136.1 INFLOW ID=35
 PRINT HYD ID=36 CODE=10

PARTIAL HYDROGRAPH 136.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.666	.0	1.332	.0	1.998	.3	2.664	.0
.333	.0	.999	.0	1.665	4.3	2.331	.0	2.997	.0

RUNOFF VOLUME = 1.12318 INCHES = .1480 ACRE-Feet
 PEAK DISCHARGE RATE = 6.66 CFS AT 1.565 HOURS BASIN AREA = .0025 SQ. MI.

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 *S
 *S ADD ROUTED BYPASS (ID=36) AND OFF6B (ID=29)
 *S
 ADD HYD ID=37 HYD=137.1 ID I=36 ID II=29
 PRINT HYD ID=37 CODE=10

PARTIAL HYDROGRAPH 137.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	11.1	3.330	.1	4.995	.1	6.660	.0
.333	.0	1.998	2.8	3.663	.1	5.328	.1		
.666	.0	2.331	.7	3.996	.1	5.661	.1		
.999	.0	2.664	.3	4.329	.1	5.994	.1		
1.332	2.7	2.997	.1	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.12158 INCHES = .5905 ACRE-Feet
 PEAK DISCHARGE RATE = 18.77 CFS AT 1.532 HOURS BASIN AREA = .0099 SQ. MI.

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 *S INLETS ON LADERA DRIVE (STA 15+40) RECIEVED 14.0 CFS
 *S (5.6 CFS IN EXISTING INLETS - 7.4 CFS IN PROPOSED INLETS)
 *S ID=38 IS FLOW INTO STORM DRAIN SYSTEM ID=39 BYPASS FLOW ON SURFACE
 *S
 DIVIDE HYD ID=37 Q=14.0 ID I=38 HYD I=138.1
 ID II=39 HYD II=139.1

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 *S-----
 *S
 *S ROUTE BYPASS (ID=39) THRU OFF6C TO BOTTOM OF SUMP STA 25+70
 *S DOWN LADERA-ASSUME 6 LANE SECTION
 *S

COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
 MIN ELEV=00.0 MAX ELEV=0.857
 CH SLP=.0316 FL SLP=.0316
 N=.017 DIST=106.
 DIST ELEV DIST ELEV DIST ELEV
 0.0 0.857 9.37 0.67 9.83 0.67
 10.0 0.00 12.00 0.125 47.0 1.07
 47.12 1.57 58.88 1.570 59.00 1.07
 94.00 0.125 97.0 0.00 97.17 0.67
 97.63 0.667 106.0 0.857

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.05	.04	.05	1.83
.09	.16	.32	3.65
.14	.37	.90	5.83
.18	.71	1.97	9.20
.23	1.20	3.84	12.56
.27	1.84	6.69	15.92

.32	2.64	10.70	19.29
.36	3.58	16.03	22.65
.41	4.68	22.82	26.02
.45	5.93	31.22	29.38
.50	7.33	41.36	32.74
.54	8.89	53.38	36.11
.59	10.59	67.40	39.47
.63	12.45	83.54	42.84
.68	14.46	99.74	47.87
.72	16.79	116.20	55.46
.77	19.47	136.65	63.05
.81	22.48	161.23	70.63
.86	25.84	190.13	78.22

COMPUTE TRAVEL TIME ID=40 REACH=1 NOVS=1 L=325.00 SLP=.0316

TRAVEL TIME TABLE
 REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.045	.041	.05	.0747
.090	.165	.32	.0471
.135	.373	.90	.0373
.180	.712	1.97	.0327
.226	1.202	3.84	.0283
.271	1.845	6.69	.0249
.316	2.639	10.70	.0223
.361	3.585	16.03	.0202
.406	4.682	22.82	.0185
.451	5.932	31.22	.0172
.496	7.333	41.36	.0160
.541	8.886	53.38	.0150
.586	10.590	67.40	.0142
.631	12.447	83.54	.0134
.677	14.465	99.74	.0131
.722	16.795	116.20	.0130
.767	19.467	136.65	.0129
.812	22.482	161.23	.0126
.857	25.839	190.13	.0123

ROUTE ID=40 HYD=140.1 INFLOW ID=39
 PRINT HYD ID=40 CODE=10

PARTIAL HYDROGRAPH 140.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.666	.0	1.332	.0	1.998	.0		
.333	.0	.999	.0	1.665	.4	2.331	.0		

RUNOFF VOLUME = 1.12942 INCHES = .0396 ACRE-Feet
 PEAK DISCHARGE RATE = 4.27 CFS AT 1.565 HOURS BASIN AREA = .0007 SQ. MI.

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*S ADD ROUTED BYPASS (ID=40) AND OFF6C (ID=30)

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ADD HYD ID=41 HYD=141.1 ID I=40 ID II=30
 PRINT HYD ID=41 CODE=10

PARTIAL HYDROGRAPH 141.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	1.3	2.664	.1	3.996	.0	5.328	.0
.333	.0	1.665	2.8	2.997	.0	4.329	.0	5.661	.0
.666	.0	1.998	1.1	3.330	.0	4.662	.0	5.994	.0
.999	.0	2.331	.2	3.663	.0	4.995	.0	6.327	.0

RUNOFF VOLUME = 1.59823 INCHES = .2095 ACRE-Feet
 PEAK DISCHARGE RATE = 8.32 CFS AT 1.532 HOURS BASIN AREA = .0025 SQ. MI.

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 *S
 *S ADD BYPASS AND OFF6C (ID=41) AND OFF6D (ID=31)
 *S TOTAL AMOUNT OF WATER COLLECTED AT SUMP STA 25+70
 ADD HYD ID=42 HYD=142.1 ID I=41 ID II=31
 PRINT HYD ID=42 CODE=10

PARTIAL HYDROGRAPH 142.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	2.6	2.664	.2	3.996	.0	5.328	.1
.333	.0	1.665	5.2	2.997	.1	4.329	.0	5.661	.1
.666	.0	1.998	2.2	3.330	.1	4.662	.0	5.994	.1
.999	.0	2.331	.5	3.663	.1	4.995	.0	6.327	.0

RUNOFF VOLUME = 1.67078 INCHES = .3794 ACRE-Feet
 PEAK DISCHARGE RATE = 12.79 CFS AT 1.532 HOURS BASIN AREA = .0043 SQ. MI.

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 *S
 *S LADERA STORM DRAIN ROUTING
 *S-----
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 *S
 *S ROUTING OF PIPE FLOW FROM OFFSITE (ID=33) TO LADERA STATION 8+25
 *S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S
 *S-----
 *S
 *S ADD OFFSITE FLOW (ID=33) TO FIRST SET OF INLETS (STA 8+25) ID=34
 *S
 ADD HYD ID=44 HYD=144.1 ID I=33 ID II=34
 PRINT HYD ID=44 CODE=10

PARTIAL HYDROGRAPH 144.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	74.2	3.330	1.0	4.995	.5	6.660	.0
.333	.0	1.998	28.2	3.663	.7	5.328	.5	6.993	.0
.666	.0	2.331	7.5	3.996	.6	5.661	.6	7.326	.0
.999	.0	2.664	3.2	4.329	.5	5.994	.6		
1.332	21.5	2.997	1.6	4.662	.5	6.327	.1		

RUNOFF VOLUME = 1.39478 INCHES = 4.3977 ACRE-Feet
 PEAK DISCHARGE RATE = 114.28 CFS AT 1.532 HOURS BASIN AREA = .0591 SQ. MI.

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 *S
 *S ROUTING OF PIPE FLOW FROM LADERA STA 8+25 (ID=44) TO CASA VERDE
 *S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S
 *S-----
 *S
 *S ADD PIPE FLOW (ID=44) TO FLOW FROM CASA VERDE (ID=24)
 *S
 ADD HYD ID=46 HYD=146.1 ID I=44 ID II=24
 PRINT HYD ID=46 CODE=10

PARTIAL HYDROGRAPH 146.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	119.1	3.330	1.4	4.995	.8	6.660	.0
.333	.0	1.998	43.5	3.663	1.0	5.328	.9	6.993	.0

.666	.0	2.331	11.3	3.996	.9	5.661	.9	7.326	.0
.999	.0	2.664	4.7	4.329	.8	5.994	1.0		
1.332	35.6	2.997	2.3	4.662	.8	6.327	.2		

RUNOFF VOLUME = 1.41760 INCHES = 6.8518 ACRE-FEET
PEAK DISCHARGE RATE = 171.87 CFS AT 1.532 HOURS BASIN AREA = .0906 SQ. MI.

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*S-----
*S
*S ROUTING OF PIPE FLOW FROM CASA VERDE (ID=44) TO LADERA STA 15+40
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----

*S
*S ADD PIPE FLOW (ID=46) TO INLETS (ID=38)
*S
ADD HYD ID=48 HYD=148.1 ID I=46 ID II=38
PRINT HYD ID=48 CODE=10

PARTIAL HYDROGRAPH 148.10

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	1.665	130.2	3.330	1.5	4.995	.9	6.660	.0
.333	.0	1.998	46.4	3.663	1.1	5.328	.9	6.993	.0
.666	.0	2.331	11.9	3.996	.9	5.661	1.0	7.326	.0
.999	.0	2.664	5.0	4.329	.9	5.994	1.1		
1.332	38.3	2.997	2.5	4.662	.8	6.327	.2		

RUNOFF VOLUME = 1.39028 INCHES = 7.4029 ACRE-FEET
PEAK DISCHARGE RATE = 185.87 CFS AT 1.532 HOURS BASIN AREA = .0998 SQ. MI.

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*S-----
*S
*S ROUTING OF PIPE FLOW FROM STA 15+40 (ID=48) TO TIERRA OESTE ESMT PIPE
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----

*S
*S ADD PIPE FLOW (ID=48) TO FLOW FROM EASMENT (ID=20)
*S
ADD HYD ID=51 HYD=151.1 ID I=48 ID II=20
PRINT HYD ID=51 CODE=10

PARTIAL HYDROGRAPH 151.10

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	1.665	141.8	3.330	1.6	4.995	1.0	6.660	.0
.333	.0	1.998	50.3	3.663	1.2	5.328	1.0	6.993	.0
.666	.0	2.331	12.8	3.996	1.0	5.661	1.1	7.326	.0
.999	.0	2.664	5.4	4.329	.9	5.994	1.2		
1.332	42.6	2.997	2.7	4.662	.9	6.327	.2		

RUNOFF VOLUME = 1.39786 INCHES = 8.1062 ACRE-FEET
PEAK DISCHARGE RATE = 204.97 CFS AT 1.532 HOURS BASIN AREA = .1087 SQ. MI.

*S
*S-----
*S-----
*S
*S ROUTING OF PIPE FLOW FROM TIERRA OESTE ESMT (ID=51) TO AMAFCA EASEMENT
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----

*S EXISTING FLOW FROM LADERA SHOWN ON PARKWAY UNIT 3 PLANS
*S Q(100)=8.1 CFS FLOW FROM BEEHIVE= 0 CFS

*S
STORE HYD ID=53 HYD=153.1 DT=0.5HR DA=0.0001
FLOW RATE=0 0 8.1 2.1 0

*S
*S-----
*S
*S ADD EXISTING FLOW TO NEW FLOW FROM SUMP (ID=42)
ADD HYD ID=54 HYD=154.1 ID I=42 ID II=53
PRINT HYD ID=54 CODE=10

PARTIAL HYDROGRAPH 154.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	6.7	2.664	.2	3.996	.0	5.328	.1
.333	.0	1.665	5.2	2.997	.1	4.329	.0	5.661	.1
.666	2.7	1.998	2.2	3.330	.1	4.662	.0	5.994	.1
.999	8.1	2.331	.5	3.663	.1	4.995	.0	6.327	.0

RUNOFF VOLUME = 3.27049 INCHES = .7601 ACRE-FEET
PEAK DISCHARGE RATE = 12.79 CFS AT 1.532 HOURS BASIN AREA = .0044 SQ. MI.

*S
*S-----
*S
*S
*S ROUTING OF PIPE FLOW LADERA SUMP (ID=54) TO AMAFCA EASMENT
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S-----
*S
*S ADD MAIN LADERA STORM DRAIN AND STORM DRAIN FROM SUMP
ADD HYD ID=56 HYD=156.1 ID I=51 ID II=54
PRINT HYD ID=56 CODE=10

PARTIAL HYDROGRAPH 156.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	147.0	3.330	1.7	4.995	1.0	6.660	.0
.333	.0	1.998	52.5	3.663	1.2	5.328	1.1	6.993	.0
.666	2.7	2.331	13.3	3.996	1.0	5.661	1.1	7.326	.0
.999	8.1	2.664	5.5	4.329	1.0	5.994	1.2		
1.332	49.3	2.997	2.7	4.662	1.0	6.327	.2		

RUNOFF VOLUME = 1.47003 INCHES = 8.8664 ACRE-FEET
PEAK DISCHARGE RATE = 217.76 CFS AT 1.532 HOURS BASIN AREA = .1131 SQ. MI.

*S
*S-----
*S
*S ADD BASIN OFF7 (ID=26)-RAIN THAT FALLS INTO POND TO STORM DRAIN
ADD HYD ID=57 HYD=157.1 ID I=56 ID II=26
*S
*S-----
*S TOTAL DISCHARGE TO AMAFCA EASEMENT
PRINT HYD ID=56 CODE=10

PARTIAL HYDROGRAPH 156.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	147.0	3.330	1.7	4.995	1.0	6.660	.0
.333	.0	1.998	52.5	3.663	1.2	5.328	1.1	6.993	.0
.666	2.7	2.331	13.3	3.996	1.0	5.661	1.1	7.326	.0
.999	8.1	2.664	5.5	4.329	1.0	5.994	1.2		
1.332	49.3	2.997	2.7	4.662	1.0	6.327	.2		

RUNOFF VOLUME = 1.47003 INCHES = 8.8664 ACRE-FEET
PEAK DISCHARGE RATE = 217.76 CFS AT 1.532 HOURS BASIN AREA = .1131 SQ. MI.

*S-----

*S-----
 *S-----
 *S
 *S OFFSITE FLOW TO I-40 INTERCEPTOR
 *S BASINS OFF1A,OFF1B,OFF3,OFF4A,OFF4B,OFF8
 *S
 *S-----
 *S-----

*S
 *S COMPUTE FLOWS CONTRIBUTING TO I-40 INTERCEPTOR
 *S ASSUMPTIONS: USE FULL BUILDOUT SIX LANE SECTION FOR BASINS OFF4A&B
 *S
 *S BASIN OFF1A-----

*S
 COMPUTE NM HYD ID=60 HYD NO=160.1 DA=0.0173 SQ MI
 PER A=00.0 PER B=25.0 PER C=25.0 PER D=50.0 TP=-.133
 MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 34.228 CFS UNIT VOLUME = .9991 B = 526.28 P60 = 1.8700
 AREA = .008650 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
 UNIT PEAK = 23.067 CFS UNIT VOLUME = .9999 B = 354.67 P60 = 1.8700
 AREA = .008650 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=60 CODE=10

PARTIAL HYDROGRAPH 160.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	19.7	3.330	.2	4.995	.1	6.660	.0
.333	.0	1.998	7.3	3.663	.2	5.328	.2		
.666	.0	2.331	1.7	3.996	.1	5.661	.2		
.999	.0	2.664	.7	4.329	.1	5.994	.2		
1.332	7.8	2.997	.3	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.39062 INCHES = 1.2831 ACRE-Feet
 PEAK DISCHARGE RATE = 37.75 CFS AT 1.499 HOURS BASIN AREA = .0173 SQ. MI.

*S
 *S BASIN OFF1B-----
 *S
 COMPUTE NM HYD ID=61 HYD NO=161.1 DA=0.0373 SQ MI
 PER A=0.00 PER B=25.0 PER C=25.0 PER D=50.0 TP=-.151
 MASS RAINFALL=-1

K = .082295HR TP = .151000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 65.000 CFS UNIT VOLUME = 1.000 B = 526.28 P60 = 1.8700
 AREA = .018650 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .134155HR TP = .151000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992475
 UNIT PEAK = 43.805 CFS UNIT VOLUME = .9999 B = 354.67 P60 = 1.8700
 AREA = .018650 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=61 CODE=10

PARTIAL HYDROGRAPH 161.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	46.2	3.330	.5	4.995	.3	6.660	.0
.333	.0	1.998	16.8	3.663	.4	5.328	.3	6.993	.0
.666	.0	2.331	4.4	3.996	.3	5.661	.3		
.999	.0	2.664	1.8	4.329	.3	5.994	.4		
1.332	13.5	2.997	.9	4.662	.3	6.327	.1		

RUNOFF VOLUME = 1.39062 INCHES = 2.7664 ACRE-Feet

PEAK DISCHARGE RATE = 76.09 CFS AT 1.532 HOURS BASIN AREA = .0373 SQ. MI.

*S

*S BASIN OFF3-----

*S

COMPUTE NM HYD ID=62 HYD NO=162.1 DA=0.0042 SQ MI
PER A=0.00 PER B=8.50 PER C=8.50 PER D=83.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 13.794 CFS UNIT VOLUME = .9986 B = 526.28 P60 = 1.8700
AREA = .003486 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 1.9040 CFS UNIT VOLUME = .9937 B = 354.67 P60 = 1.8700
AREA = .000714 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=62 CODE=10

PARTIAL HYDROGRAPH 162.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	5.6	3.330	.1	4.995	.1	6.660	.0
.333	.0	1.998	2.5	3.663	.1	5.328	.1		
.666	.0	2.331	.5	3.996	.1	5.661	.1		
.999	.0	2.664	.2	4.329	.1	5.994	.1		
1.332	3.0	2.997	.1	4.662	.1	6.327	.0		

RUNOFF VOLUME = 1.77001 INCHES = .3965 ACRE-Feet
PEAK DISCHARGE RATE = 10.89 CFS AT 1.499 HOURS BASIN AREA = .0042 SQ. MI.

*S

*S BASIN OFF4A-----

*S

COMPUTE NM HYD ID=63 HYD NO=163.1 DA=0.0057 SQ MI
PER A=0.00 PER B=8.50 PER C=8.50 PER D=83.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 18.720 CFS UNIT VOLUME = .9988 B = 526.28 P60 = 1.8700
AREA = .004731 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 2.5840 CFS UNIT VOLUME = .9954 B = 354.67 P60 = 1.8700
AREA = .000969 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=30 CODE=10

PARTIAL HYDROGRAPH 130.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	1.3	2.664	.1	3.996	.0	5.328	.0
.333	.0	1.665	2.4	2.997	.0	4.329	.0	5.661	.0
.666	.0	1.998	1.1	3.330	.0	4.662	.0	5.994	.0
.999	.0	2.331	.2	3.663	.0	4.995	.0	6.327	.0

RUNOFF VOLUME = 1.77001 INCHES = .1699 ACRE-Feet
PEAK DISCHARGE RATE = 4.68 CFS AT 1.499 HOURS BASIN AREA = .0018 SQ. MI.

*S

*S BASIN OFF4B-----

*S

COMPUTE NM HYD ID=64 HYD NO=164.1 DA=0.0024 SQ MI

PER A=00.0 PER B=8.50 PER C=8.50 PER D=83.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 7.8823 CFS UNIT VOLUME = .9979 B = 526.28 P60 = 1.8700
AREA = .001992 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 1.0880 CFS UNIT VOLUME = .9886 B = 354.67 P60 = 1.8700
AREA = .000408 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=64 CODE=10

PARTIAL HYDROGRAPH 164.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	1.7	2.664	.1	3.996	.0	5.328	.0
.333	.0	1.665	3.2	2.997	.1	4.329	.0	5.661	.0
.666	.0	1.998	1.5	3.330	.0	4.662	.0	5.994	.0
.999	.0	2.331	.3	3.663	.0	4.995	.0	6.327	.0

RUNOFF VOLUME = 1.77001 INCHES = .2266 ACRE-FEET
PEAK DISCHARGE RATE = 6.23 CFS AT 1.499 HOURS BASIN AREA = .0024 SQ. MI.

*S
*S BASIN OFF8-----
*S
COMPUTE NM HYD ID=65 HYD NO=165.1 DA=0.0509 SQ MI
PER A=00.0 PER B=25.0 PER C=25.0 PER D=50.0 TP=-.246
MASS RAINFALL=-1

K = .134070HR TP = .246000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 54.446 CFS UNIT VOLUME = .9999 B = 526.28 P60 = 1.8700
AREA = .025450 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .218557HR TP = .246000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 36.692 CFS UNIT VOLUME = .9996 B = 354.67 P60 = 1.8700
AREA = .025450 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=32 CODE=10

PARTIAL HYDROGRAPH 132.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	67.0	3.330	.8	4.995	.4	6.660	.0
.333	.0	1.998	24.1	3.663	.6	5.328	.5	6.993	.0
.666	.0	2.331	6.6	3.996	.5	5.661	.5	7.326	.0
.999	.0	2.664	2.8	4.329	.4	5.994	.5		
1.332	16.8	2.997	1.4	4.662	.4	6.327	.1		

RUNOFF VOLUME = 1.39062 INCHES = 3.8633 ACRE-FEET
PEAK DISCHARGE RATE = 103.28 CFS AT 1.532 HOURS BASIN AREA = .0521 SQ. MI.

*S
*S-----
*S
*S ADD BASIN OFF1A AND OFF3
*S
ADD HYD ID=66 HYD NO=166.1 ID I=60 ID II=62
PRINT HYD ID=66 CODE=10

PARTIAL HYDROGRAPH 166.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS

.000	.0	1.665	25.2	3.330	.3	4.995	.2	6.660	.0
.333	.0	1.998	9.9	3.663	.2	5.328	.2		
.666	.0	2.331	2.3	3.996	.2	5.661	.2		
.999	.0	2.664	.9	4.329	.2	5.994	.2		
1.332	10.9	2.997	.5	4.662	.2	6.327	.0		

RUNOFF VOLUME = 1.46470 INCHES = 1.6795 ACRE-FEET
 PEAK DISCHARGE RATE = 48.64 CFS AT 1.499 HOURS BASIN AREA = .0215 SQ. MI.

*S

*S-----

*S

*S ROUTE OFF1A AND OFF3 (ID=66) THRU OFF4A (LADERA)

*S ASSUME 6 LANE SECTION

*S

COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
 MIN ELEV=00.0 MAX ELEV=0.857
 CH SLP=.0240 FL SLP=.0240
 N=.017 DIST=106.

	DIST	ELEV	DIST	ELEV	DIST	ELEV
0.0	0.857	9.37	0.67	9.83	0.67	
10.0	0.00	12.00	0.125	47.0	1.07	
		47.12	1.57	58.88	1.570	59.00 1.07
94.00	0.125	97.0	0.00	97.17	0.67	
	97.63	0.667	106.0	0.857		

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.05	.04	.04	1.83
.09	.16	.28	3.65
.14	.37	.79	5.83
.18	.71	1.71	9.20
.23	1.20	3.34	12.56
.27	1.84	5.83	15.92
.32	2.64	9.33	19.29
.36	3.58	13.97	22.65
.41	4.68	19.88	26.02
.45	5.93	27.20	29.38
.50	7.33	36.04	32.74
.54	8.89	46.52	36.11
.59	10.59	58.74	39.47
.63	12.45	72.81	42.84
.68	14.46	86.92	47.87
.72	16.79	101.27	55.46
.77	19.47	119.09	63.05
.81	22.48	140.51	70.63
.86	25.84	165.70	78.22

COMPUTE TRAVEL TIME ID=67 REACH=1 NOVS=1 L=1500.0 SLP=.0240

TRAVEL TIME TABLE
 REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.045	.041	.04	.3956
.090	.165	.28	.2492
.135	.373	.79	.1973
.180	.712	1.71	.1730
.226	1.202	3.34	.1498
.271	1.845	5.83	.1318
.316	2.639	9.33	.1179
.361	3.585	13.97	.1069
.406	4.682	19.88	.0981
.451	5.932	27.20	.0909
.496	7.333	36.04	.0848
.541	8.886	46.52	.0796
.586	10.590	58.74	.0751
.631	12.447	72.81	.0712
.677	14.465	86.92	.0693
.722	16.795	101.27	.0691
.767	19.467	119.09	.0681

ROUTE
PRINT HYD

.812 22.482 140.51 .0667
.857 25.839 165.70 .0650

ID=67 HYD=167.1 INFLOW ID=66
ID=67 CODE=10

PARTIAL HYDROGRAPH 167.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	32.3	3.330	.4	4.995	.2	6.660	.1
.333	.0	1.998	12.3	3.663	.3	5.328	.2	6.993	.0
.666	.0	2.331	3.9	3.996	.2	5.661	.2	7.326	.0
.999	.0	2.664	1.5	4.329	.2	5.994	.2	7.659	.0
1.332	3.5	2.997	.7	4.662	.2	6.327	.1	7.992	.0

RUNOFF VOLUME = 1.46473 INCHES = 1.6795 ACRE-FEET
PEAK DISCHARGE RATE = 41.05 CFS AT 1.565 HOURS BASIN AREA = .0215 SQ. MI.

*S
*S-----
*S
*S ADD ROUTED OFF1A AND OFF3 TO OFF1B
*S
ADD HYD
PRINT HYD

ID=68 HYD NO=168.1 ID I=67 ID II=61
ID=68 CODE=10

PARTIAL HYDROGRAPH 168.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	78.5	3.330	.9	4.995	.5	6.660	.1
.333	.0	1.998	29.0	3.663	.7	5.328	.5	6.993	.0
.666	.0	2.331	8.2	3.996	.5	5.661	.6	7.326	.0
.999	.0	2.664	3.3	4.329	.5	5.994	.6	7.659	.0
1.332	17.0	2.997	1.6	4.662	.5	6.327	.2	7.992	.0

RUNOFF VOLUME = 1.41770 INCHES = 4.4459 ACRE-FEET
PEAK DISCHARGE RATE = 115.51 CFS AT 1.532 HOURS BASIN AREA = .0588 SQ. MI.

*S
*S-----
*S
*S ADD ID=68 AND OFF4A
*S
ADD HYD
PRINT HYD

ID=69 HYD NO=169.1 ID I=68 ID II=63
ID=69 CODE=10

PARTIAL HYDROGRAPH 169.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.665	86.1	3.330	1.0	4.995	.6	6.660	.1
.333	.0	1.998	32.5	3.663	.8	5.328	.6	6.993	.0
.666	.0	2.331	9.0	3.996	.6	5.661	.7	7.326	.0
.999	.0	2.664	3.6	4.329	.6	5.994	.7	7.659	.0
1.332	21.1	2.997	1.8	4.662	.6	6.327	.2	7.992	.0

RUNOFF VOLUME = 1.44883 INCHES = 4.9839 ACRE-FEET
PEAK DISCHARGE RATE = 129.66 CFS AT 1.532 HOURS BASIN AREA = .0645 SQ. MI.

*S
*S-----
*S
*S ADD ID=69 AND OFF4B
*S
ADD HYD
PRINT HYD

ID=70 HYD NO=170.1 ID I=69 ID II=64
ID=70 CODE=10

PARTIAL HYDROGRAPH 170.10

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW

HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	1.665	89.3	3.330	1.1	4.995	.6	6.660	.1
.333	.0	1.998	33.9	3.663	.8	5.328	.7	6.993	.0
.666	.0	2.331	9.3	3.996	.7	5.661	.7	7.326	.0
.999	.0	2.664	3.8	4.329	.6	5.994	.8	7.659	.0
1.332	22.8	2.997	1.8	4.662	.6	6.327	.2	7.992	.0

RUNOFF VOLUME = 1.46035 INCHES = 5.2105 ACRE-FEET
 PEAK DISCHARGE RATE = 135.63 CFS AT 1.532 HOURS BASIN AREA = .0669 SQ. MI.

*S

*S-----

*S

*S ROUTE COMBINED FLOW (ID=70) THROUGH OFF8 IN 3' DIA.PIPE

*S

COMPUTE RATING CURVE RC=1 VS NO=1 CODE=-1 SLP=0.0210
 DIA=3.0 FT N=0.013

RATING CURVE PIPE SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.16	.14	.51	1.33
.31	.39	2.20	1.83
.47	.71	5.12	2.18
.63	1.07	9.20	2.44
.78	1.46	14.37	2.63
.94	1.89	20.50	2.78
1.09	2.33	27.47	2.89
1.25	2.79	35.12	2.96
1.41	3.26	43.29	2.99
1.56	3.72	51.81	3.00
1.72	4.19	60.48	3.00
1.88	4.65	69.11	3.00
2.03	5.10	77.46	3.00
2.19	5.53	85.28	3.00
2.35	5.93	92.27	3.00
2.50	6.30	98.10	3.00
2.66	6.62	102.26	3.00
2.81	6.89	103.97	3.00
3.00	7.07	103.97	3.00

COMPUTE TRAVEL TIME ID=71 REACH=1 NOVS=1 L=1800.0 SLP=0.0210

TRAVEL TIME TABLE
 REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.156	.140	.51	.1386
.313	.391	2.20	.0888
.469	.706	5.12	.0690
.625	1.068	9.20	.0580
.782	1.465	14.37	.0510
.938	1.889	20.50	.0461
1.094	2.332	27.47	.0425
1.251	2.790	35.12	.0397
1.407	3.255	43.29	.0376
1.563	3.724	51.81	.0359
1.720	4.191	60.48	.0346
1.876	4.650	69.11	.0336
2.032	5.097	77.46	.0329
2.189	5.525	85.28	.0324
2.345	5.928	92.27	.0321
2.501	6.297	98.10	.0321
2.658	6.622	102.26	.0324
2.814	6.887	103.97	.0331
3.000	7.069	103.97	.0340

ID=71 HYD=171.1 INFLOW ID=70

ID=71 CODE=10

PARTIAL HYDROGRAPH 171.10

ROUTE
 TRAVEL TIME TABLE EXCEEDED
 PRINT HYD

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	36.3	3.996	.7	5.994	.7	7.992	.0
.333	.0	2.331	10.8	4.329	.6	6.327	.4	8.325	.0
.666	.0	2.664	4.2	4.662	.6	6.660	.1		
.999	.0	2.997	2.1	4.995	.6	6.993	.0		
1.332	13.0	3.330	1.2	5.328	.6	7.326	.0		
1.665	104.2	3.663	.9	5.661	.7	7.659	.0		

RUNOFF VOLUME = 1.46035 INCHES = 5.2105 ACRE-FEET
 PEAK DISCHARGE RATE = 129.01 CFS AT 1.565 HOURS BASIN AREA = .0669 SQ. MI.

*S-----
 *S
 *S ADD ROUTED FLOW (ID=71) AND OFF8
 *S TOTAL DISCHARGE TO I-40 INTERCEPTOR AT THE BOTTOM OF OFF8
 *S
 ADD HYD ID=72 HYD=171.1 ID I=71 ID II=65
 PRINT HYD ID=72 CODE=10

PARTIAL HYDROGRAPH 171.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	66.8	3.996	1.4	5.994	1.2	7.992	.0
.333	.0	2.331	21.7	4.329	1.2	6.327	.6	8.325	.0
.666	.0	2.664	9.2	4.662	1.1	6.660	.2		
.999	.0	2.997	4.8	4.995	1.1	6.993	.1		
1.332	18.4	3.330	2.8	5.328	1.1	7.326	.0		
1.665	179.9	3.663	1.9	5.661	1.2	7.659	.0		

RUNOFF VOLUME = 1.43021 INCHES = 8.9855 ACRE-FEET
 PEAK DISCHARGE RATE = 202.34 CFS AT 1.598 HOURS BASIN AREA = .1178 SQ. MI.

