RECEIVED
AUG 19 1992
HYDROLOGY DIVISION

DRAINAGE INFORMATION SHEET

PROJECT TITLE: PARKWAY UNIT TWO ZONE ATLAS/DRNG. FILE#: H-9 /P/A/

LEGAL DESCRIPTION: UNPLATTED LANDS IN SECTIONS 9 & 16, T 10N, R 2 E

CITY ADDRESS: WEST SIDE UNSER BETWEEN I-40 AND LADERA DRIVE

ENGINEERING FIRM: COMMUNITY SCIENCES CORPORATION CONTACT: DOUG HUGHES

ADDRESS: PO BOX 1328, CORRALES, NM 87048 PHONE: 897-0000

OWNER: SIVAGE THOMAS HOMES, INC. CONTACT: LARRY COLLINS

ADDRESS: 5141 MASTHEAD NE, ALB., NM 87109 PHONE: 821-3511

ARCHITECT: N/A CONTACT:

ADDRESS: PHONE:

SURVEYOR: COMMUNITY SCIENCES CORPORATION CONTACT: CLIFF A. SPIROCK

ADDRESS: PO BOX 1328, CORRALES, NM 87048 PHONE: 897-0000

CONTRACTOR: N/A CONTACT:

ADDRESS: PHONE:

PRE-DESIGN MEETING:

____ YES

X NO

____ COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. 91-222

EPC NO.

PROJ. NO.

TYPE OF SUBMITTAL:

____ DRAINAGE REPORT

____ DRAINAGE PLAN

____ CONCEPTUAL GRADING & DRAINAGE PLAN

X GRADING PLAN

X 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

X ROUGH GRADING PERMIT APPROVAL

____ GRADING/PAVING PERMIT APPROVAL

____ OTHER _____ (SPECIFY)

DATE SUBMITTED: 8-19-92

BY: Toni McCarthy

AUG 21 1992

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Parkway Units 5 & 6 ZONE ATLAS/DRNG. FILE #: H9 & ~~J9~~ D1A1

LEGAL DESCRIPTION: Lands of Westland, Sections 9 & 10, T10N, R2E

CITY ADDRESS: West side of Unxer Blvd. between I-40 and Ladera Dr.

ENGINEERING FIRM: Community Sciences Corp. CONTACT: Jud Lee

ADDRESS: P.O. Box 1328, Corrales, NM 87048 PHONE: 897-0000

OWNER: SivageThomas Homes CONTACT: Ellery Biathrow

ADDRESS 5141 Masthead Ne, Alb., NM 87109 PHONE: 821-3511

ARCHITECT: N/A CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: Same as engineer CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: N/A CONTACT: _____

ADDRESS: _____ PHONE: _____

PRE-DESIGN MEETING:

_____ YES

XXX NO

_____ COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. 91-222

EPC NO. _____

PROJ. NO. 4442.94 & 4442.95

TYPE OF SUBMITTAL:

____ DRAINAGE REPORT

____ DRAINAGE PLAN

____ CONCEPTUAL GRADING AND DRAINAGE PLAN

XXX GRADING PLAN

XXX EROSION CONTROL PLAN

____ ENGINEER'S CERTIFICATION

RECEIVED
JUN 15 1993
HYDROLOGY DIVISION

DATE SUBMITTED: June 14, 1993

BY: _____

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

XXX ROUGH GRADING PERMIT APPROVAL

____ GRADING/PAVING PERMIT APPROVAL

XXX OTHER Work Order (Units 5&6) (SPECIFY)

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

May 20, 1993

Michael J. Yost, P.E.
Community Sciences Corporation
Post Office Box 1328
Corrales, New Mexico 87048

RE: GRADING AND DRAINAGE PLAN FOR PARKWAY UNIT TWO, (H9-D1A1)
ENGINEER'S STAMP DATED MARCH 3, 1993

Dear Mr. Yost:

Based on the information provided on the referenced submittal received April 28, 1993, the Engineer's Certification meets the requirements for financial guarantee release as identified on the infrastructure list for Phase Two only.

If you should have any questions, please do not hesitate to call me at 768-2650.