*S
 FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 15:07:00

③

**AHYMO
FOR
PARKWAY UNIT 7
TEMPORARY POND EVALUATION**

**FULLY DEVELOPED
100 YR. - 24 HR.**

(Appendix A)

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
*S TIERRA OSESTE SUBDIVISION DRAINAGE REVISION DATE: 2/96										
*S Compute 100-Year Flow FN:TPOND.DAT BY:RGG										
*S COMPUTE 100YR-24HR STORM FOR FULLY DEVELOPED CONDITIONS										
*S WITH PARKWAY UNIT 7 POND										
*S										
*S										
START										
RAINFALL TYPE= 2										
*S										
*S COMPUTE FLOWS FROM INSIDE SUBDIVISION ONLY (OFF2,ON1,ON2 & ON3)										
*S & ROUTE TO LADERA STORM DRAIN										
*S										
*S BASIN OFF2-----										
*S										
COMPUTE NM HYD	101.10	-	1	.00770	16.61	.666	1.62132	1.500	3.371 PER IMP=	50.00
*S										
*S BASIN ON1A-----										
*S										
COMPUTE NM HYD	102.10	-	2	.00600	13.52	.560	1.75027	1.500	3.521 PER IMP=	58.00
*S										
*S BASIN ON2-----										
*S										
COMPUTE NM HYD	103.10	-	3	.01060	23.88	.989	1.75027	1.500	3.520 PER IMP=	58.00
*S										
*S BASIN ON3-----										
*S										
COMPUTE NM HYD	104.10	-	4	.00830	18.70	.775	1.75027	1.500	3.520 PER IMP=	58.00
*S										
*S BASIN ON1B-----										
*S										
COMPUTE NM HYD	105.10	-	5	.00780	17.57	.728	1.75027	1.500	3.521 PER IMP=	58.00
*S										
*S-----										
*S ROUTE BASIN OFF2 THRU ON1A										
*S										
ROUTE	106.10	1	6	.00770	15.29	.666	1.62138	1.550	3.103	
*S										
*S										
*S ADD ON1A TO ROUTED OFF2-FLOW TO BE INTERCPETED BY INLETS @ CASA ROJA										
*S & CASA MORENA										
*S										
ADD HYD	107.10	2& 6	7	.01370	27.34	1.226	1.67777	1.500	3.118	
*S										
*S										
*S INLETS ON CASA ROJA @ CASA MORENA RECIEVED 14.0 CFS										
*S ID=8 IS FLOW INTO STORM DRAIN SYSTEM ID=9 BYPASS FLOW ON SURFACE										
*S										
DIVIDE HYD	108.10	7	8	.01144	14.00	1.024	1.67777	1.450	1.911	
	109.10	AND	9	.00226	13.34	.202	1.67777	1.500	9.241	
*S										
*S-----										
*S ROUTE BYPASS FLOW FROM INLETS (ID=9) THRU ON1B TO INLETS ON CASA ROJA										
*S @ CASA NEGRA										
*S										
ROUTE	110.10	9	10	.00226	14.29	.202	1.68120	1.550	9.901	
*S										
*S										
*S ADD ON1B TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ CASA ROJA										
*S & CASA NEGRA										
*S										
ADD HYD	111.10	5&10	11	.01006	29.86	.930	1.73468	1.550	4.640	
*S										
*S INLETS ON CASA ROJA @ CASA NEGRA RECIEVED 14.4 CFS										
*S ID=12 IS FLOW INTO STORM DRAIN SYSTME ID=13 BYPASS FLOW ON SURFACE										
*S										
DIVIDE HYD	112.10	11	12	.00811	14.40	.751	1.73468	1.450	2.773	
	113.10	AND	13	.00194	15.46	.180	1.73468	1.550	12.437	
*S										
*S-----										

*S ROUTE BYPASS FLOW FROM INLETS (ID=13) THRU ON2 TO INLETS ON CASA ROJA
 *S @ CASA VERDE
 *S

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2 NOTATION

ROUTE	114.10	13	14	.00194	15.11	.180	1.73867	1.550	12.157	

*S
 *S
 *S ADD ON2 TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ CASA ROJA
 *S & CASA VERDE
 *S

ADD HYD	115.10	3&14	15	.01254	36.27	1.170	1.74839	1.550	4.518	

*S
 *S
 *S INLETS ON CASA ROJA @ CASA VERDE RECIEVED 29.19 CFS
 *S ID=16 IS FLOW INTO STORM DRAIN SYSTEM ID=17 BYPASS FLOW ON SURFACE
 *S

DIVIDE HYD	116.10	15	16	.01215	29.19	1.133	1.74839	1.500	3.754	
	117.10	AND	17	.00039	7.08	.037	1.74839	1.550	28.160	

*S
 *S
 *S ROUTE BYPASS FLOW FROM INLETS (ID=17) THRU ON3 TO END OF 50'
 *S RIGHT OF WAY ENDING AT CASA AZUL

ROUTE	118.10	17	18	.00039	4.48	.037	1.76812	1.550	17.830	

*S
 *S
 *S ROUTE BYPASS FLOW FROM INLETS (ID=18) THRU ON3 FROM END OF 50'
 *S RIGHT OF WAY ENDING AT CASA AZUL TO NORTH END OF CASA ROJA
 *S (CUL-DE-SAC)

ROUTE	119.10	18	19	.00039	3.18	.037	1.76812	1.600	12.636	

*S
 *S
 *S ADD ON3 TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ NORTH END
 *S OF CASA ROJA
 *S

ADD HYD	120.10	4&19	20	.00869	18.81	.812	1.75096	1.500	3.382	

*S
 *S
 *S
 *S
 *S
 *S
 *S ROUTE STORM DRAIN IN SUBDIVISION

*S
 *S
 *S ROUTING OF PIPE FLOW FROM FIRST OF INLETS (ID=8) TO SECOND SET OF INLETS
 *S (ID=12) NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S

*S
 *S
 *S ADD FIRST SET OF INLETS (ID=8) TO SECOND SET OF INLETS (ID=12)
 *S

ADD HYD	122.10	8&12	22	.01956	28.40	1.775	1.70137	1.450	2.269	

*S
 *S
 *S ROUTING OF PIPE FLOW FROM 2 SETS OF INLETS (ID=22) TO THIRD SET OF INLETS
 *S (ID=16) NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S

*S
 *S
 *S ADD FIRST TWO SETS INLETS (ID=22) TO THIRD SET OF INLETS (ID=16)
 *S

ADD HYD	124.10	22&16	24	.03171	57.59	2.908	1.71939	1.500	2.838	

*S
 *S
 *S ROUTING OF PIPE FLOW FROM 3 SETS OF INLETS (ID=24) TO LADERA STORM DRAIN
 *S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S

*S
 *S
 *S

*S
 *S
 *S ROUTING OF PIPE FLOW FROM CUL-DE-SAC ON CASA ROJA (ID=20) TO LADERA STORM
 *S DRAIN NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S

*S-----
 *S-----
 *S-----

*S
 *S LADERA STORM DRAIN
 *S

*S-----
 *S-----

*S
 *S COMPUTE FLOWS CONTRIBUTING TO LADERA STORM DRAIN
 *S ASSUMPTIONS: USE FULL BUILDOUT SIX LANE SECTION
 *S

*S
 *S BASIN OFF7-----
 *S

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3 NOTATION

COMPUTE NM HYD	126.10	-	26	.00130	1.08	.030	.43936	1.500	1.296	PER IMP= .00

*S
 *S BASIN OFF5-----

COMPUTE NM HYD	127.10	-	27	.00330	8.43	.379	2.15323	1.500	3.990	PER IMP= 83.00

*S
 *S BASIN OFF6A-----

COMPUTE NM HYD	128.10	-	28	.00620	10.57	.436	1.31906	1.500	2.665	PER IMP= 43.00

*S
 *S BASIN OFF6B-----

COMPUTE NM HYD	129.10	-	29	.00740	12.62	.521	1.31906	1.500	2.664	PER IMP= 43.00

*S
 *S BASIN OFF6C-----

COMPUTE NM HYD	130.10	-	30	.00180	4.60	.207	2.15323	1.500	3.997	PER IMP= 83.00

*S
 *S BASIN OFF6D-----

COMPUTE NM HYD	131.10	-	31	.00180	4.60	.207	2.15323	1.500	3.997	PER IMP= 83.00

*S
 *S BASIN OFF1C-----

*S
 *S COMPUTE NM HYD ID=32 HYD NO=132.1 DA=0.05209 SQ MI
 *S PER A=00.0 PER B=25.0 PER C=25.0 PER D=50.0 TP=-.180
 *S MASS RAINFALL=-1
 *S PRINT HYD ID=32 CODE=10
 *S

*S-----
 *S-----

*S
 *S ADD OFF5 AND OFF1C
 *S ASSUME THIS FLOW IS IN LADERA STORM DRAIN WITH NO BYPASS ON THE ROAD
 *S

*S
 *S ADD HYD ID=33 HYD=133.1 ID I=27 ID II=32
 *S PRINT HYD ID=33 CODE=10
 *S

*S-----
 *S-----

*S
 *S ROAD ROUTING FOR LADERA DRIVE AND DIVIDE OFF FLOW BY INLETS
 *S

*S
 *S INLETS ON LADERA DRIVE (STA 8+25) RECIEVED 2.80 CFS
 *S ID=34 IS FLOW INTO STORM DRAIN SYSTEM ID=35 BYPASS FLOW ON SURFACE
 *S

DIVIDE HYD	134.10	28	34	.00411	2.80	.289	1.31901	1.350	1.065	
	135.10	AND	35	.00209	7.77	.147	1.31901	1.500	5.811	

*S
 *S-----

*S
 *S ROUTE BYPASS (ID=35) THRU OFF6B
 *S DOWN LADERA-ASSUME 6 LANE SECTION
 *S

1.500	10.5	6.500	.1	11.500	.1	16.500	.0	21.500	.0
2.000	2.1	7.000	.1	12.000	.1	17.000	.0	22.000	.0
2.500	.3	7.500	.1	12.500	.1	17.500	.0	22.500	.0
3.000	.1	8.000	.1	13.000	.1	18.000	.0	23.000	.0
3.500	.1	8.500	.1	13.500	.0	18.500	.0	23.500	.0
4.000	.1	9.000	.1	14.000	.0	19.000	.0	24.000	.0
4.500	.0	9.500	.1	14.500	.0	19.500	.0		

RUNOFF VOLUME = 2.04968 INCHES = .4503 ACRE-FEET
 PEAK DISCHARGE RATE = 12.29 CFS AT 1.550 HOURS BASIN AREA = .0041 SQ. MI.

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*S-----
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*S-----
*S-----
*S LADERA STORM DRAIN ROUTING
*S-----
*S-----
*S-----
*S
*S ROUTING OF PIPE FLOW FROM OFFSITE (ID=33) TO LADERA STATION 8+25
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----
*S
*S ADD OFFSITE FLOW (ID=33) TO FIRST SET OF INLETS (STA 8+25) ID=34
*S
*SADD HYD          ID=44 HYD=144.1 ID I=33 ID II=34
*SPRINT HYD        ID=44 CODE=10
*S
*S-----
*S-----
*S
*S ROUTING OF PIPE FLOW FROM LADERA STA 8+25 (ID=44) TO CASA VERDE
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----
*S
*S ADD PIPE FLOW (ID=34) TO FLOW FROM CASA VERDE (ID=24)
*S
*ADD HYD          ID=46 HYD=146.1 ID I=34 ID II=24
*PRINT HYD        ID=46 CODE=10

```

PARTIAL HYDROGRAPH 146.10

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	5.500	.4	11.000	.4	16.500	.3	22.000	.3
.500	.0	6.000	.4	11.500	.4	17.000	.3	22.500	.3
1.000	.0	6.500	.5	12.000	.4	17.500	.3	23.000	.2
1.500	60.4	7.000	.5	12.500	.4	18.000	.3	23.500	.2
2.000	17.1	7.500	.5	13.000	.4	18.500	.3	24.000	.2
2.500	2.6	8.000	.5	13.500	.3	19.000	.3	24.500	.0
3.000	.8	8.500	.5	14.000	.3	19.500	.3	25.000	.0
3.500	.5	9.000	.4	14.500	.3	20.000	.3		
4.000	.4	9.500	.4	15.000	.3	20.500	.3		
4.500	.3	10.000	.4	15.500	.3	21.000	.3		
5.000	.4	10.500	.4	16.000	.3	21.500	.3		

RUNOFF VOLUME = 1.67345 INCHES = 3.1967 ACRE-FEET
 PEAK DISCHARGE RATE = 60.39 CFS AT 1.500 HOURS BASIN AREA = .0358 SQ. MI.

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*S
*S-----
*S-----
*S-----
*S
*S ROUTING OF PIPE FLOW FROM CASA VERDE (ID=44) TO LADERA STA 15+40
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----
*S
*S ADD PIPE FLOW (ID=46) TO INLETS (ID=38)

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*S
ADD HYD ID=48 HYD=148.1 ID I=46 ID II=38
PRINT HYD ID=48 CODE=10

PARTIAL HYDROGRAPH 148.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.500	.4	11.000	.5	16.500	.4	22.000	.3
.500	.0	6.000	.5	11.500	.4	17.000	.3	22.500	.3
1.000	.0	6.500	.6	12.000	.4	17.500	.3	23.000	.3
1.500	74.4	7.000	.6	12.500	.4	18.000	.3	23.500	.3
2.000	19.8	7.500	.6	13.000	.4	18.500	.3	24.000	.3
2.500	3.0	8.000	.5	13.500	.4	19.000	.3	24.500	.0
3.000	1.0	8.500	.5	14.000	.4	19.500	.3	25.000	.0
3.500	.5	9.000	.5	14.500	.4	20.000	.3		
4.000	.4	9.500	.5	15.000	.4	20.500	.3		
4.500	.4	10.000	.5	15.500	.4	21.000	.3		
5.000	.4	10.500	.5	16.000	.4	21.500	.3		

RUNOFF VOLUME = 1.60261 INCHES = 3.8281 ACRE-Feet
PEAK DISCHARGE RATE = 74.39 CFS AT 1.500 HOURS BASIN AREA = .0448 SQ. MI.

*S
*S-----
*S-----
*S
*S ROUTING OF PIPE FLOW FROM STA 15+40 (ID=48) TO TIERRA OESTE ESMT PIPE
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----
*S

*S ADD PIPE FLOW (ID=48) TO FLOW FROM EASMENT (ID=20)
*S
ADD HYD ID=51 HYD=151.1 ID I=48 ID II=20
PRINT HYD ID=51 CODE=10

PARTIAL HYDROGRAPH 151.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.500	.5	11.000	.5	16.500	.4	22.000	.4
.500	.0	6.000	.6	11.500	.5	17.000	.4	22.500	.3
1.000	.0	6.500	.7	12.000	.5	17.500	.4	23.000	.3
1.500	93.2	7.000	.7	12.500	.5	18.000	.4	23.500	.3
2.000	23.7	7.500	.7	13.000	.5	18.500	.4	24.000	.3
2.500	3.5	8.000	.6	13.500	.5	19.000	.4	24.500	.0
3.000	1.1	8.500	.6	14.000	.5	19.500	.4	25.000	.0
3.500	.6	9.000	.6	14.500	.5	20.000	.4		
4.000	.5	9.500	.6	15.000	.4	20.500	.4		
4.500	.5	10.000	.6	15.500	.4	21.000	.4		
5.000	.5	10.500	.6	16.000	.4	21.500	.4		

RUNOFF VOLUME = 1.62672 INCHES = 4.6399 ACRE-Feet
PEAK DISCHARGE RATE = 93.20 CFS AT 1.500 HOURS BASIN AREA = .0535 SQ. MI.

*S
*S-----
*S-----
*S
*S ROUTING OF PIPE FLOW FROM TIERRA OESTE ESMT (ID=51) TO AMAFCA EASEMENT
*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----
*S-----
*S

*S ADD PIPE FLOW (ID=51) TO FLOW FROM POND (ID=26)
*S
ADD HYD ID=52 HYD=152.1 ID I=51 ID II=26
PRINT HYD ID=52 CODE=10

PARTIAL HYDROGRAPH 152.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.500	.5	11.000	.5	16.500	.4	22.000	.4
.500	.0	6.000	.6	11.500	.5	17.000	.4	22.500	.3
1.000	.0	6.500	.7	12.000	.5	17.500	.4	23.000	.3
1.500	94.3	7.000	.7	12.500	.5	18.000	.4	23.500	.3
2.000	23.8	7.500	.7	13.000	.5	18.500	.4	24.000	.3
2.500	3.5	8.000	.6	13.500	.5	19.000	.4	24.500	.0
3.000	1.2	8.500	.6	14.000	.5	19.500	.4	25.000	.0
3.500	.6	9.000	.6	14.500	.5	20.000	.4		
4.000	.5	9.500	.6	15.000	.4	20.500	.4		
4.500	.5	10.000	.6	15.500	.4	21.000	.4		
5.000	.5	10.500	.6	16.000	.4	21.500	.4		

RUNOFF VOLUME = 1.59855 INCHES = 4.6703 ACRE-Feet
 PEAK DISCHARGE RATE = 94.28 CFS AT 1.500 HOURS BASIN AREA = .0548 SQ. MI.

*S
 *S-----

*S
 *S EXISTING FLOW FROM LADERA SHOWN ON PARKWAY UNIT 3 PLANS
 *S Q(100)=8.1 CFS FLOW FROM BEEHIVE= 0 CFS

*S
 STORE HYD ID=53 HYD=153.1 DT=0.50HR DA=0.0036
 FLOW RATE=0 0 8.1 2.1 0

*S
 *S-----

*S
 *S ADD EXISTING FLOW TO NEW FLOW FROM SUMP (ID=42)
 *S
 ADD HYD ID=54 HYD=154.1 ID I=42 ID II=53
 PRINT HYD ID=54 CODE=10

PARTIAL HYDROGRAPH 154.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.1	10.000	.1	15.000	.0	20.000	.0
.500	.0	5.500	.1	10.500	.1	15.500	.0	20.500	.0
1.000	8.1	6.000	.1	11.000	.1	16.000	.0	21.000	.0
1.500	10.5	6.500	.1	11.500	.1	16.500	.0	21.500	.0
2.000	2.1	7.000	.1	12.000	.1	17.000	.0	22.000	.0
2.500	.3	7.500	.1	12.500	.1	17.500	.0	22.500	.0
3.000	.1	8.000	.1	13.000	.1	18.000	.0	23.000	.0
3.500	.1	8.500	.1	13.500	.0	18.500	.0	23.500	.0
4.000	.1	9.000	.1	14.000	.0	19.000	.0	24.000	.0
4.500	.0	9.500	.1	14.500	.0	19.500	.0		

RUNOFF VOLUME = 2.00164 INCHES = .8241 ACRE-Feet
 PEAK DISCHARGE RATE = 12.29 CFS AT 1.550 HOURS BASIN AREA = .0077 SQ. MI.

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*S
 *S ROUTING OF PIPE FLOW LADERA SUMP (ID=54) TO AMAFCA EASMENT
 *S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

*S
 *S-----

*S
 *S ADD MAIN LADERA STORM DRAIN AND STORM DRAIN FROM SUMP
 *sD HYD ID=56 HYD=156.1 ID I=51 ID II=54

*S
 *S-----

*S
 *S-----

*S
 *S
 ROUTE RESERVOIR ID=57 HYD=POND.007 INFLOW ID=52 CODE=10
 OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)
 6.74 0.00 5191
 7.23 0.00 5192
 7.69 0.00 5193
 8.13 0.00 5194

		8.54	0.00	5195
8.94		0.00	5196	
9.32		0.0	5197	
9.68		0.35	5198	
	10.03		0.74	5199
10.37		1.20	5200	
	10.69		1.71	5201
11.01		2.28	5202	
	11.32		2.92	5203
11.62		3.62	5204	

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)

.00	.00	5177.25	.000	.00
.50	.00	5191.00	.000	6.74
1.00	.00	5191.00	.000	6.74
1.50	94.28	5199.12	.794	10.07
2.00	23.78	5202.55	2.633	11.18
2.50	3.55	5202.48	2.590	11.16
3.00	1.16	5201.89	2.218	10.98
3.50	.63	5201.17	1.804	10.74
4.00	.49	5200.37	1.388	10.49
4.50	.47	5199.52	.980	10.21
5.00	.49	5198.60	.584	9.89
5.50	.54	5197.58	.204	9.53
6.00	.60	5191.00	.000	6.74
6.50	.70	5191.00	.000	6.74
7.00	.69	5191.00	.000	6.74
7.50	.67	5191.00	.000	6.74
8.00	.65	5191.00	.000	6.74
8.50	.63	5191.00	.000	6.74
9.00	.60	5191.00	.000	6.74
9.50	.59	5191.00	.000	6.74
10.00	.57	5191.00	.000	6.74
10.50	.56	5191.00	.000	6.74
11.00	.54	5191.00	.000	6.74
11.50	.53	5191.00	.000	6.74
12.00	.52	5191.00	.000	6.74
12.50	.50	5191.00	.000	6.74
13.00	.50	5191.00	.000	6.74
13.50	.48	5191.00	.000	6.74
14.00	.47	5191.00	.000	6.74
14.50	.46	5191.00	.000	6.74
15.00	.45	5191.00	.000	6.74
15.50	.44	5191.00	.000	6.74
16.00	.43	5191.00	.000	6.74
16.50	.43	5191.00	.000	6.74
17.00	.42	5191.00	.000	6.74
17.50	.41	5191.00	.000	6.74
18.00	.40	5191.00	.000	6.74
18.50	.39	5191.00	.000	6.74
19.00	.39	5191.00	.000	6.74
19.50	.38	5191.00	.000	6.74
20.00	.37	5191.00	.000	6.74
20.50	.37	5191.00	.000	6.74
21.00	.36	5191.00	.000	6.74
21.50	.36	5191.00	.000	6.74
22.00	.35	5191.00	.000	6.74
22.50	.35	5191.00	.000	6.74
23.00	.34	5191.00	.000	6.74
23.50	.33	5191.00	.000	6.74
24.00	.33	5191.00	.000	6.74
24.50	.02	5191.00	.000	6.74
25.00	.00	5191.00	.000	6.74
25.50	.00	5191.00	.000	6.74
26.00	.00	5191.00	.000	6.74
26.50	.00	5191.00	.000	6.74
27.00	.00	5191.00	.000	6.74
27.50	.00	5191.00	.000	6.74

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)

28.00	.00	5191.00	.000	6.74

28.50 .00 5191.00 .000 6.74
29.00 .00 5191.00 .000 6.74
29.50 .00 5191.00 .000 6.74
PEAK DISCHARGE = 11.226 CFS - PEAK OCCURS AT HOUR 2.15
MAXIMUM WATER SURFACE ELEVATION = 5202.697
MAXIMUM STORAGE = 2.7259 AC-FT INCREMENTAL TIME= .050000HRS

*S-----

*S
*S ADD OUTFLOW FROM RESERVOIR AND FLOW FROM SUMP FOR TOTAL DISCHARGE
*S TO AMAFCA EASEMENT

*S
ADD HYD ID=58 HYD=158.1 ID I=57 ID II=54
PRINT HYD ID=58 HYD=158.1

PARTIAL HYDROGRAPH 158.10

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	6.000	6.8	12.000	6.8	18.000	6.8	24.000	6.8
1.000	14.8	7.000	6.8	13.000	6.8	19.000	6.8	25.000	6.7
2.000	13.3	8.000	6.8	14.000	6.8	20.000	6.8	26.000	6.7
3.000	11.1	9.000	6.8	15.000	6.8	21.000	6.8	27.000	6.7
4.000	10.5	10.000	6.8	16.000	6.8	22.000	6.8	28.000	6.7
5.000	9.9	11.000	6.8	17.000	6.8	23.000	6.8	29.000	6.7

RUNOFF VOLUME = 5.66801 INCHES = 18.8932 ACRE-FEET
PEAK DISCHARGE RATE = 22.62 CFS AT 1.550 HOURS BASIN AREA = .0625 SQ. MI.

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 15:17:13

ROUTE 136.10 35 36 .00209 6.61 .147 1.32272 1.550 4.943

*S

*S-----

*S

*S ADD ROUTED BYPASS (ID=36) AND OFF6B (ID=29)

*S

ADD HYD 137.10 36&29 37 .00949 17.96 .668 1.31977 1.550 2.957

*S

*S

*S INLETS ON LADERA DRIVE (STA 15+40) RECIEVED 14.0 CFS

*S (5.6 CFS IN EXISTING INLETS - 7.4 CFS IN PROPOSED INLETS)

*S ID=38 IS FLOW INTO STORM DRAIN SYSTEM ID=39 BYPASS FLOW ON SURFACE

*S

DIVIDE HYD 138.10 37 38 .00897 14.00 .631 1.31977 1.500 2.438

139.10 AND 39 .00052 3.96 .037 1.31977 1.550 11.909

*S

*S-----

*S

*S ROUTE BYPASS (ID=39) THRU OFF6C TO BOTTOM OF SUMP STA 25+70

*S DOWN LADERA-ASSUME 6 LANE SECTION

*S

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 4 NOTATION

ROUTE 140.10 39 40 .00052 4.23 .037 1.33468 1.550 12.730

*S

*S-----

*S

*S ADD ROUTED BYPASS (ID=40) AND OFF6C (ID=30)

*S

ADD HYD 141.10 40&30 41 .00232 8.26 .244 1.96944 1.550 5.566

*S

*S-----

*S

*S ADD BYPASS AND OFF6C (ID=41) AND OFF6D (ID=31)

*S TOTAL AMOUNT OF WATER COLLECTED AT SUMP STA 25+70

ADD HYD 142.10 41&31 42 .00412 12.29 .450 2.04968 1.550 4.662

*S

*S

*S-----

*S

*S-----

*S

*S LADERA STORM DRAIN ROUTING

*S

*S-----

*S

*S

*S ROUTING OF PIPE FLOW FROM OFFSITE (ID=33) TO LADERA STATION 8+25

*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

*S

*S-----

*S

*S ADD OFFSITE FLOW (ID=33) TO FIRST SET OF INLETS (STA 8+25) ID=34

*S

*SADD HYD ID=44 HYD=144.1 ID I=33 ID II=34

*SPRINT HYD ID=44 CODE=10

*S

*S-----

*S

*S

*S ROUTING OF PIPE FLOW FROM LADERA STA 8+25 (ID=44) TO CASA VERDE

*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

*S

*S-----

*S

*S ADD PIPE FLOW (ID=34) TO FLOW FROM CASA VERDE (ID=24)

*S

ADD HYD 146.10 34&24 46 .03582 60.39 3.197 1.67345 1.500 2.634

*S

*S-----

*S

*S

*S ROUTING OF PIPE FLOW FROM CASA VERDE (ID=44) TO LADERA STA 15+40

*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

*S

*S-----
 *S
 *S ADD PIPE FLOW (ID=46) TO INLETS (ID=38)
 *S
 ADD HYD 148.10 46&38 48 .04479 74.39 3.828 1.60261 1.500 2.595
 *S
 *S-----
 *S-----
 *S

*S ROUTING OF PIPE FLOW FROM STA 15+40 (ID=48) TO TIERRA OESTE ESMT PIPE
 *S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S

*S-----
 *S
 *S ADD PIPE FLOW (ID=48) TO FLOW FROM EASMENT (ID=20)
 *S
 ADD HYD 151.10 48&20 51 .05348 93.20 4.640 1.62672 1.500 2.723
 *S
 *S-----
 *S-----
 *S

*S ROUTING OF PIPE FLOW FROM TIERRA OESTE ESMT (ID=51) TO AMAFCA EASEMENT
 *S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S

*S-----
 *S
 *S ADD PIPE FLOW (ID=51) TO FLOW FROM POND (ID=26)
 *S

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 5 NOTATION

ADD HYD	152.10 51&26	52		.05478	94.28	4.670	1.59855	1.500	2.689	

*S
 *S EXISTING FLOW FROM LADERA SHOWN ON PARKWAY UNIT 3 PLANS
 *S Q(100)=8.1 CFS FLOW FROM BEEHIVE= 0 CFS
 *S

STORE HYD	153.10	-	53	.00360	8.10	.421	2.19525	1.000	3.516	

*S
 *S ADD EXISTING FLOW TO NEW FLOW FROM SUMP (ID=42)
 *S

ADD HYD	154.10 42&53	54		.00772	12.29	.824	2.00164	1.550	2.488	

*S
 *S ROUTING OF PIPE FLOW LADERA SUMP (ID=54) TO AMAFCA EASMENT
 *S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
 *S

*S
 *S ADD MAIN LADERA STORM DRAIN AND STORM DRAIN FROM SUMP
 *SD HYD ID=56 HYD=156.1 ID I=51 ID II=54
 *S

ROUTE RESERVOIR	POND.007	52	57	.05478	11.23	18.069	6.18465	2.150	.320 AC-FT=	2.726

*S
 *S ADD OUTFLOW FROM RESERVOIR AND FLOW FROM SUMP FOR TOTAL DISCHARGE
 *S TO AMAFCA EASEMENT
 *S

ADD HYD FINISH	158.10 57&54	58		.06250	22.62	18.893	5.66801	1.550	.565	

100yr - 24hr Detailed Output

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
 RUN DATE (MON/DAY/YR) = 03/01/1996
 START TIME (HR:MIN:SEC) = 15:17:11 USER NO.= CINFRNNM.101
 INPUT FILE = TPOND.DAT