Cordially,

Gilbert Aldaz, P.E & P.S.
Civil Engineer/Hydrology

GA/WPHYD/363

xc: Lynda Michelle DeVanti, DRC
File

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 2, 1992

Michael Yost, P.E.
Community Sciences Corporation
Post Office Box 1328
Corrales, New Mexico 87048

RE: DRAINAGE PLAN FOR PARKWAY SUBDIVISION (H-9/D1A1)
ENGINEER'S STAMP DATED MARCH 12, 1992

Dear Mr. Yost:

Based on the information provided on the referenced submittal received March 13, 1992, the master drainage plan is approved for Parkway Subdivision.

Please be advised that prior to sign-off of Unit 1, acknowledgement from AMAFCA is required on their acceptance of the plan for their future channel.

If you should have any questions, please do not hesitate to call me at 768-2650.

Cordially,

Gilbert Aldaz, P.E & P.S.
Civil Engineer/Hydrology

xc: Clifford E. Anderson, AMAFCA

GA
(WP+363)

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

May 20, 1993

Michael J. Yost, P.E.
Community Sciences Corporation
Post Office Box 1328
Corrales, New Mexico 87048

RE: GRADING AND DRAINAGE PLAN FOR PARKWAY UNIT FOUR, (H9-D1A1)
ENGINEER'S STAMP DATED MARCH 25, 1993

Dear Mr. Yost:

Based on the information provided on the referenced submittal received May 6, 1993, the plan is acceptable for Rough Grading and Work Order approval.

Please be advised that prior to final plat approval, the temporary diversion along the south boundary of this subdivision requires that a maintenance covenant and temporary easement be executed with the City.

If you should have any questions, please do not hesitate to call me at 768-2650.

Cordially,

Gilbert Aldaz, P.E & P.S.
Civil Engineer/Hydrology

xc: Clifford E. Anderson, AMAFCA
Fred Aguirre, City Hydrologist

GA/WPHYD/363

File

community sciences corporation

DRAINAGE MANAGEMENT PLAN

FOR THE

DEVELOPMENT OF

PARKWAY SUBDIVISION

ALBUQUERQUE, NEW MEXICO

PREPARED FOR:

SIVAGE THOMAS HOMES, INC.,

PREPARED BY:

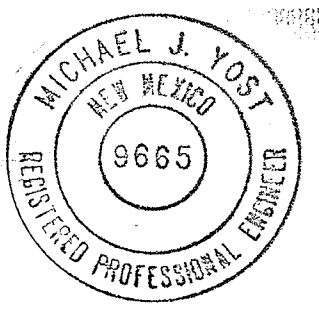
COMMUNITY SCIENCES CORPORATION

(505) 897-0000

SEPTEMBER, 1991

REVISED FEBRUARY, 1992

UPDATED MARCH, 1992



Michael J. Yost

MICHAEL J. YOST, P.E.

3/12/92

P.O. Box 1328
Corrales, New Mexico 87048
(505) 897-0000

SURVEYING
LAND PLANNING
CIVIL ENGINEERING
DEVELOPMENT CONSULTANTS

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Appendices

Appendix A - AHYMO 491 Output

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Plates

Plate 1 - Conceptual Grading and Drainage Plan - with Location Map

Unit 1 - Grading and Erosion Control Plan

Unit 1 - Storm Drain Plan and Profile

A) Purpose and Scope

Sivage Thomas Homes, Inc., is planning to plat a 58.1 acre portion of the unplatted lands of Westland. The development is to consist of 247 single family, detached housing lots. This report presents an overall Drainage Management and Conceptual Grading Plan for approval by the City of Albuquerque so that subsequent platting and development may commence.

B) Site Location and Topography

The project site is located along the west side of Unser Boulevard, NW, between Interstate 40 and Ladera Drive, NW (see vicinity map).

The land generally slopes from northwest to southeast at an average slope of approximately two percent. Soils are typically fine, silty sands. These soils are representative of the "Bluepoint" soil series as shown in the Soil Survey of Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico, US SCS, 1977. This series falls in the US SCS hydrologic group "A".

According to the US FEMA Map (Community No. 350002, Panels 27 and 21) prepared in 1983, no part of the site lies within a 100-YR floodway.

C) Design Criteria

Flood Control Regulations

The drainage plan presented in this report has been designed to comply with AMAFCA resolution 80-15 which requires that proposed land development projects be designed such that no flooding of private properties will occur during any storm up to and including the 100-year frequency event.

Engineering Parameters

In accordance with AMAFCA criteria all hydrological analysis is based on the 100-year frequency- 6-hour duration storm as represented in the NOAA Atlas for New Mexico.