*S TIERRA OSESTE SUBDIVISION DRAINAGE REVISION DATE: 2/96
 *S Compute 100-Year Flow FN:TPOND.DAT BY:RGG

*S COMPUTE 100YR-24HR STORM FOR FULLY DEVELOPED CONDITIONS
 *S WITH PARKWAY UNIT 7 POND

*S
 START TIME=0.0 CODE 0 LINES -6

RAINFALL TYPE=-2 RAIN QUATER=0.0 RAIN ONE=1.87
 RAIN SIX=2.20 RAIN DAY=2.66 DT=0.0500

COMPUTED 24-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
 DT = .050000 HOURS END TIME = 24.000000 HOURS

*S
 *S COMPUTE FLOWS FROM INSIDE SUBDIVISION ONLY (OFF2,ON1,ON2 & ON3)
 *S & ROUTE TO LADERA STORM DRAIN

*S BASIN OFF2-----

*S
 COMPUTE NM HYD ID=1 HYD NO=101.1 DA=0.0077 SQ MI
 PER A=00.0 PER B=25.0 PER C=25.0 PER D=50.0 TP=-.133
 MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 15.234 CFS UNIT VOLUME = .9985 B = 526.28 P60 = 1.8700
 AREA = .003850 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
 UNIT PEAK = 10.267 CFS UNIT VOLUME = 1.000 B = 354.67 P60 = 1.8700
 AREA = .003850 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=1 CODE=10

PARTIAL HYDROGRAPH 101.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.1	10.000	.1	15.000	.1	20.000	.1
.500	.0	5.500	.1	10.500	.1	15.500	.1	20.500	.0
1.000	.0	6.000	.1	11.000	.1	16.000	.1	21.000	.0
1.500	16.6	6.500	.1	11.500	.1	16.500	.1	21.500	.0
2.000	3.2	7.000	.1	12.000	.1	17.000	.1	22.000	.0
2.500	.5	7.500	.1	12.500	.1	17.500	.1	22.500	.0
3.000	.2	8.000	.1	13.000	.1	18.000	.1	23.000	.0
3.500	.1	8.500	.1	13.500	.1	18.500	.1	23.500	.0
4.000	.1	9.000	.1	14.000	.1	19.000	.1	24.000	.0
4.500	.1	9.500	.1	14.500	.1	19.500	.1	24.500	.0

RUNOFF VOLUME = 1.62132 INCHES = .6658 ACRE-FEET
 PEAK DISCHARGE RATE = 16.61 CFS AT 1.500 HOURS BASIN AREA = .0077 SQ. MI.

*S
 *S BASIN ON1A-----

*S
 COMPUTE NM HYD ID=2 HYD NO=102.1 DA=0.0060 SQ MI
 PER A=00.0 PER B=21.0 PER C=21.0 PER D=58.0 TP=-.133
 MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 13.770 CFS UNIT VOLUME = .9983 B = 526.28 P60 = 1.8700
 AREA = .003480 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 6.7200 CFS UNIT VOLUME = .9994 B = 354.67 P60 = 1.8700
AREA = .002520 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=2 CODE=10

PARTIAL HYDROGRAPH 102.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.1	10.000	.1	15.000	.1	20.000	.0
.500	.0	5.500	.1	10.500	.1	15.500	.1	20.500	.0
1.000	.0	6.000	.1	11.000	.1	16.000	.1	21.000	.0
1.500	13.5	6.500	.1	11.500	.1	16.500	.1	21.500	.0
2.000	2.8	7.000	.1	12.000	.1	17.000	.1	22.000	.0
2.500	.4	7.500	.1	12.500	.1	17.500	.0	22.500	.0
3.000	.1	8.000	.1	13.000	.1	18.000	.0	23.000	.0
3.500	.1	8.500	.1	13.500	.1	18.500	.0	23.500	.0
4.000	.1	9.000	.1	14.000	.1	19.000	.0	24.000	.0
4.500	.1	9.500	.1	14.500	.1	19.500	.0	24.500	.0

RUNOFF VOLUME = 1.75027 INCHES = .5601 ACRE-FEET
PEAK DISCHARGE RATE = 13.52 CFS AT 1.500 HOURS BASIN AREA = .0060 SQ. MI.

*S
*S BASIN ON2-----
*S
COMPUTE NM HYD ID=3 HYD NO=103.1 DA=0.0106 SQ MI
PER A=00.0 PER B=21.0 PER C=21.0 PER D=58.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 24.327 CFS UNIT VOLUME = .9987 B = 526.28 P60 = 1.8700
AREA = .006148 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 11.872 CFS UNIT VOLUME = 1.000 B = 354.67 P60 = 1.8700
AREA = .004452 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=3 CODE=10

PARTIAL HYDROGRAPH 103.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.1	10.000	.1	15.000	.1	20.000	.1
.500	.0	5.500	.1	10.500	.1	15.500	.1	20.500	.1
1.000	.0	6.000	.1	11.000	.1	16.000	.1	21.000	.1
1.500	23.9	6.500	.2	11.500	.1	16.500	.1	21.500	.1
2.000	4.9	7.000	.1	12.000	.1	17.000	.1	22.000	.1
2.500	.7	7.500	.1	12.500	.1	17.500	.1	22.500	.1
3.000	.2	8.000	.1	13.000	.1	18.000	.1	23.000	.1
3.500	.1	8.500	.1	13.500	.1	18.500	.1	23.500	.1
4.000	.1	9.000	.1	14.000	.1	19.000	.1	24.000	.1
4.500	.1	9.500	.1	14.500	.1	19.500	.1	24.500	.0

RUNOFF VOLUME = 1.75027 INCHES = .9895 ACRE-FEET
PEAK DISCHARGE RATE = 23.88 CFS AT 1.500 HOURS BASIN AREA = .0106 SQ. MI.

*S
*S BASIN ON3-----
*S
COMPUTE NM HYD ID=4 HYD NO=104.1 DA=0.0083 SQ MI
PER A=00.0 PER B=21.0 PER C=21.0 PER D=58.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 19.049 CFS UNIT VOLUME = .9986 B = 526.28 P60 = 1.8700
AREA = .004814 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 9.2960 CFS UNIT VOLUME = .9999 B = 354.67 P60 = 1.8700
AREA = .003486 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=4 CODE=10

PARTIAL HYDROGRAPH 104.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.1	10.000	.1	15.000	.1	20.000	.1
.500	.0	5.500	.1	10.500	.1	15.500	.1	20.500	.1
1.000	.0	6.000	.1	11.000	.1	16.000	.1	21.000	.1
1.500	18.7	6.500	.1	11.500	.1	16.500	.1	21.500	.1
2.000	3.8	7.000	.1	12.000	.1	17.000	.1	22.000	.1
2.500	.5	7.500	.1	12.500	.1	17.500	.1	22.500	.1
3.000	.2	8.000	.1	13.000	.1	18.000	.1	23.000	.1
3.500	.1	8.500	.1	13.500	.1	18.500	.1	23.500	.1
4.000	.1	9.000	.1	14.000	.1	19.000	.1	24.000	.1
4.500	.1	9.500	.1	14.500	.1	19.500	.1	24.500	.0

RUNOFF VOLUME = 1.75027 INCHES = .7748 ACRE-Feet
PEAK DISCHARGE RATE = 18.70 CFS AT 1.500 HOURS BASIN AREA = .0083 SQ. MI.

*S
*S BASIN ON1B-----
*S
COMPUTE NM HYD ID=5 HYD NO=105.1 DA=0.0078 SQ MI
PER A=00.0 PER B=21.0 PER C=21.0 PER D=58.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 17.901 CFS UNIT VOLUME = .9985 B = 526.28 P60 = 1.8700
AREA = .004524 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 8.7360 CFS UNIT VOLUME = .9999 B = 354.67 P60 = 1.8700
AREA = .003276 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=5 CODE=10

PARTIAL HYDROGRAPH 105.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.1	10.000	.1	15.000	.1	20.000	.1
.500	.0	5.500	.1	10.500	.1	15.500	.1	20.500	.1
1.000	.0	6.000	.1	11.000	.1	16.000	.1	21.000	.1
1.500	17.6	6.500	.1	11.500	.1	16.500	.1	21.500	.1
2.000	3.6	7.000	.1	12.000	.1	17.000	.1	22.000	.1
2.500	.5	7.500	.1	12.500	.1	17.500	.1	22.500	.1
3.000	.2	8.000	.1	13.000	.1	18.000	.1	23.000	.1
3.500	.1	8.500	.1	13.500	.1	18.500	.1	23.500	.1
4.000	.1	9.000	.1	14.000	.1	19.000	.1	24.000	.1
4.500	.1	9.500	.1	14.500	.1	19.500	.1	24.500	.0

RUNOFF VOLUME = 1.75027 INCHES = .7281 ACRE-Feet
PEAK DISCHARGE RATE = 17.57 CFS AT 1.500 HOURS BASIN AREA = .0078 SQ. MI.

*S
*S-----
*S ROUTE BASIN OFF2 THRU ON1A
*S

★
 COMPUTE RATING CURVE

RC=1 VS NO=1 NO SEGS=1
 MIN ELEV=00.0 MAX ELEV=0.943
 CH SLP=.0200 FL SLP=.0200
 N=.017 DIST=50.0
 DIST ELEV DIST ELEV DIST ELEV
 0.0 0.84 8.37 0.67 8.83 0.67
 9.00 0.00 11.00 0.125 25.0 0.41
 39.0 0.125 41.0 0.000 41.17 0.67
 41.63 0.67 50.0 0.84

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.05	.04	.04	1.61
.10	.16	.26	3.23
.15	.38	.69	6.42
.20	.82	1.73	11.32
.25	1.50	3.74	16.23
.30	2.43	7.00	21.13
.35	3.60	11.74	26.03
.40	5.01	18.18	30.93
.45	6.60	27.97	32.23
.50	8.20	40.07	32.25
.55	9.81	53.83	32.28
.60	11.41	69.13	32.30
.65	13.01	85.90	32.33
.69	14.67	98.30	35.71
.74	16.56	110.73	40.59
.79	18.70	125.87	45.48
.84	21.08	144.46	50.00
.89	23.56	173.90	50.00
.94	26.04	205.49	50.00

COMPUTE TRAVEL TIME ID=6 REACH=1 NOVS=1 L=690. SLP=.0200

TRAVEL TIME TABLE
 REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.050	.040	.04	.1882
.099	.160	.26	.1186
.149	.379	.69	.1048
.199	.820	1.73	.0909
.248	1.503	3.74	.0770
.298	2.430	7.00	.0665
.347	3.600	11.74	.0588
.397	5.014	18.18	.0529
.447	6.605	27.97	.0453
.496	8.205	40.07	.0392
.546	9.806	53.83	.0349
.596	11.409	69.13	.0316
.645	13.012	85.90	.0290
.695	14.671	98.30	.0286
.744	16.564	110.73	.0287
.794	18.700	125.87	.0285
.844	21.078	144.46	.0280
.893	23.559	173.90	.0260
.943	26.041	205.49	.0243

ROUTE
 PRINT HYD ID=6 HYD=106.1 INFLOW ID=1
 ID=6 CODE=10

PARTIAL HYDROGRAPH 106.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.500	.1	11.000	.1	16.500	.1	22.000	.0
.500	.0	6.000	.1	11.500	.1	17.000	.1	22.500	.0
1.000	.0	6.500	.1	12.000	.1	17.500	.1	23.000	.0
1.500	13.8	7.000	.1	12.500	.1	18.000	.1	23.500	.0
2.000	3.7	7.500	.1	13.000	.1	18.500	.1	24.000	.0
2.500	.6	8.000	.1	13.500	.1	19.000	.1	24.500	.0
3.000	.2	8.500	.1	14.000	.1	19.500	.1	25.000	.0
3.500	.1	9.000	.1	14.500	.1	20.000	.1		

4.000	.1	9.500	.1	15.000	.1	20.500	.0
4.500	.1	10.000	.1	15.500	.1	21.000	.0
5.000	.1	10.500	.1	16.000	.1	21.500	.0

RUNOFF VOLUME = 1.62138 INCHES = .6658 ACRE-FEET
 PEAK DISCHARGE RATE = 15.29 CFS AT 1.550 HOURS BASIN AREA = .0077 SQ. MI.

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*S ADD ON1A TO ROUTED OFF2-FLOW TO BE INTERCPETED BY INLETS @ CASA ROJA
 *S & CASA MORENA

*S

ADD HYD ID=7 HYD=107.1 ID I=2 ID II=6
 PRINT HYD ID=7 CODE=10

PARTIAL HYDROGRAPH 107.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.500	.1	11.000	.1	16.500	.1	22.000	.1
.500	.0	6.000	.2	11.500	.1	17.000	.1	22.500	.1
1.000	.0	6.500	.2	12.000	.1	17.500	.1	23.000	.1
1.500	27.3	7.000	.2	12.500	.1	18.000	.1	23.500	.1
2.000	6.5	7.500	.2	13.000	.1	18.500	.1	24.000	.1
2.500	1.0	8.000	.2	13.500	.1	19.000	.1	24.500	.0
3.000	.3	8.500	.2	14.000	.1	19.500	.1	25.000	.0
3.500	.2	9.000	.2	14.500	.1	20.000	.1		
4.000	.1	9.500	.2	15.000	.1	20.500	.1		
4.500	.1	10.000	.1	15.500	.1	21.000	.1		
5.000	.1	10.500	.1	16.000	.1	21.500	.1		

RUNOFF VOLUME = 1.67777 INCHES = 1.2259 ACRE-FEET
 PEAK DISCHARGE RATE = 27.34 CFS AT 1.500 HOURS BASIN AREA = .0137 SQ. MI.

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*S INLETS ON CASA ROJA @ CASA MORENA RECIEVED 14.0 CFS
 *S ID=8 IS FLOW INTO STORM DRAIN SYSTEM ID=9 BYPASS FLOW ON SURFACE

*S

DIVIDE HYD ID=7 Q=14.0 ID I=8 HYD I=108.1
 ID II=9 HYD II=109.1

*S

*S ROUTE BYPASS FLOW FROM INLETS (ID=9) THRU ON1B TO INLETS ON CASA ROJA

*S @ CASA NEGRA

*S

COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
 MIN ELEV=00.0 MAX ELEV=0.943
 CH SLP=.0200 FL SLP=.0200
 N=.017 DIST=50.0

	DIST	ELEV	DIST	ELEV	DIST	ELEV
0.0	0.84	8.37	0.67	8.83	0.67	
9.00	0.00	11.00	0.125	25.0	0.41	
	39.0	0.125	41.0	0.000	41.17	0.67
41.63	0.67	50.0	0.84			

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.05	.04	.04	1.61
.10	.16	.26	3.23
.15	.38	.69	6.42
.20	.82	1.73	11.32
.25	1.50	3.74	16.23
.30	2.43	7.00	21.13
.35	3.60	11.74	26.03
.40	5.01	18.18	30.93
.45	6.60	27.97	32.23
.50	8.20	40.07	32.25

.55	9.81	53.83	32.28
.60	11.41	69.13	32.30
.65	13.01	85.90	32.33
.69	14.67	98.30	35.71
.74	16.56	110.73	40.59
.79	18.70	125.87	45.48
.84	21.08	144.46	50.00
.89	23.56	173.90	50.00
.94	26.04	205.49	50.00

COMPUTE TRAVEL TIME ID=10 REACH=1 NOVS=1 L=260. SLP=.0202

TRAVEL TIME TABLE
 REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.050	.040	.04	.0709
.099	.160	.26	.0447
.149	.379	.69	.0395
.199	.820	1.73	.0343
.248	1.503	3.74	.0290
.298	2.430	7.00	.0251
.347	3.600	11.74	.0222
.397	5.014	18.18	.0199
.447	6.605	27.97	.0171
.496	8.205	40.07	.0148
.546	9.806	53.83	.0132
.596	11.409	69.13	.0119
.645	13.012	85.90	.0109
.695	14.671	98.30	.0108
.744	16.564	110.73	.0108
.794	18.700	125.87	.0107
.844	21.078	144.46	.0105
.893	23.559	173.90	.0098
.943	26.041	205.49	.0092

ROUTE ID=10 HYD=110.1 INFLOW ID=9
 PRINT HYD ID=10 CODE=10

PARTIAL HYDROGRAPH 110.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.000	.0	2.000	.0				
.500	.0	1.500	11.4	2.500	.0				

RUNOFF VOLUME = 1.68120 INCHES = .2023 ACRE-FEET
 PEAK DISCHARGE RATE = 14.29 CFS AT 1.550 HOURS BASIN AREA = .0023 SQ. MI.

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 *S ADD ON1B TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ CASA ROJA
 *S & CASA NEGRA
 *S

ADD HYD ID=11 HYD=111.1 ID I=5 ID II=10
 PRINT HYD ID=11 CODE=10

PARTIAL HYDROGRAPH 111.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.1	10.000	.1	15.000	.1	20.000	.1
.500	.0	5.500	.1	10.500	.1	15.500	.1	20.500	.1
1.000	.0	6.000	.1	11.000	.1	16.000	.1	21.000	.1
1.500	29.0	6.500	.1	11.500	.1	16.500	.1	21.500	.1
2.000	3.6	7.000	.1	12.000	.1	17.000	.1	22.000	.1
2.500	.5	7.500	.1	12.500	.1	17.500	.1	22.500	.1
3.000	.2	8.000	.1	13.000	.1	18.000	.1	23.000	.1
3.500	.1	8.500	.1	13.500	.1	18.500	.1	23.500	.1
4.000	.1	9.000	.1	14.000	.1	19.000	.1	24.000	.1
4.500	.1	9.500	.1	14.500	.1	19.500	.1	24.500	.0

RUNOFF VOLUME = 1.73468 INCHES = .9303 ACRE-FEET
 PEAK DISCHARGE RATE = 29.86 CFS AT 1.550 HOURS BASIN AREA = .0101 SQ. MI.

*S
 *S INLETS ON CASA ROJA @ CASA NEGRA RECIEVED 14.4 CFS
 *S ID=12 IS FLOW INTO STORM DRAIN SYSTME ID=13 BYPASS FLOW ON SURFACE
 *S
 DIVIDE HYD ID=11 Q=14.4 ID I=12 HYD I=112.1
 ID II=13 HYD II=113.1

*S
 *S
 *S ROUTE BYPASS FLOW FROM INLETS (ID=13) THRU ON2 TO INLETS ON CASA ROJA
 *S @ CASA VERDE
 *S
 COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
 MIN ELEV=00.0 MAX ELEV=0.943
 CH SLP=.0200 FL SLP=.0200
 N=.017 DIST=50.0

DIST	ELEV	DIST	ELEV	DIST	ELEV
0.0	0.84	8.37	0.67	8.83	0.67
9.00	0.00	11.00	0.125	25.0	0.41
		39.0	0.125	41.0	0.000
41.63	0.67	50.0	0.84		

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.05	.04	.04	1.61
.10	.16	.26	3.23
.15	.38	.69	6.42
.20	.82	1.73	11.32
.25	1.50	3.74	16.23
.30	2.43	7.00	21.13
.35	3.60	11.74	26.03
.40	5.01	18.18	30.93
.45	6.60	27.97	32.23
.50	8.20	40.07	32.25
.55	9.81	53.83	32.28
.60	11.41	69.13	32.30
.65	13.01	85.90	32.33
.69	14.67	98.30	35.71
.74	16.56	110.73	40.59
.79	18.70	125.87	45.48
.84	21.08	144.46	50.00
.89	23.56	173.90	50.00
.94	26.04	205.49	50.00

COMPUTE TRAVEL TIME ID=14 REACH=1 NOVS=1 L=400. SLP=.0202

TRAVEL TIME TABLE
 REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.050	.040	.04	.1091
.099	.160	.26	.0687
.149	.379	.69	.0607
.199	.820	1.73	.0527
.248	1.503	3.74	.0446
.298	2.430	7.00	.0386
.347	3.600	11.74	.0341
.397	5.014	18.18	.0306
.447	6.605	27.97	.0262
.496	8.205	40.07	.0227
.546	9.806	53.83	.0202
.596	11.409	69.13	.0183
.645	13.012	85.90	.0168
.695	14.671	98.30	.0166
.744	16.564	110.73	.0166
.794	18.700	125.87	.0165
.844	21.078	144.46	.0162
.893	23.559	173.90	.0151
.943	26.041	205.49	.0141

ROUTE ID=14 HYD=114.1 INFLOW ID=13

PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 584 RATE = .00
PRINT HYD ID=14 CODE=10

PARTIAL HYDROGRAPH 114.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.000	.0	2.000	.0				
.500	.0	1.500	7.1	2.500	.0				

RUNOFF VOLUME = 1.73867 INCHES = .1801 ACRE-FEET
PEAK DISCHARGE RATE = 15.11 CFS AT 1.550 HOURS BASIN AREA = .0019 SQ. MI.

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*S ADD ON2 TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ CASA ROJA
*S & CASA VERDE

*S

ADD HYD ID=15 HYD=115.1 ID I=3 ID II=14
PRINT HYD ID=15 CODE=10

PARTIAL HYDROGRAPH 115.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.1	10.000	.1	15.000	.1	20.000	.1
.500	.0	5.500	.1	10.500	.1	15.500	.1	20.500	.1
1.000	.0	6.000	.1	11.000	.1	16.000	.1	21.000	.1
1.500	31.0	6.500	.2	11.500	.1	16.500	.1	21.500	.1
2.000	4.9	7.000	.1	12.000	.1	17.000	.1	22.000	.1
2.500	.7	7.500	.1	12.500	.1	17.500	.1	22.500	.1
3.000	.2	8.000	.1	13.000	.1	18.000	.1	23.000	.1
3.500	.1	8.500	.1	13.500	.1	18.500	.1	23.500	.1
4.000	.1	9.000	.1	14.000	.1	19.000	.1	24.000	.1
4.500	.1	9.500	.1	14.500	.1	19.500	.1	24.500	.0

RUNOFF VOLUME = 1.74839 INCHES = 1.1696 ACRE-FEET
PEAK DISCHARGE RATE = 36.27 CFS AT 1.550 HOURS BASIN AREA = .0125 SQ. MI.

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*S INLETS ON CASA ROJA @ CASA VERDE RECIEVED 29.19 CFS
*S ID=16 IS FLOW INTO STORM DRAIN SYSTEM ID=17 BYPASS FLOW ON SURFACE

*S

DIVIDE HYD ID=15 Q=29.19 ID I=16 HYD I=116.1
ID II=17 HYD II=117.1

*S

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*S ROUTE BYPASS FLOW FROM INLETS (ID=17) THRU ON3 TO END OF 50'
*S RIGHT OF WAY ENDING AT CASA AZUL

*

COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
MIN ELEV=00.0 MAX ELEV=0.943
CH SLP=.0200 FL SLP=.0200
N=.017 DIST=50.0
DIST ELEV DIST ELEV DIST ELEV
0.0 0.84 8.37 0.67 8.83 0.67
9.00 0.00 11.00 0.125 25.0 0.41
39.0 0.125 41.0 0.000 41.17 0.67
41.63 0.67 50.0 0.84

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.05	.04	.04	1.61
.10	.16	.26	3.23
.15	.38	.69	6.42
.20	.82	1.73	11.32
.25	1.50	3.74	16.23

.30	2.43	7.00	21.13
.35	3.60	11.74	26.03
.40	5.01	18.18	30.93
.45	6.60	27.97	32.23
.50	8.20	40.07	32.25
.55	9.81	53.83	32.28
.60	11.41	69.13	32.30
.65	13.01	85.90	32.33
.69	14.67	98.30	35.71
.74	16.56	110.73	40.59
.79	18.70	125.87	45.48
.84	21.08	144.46	50.00
.89	23.56	173.90	50.00
.94	26.04	205.49	50.00

COMPUTE TRAVEL TIME ID=18 REACH=1 NOVS=1 L=225. SLP=.0202

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.050	.040	.04	.0614
.099	.160	.26	.0387
.149	.379	.69	.0342
.199	.820	1.73	.0297
.248	1.503	3.74	.0251
.298	2.430	7.00	.0217
.347	3.600	11.74	.0192
.397	5.014	18.18	.0172
.447	6.605	27.97	.0148
.496	8.205	40.07	.0128
.546	9.806	53.83	.0114
.596	11.409	69.13	.0103
.645	13.012	85.90	.0095
.695	14.671	98.30	.0093
.744	16.564	110.73	.0093
.794	18.700	125.87	.0093
.844	21.078	144.46	.0091
.893	23.559	173.90	.0085
.943	26.041	205.49	.0079

ROUTE ID=18 HYD=118.1 INFLOW ID=17
 PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 582 RATE = .00
 PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 599 RATE = .00
 PRINT HYD ID=18 CODE=10

PARTIAL HYDROGRAPH 118.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.000	.0	2.000	.0				
.500	.0	1.500	.6	2.500	.0				

RUNOFF VOLUME = 1.76812 INCHES = .0370 ACRE-FEET
 PEAK DISCHARGE RATE = 4.48 CFS AT 1.550 HOURS BASIN AREA = .0004 SQ. MI.

*S
 *S-----
 *S ROUTE BYPASS FLOW FROM INLETS (ID=18) THRU ON3 FROM END OF 50'
 *S RIGHT OF WAY ENDING AT CASA AZUL TO NORTH END OF CASA ROJA
 *S (CUL-DE-SAC)
 *

COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
 MIN ELEV=00.0 MAX ELEV=0.943
 CH SLP=.0256 FL SLP=.0256
 N=.017 DIST=46.0
 DIST ELEV DIST ELEV DIST ELEV
 0.0 0.84 8.87 0.67 9.33 0.67
 9.5 0.00 11.5 0.125 25.0 0.36
 34.5 0.125 36.5 0.000 36.67 0.67
 37.13 0.67 46.0 0.84

RATING CURVE VALLEY SECTION 1.0
 WATER FLOW FLOW TOP
 SURFACE AREA RATE WIDTH

ELEV	SQ FT	CFS	FT
.00	.00	.00	.00
.05	.04	.05	1.61
.10	.16	.29	3.23
.15	.38	.79	6.41
.20	.82	1.95	11.30
.25	1.50	4.23	16.18
.30	2.42	7.91	21.06
.35	3.59	13.25	25.95
.40	4.93	21.77	27.20
.45	6.28	32.50	27.23
.50	7.64	44.87	27.25
.55	8.99	58.75	27.28
.60	10.34	74.05	27.30
.65	11.70	90.70	27.33
.69	13.11	101.34	30.85
.74	14.77	111.82	36.03
.79	16.69	125.60	41.21
.84	18.86	143.39	46.00
.89	21.14	173.47	46.00
.94	23.43	205.80	46.00

COMPUTE TRAVEL TIME ID=19 REACH=1 NOVS=1 L=525. SLP=.0256

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.050	.040	.05	.1266
.099	.160	.29	.0798
.149	.379	.79	.0704
.199	.819	1.95	.0611
.248	1.501	4.23	.0517
.298	2.425	7.91	.0447
.347	3.591	13.25	.0395
.397	4.933	21.77	.0330
.447	6.284	32.50	.0282
.496	7.636	44.87	.0248
.546	8.989	58.75	.0223
.596	10.343	74.05	.0204
.645	11.699	90.70	.0188
.695	13.111	101.34	.0189
.744	14.770	111.82	.0193
.794	16.687	125.60	.0194
.844	18.860	143.39	.0192
.893	21.143	173.47	.0178
.943	23.427	205.80	.0166

ROUTE ID=19 HYD=119.1 INFLOW ID=18
 PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 587 RATE = .00
 PRINT HYD ID=19 CODE=10

PARTIAL HYDROGRAPH 119.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.000	.0	2.000	.0		
.500	.0	1.500	.1	2.500	.0		

RUNOFF VOLUME = 1.76812 INCHES = .0370 ACRE- FEET
 PEAK DISCHARGE RATE = 3.18 CFS AT 1.600 HOURS BASIN AREA = .0004 SQ. MI.

*S
 *S-----
 *S
 *S ADD ON3 TO ROUTED BYPASS - TO BE INTERCPETED BY INLETS @ NORTH END
 *S OF CASA ROJA
 *S
 ADD HYD ID=20 HYD=120.1 ID I=4 ID II=19
 PRINT HYD ID=20 CODE=10

PARTIAL HYDROGRAPH 120.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS

.000	.0	5.000	.1	10.000	.1	15.000	.1	20.000	.1
.500	.0	5.500	.1	10.500	.1	15.500	.1	20.500	.1
1.000	.0	6.000	.1	11.000	.1	16.000	.1	21.000	.1
1.500	18.8	6.500	.1	11.500	.1	16.500	.1	21.500	.1
2.000	3.8	7.000	.1	12.000	.1	17.000	.1	22.000	.1
2.500	.5	7.500	.1	12.500	.1	17.500	.1	22.500	.1
3.000	.2	8.000	.1	13.000	.1	18.000	.1	23.000	.1
3.500	.1	8.500	.1	13.500	.1	18.500	.1	23.500	.1
4.000	.1	9.000	.1	14.000	.1	19.000	.1	24.000	.1
4.500	.1	9.500	.1	14.500	.1	19.500	.1	24.500	.0

RUNOFF VOLUME = 1.75096 INCHES = .8118 ACRE-Feet
PEAK DISCHARGE RATE = 18.81 CFS AT 1.500 HOURS BASIN AREA = .0087 SQ. MI.

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*S
*S      ROUTE STORM DRAIN IN SUBDIVISION
*S
*S-----
*S-----
*S
*S ROUTING OF PIPE FLOW FROM FIRST OF INLETS (ID=8) TO SECOND SET OF INLETS
*S (ID=12) NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----
*S
*S ADD FIRST SET OF INLETS (ID=8) TO SECOND SET OF INLETS (ID=12)
*S
ADD HYD      ID=22 HYD=122.1 ID I=8 ID II=12
PRINT HYD    ID=22 CODE=10

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PARTIAL HYDROGRAPH 122.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.500	.2	11.000	.2	16.500	.2	22.000	.1
.500	.0	6.000	.2	11.500	.2	17.000	.2	22.500	.1
1.000	.0	6.500	.3	12.000	.2	17.500	.2	23.000	.1
1.500	28.4	7.000	.3	12.500	.2	18.000	.2	23.500	.1
2.000	10.0	7.500	.3	13.000	.2	18.500	.2	24.000	.1
2.500	1.5	8.000	.3	13.500	.2	19.000	.2	24.500	.0
3.000	.5	8.500	.3	14.000	.2	19.500	.2	25.000	.0
3.500	.3	9.000	.3	14.500	.2	20.000	.2		
4.000	.2	9.500	.2	15.000	.2	20.500	.2		
4.500	.2	10.000	.2	15.500	.2	21.000	.1		
5.000	.2	10.500	.2	16.000	.2	21.500	.1		

RUNOFF VOLUME = 1.70137 INCHES = 1.7746 ACRE-Feet
PEAK DISCHARGE RATE = 28.40 CFS AT 1.450 HOURS BASIN AREA = .0196 SQ. MI.

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*S-----
*S-----
*S
*S ROUTING OF PIPE FLOW FROM 2 SETS OF INLETS (ID=22) TO THIRD SET OF INLETS
*S (ID=16) NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME
*S
*S-----
*S
*S ADD FIRST TWO SETS INLETS (ID=22) TO THIRD SET OF INLETS (ID=16)
*S
ADD HYD      ID=24 HYD=124.1 ID I=22 ID II=16
PRINT HYD    ID=24 CODE=10

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PARTIAL HYDROGRAPH 124.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.500	.3	11.000	.3	16.500	.3	22.000	.2
.500	.0	6.000	.4	11.500	.3	17.000	.3	22.500	.2
1.000	.0	6.500	.4	12.000	.3	17.500	.3	23.000	.2

1.500	57.6	7.000	.4	12.500	.3	18.000	.2	23.500	.2
2.000	14.9	7.500	.4	13.000	.3	18.500	.2	24.000	.2
2.500	2.2	8.000	.4	13.500	.3	19.000	.2	24.500	.0
3.000	.7	8.500	.4	14.000	.3	19.500	.2	25.000	.0
3.500	.4	9.000	.4	14.500	.3	20.000	.2		
4.000	.3	9.500	.4	15.000	.3	20.500	.2		
4.500	.3	10.000	.4	15.500	.3	21.000	.2		
5.000	.3	10.500	.4	16.000	.3	21.500	.2		

RUNOFF VOLUME = 1.71939 INCHES = 2.9076 ACRE-FEET
 PEAK DISCHARGE RATE = 57.59 CFS AT 1.500 HOURS BASIN AREA = .0317 SQ. MI.

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*S

*S ROUTING OF PIPE FLOW FROM 3 SETS OF INLETS (ID=24) TO LADERA STORM DRAIN

*S NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

*S

*S-----

*S-----

*S

*S

*S ROUTING OF PIPE FLOW FROM CUL-DE-SAC ON CASA ROJA (ID=20) TO LADERA STORM

*S DRAIN NOT DONE BECAUSE TRAVEL TIME IN PIPE IS LESS THAN DURATION TIME

*S

*S-----

*S-----

*S

*S

*S LADERA STORM DRAIN

*S

*S-----

*S-----

*S

*S COMPUTE FLOWS CONTRIBUTING TO LADERA STORM DRAIN

*S ASSUMPTIONS: USE FULL BUILDOUT SIX LANE SECTION

*S

*S BASIN OFF7-----

*S

COMPUTE NM HYD ID=26 HYD NO=126.1 DA=0.0013 SQ MI
 PER A=100. PER B=0.00 PER C=0.00 PER D=0.00 TP=-.133
 MASS RAINFALL=-1

K = .163315HR TP = .133000HR K/TP RATIO = 1.227936 SHAPE CONSTANT, N = 2.899764
 UNIT PEAK = 2.6737 CFS UNIT VOLUME = .9928 B = 273.54 P60 = 1.8700
 AREA = .001300 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=26 CODE=10

PARTIAL HYDROGRAPH 126.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.000	.0	2.000	.1	3.000	.0		
.500	.0	1.500	1.1	2.500	.0	3.500	.0		

RUNOFF VOLUME = .43936 INCHES = .0305 ACRE-FEET
 PEAK DISCHARGE RATE = 1.08 CFS AT 1.500 HOURS BASIN AREA = .0013 SQ. MI.

*S

*S BASIN OFF5-----

*S

COMPUTE NM HYD ID=27 HYD NO=127.1 DA=0.0033 SQ MI
 PER A=00.0 PER B=8.50 PER C=8.50 PER D=83.0 TP=-.133
 MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 10.838 CFS UNIT VOLUME = .9981 B = 526.28 P60 = 1.8700
 AREA = .002739 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 1.4960 CFS UNIT VOLUME = .9926 B = 354.67 P60 = 1.8700
AREA = .000561 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=27 CODE=10

PARTIAL HYDROGRAPH 127.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.0	10.000	.1	15.000	.0	20.000	.0
.500	.0	5.500	.1	10.500	.1	15.500	.0	20.500	.0
1.000	.0	6.000	.1	11.000	.1	16.000	.0	21.000	.0
1.500	8.4	6.500	.1	11.500	.1	16.500	.0	21.500	.0
2.000	2.0	7.000	.1	12.000	.0	17.000	.0	22.000	.0
2.500	.3	7.500	.1	12.500	.0	17.500	.0	22.500	.0
3.000	.1	8.000	.1	13.000	.0	18.000	.0	23.000	.0
3.500	.1	8.500	.1	13.500	.0	18.500	.0	23.500	.0
4.000	.0	9.000	.1	14.000	.0	19.000	.0	24.000	.0
4.500	.0	9.500	.1	14.500	.0	19.500	.0	24.500	.0

RUNOFF VOLUME = 2.15323 INCHES = .3790 ACRE-Feet
PEAK DISCHARGE RATE = 8.43 CFS AT 1.500 HOURS BASIN AREA = .0033 SQ. MI.

*S
*S BASIN OFF6A-----
*S
COMPUTE NM HYD ID=28 HYD NO=128.1 DA=0.0062 SQ MI
PER A=48.5 PER B=4.25 PER C=4.25 PER D=43.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 10.549 CFS UNIT VOLUME = .9981 B = 526.28 P60 = 1.8700
AREA = .002666 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .156582HR TP = .133000HR K/TP RATIO = 1.177309 SHAPE CONSTANT, N = 3.013793
UNIT PEAK = 7.5182 CFS UNIT VOLUME = .9971 B = 282.94 P60 = 1.8700
AREA = .003534 SQ MI IA = .61645 INCHES INF = 1.57605 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=28 CODE=10

PARTIAL HYDROGRAPH 128.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.0	10.000	.1	15.000	.0	20.000	.0
.500	.0	5.500	.1	10.500	.1	15.500	.0	20.500	.0
1.000	.0	6.000	.1	11.000	.1	16.000	.0	21.000	.0
1.500	10.6	6.500	.1	11.500	.0	16.500	.0	21.500	.0
2.000	2.1	7.000	.1	12.000	.0	17.000	.0	22.000	.0
2.500	.3	7.500	.1	12.500	.0	17.500	.0	22.500	.0