The four rainfalls values pertinent to the study are as follows:

Duration	100-YR Precipitation	10-YR Precipitation
One Hour	1.9"	1.27"
Six Hour	2.2"	1.47"

D) Computational Procedures

The analysis approach utilized follows standard engineering practice. Key points of confluence were selected, and subsequently the associated individual and aggregate contributing basins were defined.

Hydrological computations were accomplished by means of AHYMO 491 (AMAFCA's April 1991 version of the HYMO computer model) and the criteria presented in the January, 1991 version of Chapter 22.2 of the City Development Process Manual. After the original submittal was made, the City Hydrology Section advised the latest possible version of HYMO be used. The newly released HYMO 1991 generated the same peak flows and volumes as the April, 1991 version. Therefore, it was decided the April version would be pertinent to this report.

Times of concentration were estimated by using a combination of approximated street flow velocities and overland flow velocities (as applicable) from the upper subcatchment reaches to the confluence point of interest. A convenient formula for overland flow velocity takes the form:

$$Vo = KY^{0.5}$$

where Vo = overland flow velocities

Y = average ground slope in percent

K = a ground cover factor

Street flow velocities and depths were estimated by use of the Manning equation for uniform flow.

All the characteristic hydrological parameters for each subcatchment are contained in Appendix A as part of the computer model output, and a summary of parameters and peak flow rates are given in Tables 1A, 1B, AND 1C.

Flow characteristics for conveyance swales, channels and streets were analyzed based on the Manning Equation for uniform flow. Streets are assumed to have a 2% cross slope from curb to crown.

Storm drains were sized using the Manning Equation for uniform flow, and assuming full flow conditions. Final storm drain design will be based on an hydraulic gradient analysis.

Following hydrological modeling street flow characteristics were analyzed by various methods. For uniform flow conditions the Manning equation with an "n" of 0.017 was used. At intersections the worst of two conditions was assumed. The theoretical hydraulic jump depth for upstream flow conditions was computed followed by the theoretical pool depth to accelerate the flow from a reduced velocity head to downstream conditions. Whichever value was higher was assumed to be the potential flood depth. It should be noted that this approach is valid only for incoming supercritical flow conditions at tee intersections. Subcritical flow conditions are not considered critical at intersections unless normal flow

depth is above required limits. Table 2 summarizes uniform street flow conditions at key locations while Table 3 presents computed parameter values at critical intersections. Sample calculations are included in Appendix B.

E) Off-site Drainage

The Ladera Pond system intercepts and diverts any significant upstream, off-site drainage basins. However, there is a relatively small basin designated as Basin Y that does contribute flows that are to be routed through the project site. In addition, Basin Z contributes run off that will impact the site, but will be diverted by the swale illustrated on the Unit 1 Grading Plan.

Another aspect of the off-site drainage that must be considered in AMAFCA's intent to build a diversion from Ladera Pond No. 12 to the proposed, Phase II West Bluff Outfall Channel. This diversion is to have a 2,000 CFS capacity. Plate 2 shows the dimensions for a typical concrete lined channel. Given that this channel would be 42 feet wide, a 72 foot wide right-of-way will be adequate. This was verified by AMAFCA during a meeting at their office on October 3, 1991. During this same meeting, it was agreed that Parkway Drive would be a normal section across the AMAFCA right-of-way with a low flow culvert until the channel is constructed. At the time the channel is constructed a concrete, trapezoidal culvert will be required and AMAFCA will negotiate with the affected land owners and developers for the cost share scenario for its construction.

F) On-site Drainage

As stated before, AMAFCA intends to eventually build a diversion channel from Ladera Pond No. 12 to the proposed West Bluff Phase II Channel. Once this channel is constructed, it will serve as the free-discharge-outfall for the subdivision. Until that time, a temporary detention pond is needed to attenuate the 100-year peak. The purpose of

this pond is to attenuate an expected peak flow to the downstream capacity which is approximately 110 CFS. It is proposed that this pond will be in the right-of-way being dedicated to AMAFCA. The storm drain system shown along Unser Boulevard is designed to be easily connected into a system that would drain into AMAFCA's channel.

Because the development of Units 1, 2, and 3 will not cause a peak flow greater than downstream capacity (111 CFS vs 110 CFS) no detention ponding is needed until the development of Unit 4, 5, and 6 commences.