3.000	.1	8.000	.1	13.000	.0	18.000	.0	23.000	.0
3.500	.1	8.500	.1	13.500	.0	18.500	.0	23.500	.0
4.000	.0	9.000	.1	14.000	.0	19.000	.0	24.000	.0
4.500	.0	9.500	.1	14.500	.0	19.500	.0	24.500	.0

RUNOFF VOLUME = 1.31906 INCHES = .4362 ACRE-Feet
PEAK DISCHARGE RATE = 10.57 CFS AT 1.500 HOURS BASIN AREA = .0062 SQ. MI.

*S
*S BASIN OFF6B-----
*S
COMPUTE NM HYD ID=29 HYD NO=129.1 DA=0.0074 SQ MI
PER A=48.5 PER B=4.25 PER C=4.25 PER D=43.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 12.591 CFS UNIT VOLUME = .9983 B = 526.28 P60 = 1.8700
AREA = .003182 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .156582HR TP = .133000HR K/TP RATIO = 1.177309 SHAPE CONSTANT, N = 3.013793
UNIT PEAK = 8.9734 CFS UNIT VOLUME = .9974 B = 282.94 P60 = 1.8700
AREA = .004218 SQ MI IA = .61645 INCHES INF = 1.57605 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=29 CODE=10

PARTIAL HYDROGRAPH 129.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.1	10.000	.1	15.000	.0	20.000	.0
.500	.0	5.500	.1	10.500	.1	15.500	.0	20.500	.0
1.000	.0	6.000	.1	11.000	.1	16.000	.0	21.000	.0
1.500	12.6	6.500	.1	11.500	.1	16.500	.0	21.500	.0
2.000	2.5	7.000	.1	12.000	.1	17.000	.0	22.000	.0
2.500	.4	7.500	.1	12.500	.1	17.500	.0	22.500	.0
3.000	.1	8.000	.1	13.000	.1	18.000	.0	23.000	.0
3.500	.1	8.500	.1	13.500	.1	18.500	.0	23.500	.0
4.000	.1	9.000	.1	14.000	.1	19.000	.0	24.000	.0
4.500	.1	9.500	.1	14.500	.1	19.500	.0	24.500	.0

RUNOFF VOLUME = 1.31906 INCHES = .5206 ACRE-Feet
PEAK DISCHARGE RATE = 12.62 CFS AT 1.500 HOURS BASIN AREA = .0074 SQ. MI.

*S

*S BASIN OFF6C-----

*S

COMPUTE NM HYD ID=30 HYD NO=130.1 DA=0.0018 SQ MI
PER A=0.00 PER B=8.50 PER C=8.50 PER D=83.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 5.9117 CFS UNIT VOLUME = .9971 B = 526.28 P60 = 1.8700
AREA = .001494 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = .81600 CFS UNIT VOLUME = .9860 B = 354.67 P60 = 1.8700
AREA = .000306 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=30 CODE=10

PARTIAL HYDROGRAPH 130.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.0	10.000	.0	15.000	.0	20.000	.0
.500	.0	5.500	.0	10.500	.0	15.500	.0	20.500	.0
1.000	.0	6.000	.0	11.000	.0	16.000	.0	21.000	.0
1.500	4.6	6.500	.0	11.500	.0	16.500	.0	21.500	.0
2.000	1.1	7.000	.0	12.000	.0	17.000	.0	22.000	.0
2.500	.1	7.500	.0	12.500	.0	17.500	.0	22.500	.0
3.000	.0	8.000	.0	13.000	.0	18.000	.0	23.000	.0
3.500	.0	8.500	.0	13.500	.0	18.500	.0	23.500	.0
4.000	.0	9.000	.0	14.000	.0	19.000	.0	24.000	.0
4.500	.0	9.500	.0	14.500	.0	19.500	.0		

RUNOFF VOLUME = 2.15323 INCHES = .2067 ACRE-Feet
PEAK DISCHARGE RATE = 4.60 CFS AT 1.500 HOURS BASIN AREA = .0018 SQ. MI.

*S

*S BASIN OFF6D-----

*S

COMPUTE NM HYD ID=31 HYD NO=131.1 DA=0.0018 SQ MI
PER A=00.0 PER B=8.50 PER C=8.50 PER D=83.0 TP=-.133
MASS RAINFALL=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 5.9117 CFS UNIT VOLUME = .9971 B = 526.28 P60 = 1.8700
 AREA = .001494 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
 UNIT PEAK = .81600 CFS UNIT VOLUME = .9860 B = 354.67 P60 = 1.8700
 AREA = .000306 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=31 CODE=10

PARTIAL HYDROGRAPH 131.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.0	10.000	.0	15.000	.0	20.000	.0
.500	.0	5.500	.0	10.500	.0	15.500	.0	20.500	.0
1.000	.0	6.000	.0	11.000	.0	16.000	.0	21.000	.0
1.500	4.6	6.500	.0	11.500	.0	16.500	.0	21.500	.0
2.000	1.1	7.000	.0	12.000	.0	17.000	.0	22.000	.0
2.500	.1	7.500	.0	12.500	.0	17.500	.0	22.500	.0
3.000	.0	8.000	.0	13.000	.0	18.000	.0	23.000	.0
3.500	.0	8.500	.0	13.500	.0	18.500	.0	23.500	.0
4.000	.0	9.000	.0	14.000	.0	19.000	.0	24.000	.0
4.500	.0	9.500	.0	14.500	.0	19.500	.0		

RUNOFF VOLUME = 2.15323 INCHES = .2067 ACRE-Feet
 PEAK DISCHARGE RATE = 4.60 CFS AT 1.500 HOURS BASIN AREA = .0018 SQ. MI.

*S
 *S BASIN OFF1C-----
 *S
 *S COMPUTE NM HYD ID=32 HYD NO=132.1 DA=0.05209 SQ MI
 *S PER A=00.0 PER B=25.0 PER C=25.0 PER D=50.0 TP=-.180
 *S MASS RAINFALL=-1
 *S PRINT HYD ID=32 CODE=10
 *S

*S
 *S ADD OFF5 AND OFF1C
 *S ASSUME THIS FLOW IS IN LADERA STORM DRAIN WITH NO BYPASS ON THE ROAD
 *S

*S ADD HYD ID=33 HYD=133.1 ID I=27 ID II=32
 *S PRINT HYD ID=33 CODE=10
 *S

*S
 *S ROAD ROUTING FOR LADERA DRIVE AND DIVIDE OFF FLOW BY INLETS
 *S
 *S

*S
 *S INLETS ON LADERA DRIVE (STA 8+25) RECIEVED 2.80 CFS
 *S ID=34 IS FLOW INTO STORM DRAIN SYSTEM ID=35 BYPASS FLOW ON SURFACE
 *S

DIVIDE HYD ID=28 Q=2.80 ID I=34 HYD I=134.1
 ID II=35 HYD II=135.1

*S
 *S ROUTE BYPASS (ID=35) THRU OFF6B
 *S DOWN LADERA-ASSUME 6 LANE SECTION
 *S

COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
 MIN ELEV=00.0 MAX ELEV=0.857
 CH SLP=.0281 FL SLP=.0281
 N=.017 DIST=106.
 DIST ELEV DIST ELEV DIST ELEV
 0.0 0.857 9.37 0.67 9.83 0.67
 10.0 0.00 12.00 0.125 47.0 1.07
 47.12 1.57 58.88 1.570 59.00 1.07
 94.00 0.125 97.0 0.00 97.17 0.67
 97.63 0.667 106.0 0.857

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.05	.04	.05	1.83
.09	.16	.30	3.65
.14	.37	.85	5.83
.18	.71	1.85	9.20
.23	1.20	3.62	12.56
.27	1.84	6.31	15.92
.32	2.64	10.09	19.29
.36	3.58	15.11	22.65
.41	4.68	21.52	26.02
.45	5.93	29.44	29.38
.50	7.33	39.00	32.74
.54	8.89	50.33	36.11
.59	10.59	63.56	39.47
.63	12.45	78.78	42.84
.68	14.46	94.05	47.87
.72	16.79	109.58	55.46
.77	19.47	128.86	63.05
.81	22.48	152.04	70.63
.86	25.84	179.29	78.22

COMPUTE TRAVEL TIME ID=36 REACH=1 NOVS=1 L=820.67 SLP=.0281

TRAVEL TIME TABLE
 REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.045	.041	.05	.2000
.090	.165	.30	.1260
.135	.373	.85	.0997
.180	.712	1.85	.0875
.226	1.202	3.62	.0758
.271	1.845	6.31	.0666
.316	2.639	10.09	.0596
.361	3.585	15.11	.0541
.406	4.682	21.52	.0496
.451	5.932	29.44	.0459
.496	7.333	39.00	.0429
.541	8.886	50.33	.0402
.586	10.590	63.56	.0380
.631	12.447	78.78	.0360
.677	14.465	94.05	.0351
.722	16.795	109.58	.0349
.767	19.467	128.86	.0344
.812	22.482	152.04	.0337
.857	25.839	179.29	.0329

ROUTE ID=36 HYD=136.1 INFLOW ID=35
 PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 591 RATE = .00
 PRINT HYD ID=36 CODE=10

PARTIAL HYDROGRAPH 136.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.000	.0	2.000	.2	3.000	.0		
.500	.0	1.500	5.3	2.500	.0				

RUNOFF VOLUME = 1.32272 INCHES = .1475 ACRE-FEET
 PEAK DISCHARGE RATE = 6.61 CFS AT 1.550 HOURS BASIN AREA = .0021 SQ. MI.

*S
 *S-----
 *S
 *S ADD ROUTED BYPASS (ID=36) AND OFF6B (ID=29)
 *S
 ADD HYD ID=37 HYD=137.1 ID I=36 ID II=29
 PRINT HYD ID=37 CODE=10

PARTIAL HYDROGRAPH 137.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.1	10.000	.1	15.000	.0	20.000	.0
.500	.0	5.500	.1	10.500	.1	15.500	.0	20.500	.0
1.000	.0	6.000	.1	11.000	.1	16.000	.0	21.000	.0
1.500	17.9	6.500	.1	11.500	.1	16.500	.0	21.500	.0
2.000	2.8	7.000	.1	12.000	.1	17.000	.0	22.000	.0
2.500	.4	7.500	.1	12.500	.1	17.500	.0	22.500	.0
3.000	.1	8.000	.1	13.000	.1	18.000	.0	23.000	.0
3.500	.1	8.500	.1	13.500	.1	18.500	.0	23.500	.0
4.000	.1	9.000	.1	14.000	.1	19.000	.0	24.000	.0
4.500	.1	9.500	.1	14.500	.1	19.500	.0	24.500	.0

RUNOFF VOLUME = 1.31977 INCHES = .6680 ACRE-Feet
 PEAK DISCHARGE RATE = 17.96 CFS AT 1.550 HOURS BASIN AREA = .0095 SQ. MI.

*S

 *S
 *S INLETS ON LADERA DRIVE (STA 15+40) RECIEVED 14.0 CFS
 *S (5.6 CFS IN EXISTING INLETS - 7.4 CFS IN PROPOSED INLETS)
 *S ID=38 IS FLOW INTO STORM DRAIN SYSTEM ID=39 BYPASS FLOW ON SURFACE
 *S
 DIVIDE HYD ID=37 Q=14.0 ID I=38 HYD I=138.1
 ID II=39 HYD II=139.1

*S
 *S-----
 *S
 *S ROUTE BYPASS (ID=39) THRU OFF6C TO BOTTOM OF SUMP STA 25+70
 *S DOWN LADERA-ASSUME 6 LANE SECTION
 *S
 COMPUTE RATING CURVE RC=1 VS NO=1 NO SEGS=1
 MIN ELEV=00.0 MAX ELEV=0.857
 CH SLP=.0316 FL SLP=.0316
 N=.017 DIST=106.

	DIST	ELEV	DIST	ELEV	DIST	ELEV
0.0	0.857	9.37	0.67	9.83	0.67	
10.0	0.00	12.00	0.125	47.0	1.07	
		47.12	1.57	58.88	1.570	59.00 1.07
94.00	0.125	97.0	0.00	97.17	0.67	
	97.63	0.667	106.0	0.857		

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.05	.04	.05	1.83
.09	.16	.32	3.65
.14	.37	.90	5.83
.18	.71	1.97	9.20
.23	1.20	3.84	12.56
.27	1.84	6.69	15.92
.32	2.64	10.70	19.29
.36	3.58	16.03	22.65
.41	4.68	22.82	26.02
.45	5.93	31.22	29.38
.50	7.33	41.36	32.74
.54	8.89	53.38	36.11
.59	10.59	67.40	39.47
.63	12.45	83.54	42.84
.68	14.46	99.74	47.87
.72	16.79	116.20	55.46
.77	19.47	136.65	63.05
.81	22.48	161.23	70.63
.86	25.84	190.13	78.22

COMPUTE TRAVEL TIME ID=40 REACH=1 NOVS=1 L=325.00 SLP=.0316

TRAVEL TIME TABLE
 REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ. FT.	FLOW RATE CFS	TRAVEL TIME HRS
.045	.041	.05	.0747

.090	.165	.32	.0471
.135	.373	.90	.0373
.180	.712	1.97	.0327
.226	1.202	3.84	.0283
.271	1.845	6.69	.0249
.316	2.639	10.70	.0223
.361	3.585	16.03	.0202
.406	4.682	22.82	.0185
.451	5.932	31.22	.0172
.496	7.333	41.36	.0160
.541	8.886	53.38	.0150
.586	10.590	67.40	.0142
.631	12.447	83.54	.0134
.677	14.465	99.74	.0131
.722	16.795	116.20	.0130
.767	19.467	136.65	.0129
.812	22.482	161.23	.0126
.857	25.839	190.13	.0123

ROUTE ID=40 HYD=140.1 INFLOW ID=39
 PROBLEM FAILED TO CONVERGE AFTER 50 ITERATIONS. CONVERGENCE WAS FORCED. OUTFLOW NUMBER = 589 RATE = .00
 PRINT HYD ID=40 CODE=10

PARTIAL HYDROGRAPH 140.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.000	.0	2.000	.0				
.500	.0	1.500	1.3	2.500	.0				

RUNOFF VOLUME = 1.33468 INCHES = .0370 ACRE-Feet
 PEAK DISCHARGE RATE = 4.23 CFS AT 1.550 HOURS BASIN AREA = .0005 SQ. MI.

*S
 *S-----
 *S
 *S ADD ROUTED BYPASS (ID=40) AND OFF6C (ID=30)
 *S
 ADD HYD ID=41 HYD=141.1 ID I=40 ID II=30
 PRINT HYD ID=41 CODE=10

PARTIAL HYDROGRAPH 141.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.0	10.000	.0	15.000	.0	20.000	.0
.500	.0	5.500	.0	10.500	.0	15.500	.0	20.500	.0
1.000	.0	6.000	.0	11.000	.0	16.000	.0	21.000	.0
1.500	5.9	6.500	.0	11.500	.0	16.500	.0	21.500	.0
2.000	1.1	7.000	.0	12.000	.0	17.000	.0	22.000	.0
2.500	.1	7.500	.0	12.500	.0	17.500	.0	22.500	.0
3.000	.0	8.000	.0	13.000	.0	18.000	.0	23.000	.0
3.500	.0	8.500	.0	13.500	.0	18.500	.0	23.500	.0
4.000	.0	9.000	.0	14.000	.0	19.000	.0	24.000	.0
4.500	.0	9.500	.0	14.500	.0	19.500	.0		

RUNOFF VOLUME = 1.96944 INCHES = .2436 ACRE-Feet
 PEAK DISCHARGE RATE = 8.26 CFS AT 1.550 HOURS BASIN AREA = .0023 SQ. MI.

*S
 *S-----
 *S
 *S ADD BYPASS AND OFF6C (ID=41) AND OFF6D (ID=31)
 *S TOTAL AMOUNT OF WATER COLLECTED AT SUMP STA 25+70
 ADD HYD ID=42 HYD=142.1 ID I=41 ID II=31
 PRINT HYD ID=42 CODE=10

PARTIAL HYDROGRAPH 142.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.000	.1	10.000	.1	15.000	.0	20.000	.0
.500	.0	5.500	.1	10.500	.1	15.500	.0	20.500	.0
1.000	.0	6.000	.1	11.000	.1	16.000	.0	21.000	.0

APPENDIX B

UNIT 1 - CONSTRUCTED

**- TEMPORARY SEDIMENT POND
UNIT 2**

100 YR. - 24 HR.

TEMPORARY SEDIMENT POND

1. Contributing drainage basins -

$$\text{OFF 2} - 0.00767 \text{ sm} = 4.91 \text{ ac}$$

$$\text{ON 12} - 0.0133 \text{ sm} = 8.51 \text{ ac}$$

$$\text{Total} = 13.42 \text{ ac}$$

2. Land Treatment -

Use 100% Type A - no development
- no grading

3. Time of Concentration -

Use 12 minutes 6 hour storm

$$Q_{100} = 13.42 \times 1.29 = 17.31 \text{ cfs}$$

$$V_{100} = 13.42 \times 0.44 / 12 = 0.49 \text{ ac-ft}$$

Note: $V_{100} (24\text{-hr}) = V_{100} (6\text{-hr})$ since there
is no Type D soil

Provide ponding for 2 * 100 yr Storm Volume

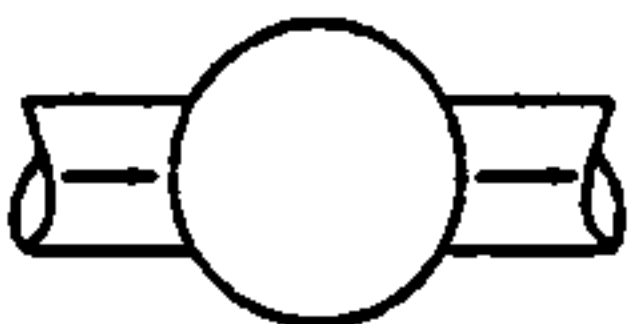
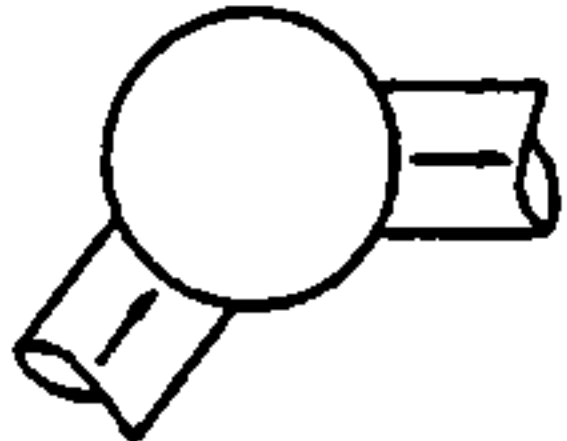
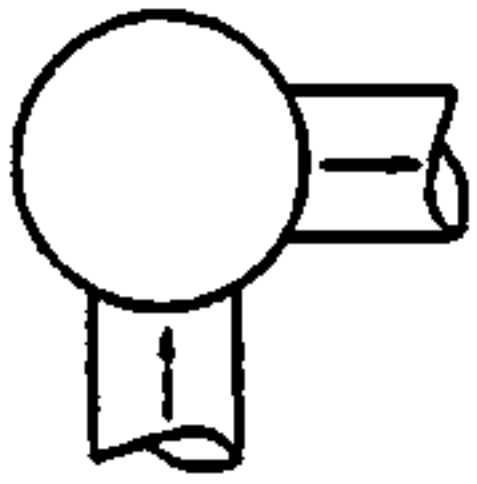
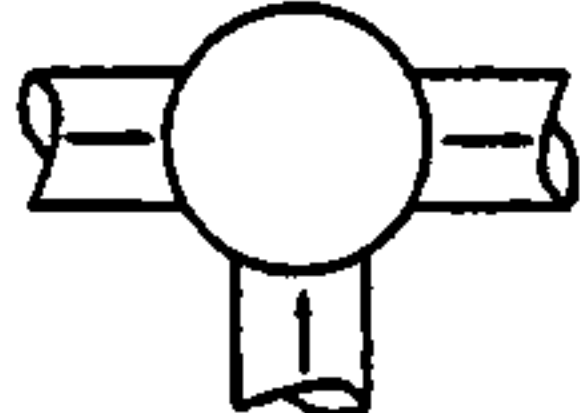
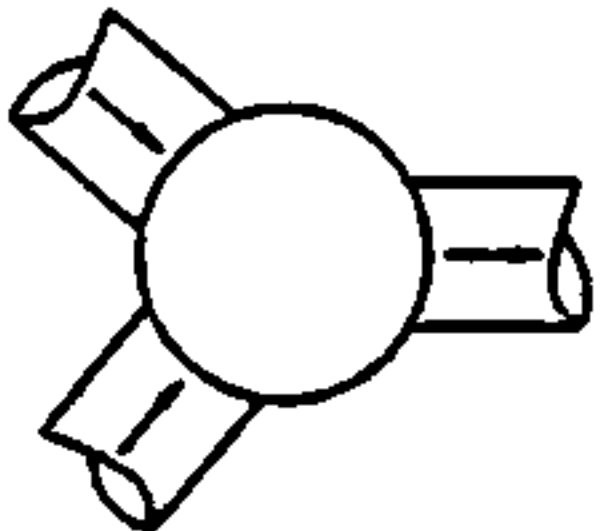
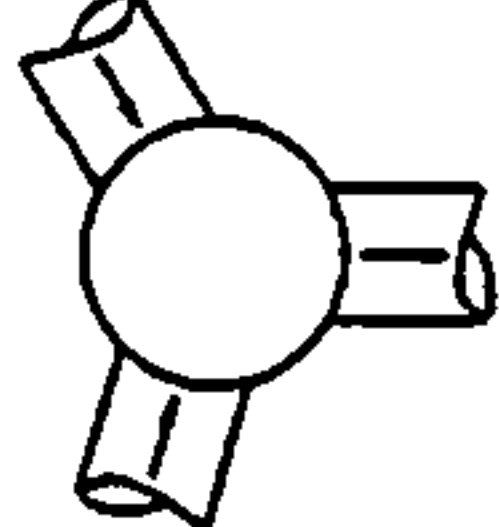
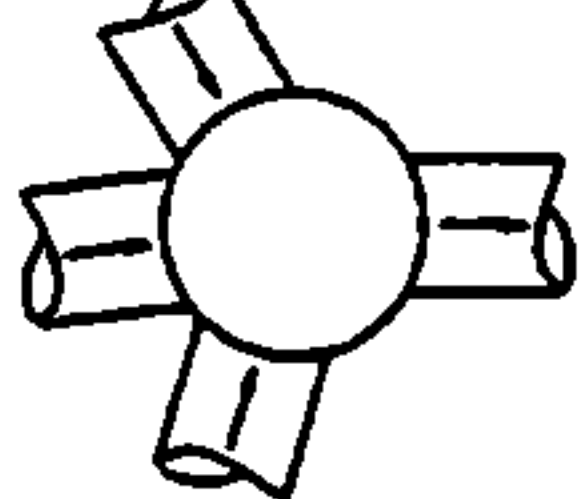
$$\text{Volume to be Provided} = 2 * .49 = 0.98 \text{ ac-ft}$$

APPENDIX C

STORM DRAIN SYSTEM DESIGN

Headloss Coefficients for Manholes and Junctions

These are typical headloss coefficients used in the standard method for estimating headloss through manholes and junctions.

Type of Manhole	Diagram	Headloss Coefficient
Trunkline only with no bend at the junction		0.5
Trunkline only with 45 degree bend at junction		0.6
Trunkline only with 90 degree bend at junction		0.8
Trunkline with one lateral		Small 0.6 Large 0.7
Two roughly equivalent entrance lines with angle of < 90 degrees between lines		0.8
Two roughly equivalent entrance lines with angle of > 90 degrees between lines		0.9
Three or more entrance lines		1.0

①

STORM DRAIN DESIGN

CASA ROJA PL.
&
CASA VERDE AVE.

(Appendix C)

INLET DESIGN

ASSUMPTION: FLOW IS EVENLY DIVIDED BETWEEN BOTH SIDES OF THE STREET

INLETS LOCATION: CASA ROJA @ UPSTREAM OF CASA MORENA

Q(FULL)	28.35 cfs		
		SLOPE	2.02%
Q(1/2 STREET)	14.18 cfs		

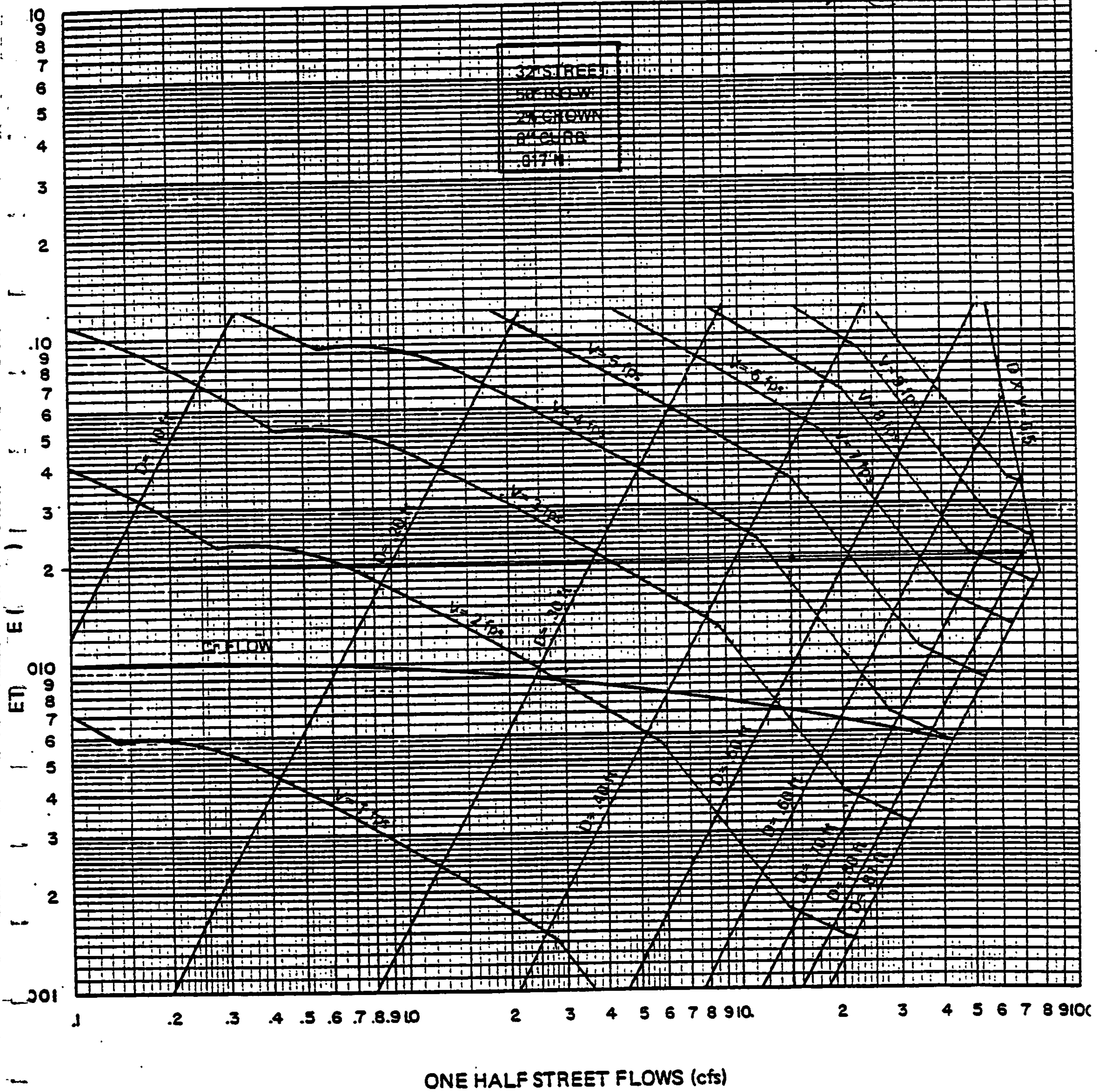
FROM PLATE 22.3 D-1:			
VELOCITY	4.2 ft/s	DEPTH	0.45 ft

ENERGY GRADE	0.72 ft		
ROW ELEVATION	0.84 ft	OK	

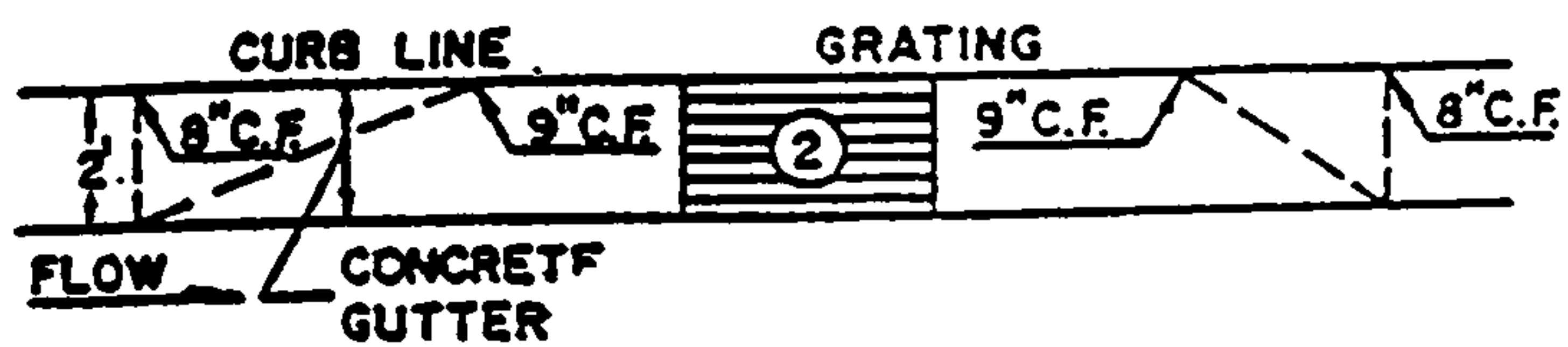