Downstream capacity, concerning volume as well as peak flow is also a concern that is addressed by this report. Plate 2 illustrates the downstream area that would be affected by the development of Parkway. It can be seen that Parkway will drain to the existing Laurelwood Pond via the Hanover Road storm drain into the pond along with flows from the existing Laurelwood Subdivision. The existing expected peak outflow and 100-year storage volume for the pond is 27.5 CFS and 13.9 acre feet, respectively. Development of Parkway, in its entirety, including an on-site detention pond would yield peak outflow and 100-year storage volume values of 29.6 CFS and 18.4 acre feet, respectively. Be developing only Units 1, 2, and 3 (without the on-site detention pond), these values would be 28.5 CFS and 15.5 acre feet. In all of the above cases the pond will contain and release the flows with the primary outlet only. The pond will not be breached.

It is recognized that more volume of runoff can be expected downstream (south of I-40) but that the amount of increase will be relatively small, will occur only during very severe storm events because of the Laurelwood and on-site detention ponds and this is a temporary condition until the AMAFCA channel diverts Parkway runoff to the proposed West Bluff Outfall Facility. This extra volume would result in approximately 0.07 feet of increased depth in the 100-year floodplain that exists in this playa area. It is reasonable

to assume this would not significantly exacerbate any existing flood problems. In addition, a recent 24 inch storm drain has been installed since the FEMA mapping.

G) Erosion Control

Control of excessive soil erosion into streets and drainage improvements during construction will be accomplished by use of temporary lot line, water-trap berms. These will be windrowed into place following mass grading operations and left in place until each home is constructed and sold. Plate 2 illustrates the dimensions of these berms, and they will be located along those boundaries of each lot which are common to streets or drainage easements.

H) Unit 1 Development

At the time of the March, 1992 Update to this drainage management plan, the development plans for Unit 1 have been essentially completed. Therefore, the final grading plan, and the storm drain plan and profile have been included as supplements. The hydraulic calculations for the storm drain are included in Appendix C.

TABLE 1A
HYDROLOGICAL FLOW PARAMETERS - EXISTING CONDITIONS

BASIN DESIG.	AREA (SQ. MI.)	Tc (MIN.)	LAND TREATMENT (%) A	B	C	D	CONTR. BASINS	TOTAL AREA (SQ. MI.)	Q100 (CFS)	Q10 (CFS)	REMARKS
Y	.0243	12	100	0	0	0	-----	.0243	20.6	4.0	UNDEVELOPED
X	.0679	12	100	0	0	0	Y	.0922	69.5	12.5	UNDEVELOPED
L	.1898	12	30	19	10	41	X,Y	.2820	415.8	191.8	INCLUDES DEVELOPED CONDITIONS FOR LAURELWOOD
L	-----	--	--	--	--	--	-----	-----	27.5	20.9	OUTFLOW FROM LAURELWOOD POND

TABLE 1B
HYDROLOGICAL FLOW PARAMETERS - DEVELOPED CONDITIONS

BASIN DESIG.	AREA (SQ. MI.)	Tc (MIN.)	LAND TREATMENT (%) A	B	C	D	CONTR. BASINS	TOTAL AREA (SQ. MI.)	Q100 (CFS)	Q10 (CFS)	REMARKS
H1	.0016	12	66	0	10	24	Y1	.0055	5.9	1.9	UNDEVELOPED
H2	.0067	12	66	0	10	24	Y2	.0153	16.2	5.2	LADERA R/W - ONLY 24' OF PAVING
B1	.0094	12	0	37	19	44	———	.0094	14.9	8.1	DEVELOPED CONDITIONS 4.31 DU'S PER ACRE
B2	.0046	12	0	37	19	44	———	.0046	9.6	5.4	DEVELOPED CONDITIONS 4.31 DU'S PER ACRE
B3	.0047	12	0	37	19	44	B2	.0093	19.4	10.9	DEVELOPED CONDITIONS 4.31 DU'S PER ACRE
A	.0032	12	0	37	19	44	———	.0032	6.7	3.8	DEVELOPED CONDITIONS 4.31 DU'S PER ACRE
C	.0039	12	0	37	19	44	———	.0039	8.2	4.6	DEVELOPED CONDITIONS 4.31 DU'S PER ACRE
C	——	—	—	—	—	—	A, B1	.0165	29.8	13.8	———
F1	.0068	12	0	37	19	44	———	.0068	14.2	8.0	DEVELOPED CONDITIONS 4.31 DU'S PER ACRE
F2	.0045	12	0	37	19	44	———	.004	9.4	5.3	DEVELOPED CONDITIONS 4.31 DU'S PER ACRE
F2	———	——	—	—	—	—	F1	.0113	23.6	13.3	———
J	.0038	12	0	37	19	44	———	.0038	7.9	4.5	DEVELOPED CONDITIONS 4.31 DU'S PER ACRE
J	——	——	—	—	—	—	F1, F2	.0151	31.5	17.8	———
K	.0040	12	0	37	19	44	———	.0040	8.4	4.7	DEVELOPED CONDITIONS 4.31 DU'S PER ACRE