TYPE 'A' INLET	Q(INLET)	7.00 cfs
	Q(BYPASS)	7.18 cfs

LET 7.18 CFS BYPASS TO NEXT INLET LOCATION

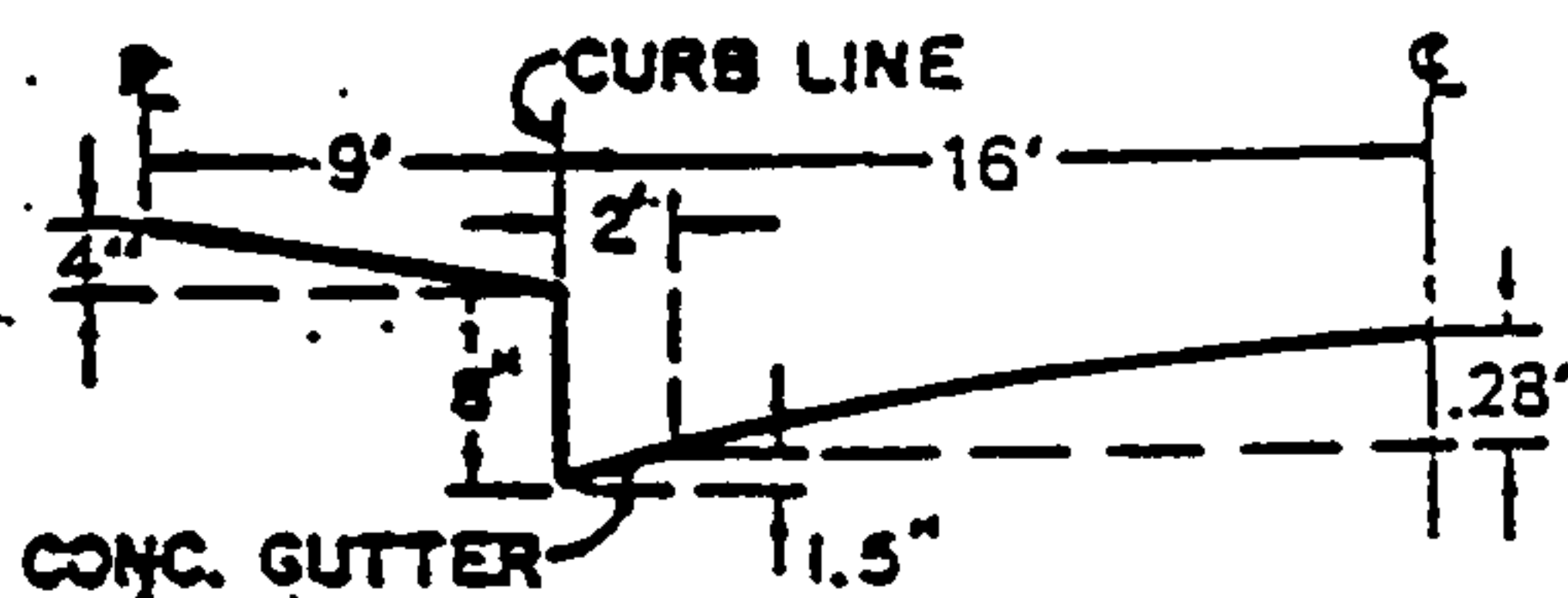
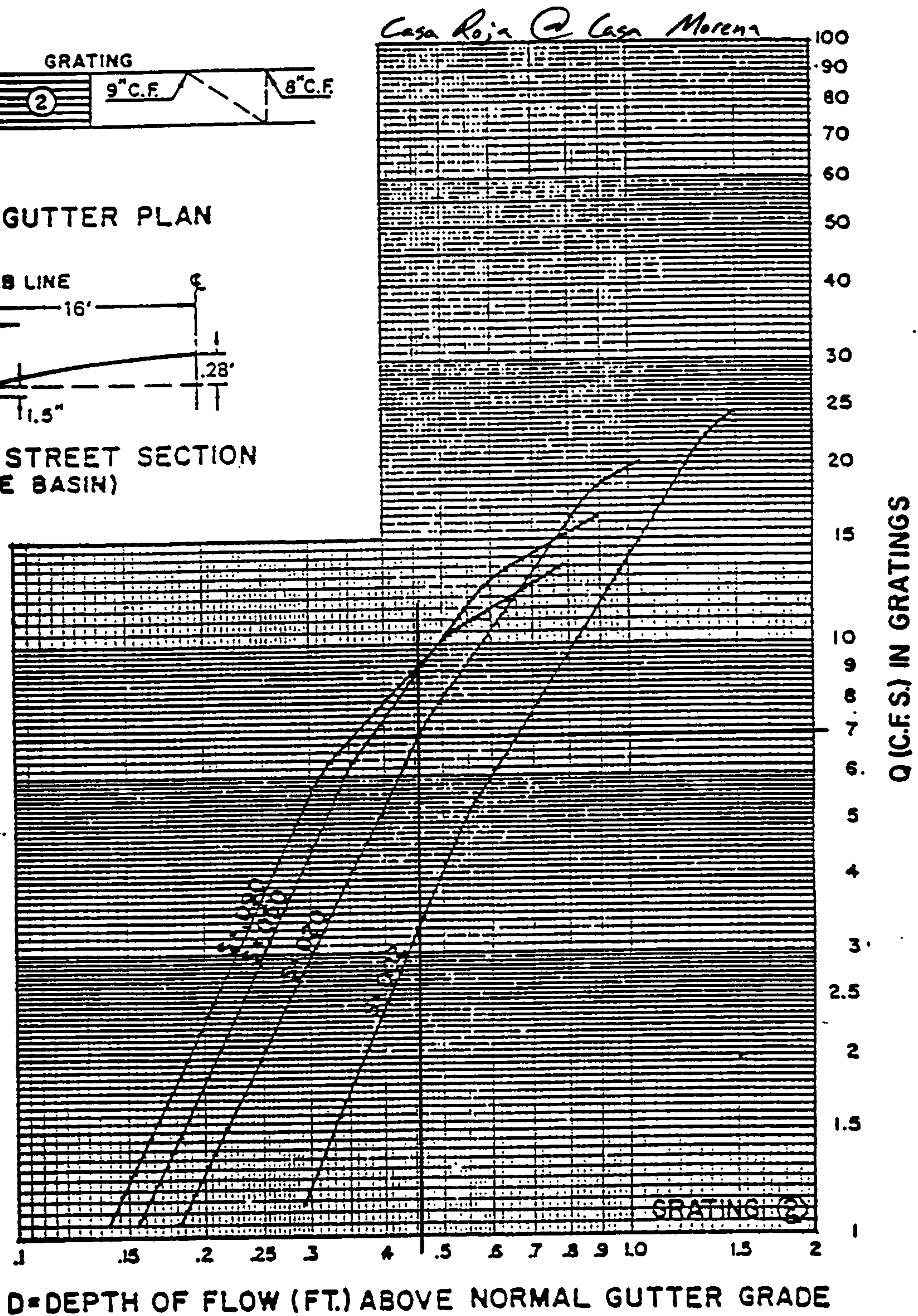
STREET CAPACITY

Casa Roja @ Casa Morena

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



GRATING & GUTTER PLAN

TYPICAL HALF STREET SECTION
(ABOVE BASIN)

INLET DESIGN

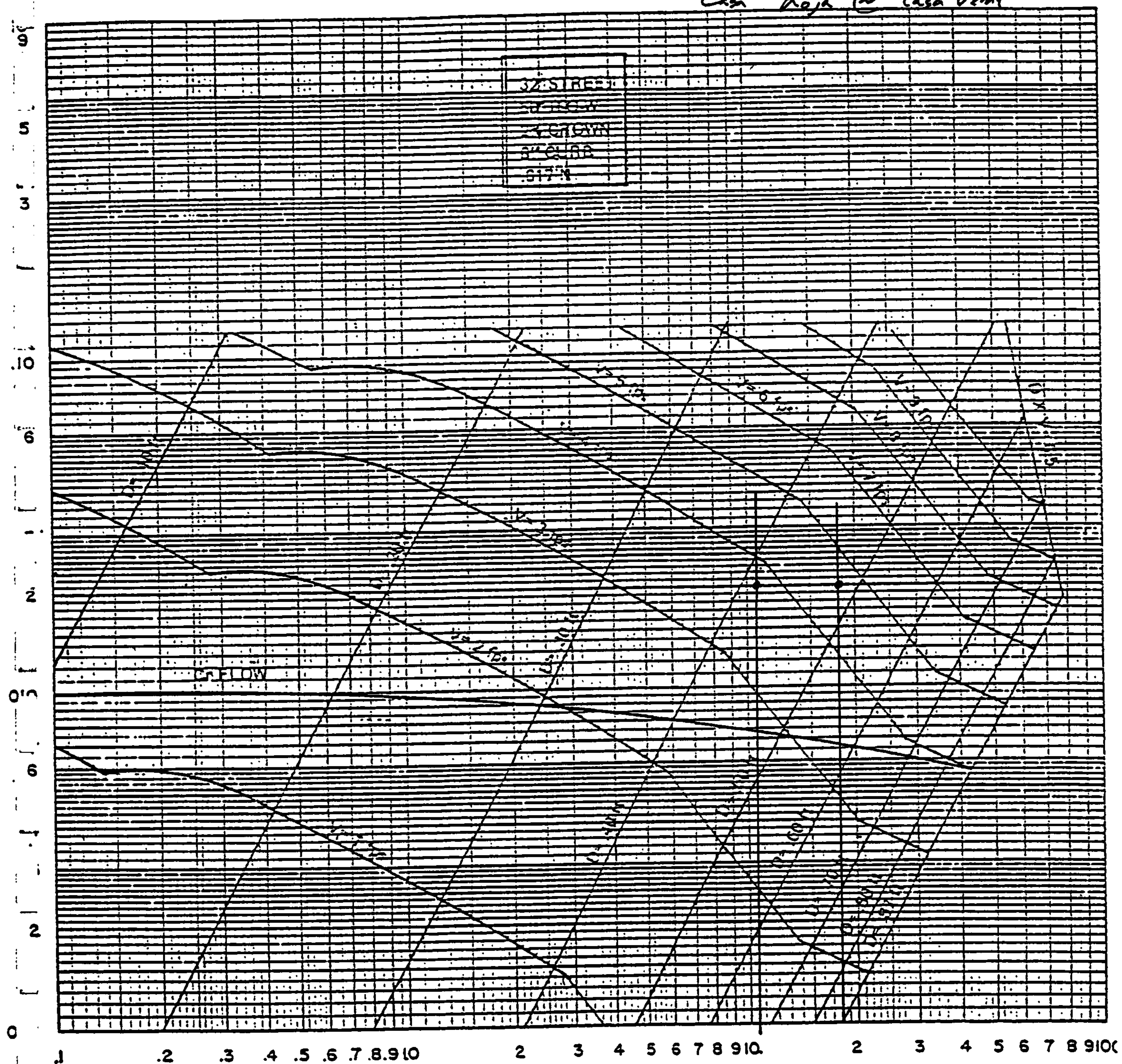
ASSUMPTION: FLOW IS EVENLY DIVIDED BETWEEN BOTH SIDES OF THE STREET

INLETS LOCATION:	CASA ROJA @ UPSTREAM OF CASA NEGRA		
Q(FULL)	31.09 cfs	SLOPE	2.02%
Q(1/2 STREET)	15.55 cfs		
FROM PLATE 22.3 D-1:			
VELOCITY	4.4 ft/s	DEPTH	0.46 ft
ENERGY GRADE	0.76 ft		
ROW ELEVATION	0.84 ft	OK	
TYPE 'A' INLET Q(INLET)	7.20 cfs		
Q(BYPASS)	8.35 cfs		

LET 8.35 CFS BYPASS TO NEXT INLET LOCATION

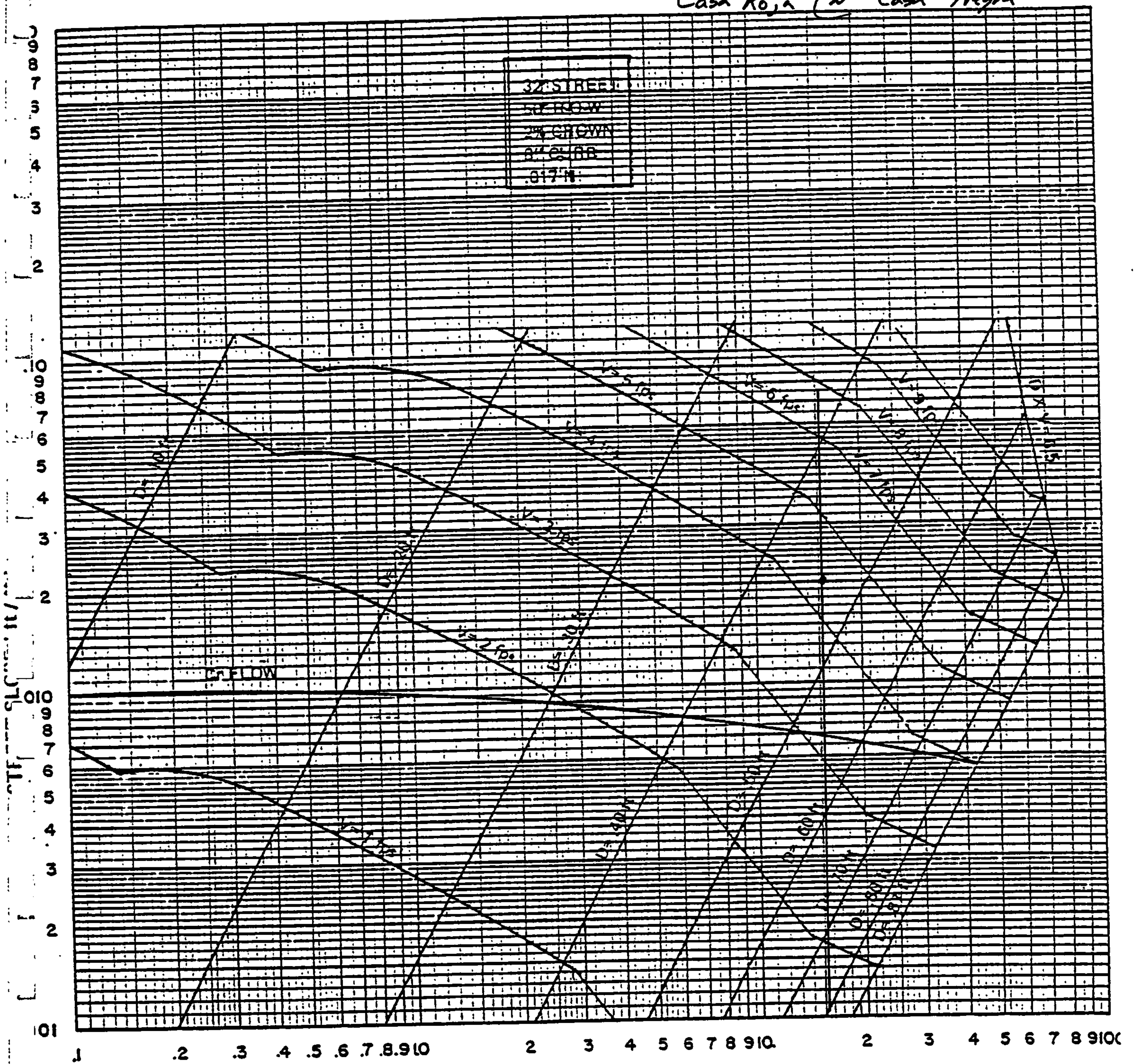
STREET CAPACITY

Casa Roja @ Casa Verde

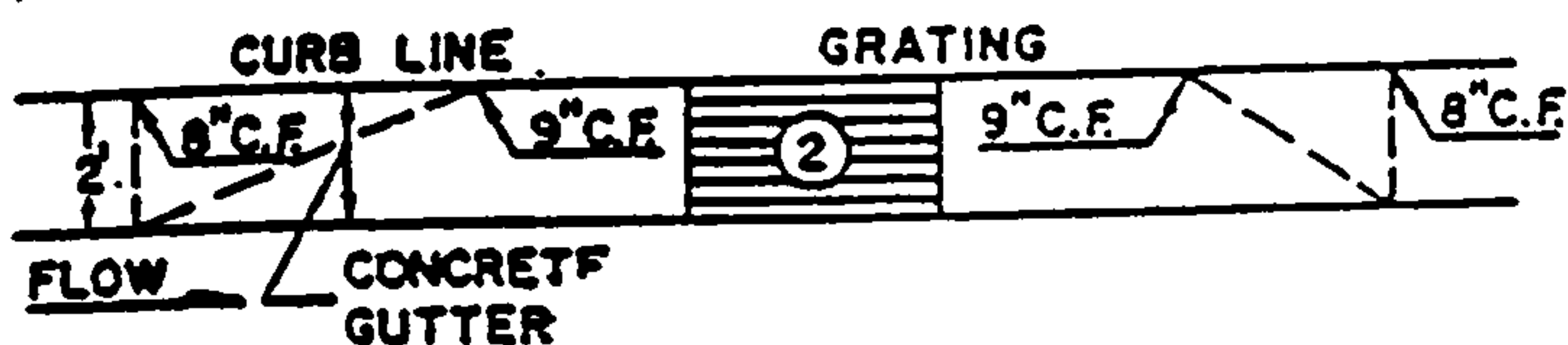


STREET CAPACITY

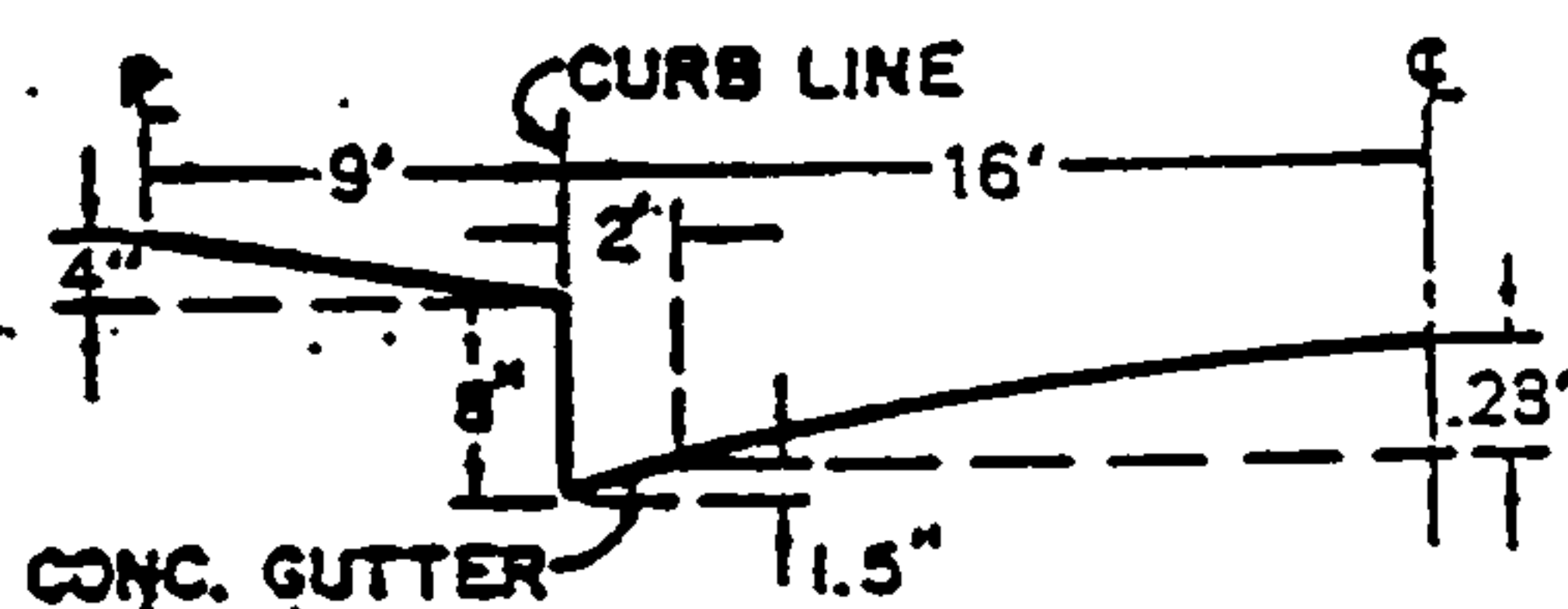
Casa Roja @ Casa Negra



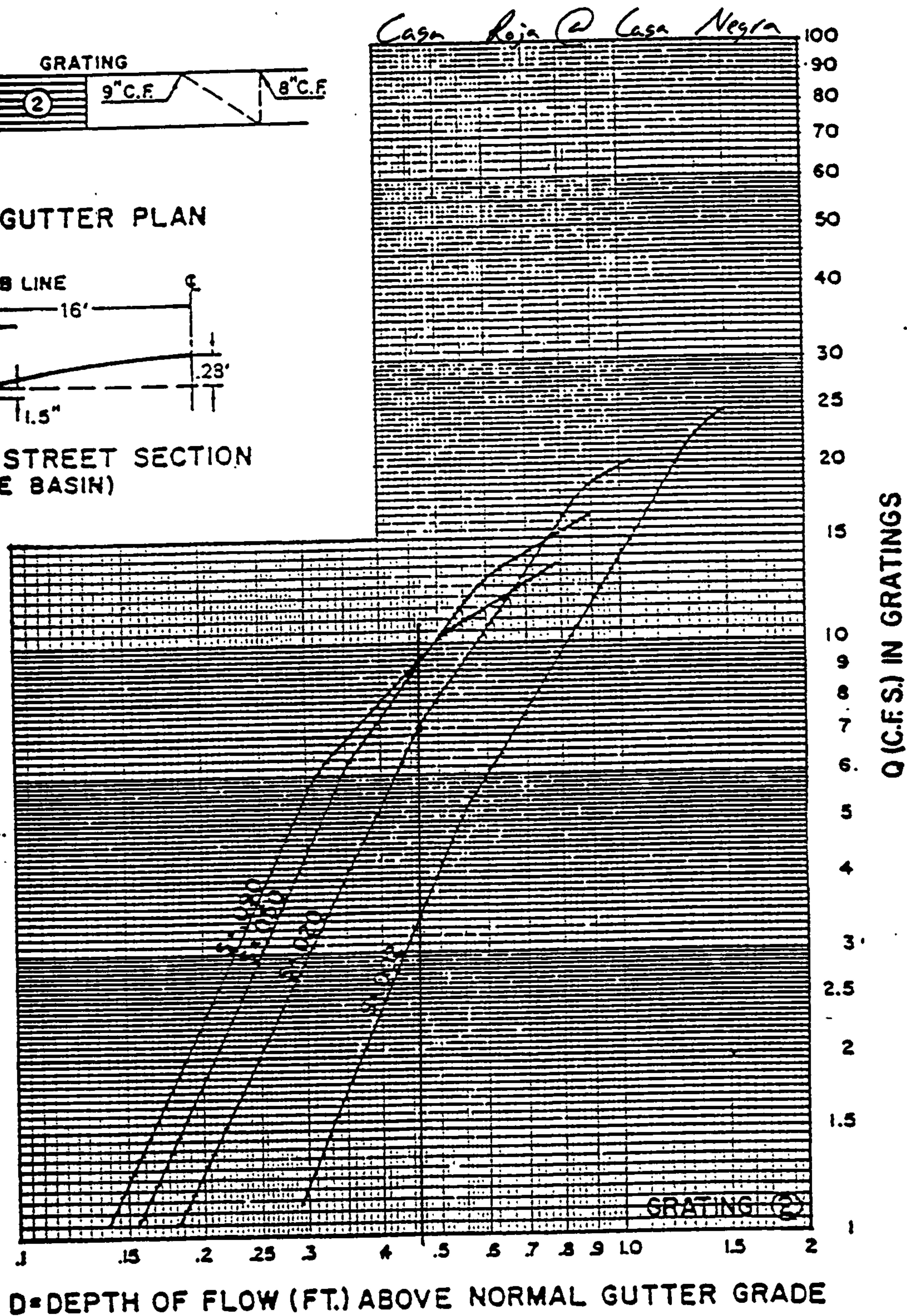
GRATING CAPACITIES FOR TYPE "A", "C" and "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION (ABOVE BASIN)



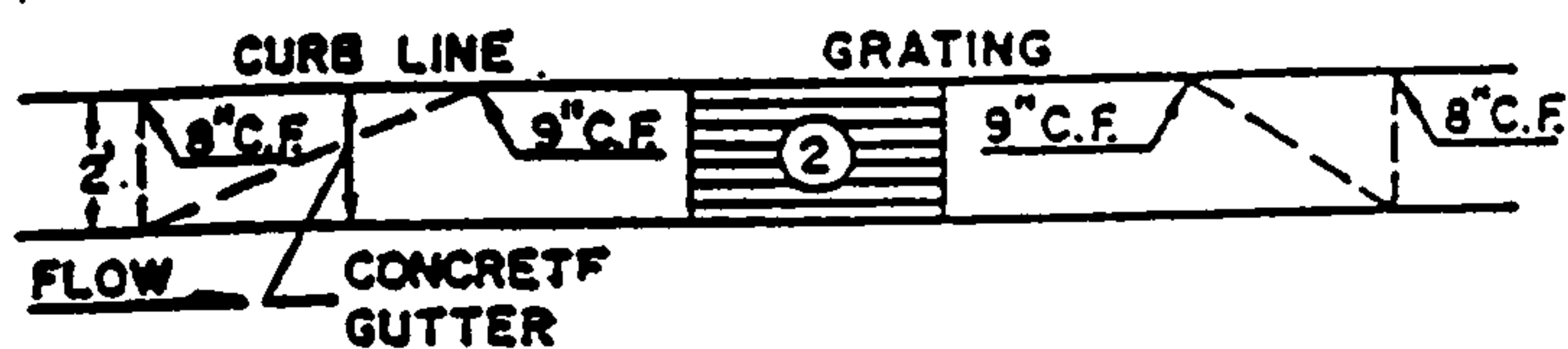
INLET DESIGN

ASSUMPTION: FLOW IS EVENLY DIVIDED BETWEEN BOTH SIDES OF THE STREET

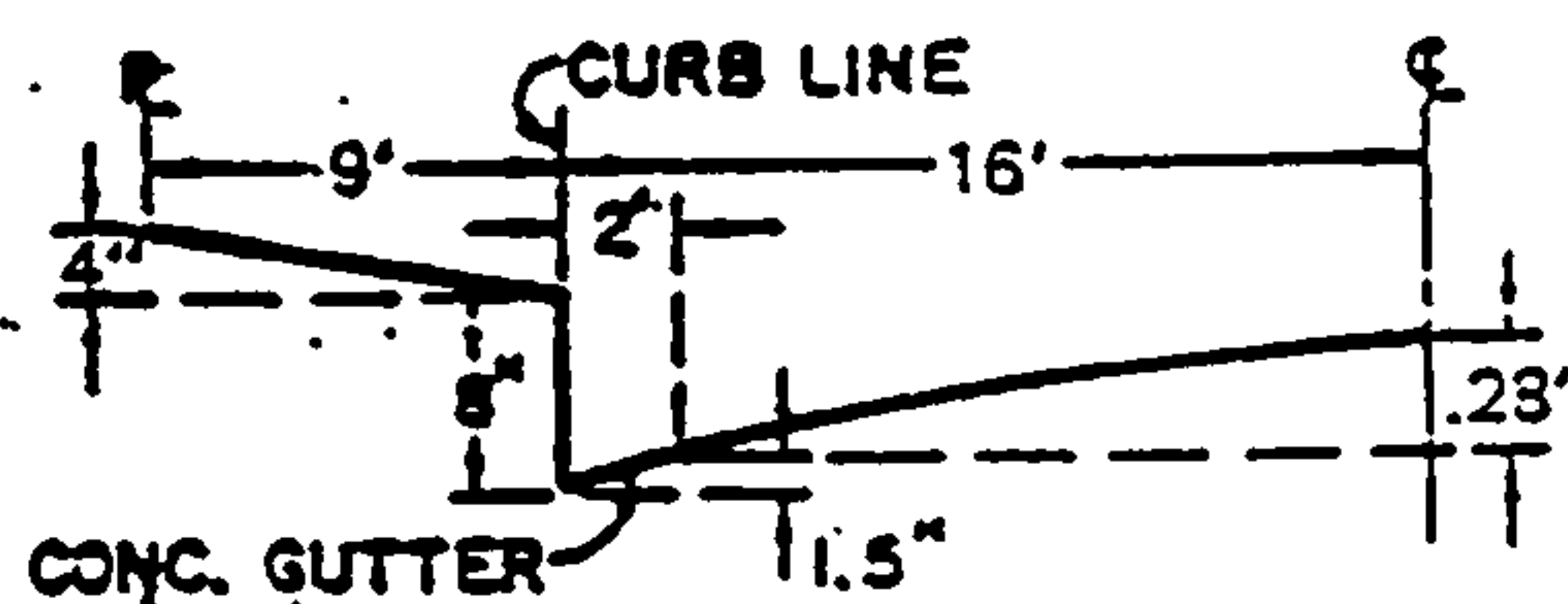
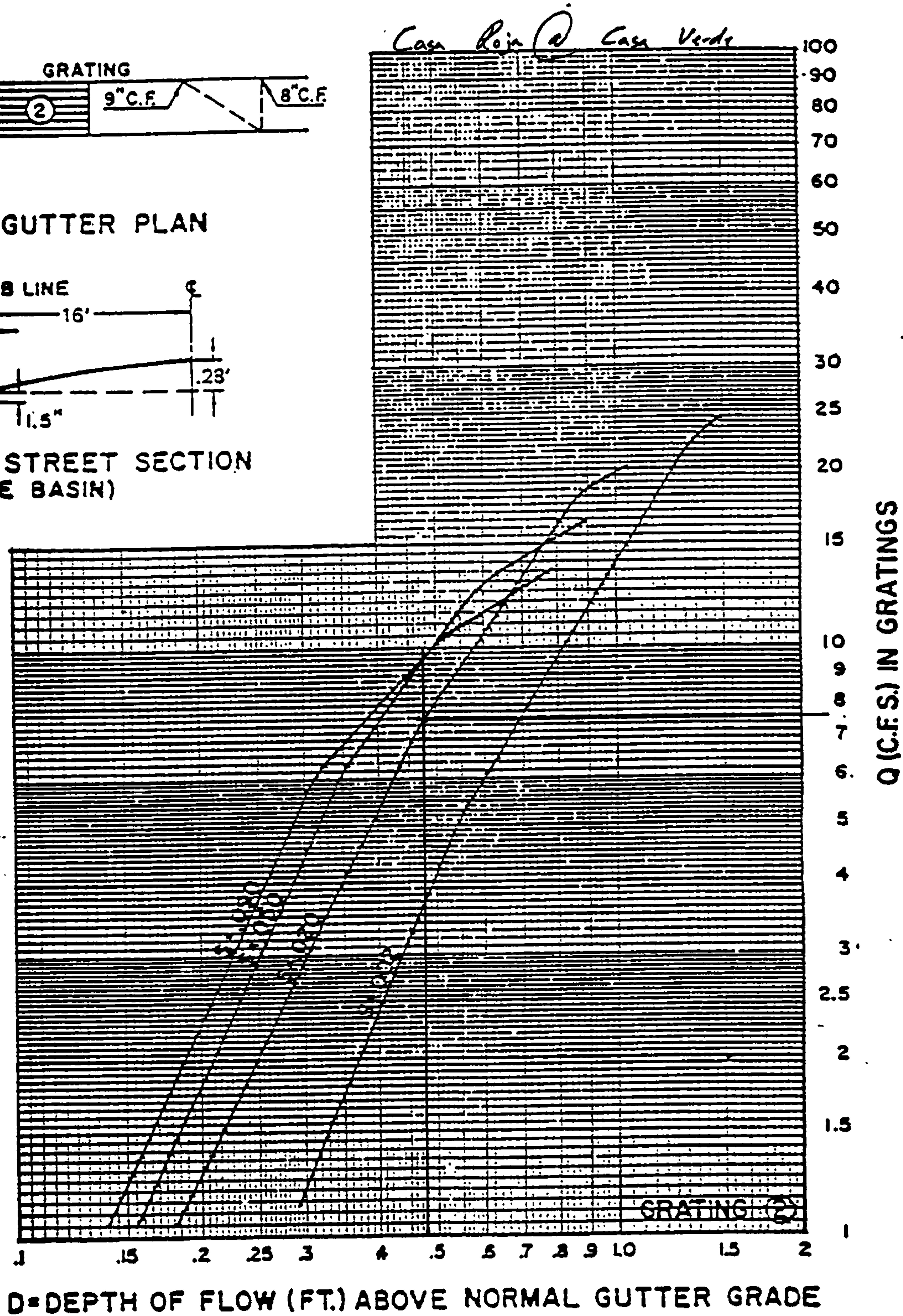
INLETS LOCATION:		CASA ROJA @ UPSTREAM OF CASA VERDE	
Q(FULL)	36.87 cfs	SLOPE	2.02%
Q(1/2 STREET)	18.44 cfs		
FROM PLATE 22.3 D-1: VELOCITY	4.7 ft/s	DEPTH	0.48 ft
ENERGY GRADE	0.82 ft		
ROW ELEVATION	0.84 ft	OK	
TYPE 'A' INLET	Q(INLET)	7.60 cfs	
	Q(BYPASS)	10.84 cfs	
FROM PLATE 22.3 D-1: VELOCITY	3.8 ft/s	DEPTH	0.42 ft
ENERGY GRADE	0.64 ft		
ROW ELEVATION	0.84 ft	OK	
TYPE DOUBLE	Q(INLET)	7.00 cfs	
'C' INLET	Q(BYPASS)	3.83 cfs	

LET 3.83 CFS BYPASS TO NEXT INLET LOCATION

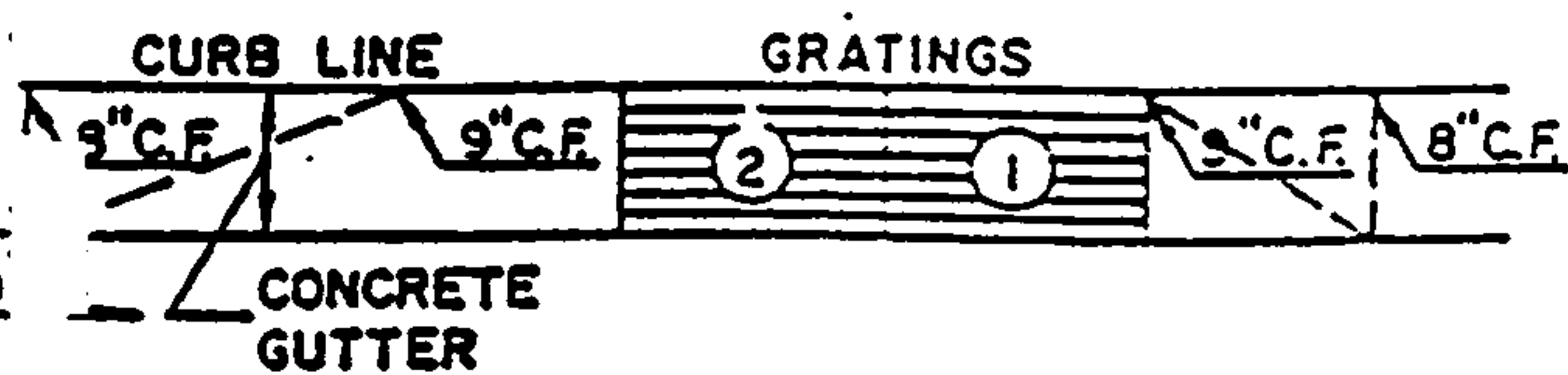
GRATING CAPACITIES FOR TYPE "A", "C" and "D"



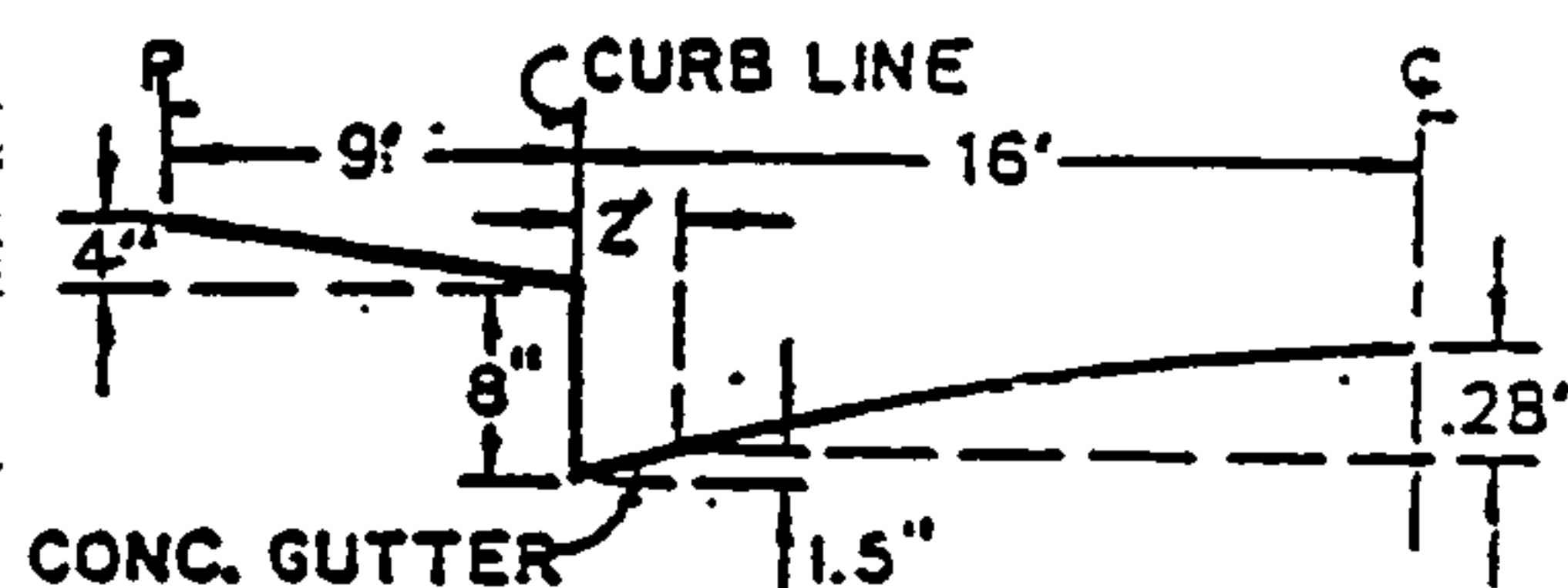
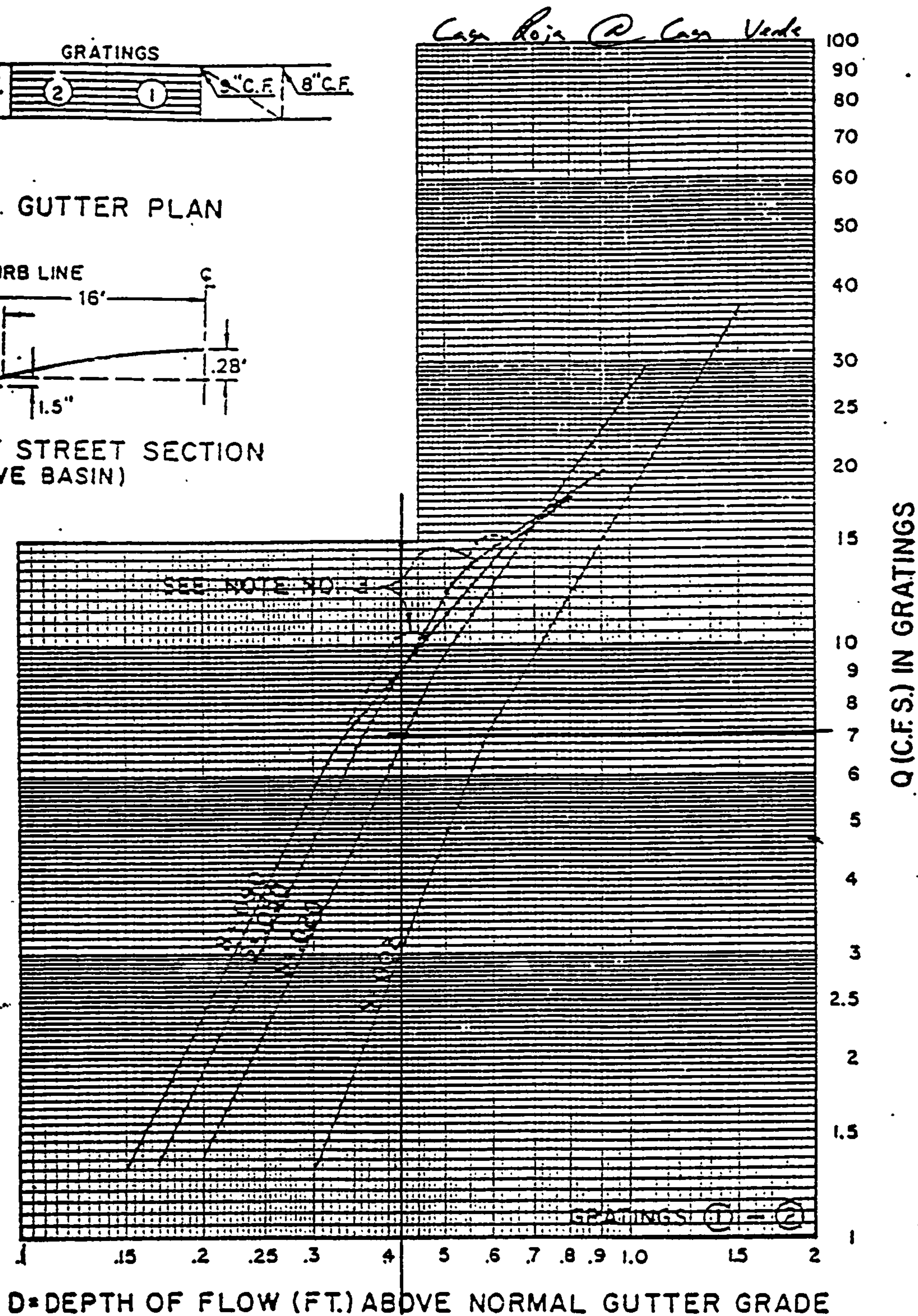
GRATING & GUTTER PLAN

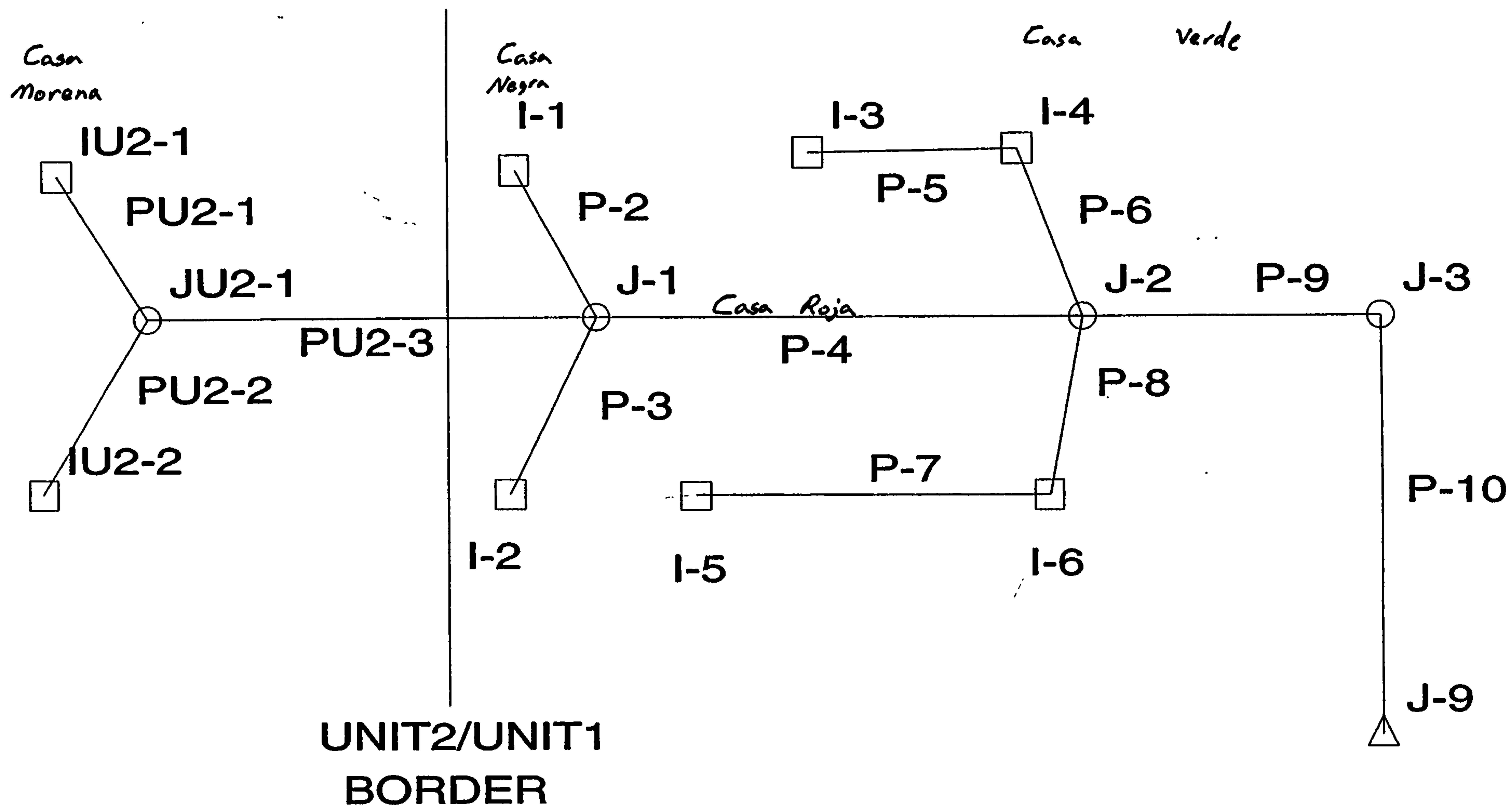
TYPICAL HALF STREET SECTION
(ABOVE BASIN)

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



GRATING & GUTTER PLAN

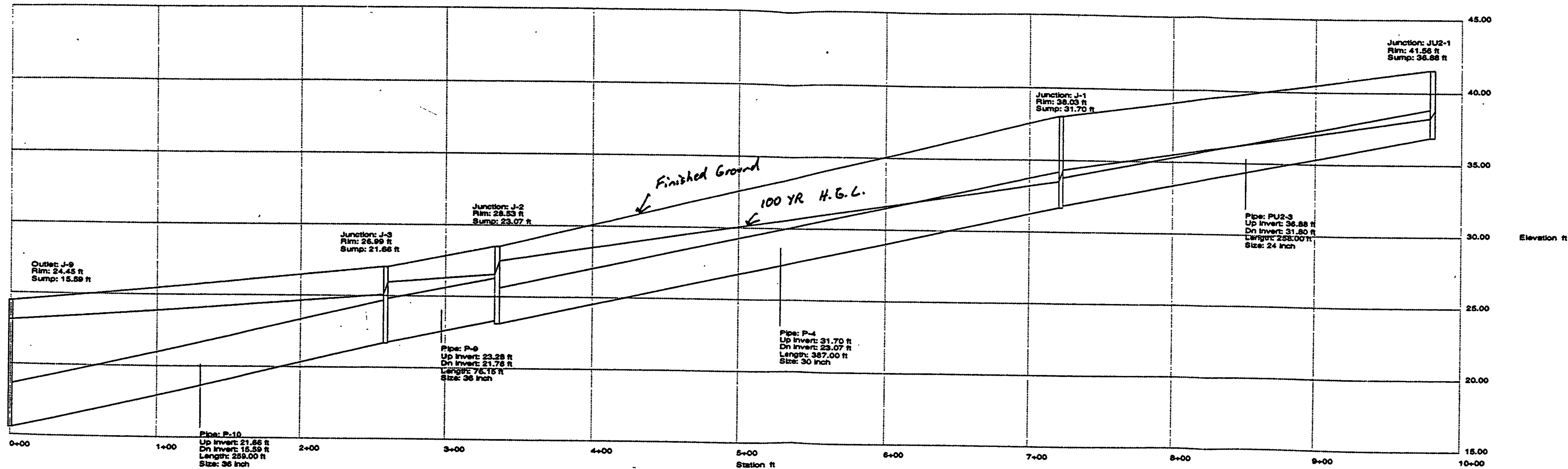
TYPICAL HALF STREET SECTION
(ABOVE BASIN)



NOTE: PIPE PU2-3 IS ALSO PIPE #1 FOR UNIT 1

STORM DRAIN SYSTEM

Pipe	Up Node	Dn Node	S (ft/ft)	Length (ft)	Size	Q (cfs)	Cap (cfs)	V avg (ft/s)	Up Rim (ft)	Up Invert (ft)	Up Cover (ft)	Up HGL (ft)	Up EGL (ft)	Dn Rim (ft)	Dn Invert (ft)	Dn Cover (ft)	Dn HGL (ft)	Dn EGL (ft)	Add. Q (cfs)
PU2-1	IU2-1	JU2-1	0.056376	7.45	18 inch	7.00	24.94	4.04	41.40	37.40	2.50	38.78	39.04	41.56	36.98	3.08	38.77	39.01	7.00
PU2-2	IU2-2	JU2-1	0.019858	21.15	18 inch	7.00	14.80	3.98	41.40	37.40	2.50	38.86	39.11	41.56	36.98	3.08	38.77	39.01	7.00
PU2-3	JU2-1	J-1	0.019690	258.00	24 inch	14.00	31.74	5.34	41.56	36.88	2.68	38.23	38.83	38.03	31.80	4.23	34.29	34.60	N/A
P-2	I-1	J-1	0.056376	7.45	18 inch	7.20	24.94	4.07	36.22	32.22	2.50	34.32	34.58	38.03	31.80	4.73	34.29	34.55	7.20
P-3	I-2	J-1	0.019858	21.15	18 inch	7.20	14.80	4.07	36.22	32.22	2.50	34.39	34.65	38.03	31.80	4.73	34.29	34.55	7.20
P-4	J-1	J-2	0.022300	387.00	30 inch	28.40	61.25	6.61	38.03	31.70	3.83	33.52	34.38	28.53	23.07	2.96	27.46	27.98	N/A
P-5	I-3	I-4	0.048887	20.66	18 inch	7.60	23.22	4.30	28.91	24.91	2.50	27.66	27.95	28.40	23.90	3.00	27.56	27.84	7.60
P-6	I-4	J-2	0.056376	7.45	24 inch	14.60	53.71	4.65	28.40	23.80	2.60	27.49	27.82	28.53	23.38	3.15	27.46	27.79	7.00
P-7	I-5	I-6	0.036339	36.60	18 inch	7.60	20.02	4.30	29.23	25.23	2.50	27.80	28.09	28.40	23.90	3.00	27.61	27.90	7.60
P-8	I-6	J-2	0.019858	21.15	24 inch	14.60	31.88	4.65	28.40	23.80	2.60	27.55	27.88	28.53	23.38	3.15	27.46	27.79	7.00
P-9	J-2	J-3	0.019961	76.15	36 inch	57.60	94.23	8.15	28.53	23.28	2.25	26.53	27.56	26.99	21.76	2.23	25.96	26.99	N/A
P-10	J-3	J-9	0.023436	259.00	36 inch	57.60	102.10	8.15	26.99	21.66	2.33	25.03	26.06	24.45	15.59	5.86	23.10	24.13	N/A



③

STORM DRAIN DESIGN

LADERA DRIVE

(Appendix C)

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
INPUT FILE = LAD100.DAT

RUN DATE (MON/DAY/YR) =02/23/1996
USER NO.= CINFRNM.I01

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
*S TIERRA OSESTE SUBDIVISION DRAINAGE REVISION DATE: 2/96										
*S Compute 100 Year Flow FN:LAD100.DAT BY:RGG										
*S COMPUTE 100YR-6HR STORM FOR LADERA BLVD-4 LANE SECTION										
*S FOR INLET SPACING-FULL BUILDOUT										
*S										
*S										
START										
RAINFALL TYPE= 1										TIME= .00
*S										
*S COMPUTE FLOWS CONTRIBUTING TO LADERA STORM DRAIN										
*S										
*S										
*S BASIN OFF5-----										
*S										
COMPUTE NM HYD	101.10	-	1	.00330	7.62	.265	1.50558	1.499	3.609 PER IMP=	60.00
*S										
*S BASIN OFF6A-----										
*S										
COMPUTE NM HYD	102.10	-	2	.00620	11.11	.376	1.13713	1.499	2.799 PER IMP=	40.00
*S										
*S BASIN OFF6B-----										
*S										
COMPUTE NM HYD	103.10	-	3	.00740	13.25	.449	1.13713	1.499	2.798 PER IMP=	40.00
*S										
*S BASIN OFF6C-----										
*S										
COMPUTE NM HYD	104.10	-	4	.00180	4.16	.145	1.50558	1.499	3.615 PER IMP=	60.00
*S										
*S BASIN OFF6D-----										
*S										
COMPUTE NM HYD	105.10	-	5	.00220	5.09	.177	1.50558	1.499	3.612 PER IMP=	60.00
*S										
FINISH										

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
INPUT FILE = LADERA10.DAT

RUN DATE (MON/DAY/YR) =02/23/1996
USER NO.= CINFRNNM.I01

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION

*S TIERRA OSESTE SUBDIVISION DRAINAGE REVISION DATE: 2/96
*S Compute 10-Year Flow FN:LADERA.DAT BY:RGG
*S COMPUTE 10YR-6HR STORM FOR LADERA BLVD-4 LANE SECTION
*S FOR INLET SPACING-FULL BUILDOUT

*S

*S

START

RAINFALL TYPE= 1

TIME= .00
RAIN6= 1.470

*S

*S COMPUTE FLOWS CONTRIBUTING TO LADERA STORM DRAIN

*S

*S

*S BASIN OFF5-----

*S

COMPUTE NM HYD	101.10	-	1	.00330	4.59	.153	.86986	1.499	2.174 PER IMP=	60.00

*S

*S BASIN OFF6A-----

*S

COMPUTE NM HYD	102.10	-	2	.00620	5.89	.198	.59861	1.499	1.485 PER IMP=	40.00

*S

*S BASIN OFF6B-----

*S

COMPUTE NM HYD	103.10	-	3	.00740	7.03	.236	.59861	1.499	1.484 PER IMP=	40.00

*S

*S BASIN OFF6C-----

*S

COMPUTE NM HYD	104.10	-	4	.00180	2.51	.084	.86986	1.499	2.178 PER IMP=	60.00

*S

*S BASIN OFF6D-----

*S

COMPUTE NM HYD	105.10	-	5	.00220	3.06	.102	.86986	1.499	2.176 PER IMP=	60.00

*S

FINISH

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
 INPUT FILE = LADERA10.DAT

RUN DATE (MON/DAY/YR) =02/23/1996
 USER NO.= CINFRNM.101

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
*S TIERRA OSESTE SUBDIVISION DRAINAGE REVISION DATE: 2/96										
*S Compute 10-Year Flow FN:LADERA.DAT BY:RGG										
*S COMPUTE 10YR-6HR STORM FOR LADERA BLVD-6 LANE SECTION										
*S FOR INLET SPACING-FULL BUILDOUT										
*S										
*S										
START										
RAINFALL TYPE= 1										TIME= .00
										RAIN6= 1.470
*S										
*S COMPUTE FLOWS CONTRIBUTING TO LADERA STORM DRAIN										
*S										
*S										
*S BASIN OFF5-----										
COMPUTE NM HYD	101.10	-	1	.00330	5.47	.190	1.08149	1.499	2.592 PER IMP=	83.00
*S										
*S BASIN OFF6A-----										
COMPUTE NM HYD	102.10	-	2	.00620	5.68	.197	.59530	1.499	1.431 PER IMP=	43.00
*S										
*S BASIN OFF6B-----										
COMPUTE NM HYD	103.10	-	3	.00740	6.77	.235	.59530	1.499	1.430 PER IMP=	43.00
*S										
*S BASIN OFF6C-----										
COMPUTE NM HYD	104.10	-	4	.00180	2.99	.104	1.08149	1.499	2.596 PER IMP=	83.00
*S										
*S BASIN OFF6D-----										
COMPUTE NM HYD	105.10	-	5	.00220	3.65	.127	1.08149	1.499	2.594 PER IMP=	83.00
*S										
FINISH										

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
 INPUT FILE = LAD100.DAT

RUN DATE (MON/DAY/YR) =02/23/1996
 USER NO.= CINFRNM.I01

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
*S TIERRA OSESTE SUBDIVISION DRAINAGE REVISION DATE: 2/96										
*S Compute 100 Year Flow FN:LAD100.DAT BY:RGG										
*S COMPUTE 100YR-6HR STORM FOR LADERA BLVD-6 LANE SECTION										
*S FOR INLET SPACING-FULL BUILDOUT										
*S										
*S										
START										
RAINFALL TYPE= 1										
*S										
*S COMPUTE FLOWS CONTRIBUTING TO LADERA STORM DRAIN										
*S										
*S										
*S BASIN OFF5-----										
*S										
COMPUTE NM HYD	101.10	-	1	.00330	8.56	.312	1.77001	1.499	4.054 PER IMP=	83.00
*S										
*S BASIN OFF6A-----										
*S										
COMPUTE NM HYD	102.10	-	2	.00620	10.68	.371	1.12114	1.499	2.693 PER IMP=	43.00
*S										
*S BASIN OFF6B-----										
*S										
COMPUTE NM HYD	103.10	-	3	.00740	12.75	.442	1.12114	1.499	2.692 PER IMP=	43.00
*S										
*S BASIN OFF6C-----										
*S										
COMPUTE NM HYD	104.10	-	4	.00180	4.68	.170	1.77001	1.499	4.060 PER IMP=	83.00
*S										
*S BASIN OFF6D-----										
*S										
COMPUTE NM HYD	105.10	-	5	.00220	5.71	.208	1.77001	1.499	4.057 PER IMP=	83.00
*S										
FINISH										

TIME= .00
 RAIN6= 2.200

PROJECT: _____

DATE: _____



CALCULATIONS

By: _____ Pg: _____ of _____

Ladera Blvd - Storm Drain Design

→ Check For 1 Lane Dry in 10 year storm For both
Proposed 4 Lane Section & Future 6 Lane Section

4 Lane Road

$$\text{Lane width} = 13' - 2' (\text{Gutter}) = 11'$$

$$D = 0.125 + 11(0.02) = \underline{0.345'}$$

6 Lane Road

$$\text{Lane width} = (13' - 2') + 12' = 23'$$

$$D = 0.125 + 23'(0.02) = \underline{0.585'}$$

→ For 100 yr storm - Keep Energy Grade Line within
Ladera Right of Way

$$\text{Max E.G.} = (10' - 7.5''/12)(0.02) + 0.667 = \underline{0.95'}$$

$R_1 - 7 R_2$

Top of Curb
width

10 yr Storm

- Assumption

1) Match Inlets @ Sta 15+40 (Existing)

2) Work ~~to~~ Upstream From Sta 15+40
to place next set of inlets @ maximum
Distance away From Sta 15+40

- STA 15+40

- Basin OFFGA
From ATYMD

$$Q \text{ for 4 Lane Road} = 1.484 \text{ cfs/Acre}$$

$$Q \text{ for 6 Lane Road} = 1.930 \text{ cfs/Acre}$$

PROJECT: _____

DATE: _____



CALCULATIONS

By: _____ Pg: _____ of _____

Inlet Controls For 10 yr Storm - 4 Lane or 6 Lane

Use Basin OFFICE For Example

AHYMO Run $Q = 2.18 \text{ cfs/Acre} - 4 \text{ Lane}$ $Q = 2.60 \text{ cfs/Acre} - 6 \text{ Lane}$ From Plate 22.3 For $S = 3.16\%$ $D = 0.345' (4 \text{ Lane})$
 $D = 0.585' (6 \text{ Lane})$ $Q_{max} = 6.5 \text{ cfs}$ For 4 Lane Road $Q_{max} = 38 \text{ cfs}$ For 6 Lane Road- Convert $\text{cfs/Acre} \Rightarrow \text{cfs/L.F. OF ROAD/ACRE}$

$$4\text{-Lane} = \frac{2.18}{\left(\frac{43560}{100\%}\right)} = 0.0027 \text{ cfs/L.F.}$$

$$6\text{-Lane} = \frac{2.60}{\left(\frac{43560}{100\%}\right)} = 0.0032 \text{ cfs/L.F.}$$

$$\text{SPACING For 4 Lane Road} = \frac{6.5}{0.0027} = 2407'$$

$$\text{For 6 Lane Road} = \frac{38}{0.0032} = 11,875'$$

 $\therefore$ 4 Lane Road Controls

PROJECT: _____

DATE: _____



CALCULATIONS

By: _____ Pg: _____ of _____

- STA 15+40 (cont)

$$\textcircled{2} \text{ STA } 15+40 \quad S = 3.16\%$$

- From Plate 22.3 For $D = 0.345'$ & $S = 3.16\%$

$$Q_{\max} = 6.5 \text{ cfs}$$

- Linear feet of Roadway / Acre

$$(106/2) + 100' \text{ Easement} = 153'$$

$$1 \text{ acre} = 43560 \text{ Ft}^2$$

$$43560 / 153 = 284.7' \text{ of Roadway} = 1 \text{ Acre}$$

$$\text{From AHYMO } \text{cfs/Acre} = 1.484$$

$$\text{cfs/Linear Foot of Road} = \frac{1.484}{284.7} = 0.0052 \text{ cfs per L.F.}$$

For $S = 3.16\%$ Spacing of Inlets =

$$\frac{6.5}{0.0052} = 1250'$$

$$\text{STA } 15+40 - 1250' = \text{STA } 2+90$$

From STA 10+80 $\rightarrow$ 14+00 $S = 0.753\%$ (Controls)From STA 10+00 $\rightarrow$ 4+60 $S = 1.93\%$

$$\textcircled{2} S = 0.753\% \quad D = 0.345'$$

$$Q_{\max} = 3.0 \text{ cfs} - \text{Plate 22.3}$$

 $\therefore$ Since $S = 0.753\%$ is ~~the~~ smallest slopeSet inlets for $Q = 3 \text{ cfs}$ @ STA 14+00 (End of $S = 0.75\%$)

$$\text{Spacing} = \frac{3}{0.0052} = 576.9' \Rightarrow \text{USE } 575'$$

$$\text{STA } 14+00 - 575' = \text{STA } 8+25'$$

Set Inlets @ STA 8+25'

10 yr Flow @ STA 15+40

$$\text{Distance} = 15+40 - 8+25 = 715'$$

$$Q = 715' (0.0052)$$

$$= 3.72 \text{ cfs} < 6.5 \text{ cfs} \quad \therefore \text{OK}$$

PROJECT: _____

DATE: _____



CALCULATIONS

By: _____ Pg: ____ of ____

- Inlets Upstream From STA 8+25

- Assumptions

 $S = 1.93\%$ Before STA 4+63 (START OF PROJECT)From Plate 22.3 For $D = 0.345'$ & $S = 1.93\%$

$$Q = 4.8 \text{ cfs}$$

$$\therefore \text{Spacing} = \frac{4.8}{0.0052} \approx 920'$$

920' upstream from STA 8+25 is outside of Project Limits. This is for information only

- Inlets Downstream From STA 15+40

For Slope = 3.16% & $D = 0.345'$ Spacing = 1250' - From Previous Sheet

$$\text{STA } 15+40 + 1250' = \text{STA } 27+90$$

- Bottom of Sump in Road is @ STA 25+70

$\therefore$ Sump Controls

- Inlets @ STA 25+70

- Inlets ~~up~~ Up-Station From Sump (STA 25+70)

$$\text{Top of Basin} = \text{STA } 31+20 \quad S = 0.50\% \\ L = 550'$$

From AHYMO For Basin OPR60 $Q = 2.18 \text{ cfs/Acre}$

This is For Lateral Right-of-Way Only

$$\therefore Q \text{ per Linear Foot of Road} = \frac{2.18}{\left(\frac{43560}{106/2}\right)} = 0.0027 \text{ cfs per L.F.}$$

From Plate 22.3 For $S = 0.5\%$ & $D = 0.345'$

$$Q_{\text{max}} = 2.5 \text{ cfs}$$

$$\text{Inlet Spacing} = \frac{2.5}{0.0027} = 942' > 550'$$

$\therefore$ No Inlets Required Up-Station From STA 25+70

②

STORM DRAIN DESIGN

CASA ROJA PL.
@
NORTH CUL-DE-SAC

(Appendix C)

INLET DESIGN

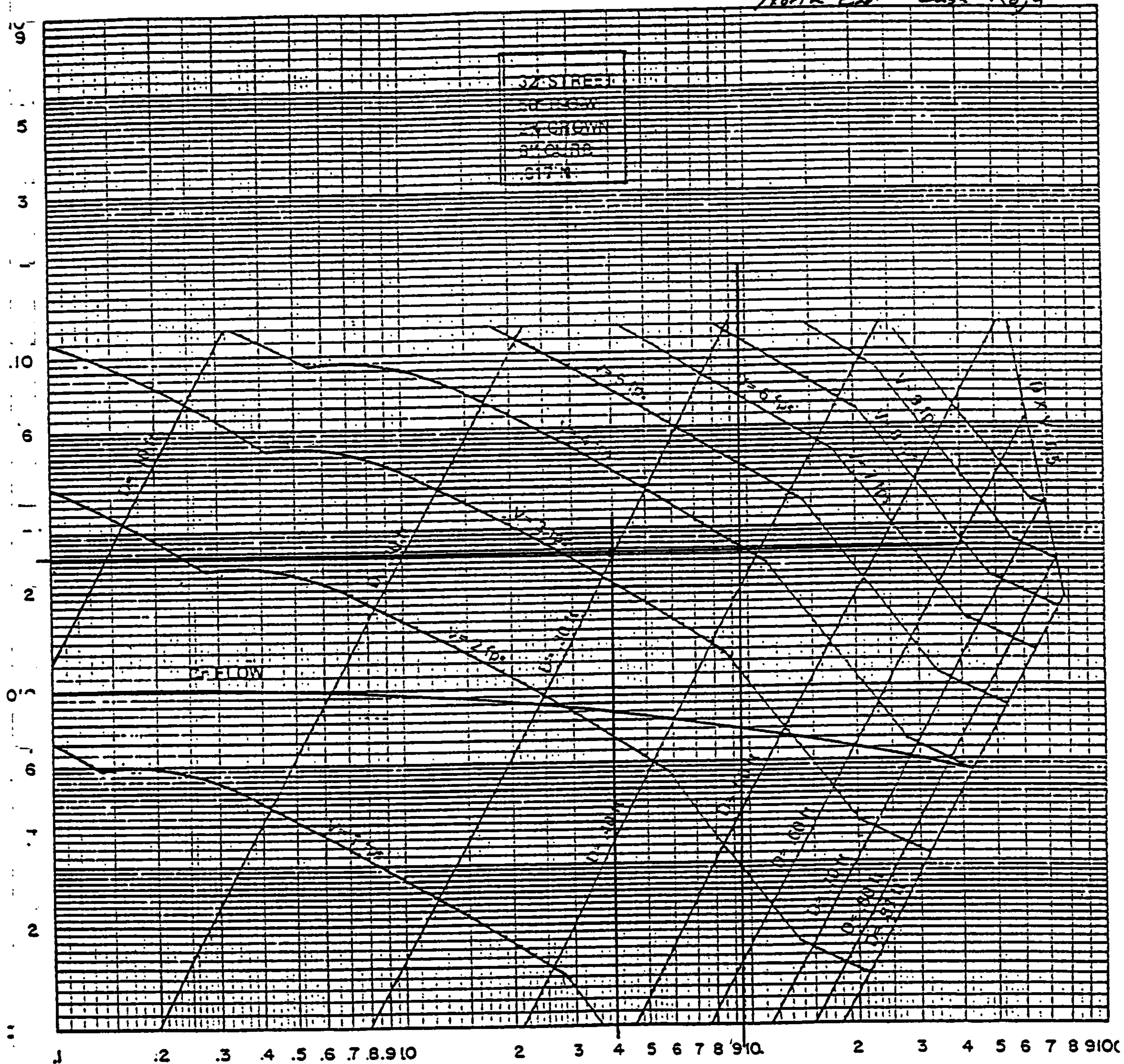
ASSUMPTION: FLOW IS EVENLY DIVIDED BETWEEN BOTH SIDES OF THE STREET

INLETS LOCATION:		CASA ROJA @ NORTH CUL-DE-SAC	
Q(FULL)	19.31 cfs	SLOPE	2.56%
Q(1/2 STREET)	9.66 cfs		
FROM PLATE 22.3 D-1:			
VELOCITY	4.00 ft/s	DEPTH	0.39 ft
ENERGY GRADE		0.64 ft	
ROW ELEVATION		0.84 ft	OK
TYPE 'A' INLET	Q(INLET)	5.50 cfs	
	Q(BYPASS)	4.16 cfs	
FROM PLATE 22.3 D-1:			
VELOCITY	3.3 ft/s	DEPTH	0.3 ft
ENERGY GRADE		0.47 ft	
ROW ELEVATION		0.84 ft	OK
TOTAL FLOW	8.31 cfs		
DEPTH	0.44 ft	BASED ON WIER EQUATION	

THEREFORE, ONE DOUBLE 'C' IS CAPABLE OF HANDLING 8.31 CFS
IN SUMP CONDITION

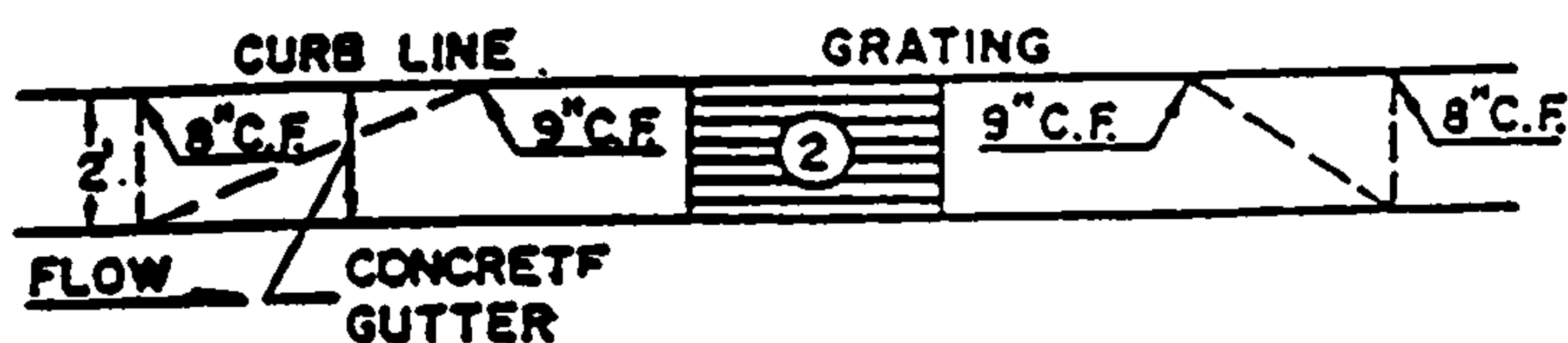
STREET CAPACITY

North End - Case Reig

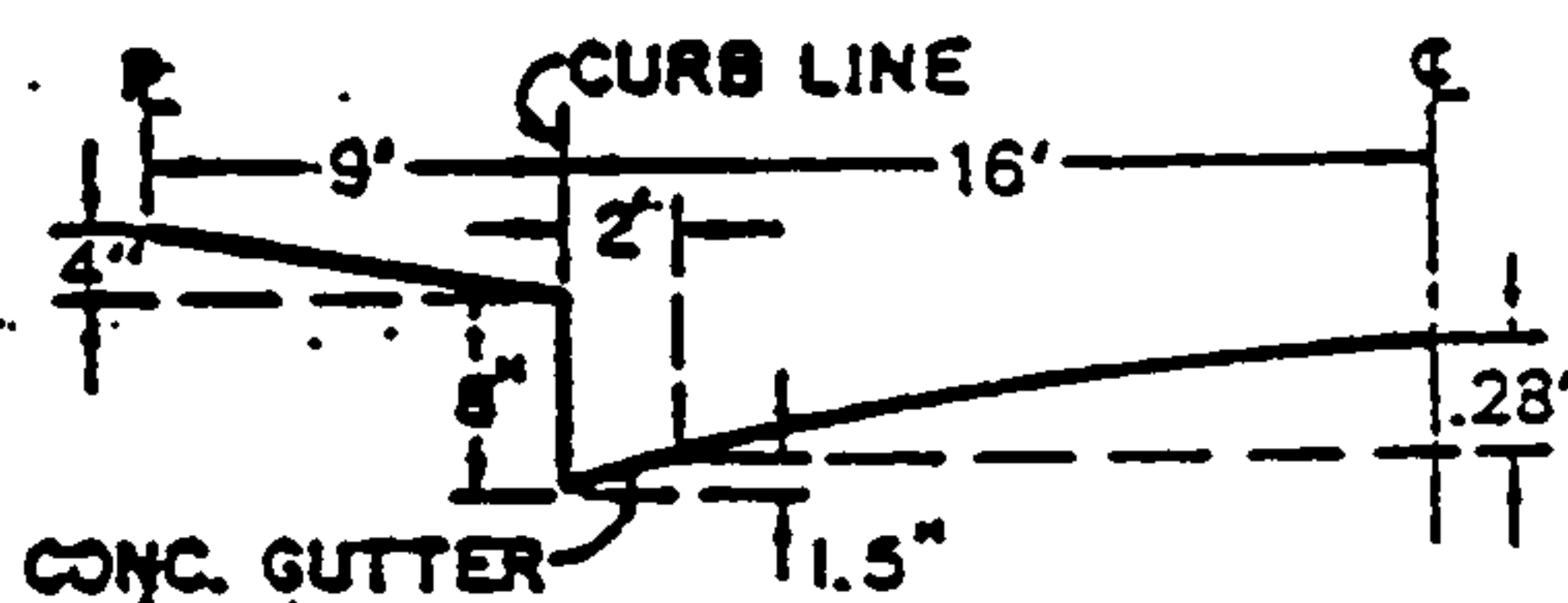
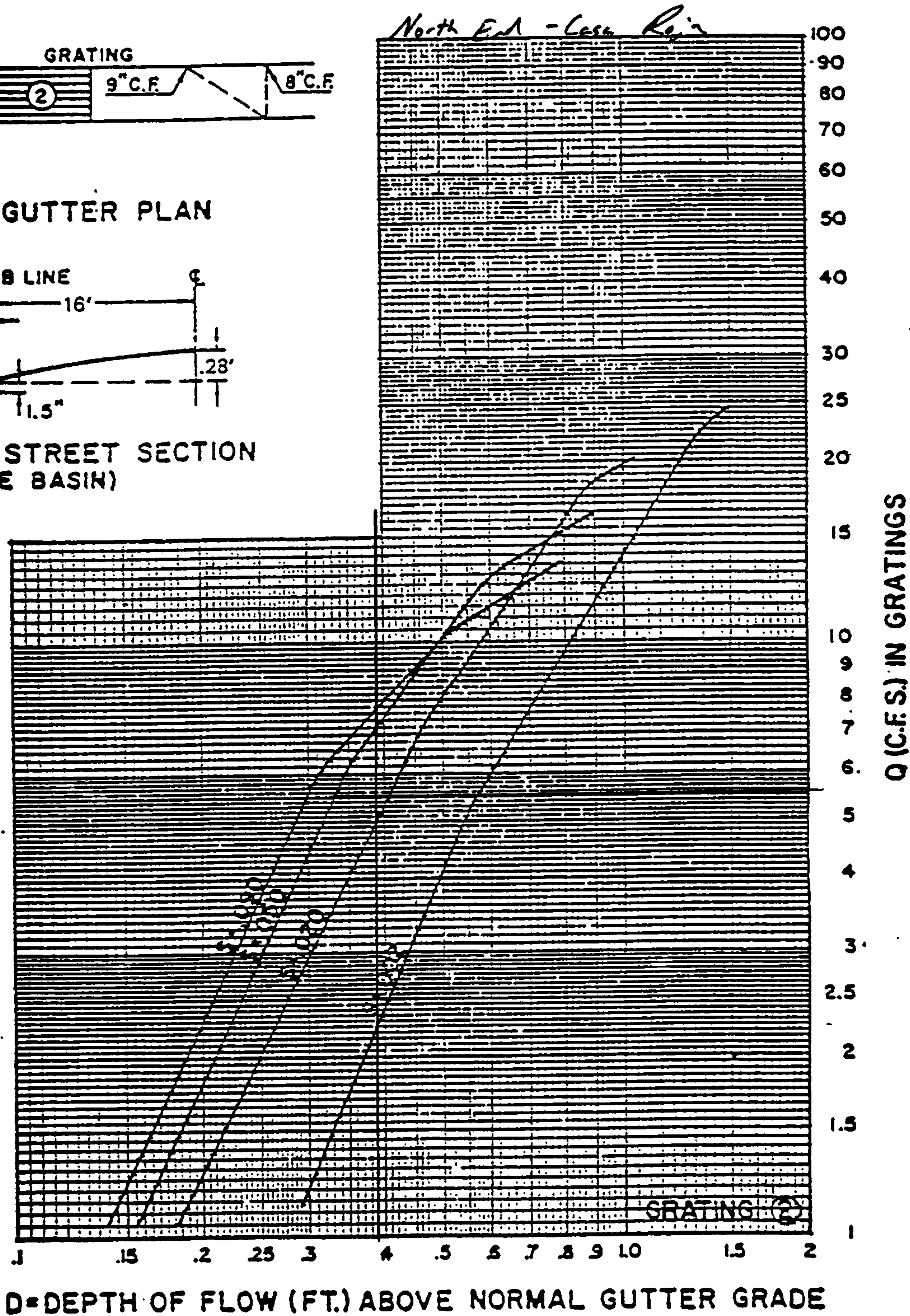


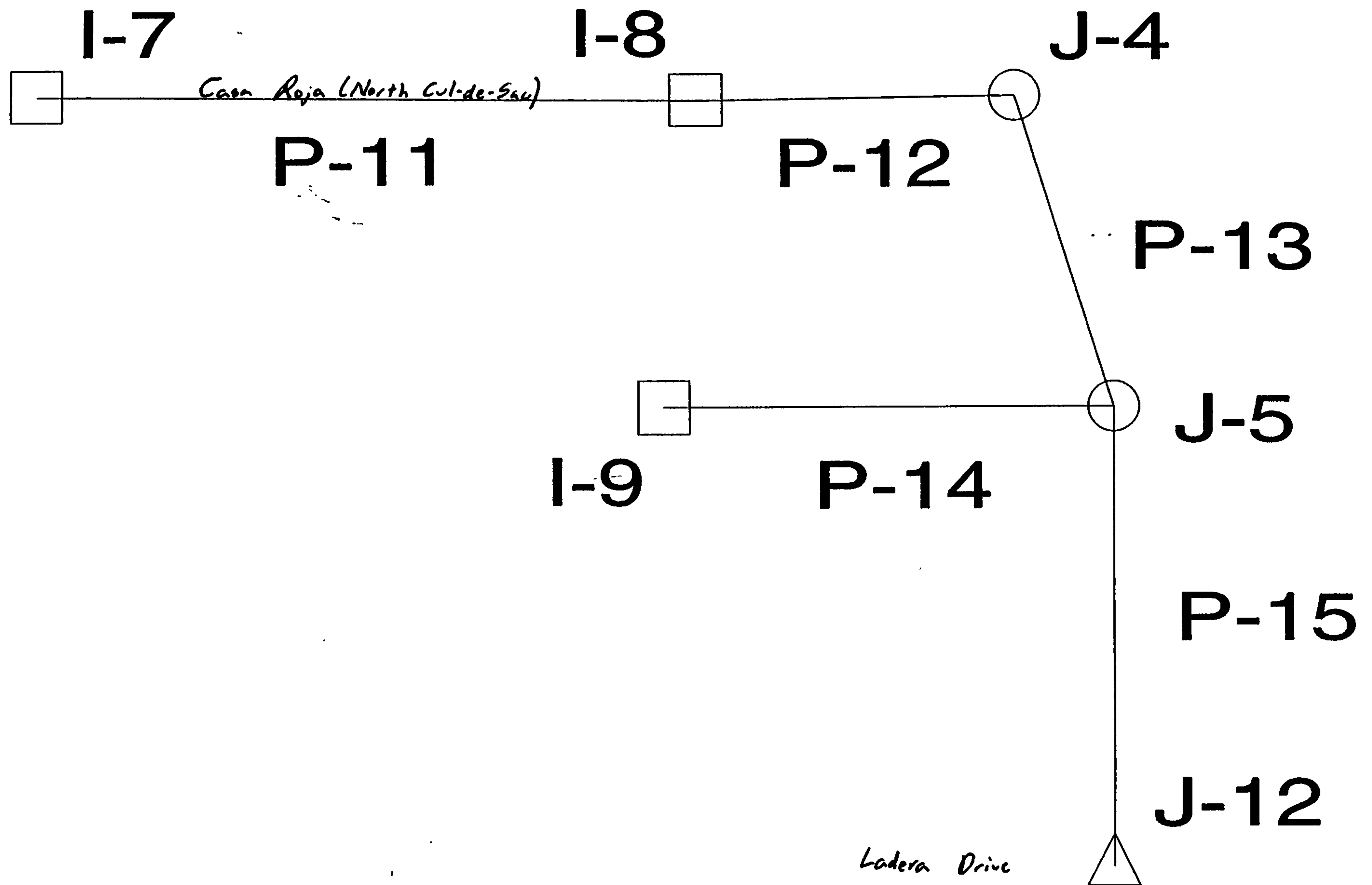
ONE HALF STREET FLOWS (cfs)

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



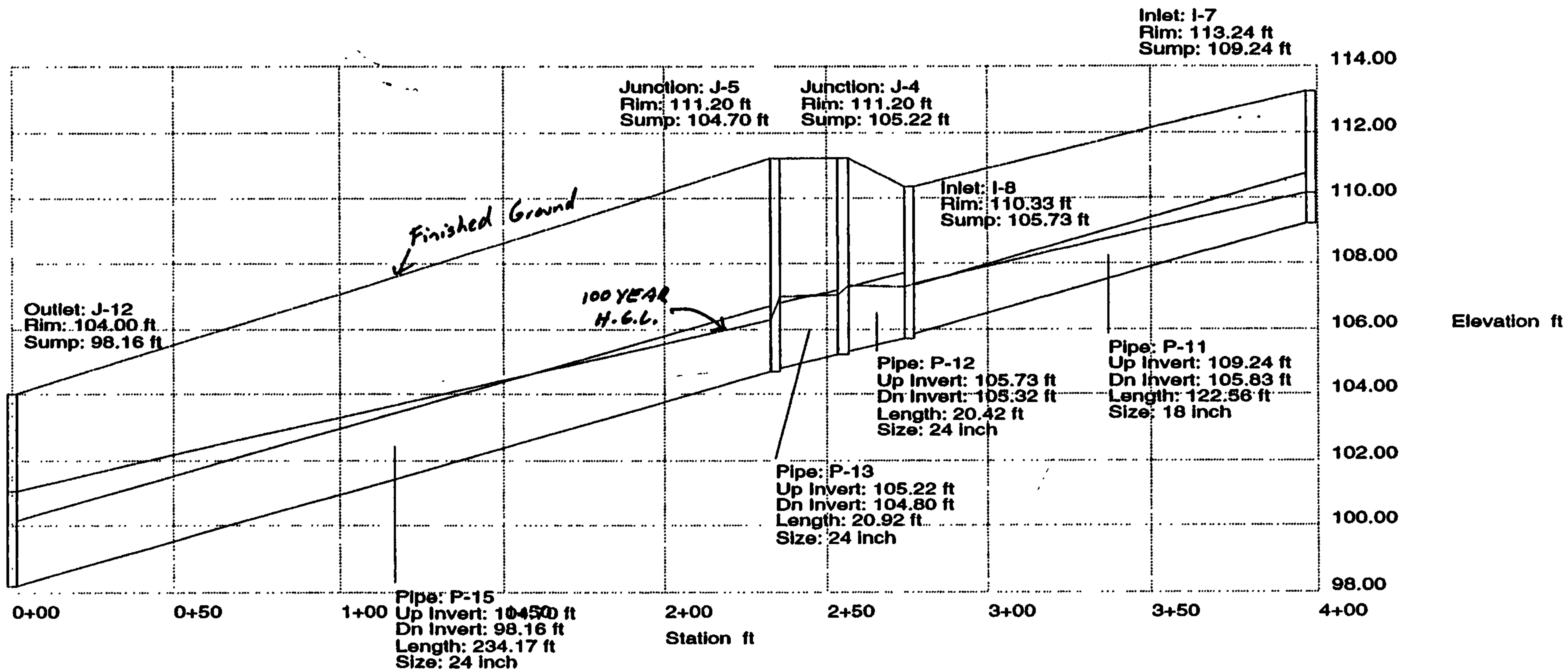
GRATING & GUTTER PLAN

TYPICAL HALF STREET SECTION
(ABOVE BASIN)

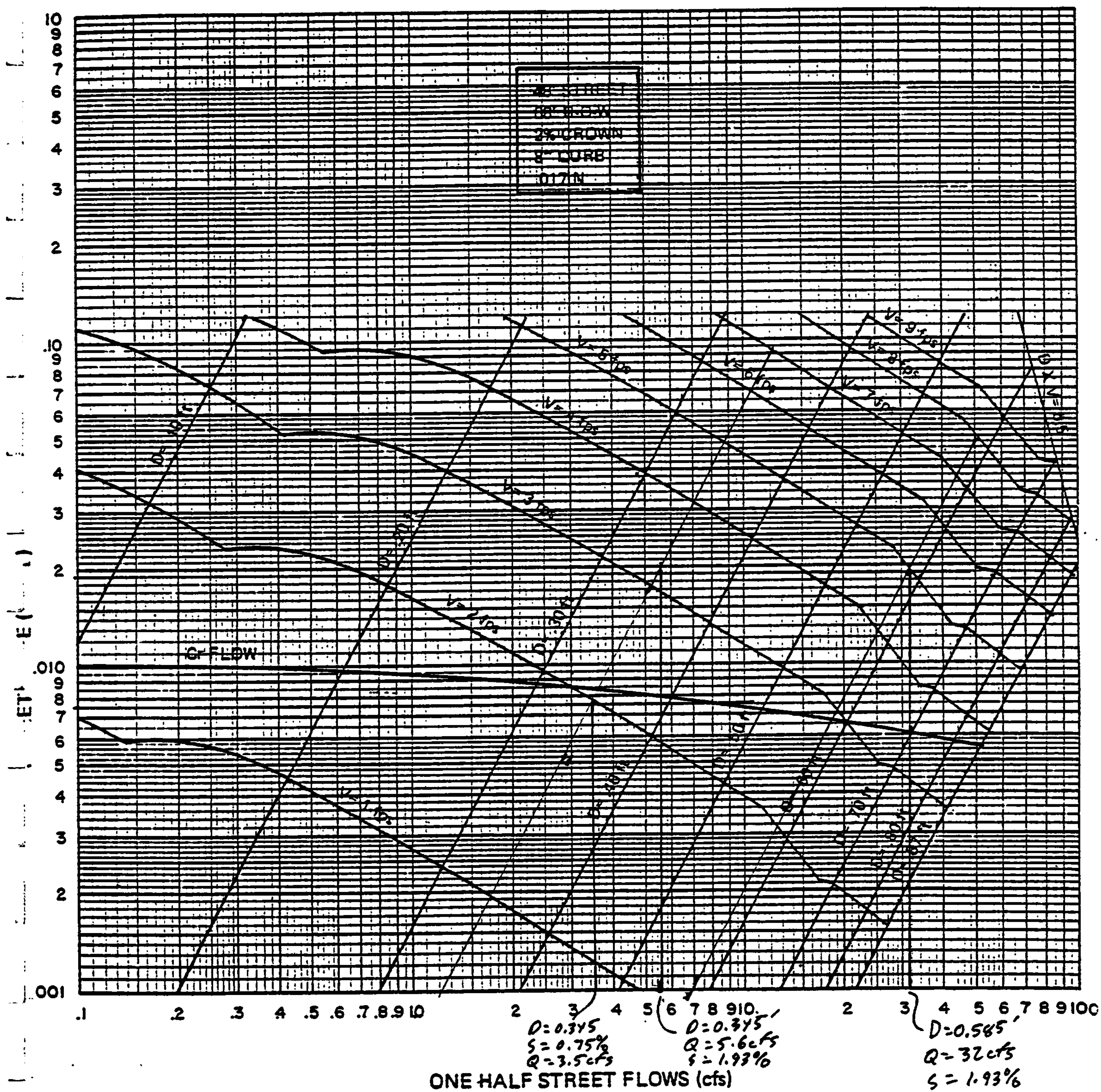


STORM DRAIN SYSTEM

Pipe	Up Node	Dn Node	S (ft/ft)	Length (ft)	Size	Q (cfs)	Cap (cfs)	V avg (ft/s)	Up Rim (ft)	Up Invert (ft)	Up Cover (ft)	Up HGL (ft)	Up EGL (ft)	Dn Rim (ft)	Dn Invert (ft)	Dn Cover (ft)	Dn HGL (ft)	Dn EGL (ft)	Add. Q (cfs)
P-11	I-7	I-8	0.027823	122.56	18 inch	5.50	17.52	4.03	113.24	109.24	2.50	110.14	110.52	110.33	105.83	3.00	107.40	107.55	5.50
P-12	I-8	J-4	0.020078	20.42	24 inch	13.81	32.05	4.78	110.33	105.73	2.60	107.32	107.73	111.20	105.32	3.88	107.36	107.68	8.31
P-13	J-4	J-5	0.020076	20.92	24 inch	13.81	32.05	4.47	111.20	105.22	3.98	107.07	107.39	111.20	104.80	4.40	107.02	107.32	N/A
P-14	I-9	J-5	0.047381	37.99	18 inch	5.50	22.86	4.03	110.60	106.60	2.50	107.50	107.88	111.20	104.80	4.90	107.02	107.17	5.50
P-15	J-5	J-12	0.027928	234.17	24 inch	19.31	37.80	6.70	111.20	104.70	4.50	106.28	107.10	104.00	98.16	3.84	101.06	101.65	N/A



STREET CAPACITY



INLET DESIGN

INLETS LOCATION: LADERA DRIVE - STATION 8+25

ASSUMPTIONS: NO BYPASS FLOW FROM BASIN OFF5 TO OFF6A

FROM AHYMO: BASIN OFF6A 2.693 cfs/acre

TAKE 1/2 OF ROAD AND PNM EASEMENT: 100'+53'=153'
LINEAR FEET OF ROAD PER ACRE: 43560/153=284.71'

CONVERT FLOW FROM CFS PER ACRE TO 2.693/284.71=
TO CFS PER LINEAR FEET OF ROAD: 0.0095 cfs/l.f.

LENGTH OF ROAD FROM TOP OF BASIN STA 8+25 - STA 4+63.5=
TO STA 8+25 361.5'

FLOW AT STA 8+25: 361.15 ft*0.0095 cfs/l.f.=3.42 cfs

Q(1/2 STREET) 3.42 cfs SLOPE 1.93%

FROM PLATE 22.3 D-3: 2.8 ft/s DEPTH 0.3
VELOCITY

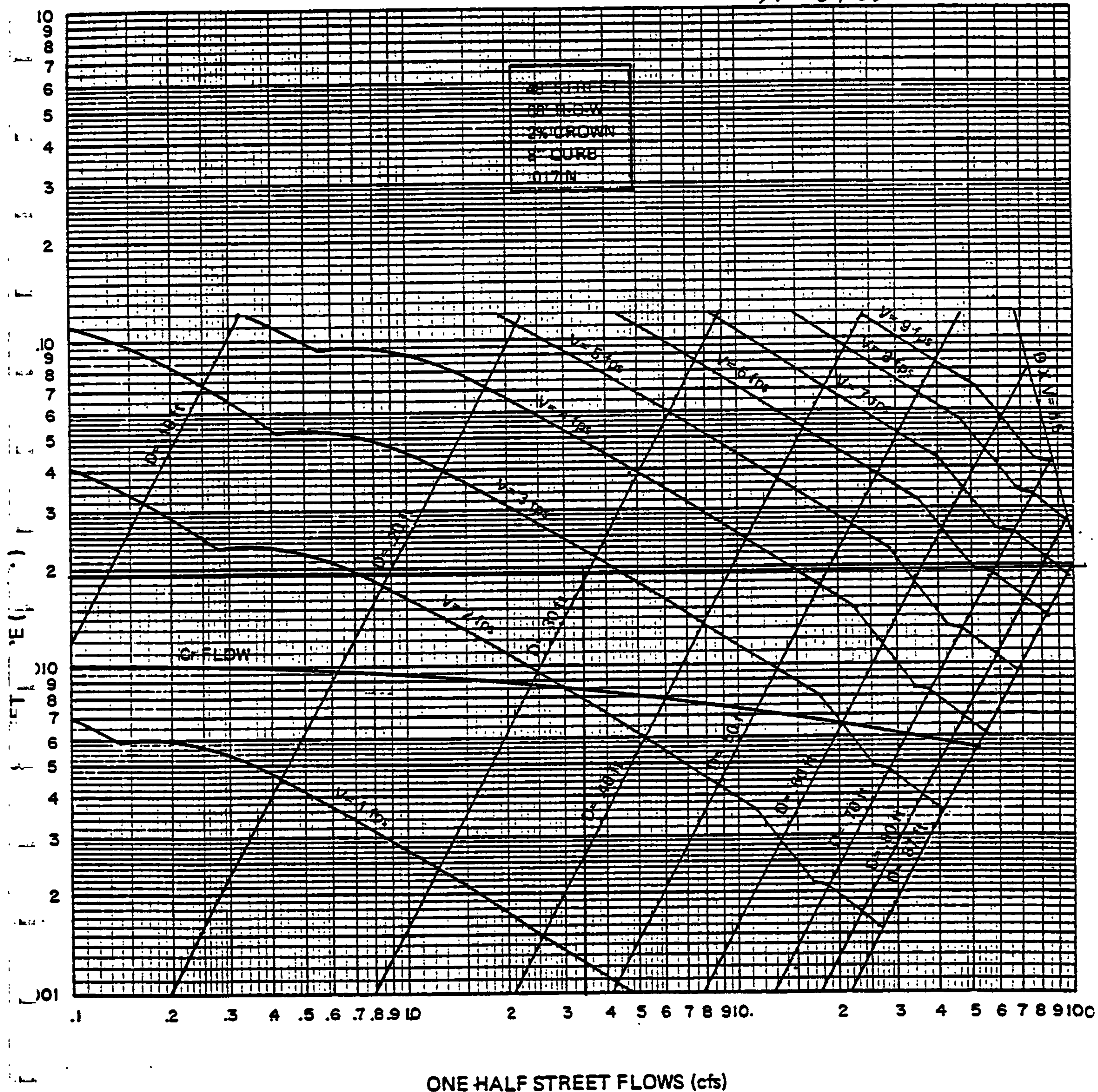
ENERGY GRADE 0.42 ft
ROW ELEVATION 0.85 ft OK

TYPE 'A' INLET Q(INLET) 2.80 cfs
Q(BYPASS) 0.62 cfs

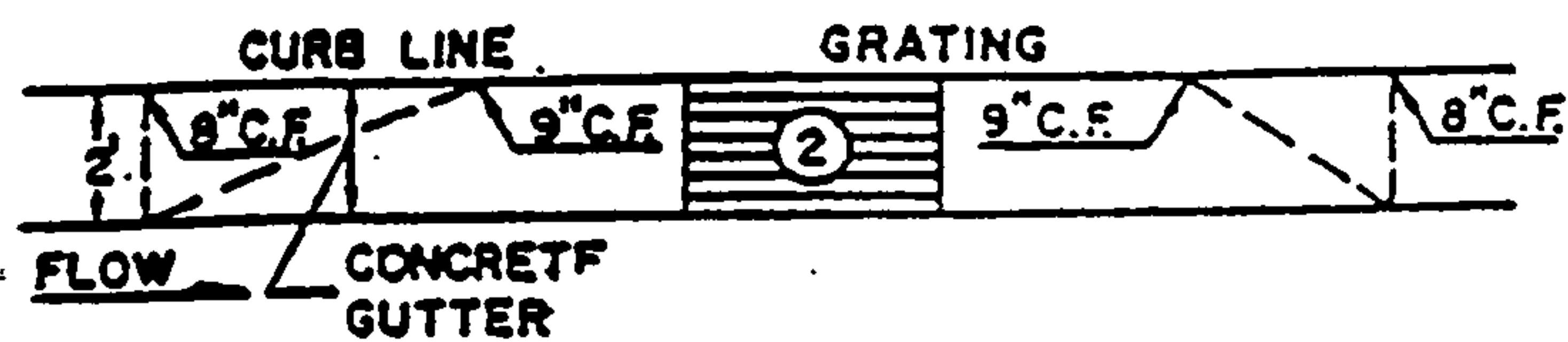
LET 0.62 CFS BYPASS TO NEXT INLET LOCATION

STREET CAPACITY

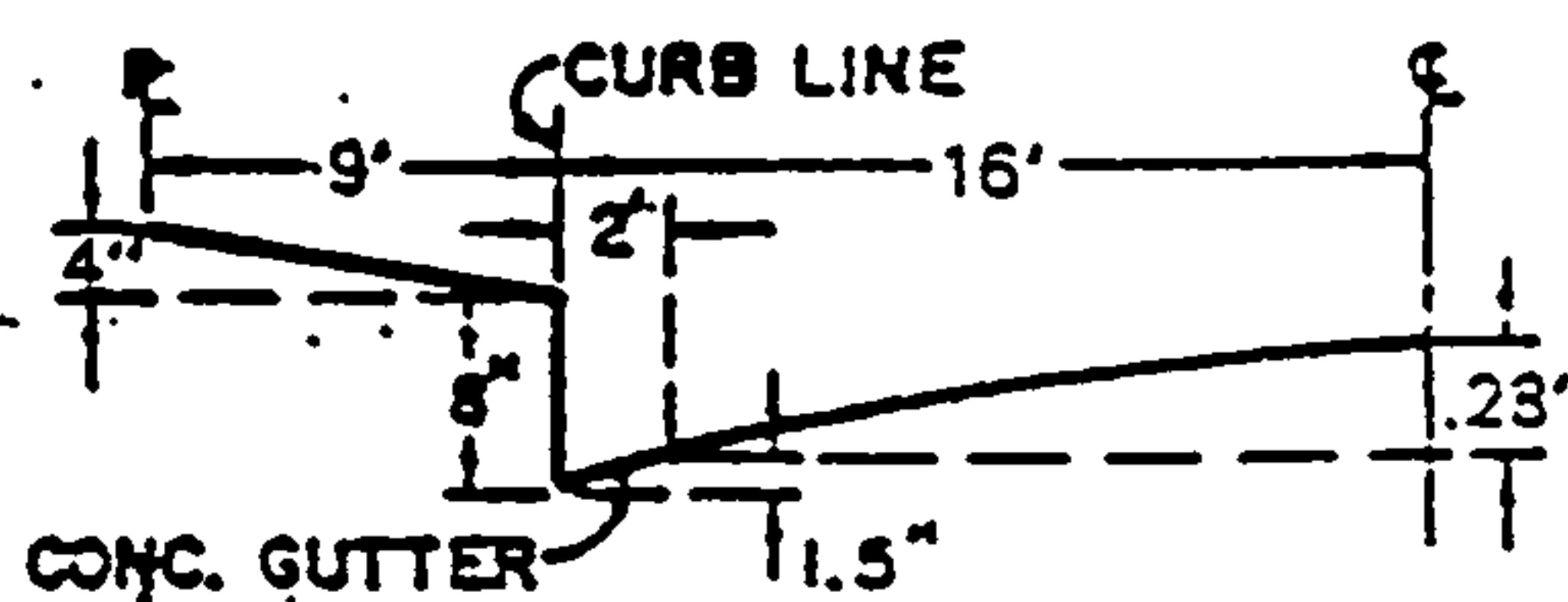
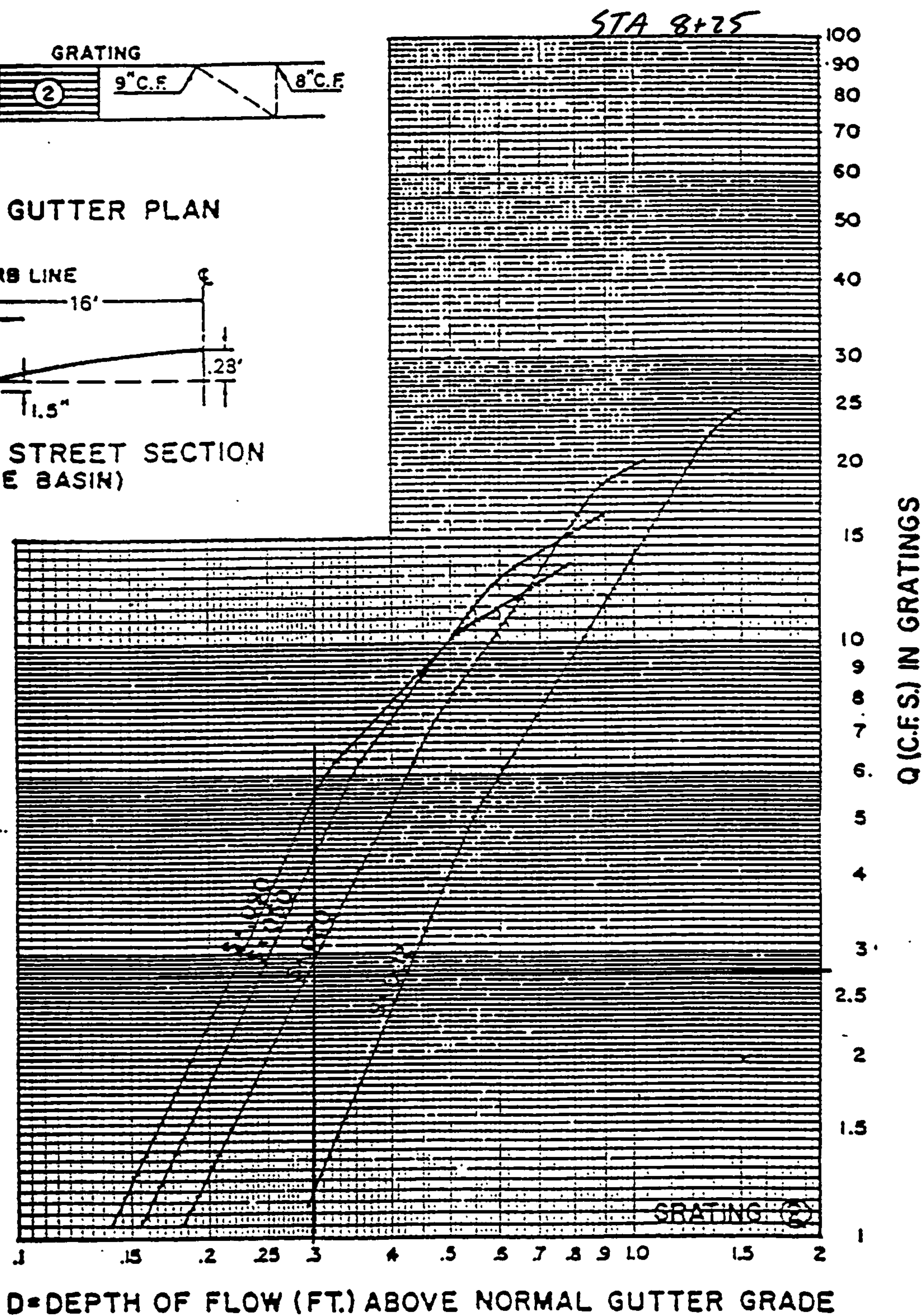
STA 8+25



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



GRATING & GUTTER PLAN

TYPICAL HALF STREET SECTION
(ABOVE BASIN)

INLET DESIGN

INLETS LOCATION: LADERA DRIVE - STATION 15+40

FROM AHYMO: BASIN OFF6A & OFF6B 2.693 cfs/acre

TAKE 1/2 OF ROAD AND PNM EASEMENT: 100'+53'=153'
LINEAR FEET OF ROAD PER ACRE: 43560/153=284.71'

CONVERT FLOW FROM CFS PER ACRE TO 2.693/284.71=
TO CFS PER LINEAR FEET OF ROAD: 0.0095 cfs/l.f.

LENGTH OF ROAD FROM TOP OF BASIN STA 15+40 - STA 8+25=
TO STA 15+40 715.0'

FLOW AT STA 15+40: 715 ft*0.0095 cfs/l.f.=6.79 cfs+0.62 cfs (BYPASS)

Q(1/2 STREET)	7.41 cfs	SLOPE	3.16%

FROM PLATE 22.3 D-3: VELOCITY	4.1 ft/s	DEPTH	0.35

ENERGY GRADE	0.61 ft		
ROW ELEVATION	0.85 ft	OK	

TYPE 'A' INLET Q(INLET)	4.75 cfs
Q(BYPASS)	2.66 cfs

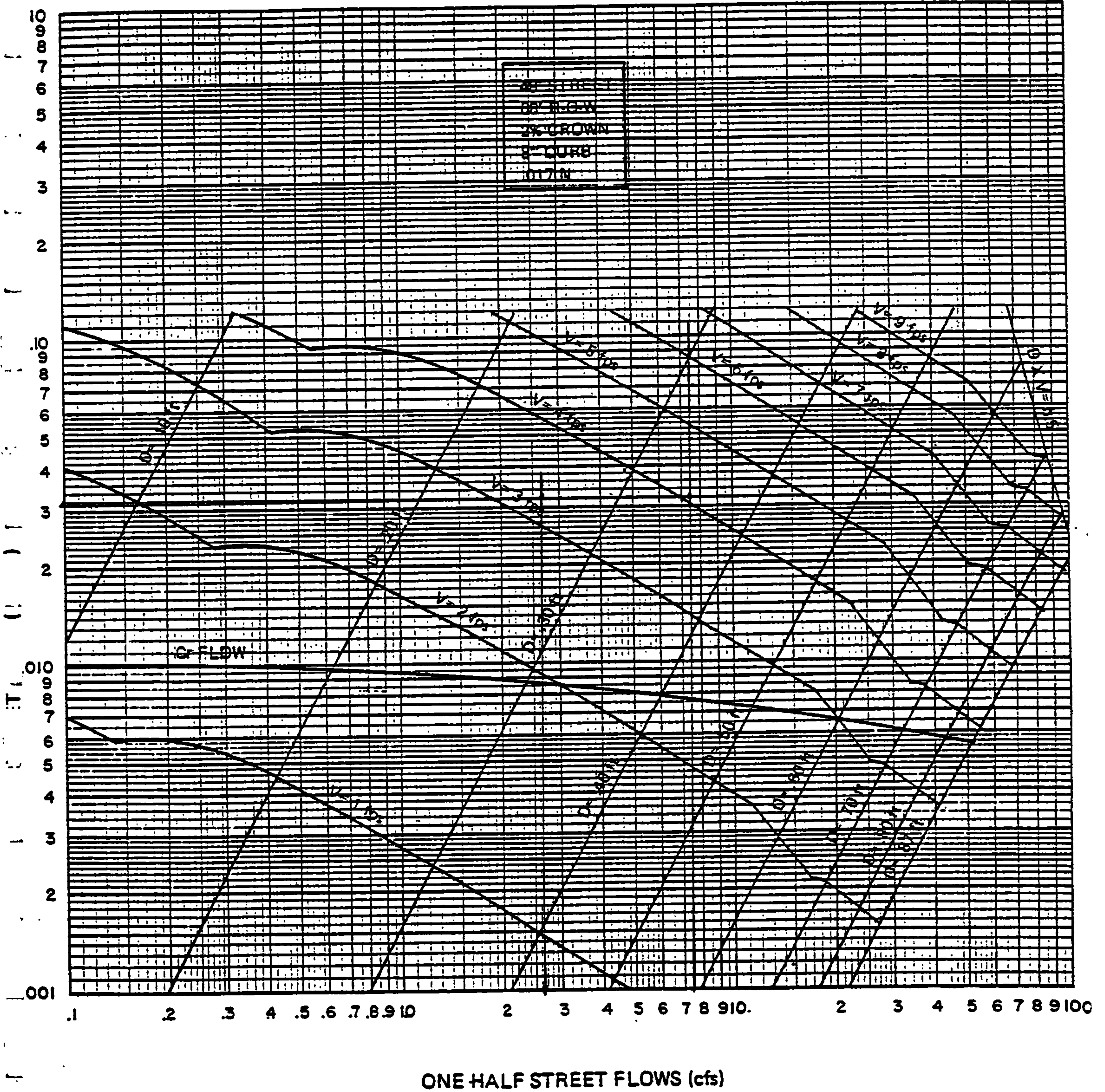
FROM PLATE 22.3 D-1: VELOCITY	3.3 ft/s	DEPTH	0.26

ENERGY GRADE	0.43 ft		
ROW ELEVATION	0.84 ft	OK	

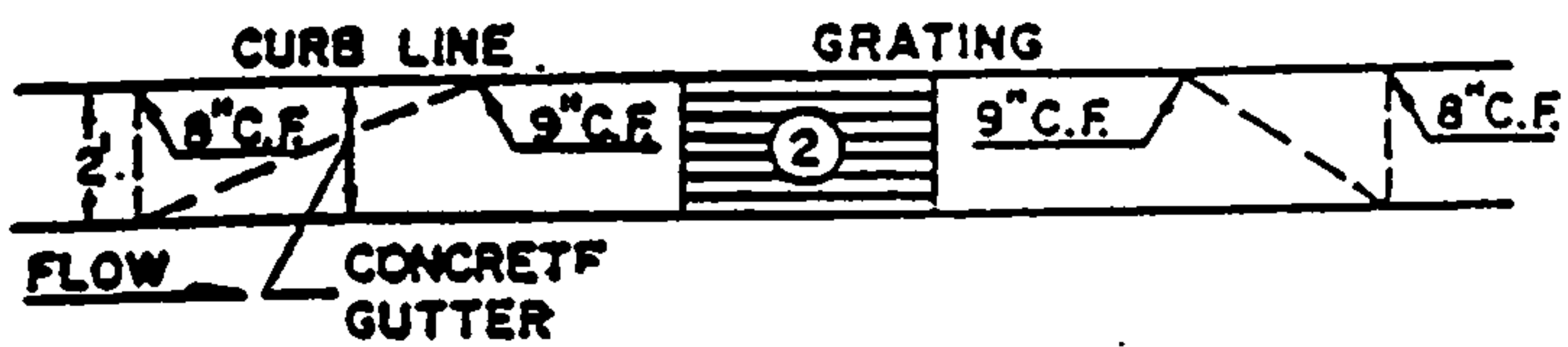
TYPE DOUBLE Q(INLET)	2.70 cfs
'C' INLET Q(BYPASS)	0.00 cfs

STREET CAPACITY

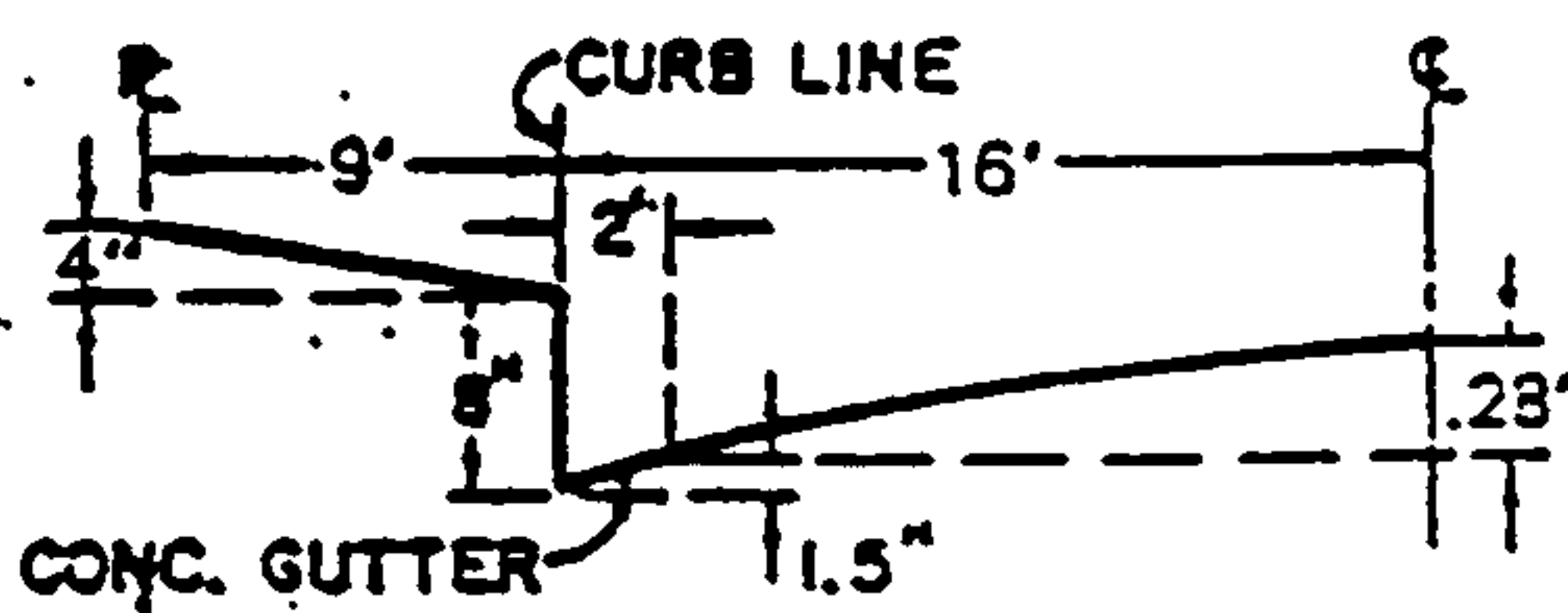
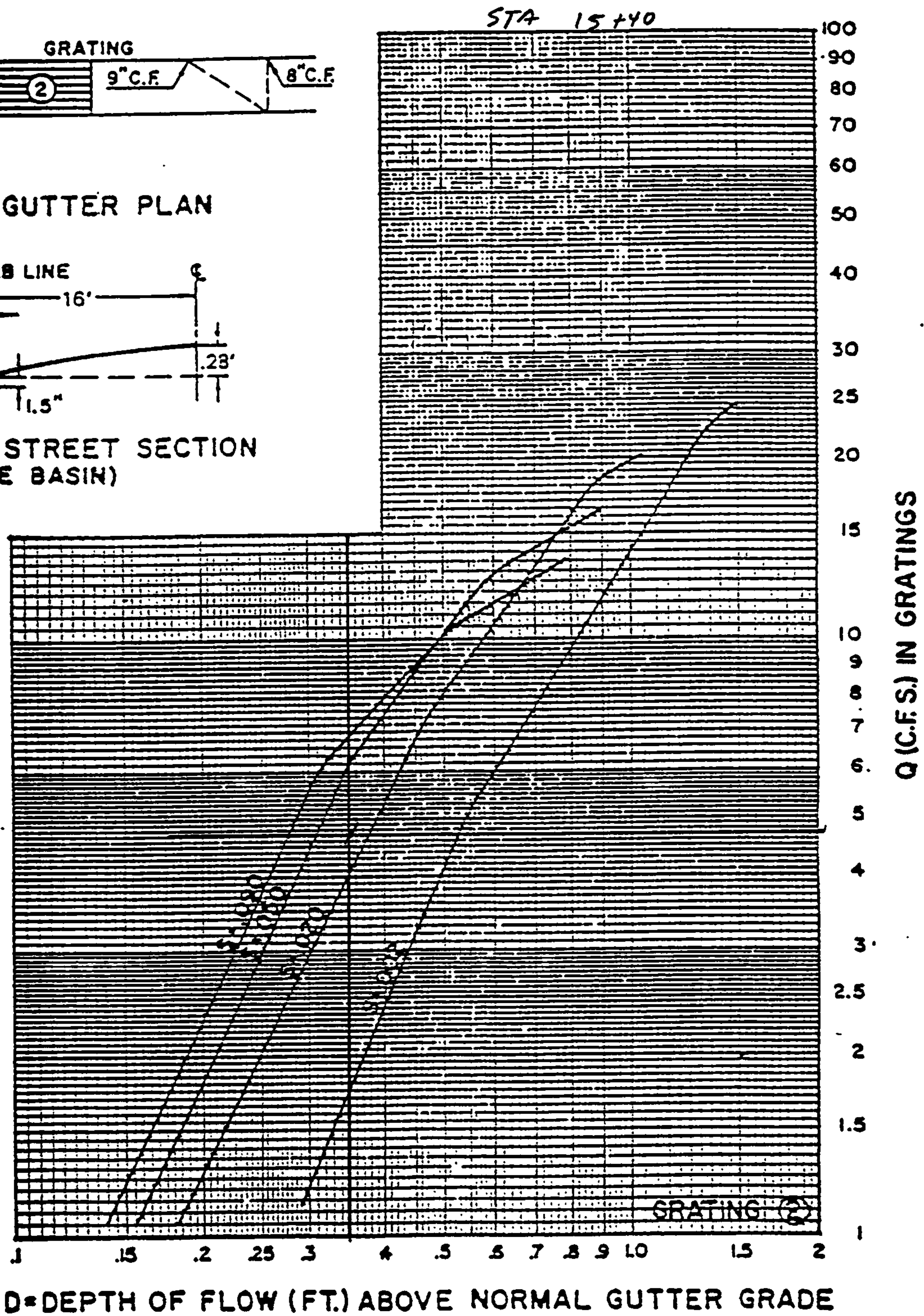
STA 15+40



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

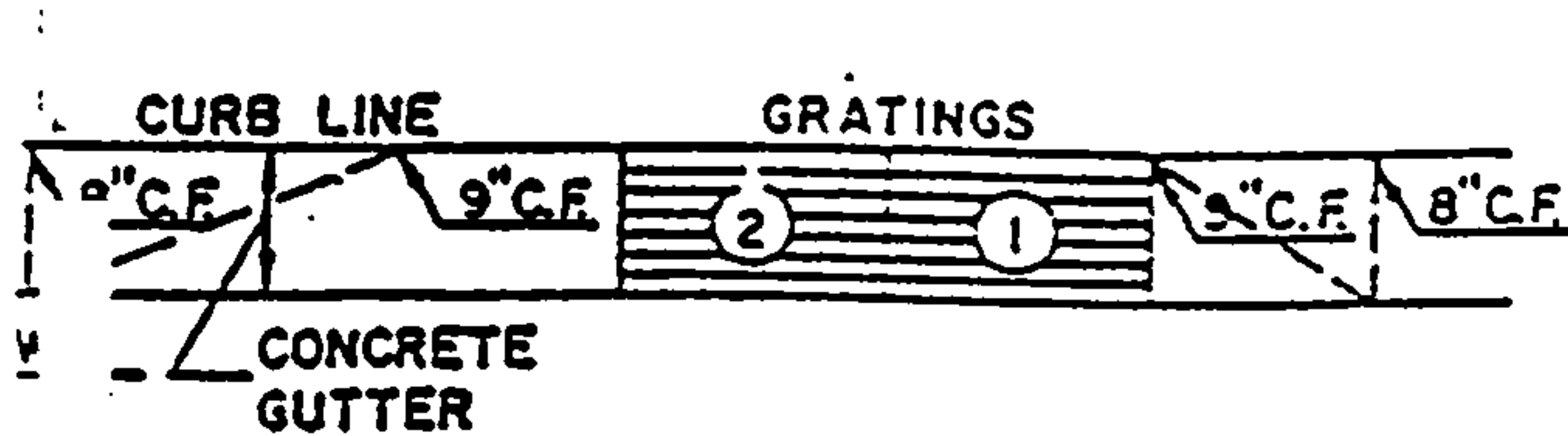


GRATING & GUTTER PLAN

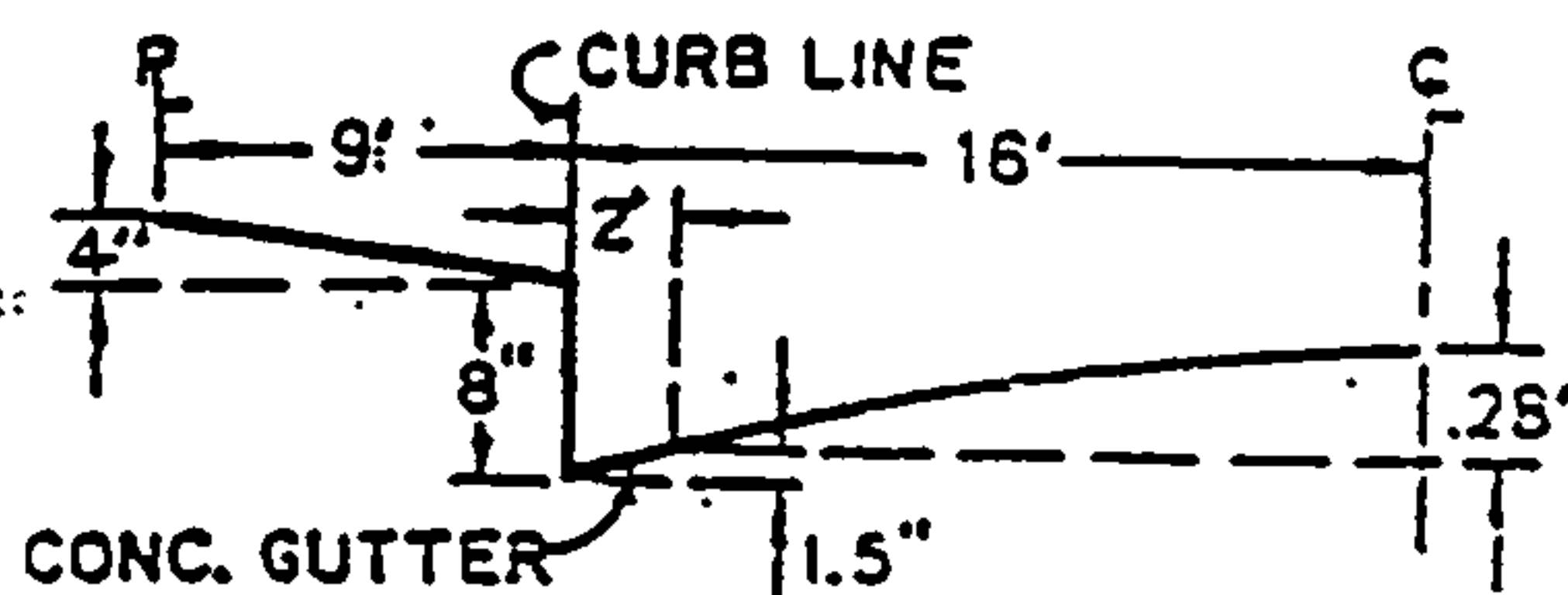
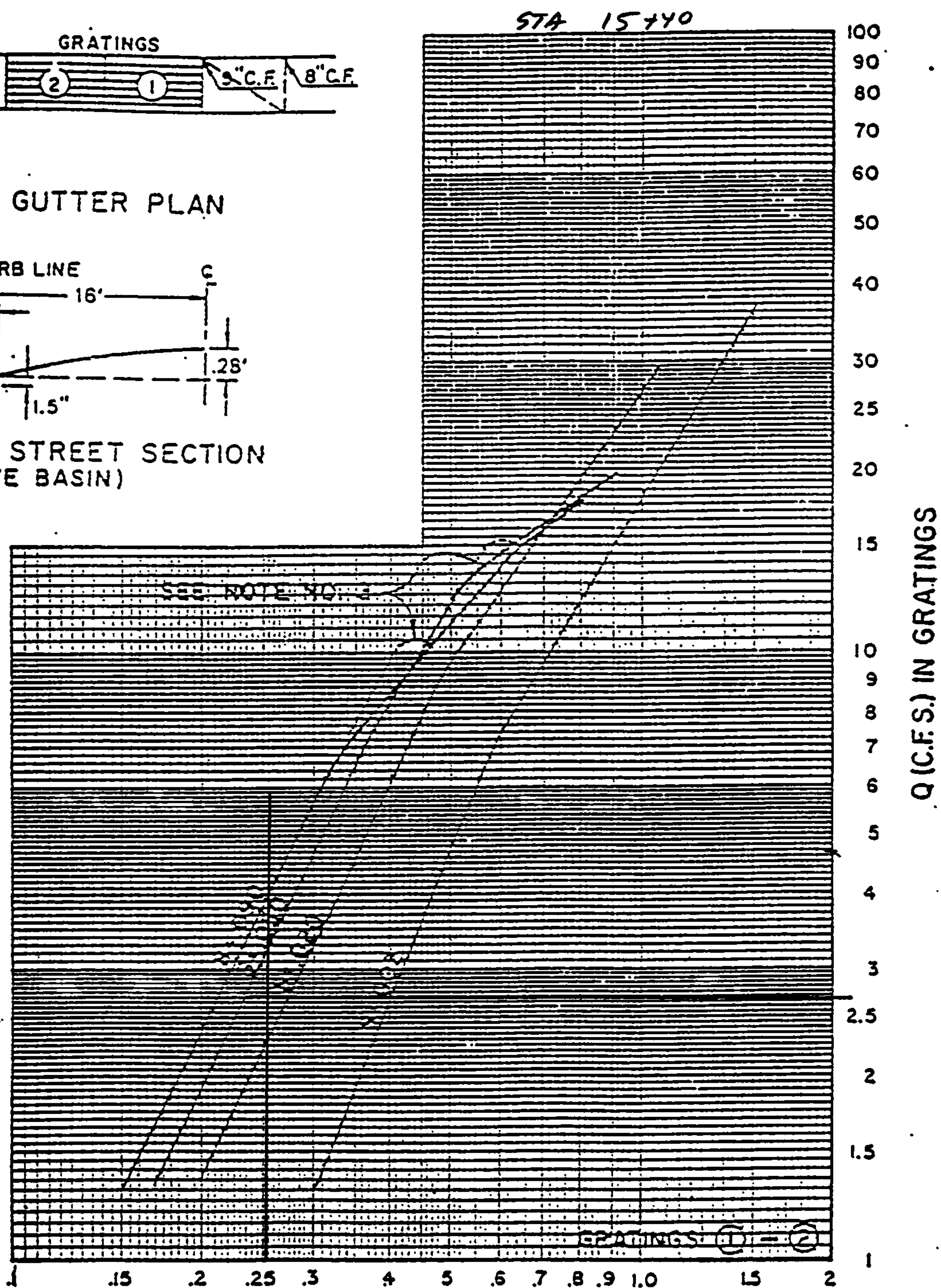
TYPICAL HALF STREET SECTION
(ABOVE BASIN)

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

INLET DESIGN

INLETS LOCATION: LADERA DRIVE - STATION 25+70 (SUMP)

FROM AHYMO: BASIN OFF6C 4.06 cfs/acre

TAKE 1/2 OF ROAD : 53'
LINEAR FEET OF ROAD PER ACRE: 43560/53=821.9'

CONVERT FLOW FROM CFS PER ACRE TO 4.06/821.9=
TO CFS PER LINEAR FEET OF ROAD: 0.0049 cfs/l.f.

LENGTH OF ROAD FROM TOP OF BASIN (WEST) STA 25+70 - STA 15+40=1030'
TO STA 25+70 (WEST AND EAST SIDES (EAST) STA 31+20 - STA 25+70=550'

FLOW AT STA 25+70 (WEST SIDE): 8.22 cfs
FLOW AT STA 25+70 (EAST SIDE): 4.68 cfs

WEST SIDE

Q(1/2 STREET) 8.22 cfs SLOPE 3.16%

FROM PLATE 22.3 D-3:
VELOCITY 4.2 ft/s DEPTH 0.36 ft

ENERGY GRADE 0.63 ft
ROW ELEVATION 0.85 ft OK

TYPE 'A' INLET Q(INLET) 5.00 cfs
Q(BYPASS) 3.22 cfs

TYPE 'A' INLET IN SUMP

ADD EAST FLOW AND BYPASS 7.9 cfs

FROM PLATE 22.3 D-1:
VELOCITY 4.1 ft/s DEPTH 0.35 ft

ENERGY GRADE 0.61 ft
ROW ELEVATION 0.84 ft OK

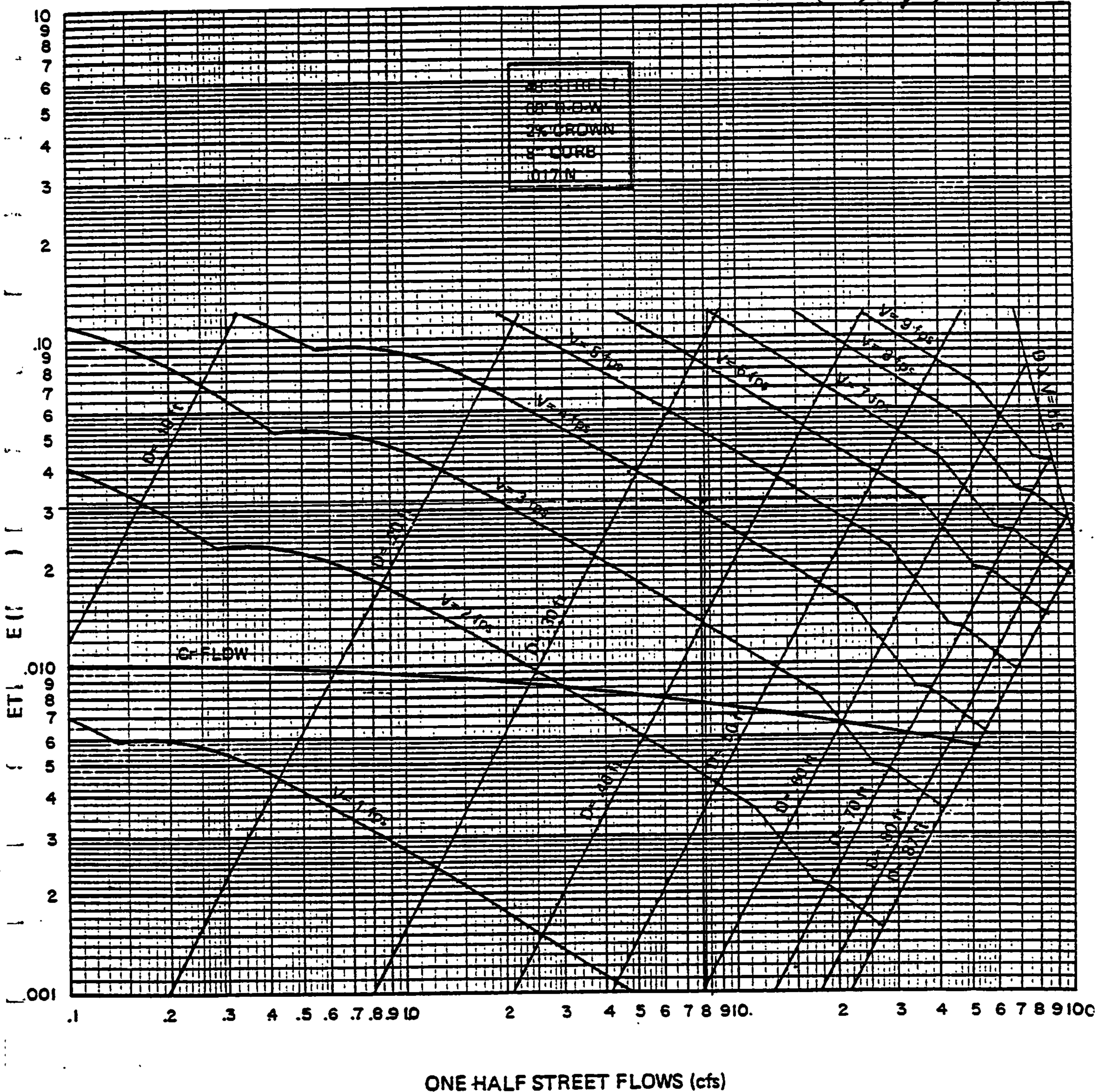
TOTAL FLOW 7.9 cfs

DEPTH 0.42 ft BASED ON WIER EQUATION

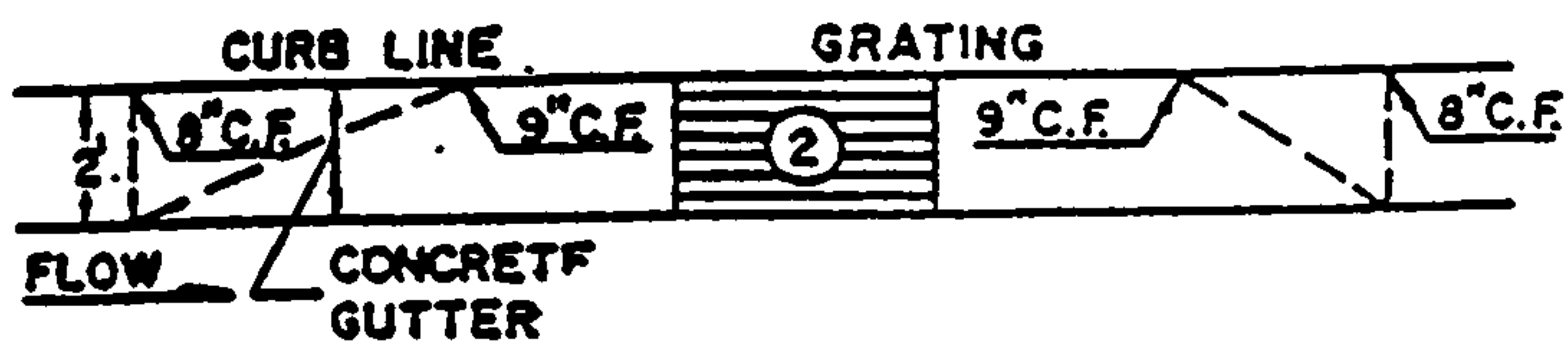
THEREFORE, ONE DOUBLE 'C' IS CAPABLE OF HANDLING 7.9 CFS
IN SUMP CONDITION

STREET CAPACITY

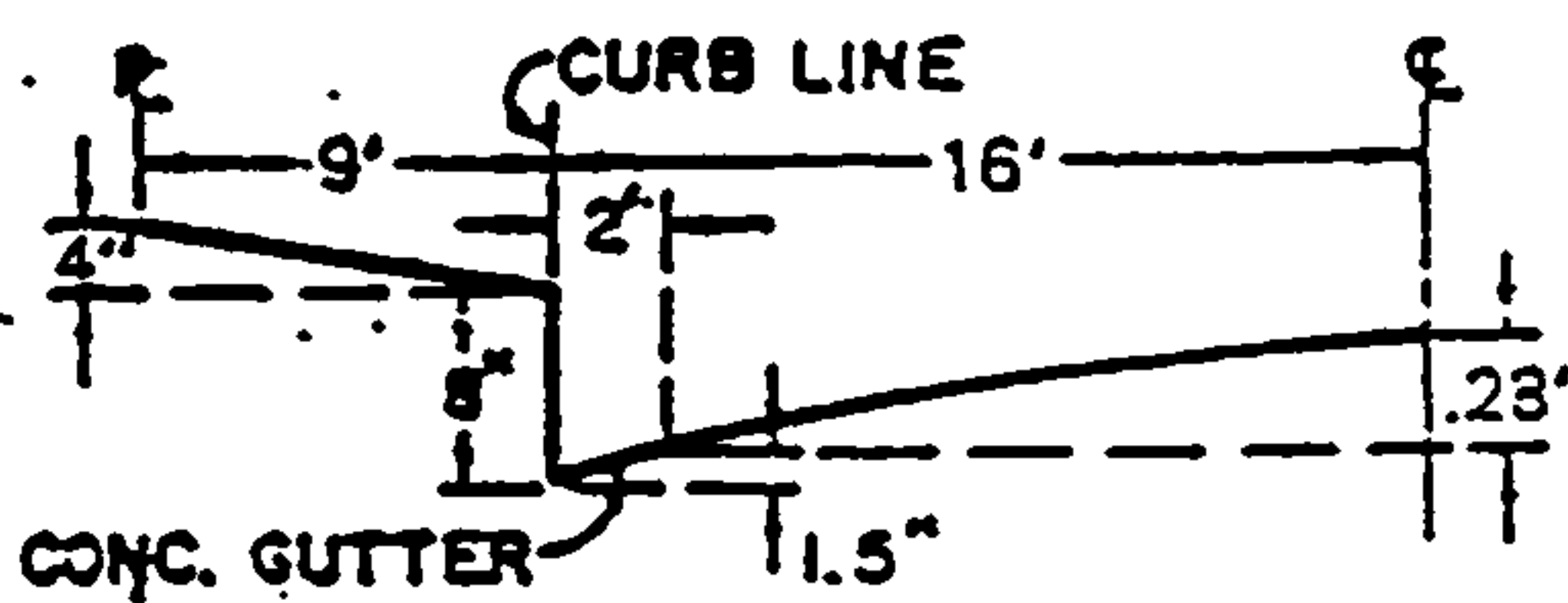
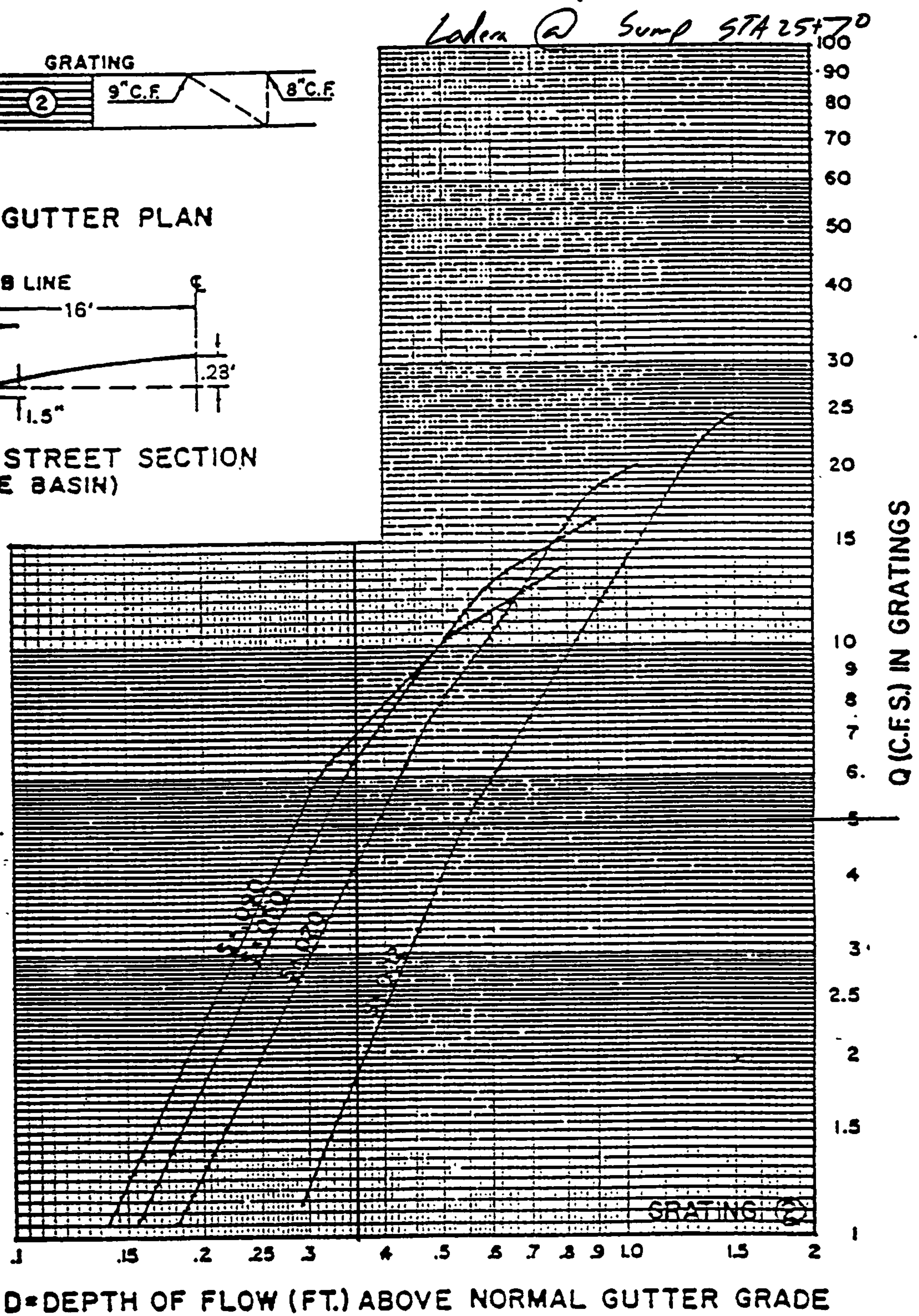
Ladora @ Swamp STA 25+70



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



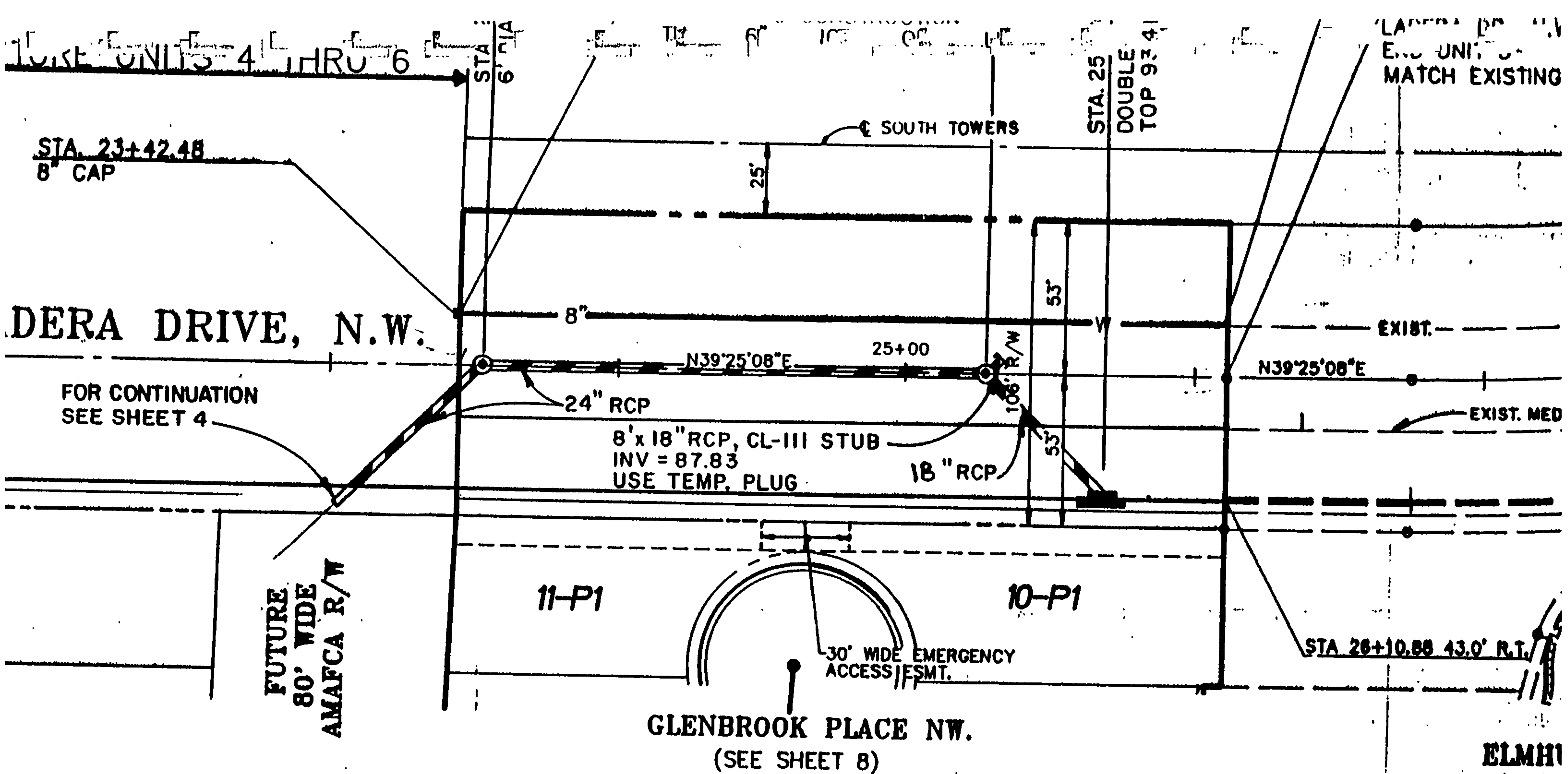
GRATING & GUTTER PLAN

TYPICAL HALF STREET SECTION
(ABOVE BASIN)

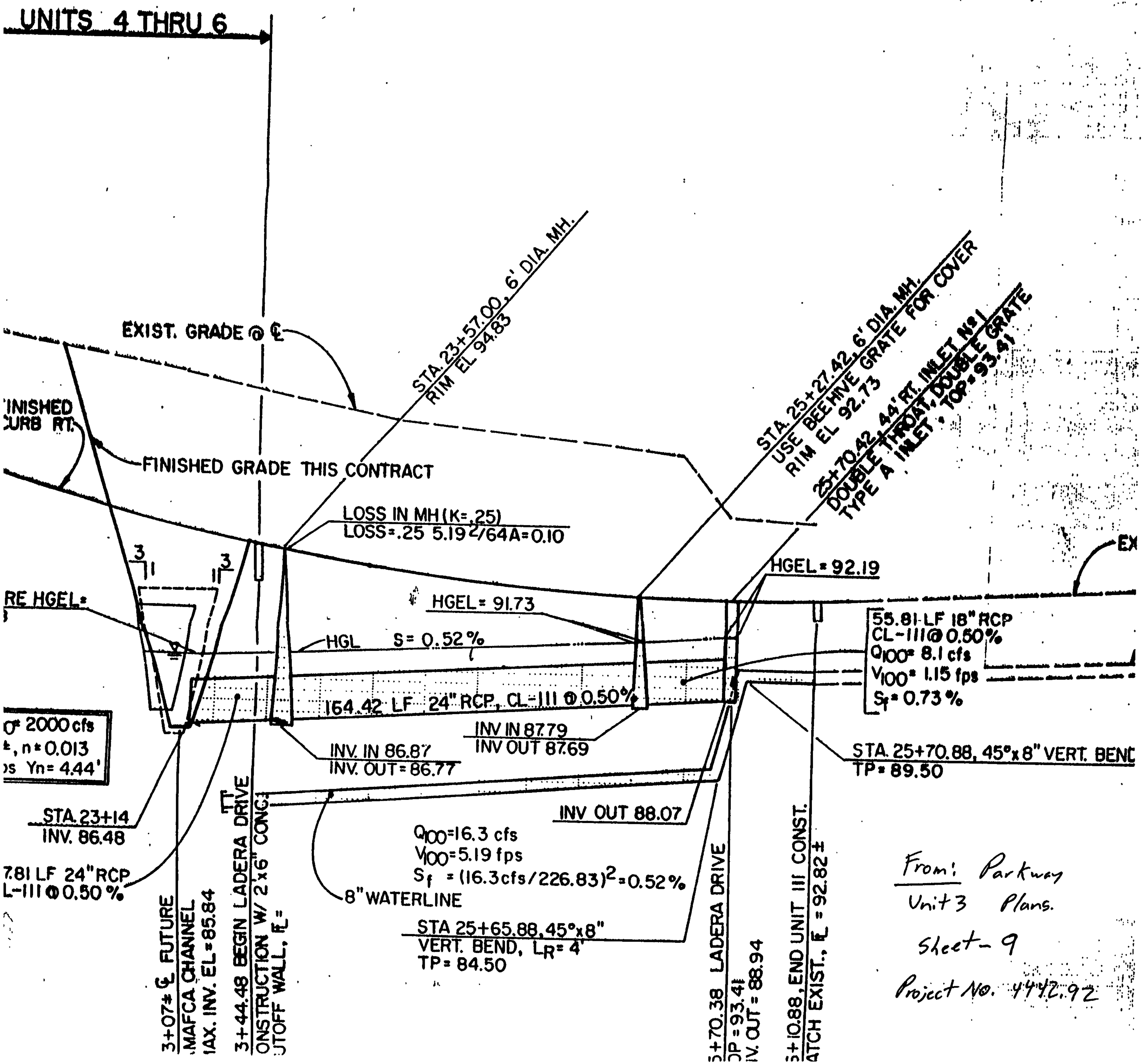
APPENDIX D

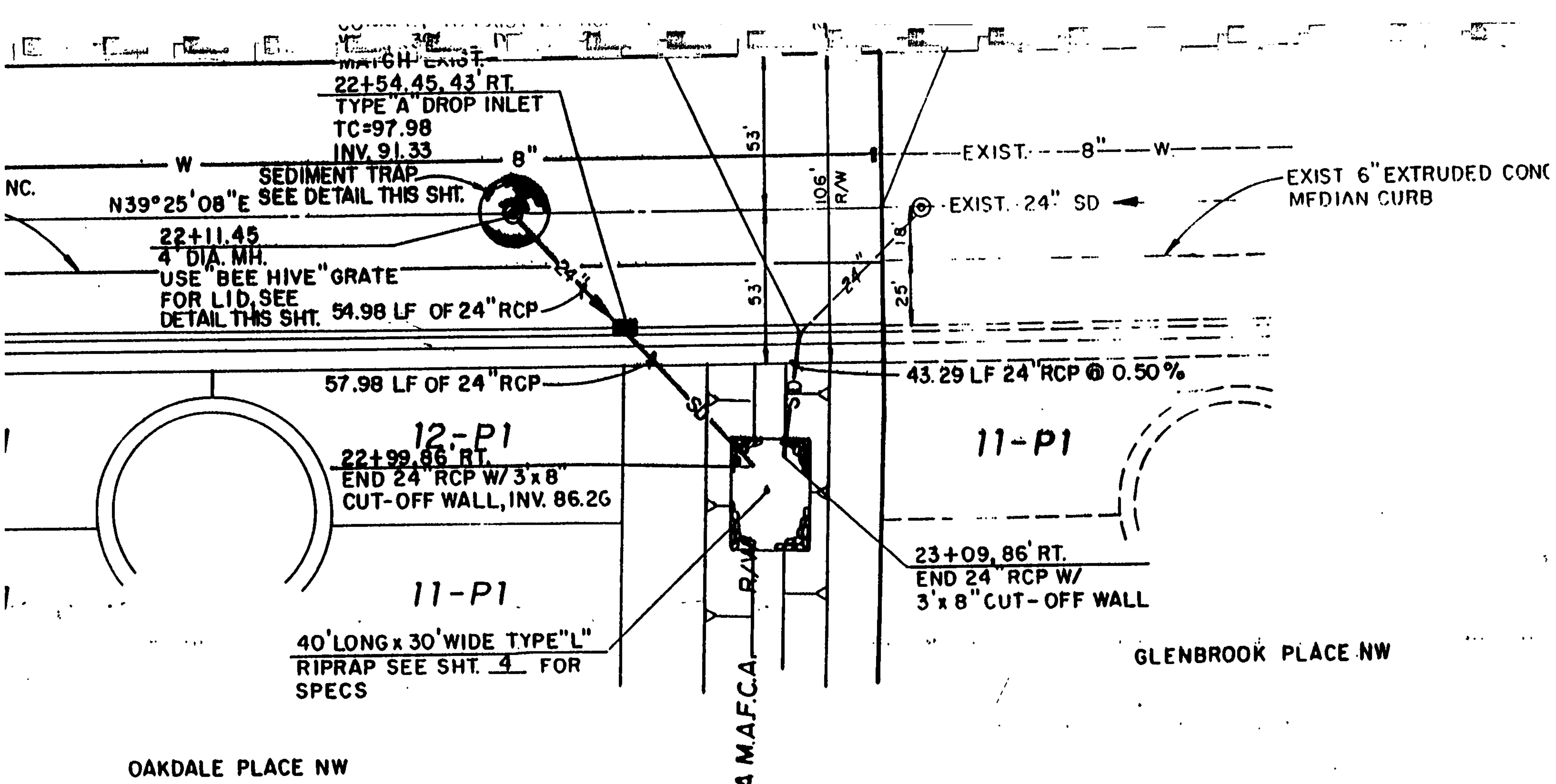
EXISTING STORM DRAIN PLANS

**FROM COMMUNITY SCIENCES CORP.
PARKWAY UNITS 3 & 4**

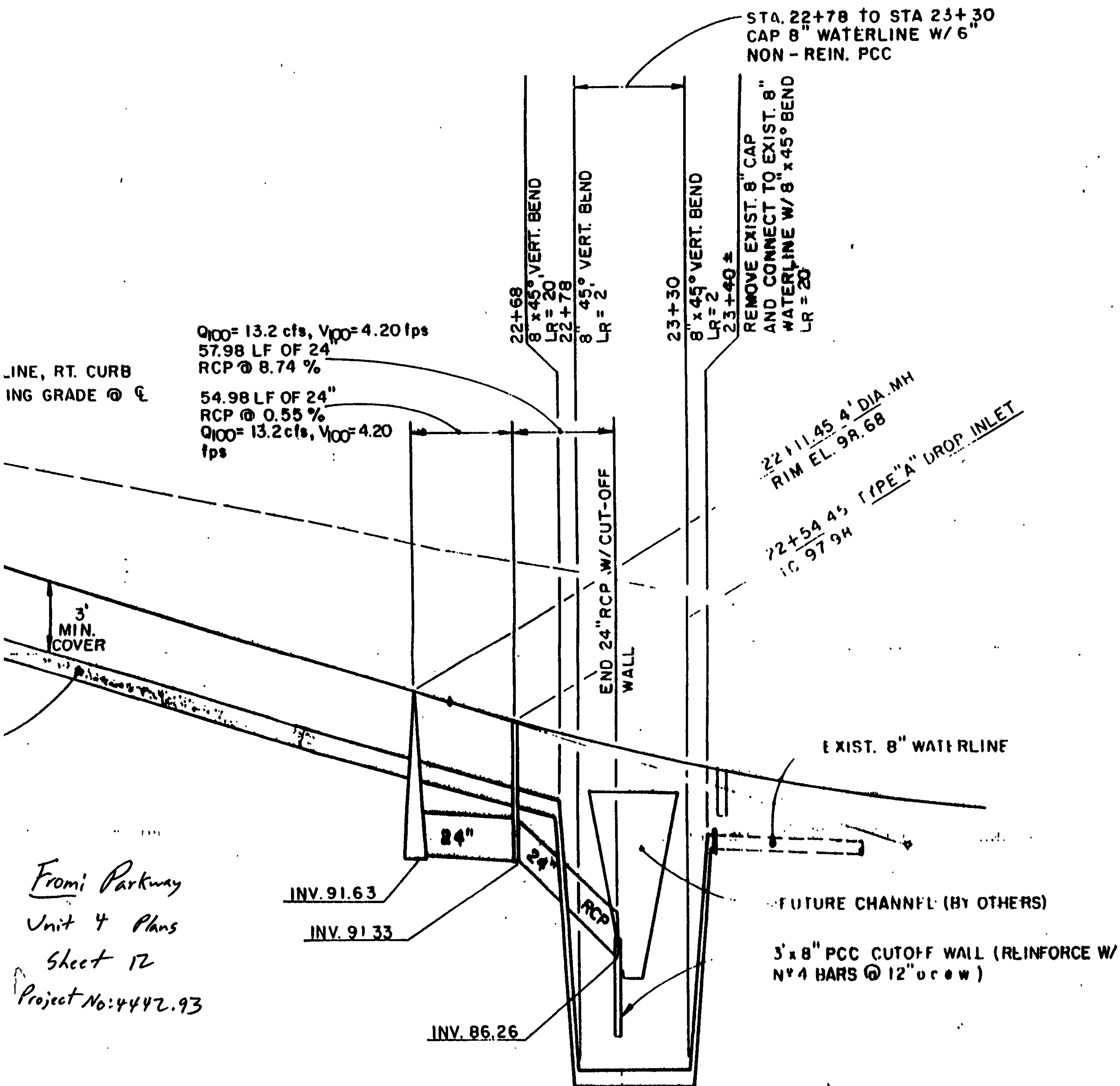


LADERA DRIVE, N.E. (STANDARD CURB AND GUTTER W/ARTERIAL)





LADERA DRIVE N.W.



APPENDIX E

AHYMO HISTORICAL FLOWS 10 YR. & 100 YR.

10 YR-6HR HISTORIC Summary

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
INPUT FILE = tohist.DAT

RUN DATE (MON/DAY/YR) =03/04/1996
USER NO.= CINFRNM.101

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
*S TIERRA OSESTE SUBDIVISION DRAINAGE REVISION DATE: 2/96										
*S Compute 10-Year Flow FN:TIERRA.DAT BY:RGG										
*S COMPUTE 10YR-6HR STORM FOR HISTORICAL FLOWS										
*S										
*S										
*S										
START										
RAINFALL TYPE= 1										
*S										
*S										
*S										
*S BASIN ON1A-----										
*S										
COMPUTE NM HYD	101.10	-	1	.00600	.95	.027	.08298	1.532	.248 PER IMP=	.00
*S										
*S BASIN ON1B-----										
*S										
COMPUTE NM HYD	102.10	-	2	.00780	1.24	.035	.08298	1.532	.248 PER IMP=	.00
*S										
*S BASIN ON2-----										
*S										
COMPUTE NM HYD	103.10	-	3	.01060	1.68	.047	.08298	1.532	.248 PER IMP=	.00
*S										
*S BASIN ON3-----										
*S										
COMPUTE NM HYD	104.10	-	4	.00830	1.32	.037	.08298	1.532	.248 PER IMP=	.00
*S										
*S BASIN OFF1A-----										
*S										
COMPUTE NM HYD	105.10	-	5	.01730	2.75	.077	.08298	1.532	.248 PER IMP=	.00
*S										
*S BASIN OFF1B-----										
*S										
COMPUTE NM HYD	106.10	-	6	.03730	4.63	.165	.08298	1.565	.194 PER IMP=	.00
*S										
*S BASIN OFF1C-----										
*S										
COMPUTE NM HYD	107.10	-	7	.05209	6.07	.231	.08298	1.565	.182 PER IMP=	.00
*S										
*S BASIN OFF2-----										
*S										
COMPUTE NM HYD	108.10	-	8	.00770	1.17	.034	.08298	1.532	.237 PER IMP=	.00
*S										
*S BASIN OFF3-----										
*S										
COMPUTE NM HYD	109.10	-	9	.00420	.67	.019	.08298	1.532	.248 PER IMP=	.00
*S										
*S BASIN OFF4A-----										
*S										
COMPUTE NM HYD	110.10	-	10	.00570	.91	.025	.08298	1.532	.248 PER IMP=	.00
*S										
*S BASIN OFF4B-----										
*S										
COMPUTE NM HYD	111.10	-	11	.00240	.38	.011	.08298	1.532	.249 PER IMP=	.00
*S										
*S BASIN OFF5-----										
*S										
COMPUTE NM HYD	112.10	-	12	.00330	.52	.015	.08298	1.532	.248 PER IMP=	.00
*S										
*S BASIN OFF6A-----										
*S										
COMPUTE NM HYD	113.10	-	13	.00620	.98	.027	.08298	1.532	.248 PER IMP=	.00
*S										
*S BASIN OFF6B-----										
*S										
COMPUTE NM HYD	114.10	-	14	.00740	1.17	.033	.08298	1.532	.248 PER IMP=	.00
*S										
*S BASIN OFF6C-----										
*S										
COMPUTE NM HYD	115.10	-	15	.00180	.29	.008	.08298	1.532	.249 PER IMP=	.00

TIME= .00
RAIN6= 1.470

*S
*S BASIN OFF6D-----
*S

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2 NOTATION
COMPUTE NM HYD	116.10	-	16	.00180	.29	.008	.08298	1.532	.249	PER IMP= .00
*S *S BASIN OFF7----- *S										
COMPUTE NM HYD	117.10	-	17	.00130	.21	.006	.08298	1.532	.249	PER IMP= .00
*S *S BASIN OFF8----- *S										
COMPUTE NM HYD	118.10	-	18	.05090	3.46	.225	.08298	1.698	.106	PER IMP= .00
*S *S FINISH										

100YR-6HR Summary
Historic

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
INPUT FILE = TOHIST.DAT

RUN DATE (MON/DAY/YR) =03/01/1996
USER NO.= CINFRNM.I01

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
*S TIERRA OSESTE SUBDIVISION DRAINAGE REVISION DATE: 2/96										
*S Compute 100-Year Flow FN:TIERRA.DAT BY:RGG										
*S COMPUTE 100YR-6HR STORM FOR HISTORICAL FLOWS										
*S										
*S										
*S										
START										
RAINFALL TYPE= 1										
*S										
*S										
*S										
*S BASIN ON1A-----										
*S										
COMPUTE NM HYD	101.10	-	1	.00600	5.00	.141	.43919	1.532	1.302 PER IMP=	.00
*S										
*S BASIN ON1B-----										
*S										
COMPUTE NM HYD	102.10	-	2	.00780	6.50	.183	.43919	1.532	1.302 PER IMP=	.00
*S										
*S BASIN ON2-----										
*S										
COMPUTE NM HYD	103.10	-	3	.01060	8.83	.248	.43919	1.532	1.301 PER IMP=	.00
*S										
*S BASIN ON3-----										
*S										
COMPUTE NM HYD	104.10	-	4	.00830	6.91	.194	.43919	1.532	1.302 PER IMP=	.00
*S										
*S BASIN OFF1A-----										
*S										
COMPUTE NM HYD	105.10	-	5	.01730	14.41	.405	.43919	1.532	1.301 PER IMP=	.00
*S										
*S BASIN OFF1B-----										
*S										
COMPUTE NM HYD	106.10	-	6	.03730	25.08	.874	.43919	1.565	1.050 PER IMP=	.00
*S										
*S BASIN OFF1C-----										
*S										
COMPUTE NM HYD	107.10	-	7	.05209	33.26	1.220	.43919	1.565	.998 PER IMP=	.00
*S										
*S BASIN OFF2-----										
*S										
COMPUTE NM HYD	108.10	-	8	.00770	6.20	.180	.43919	1.532	1.257 PER IMP=	.00
*S										
*S BASIN OFF3-----										
*S										
COMPUTE NM HYD	109.10	-	9	.00420	3.50	.098	.43919	1.532	1.303 PER IMP=	.00
*S										
*S BASIN OFF4A-----										
*S										
COMPUTE NM HYD	110.10	-	10	.00570	4.75	.134	.43919	1.532	1.302 PER IMP=	.00
*S										
*S BASIN OFF4B-----										
*S										
COMPUTE NM HYD	111.10	-	11	.00240	2.00	.056	.43919	1.532	1.304 PER IMP=	.00
*S										
*S BASIN OFF5-----										
*S										
COMPUTE NM HYD	112.10	-	12	.00330	2.75	.077	.43919	1.532	1.303 PER IMP=	.00
*S										
*S BASIN OFF6A-----										
*S										
COMPUTE NM HYD	113.10	-	13	.00620	5.17	.145	.43919	1.532	1.302 PER IMP=	.00
*S										
*S BASIN OFF6B-----										
*S										
COMPUTE NM HYD	114.10	-	14	.00740	6.17	.173	.43919	1.532	1.302 PER IMP=	.00
*S										
*S BASIN OFF6C-----										
*S										
COMPUTE NM HYD	115.10	-	15	.00180	1.50	.042	.43919	1.532	1.306 PER IMP=	.00

TIME= .00
RAIN6= 2.200

*S
*S BASIN OFF6D-----
*S

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE # 2 NOTATION
COMPUTE NM HYD	116.10	-	16	.00180	1.50	.042	.43919	1.532	1.306	PER IMP= .00
*S										
*S BASIN OFF7	-----									
*S										
COMPUTE NM HYD	117.10	-	17	.00130	1.09	.030	.43919	1.532	1.308	PER IMP= .00
*S										
*S BASIN OFF8	-----									
*S										
COMPUTE NM HYD	118.10	-	18	.05090	19.45	1.192	.43919	1.698	.597	PER IMP= .00
*S										
*S										
FINISH	:									