TABLE 1B
HYDROLOGICAL FLOW PARAMETERS - DEVELOPED CONDITIONS
PAGE 2

BASIN DESIG.	AREA (SQ. MI.)	Tc (MIN.)	LAND TREATMENT (%) A	B	C	D	CONTR. BASINS	TOTAL AREA (SQ. MI.)	Q100 (CFS)	Q10 (CFS)	REMARKS
D	.0045	12	0	37	19	44	J	.0045	17.3	9.8	DEVELOPED CONDITIONS 4.31 DU'S PER ACRE
G1	.0217	12	0	37	19	44	————	.0217	45.3	25.6	DEVELOPED CONDITIONS 4.31 DU'S PER ACRE
G2	.0055	12	0	37	19	44	G1	.0272	56.7	32.0	DEVELOPED CONDITIONS 4.31 DU'S PER ACRE
K	-------	---	--	--	--	--	G1, G2	.0312	65.1	36.8	----------
D	———	——	—	—	—	—	ALL OF ABOVE + E1 & E2	.0702	196.0	99.7	RES ROUTED 94.6 CFS OUTFLOW (100 YR.)
L	.1898	12	30	19	10	41	ALL OF ABOVE	.3096	397.4	198.2	INCLUDES DEVELOPED CONDITIONS FOR LAURELWOOD
L	----------	--	--	--	--	--	----------	----	29.6	24.4	OUTFLOW FROM LAURELWOOD POND

TABLE 1C
HYDROLOGICAL FLOW PARAMETERS - FOR UNIT 1, 2, & 3 ONLY

BASIN DESIG.	AREA (SQ. MI.)	Tc (MIN.)	LAND TREATMENT (%) A	B	C	D	CONTR. BASINS	TOTAL AREA (SQ. MI.)	Q100 (CFS)	Q10 (CFS)	REMARKS
YY	.0212	12	100	0	0	0	——	.0212	——	——	UNDEVELOPED
H	.0083	12	66	0	10	24	YY	.0295	——	——	LADERA R/W ONLY 24' OF PAVING
B3	——	——	—	—	—	—	B1,B2,YY, HH, A, C	.0553	75.3	——	DEVELOPED CONDITIONS FOR B1, B2, B3, A & C
J	.0038	12	0	37	19	44	——	.0038	7.9	——	DEVELOPED CONDITIONS 4.31 DU'S PER ACRE
Z	.0230	12	100	0	0	0	——	.0230	——	——	UNDEVELOPED
Z	——	—	—	—	—	—	J	.0268	26.4	——	————
D	——	—	—	—	—	—	ALL OF ABOVE	.0866	110.9	——	————
L	.1898	12	30	19	10	41	ALL OF ABOVE	.2764	453.2	----	INCLUDES DEVELOPED CONDITIONS FOR LAURELWOOD
L	——	—	—	—	—	—	----	----	28.5	----	OUTFLOW FROM LAURELWOOD POND

TABLE 2
STREET FLOW CHARACTERISTICS

POINT DESIGNATION	100 YR. PEAK FLOW	10 YR. PEAK FLOW	ESTIMATED STREET SLOPE	100 YEAR FLOW DEPTH	10 YEAR FLOW DEPTH	10 YEAR VEL.	10 YEAR VXD	REMARKS
B1	14.9	8.1	.007	0.35	0.29	1.99	0.70	OK
B2	9.6	5.4	.005	0.31	0.26	1.58	0.41	OK
B3	19.4	10.9	.020	0.32	0.26	3.16	0.82	OK
F1	14.2	8.0	.016	0.29	0.24	2.68	0.64	OK
F2	9.4	5.3	.020	0.26	0.20	2.60	0.52	OK
G1	45.3	25.6	.014	0.48	0.37	4.03	1.49	OK
G2	11.5	6.5	.009	0.31	0.24	1.99	0.48	OK
C	29.8	13.8	.01	0.43	0.27	4.07	1.10	OK

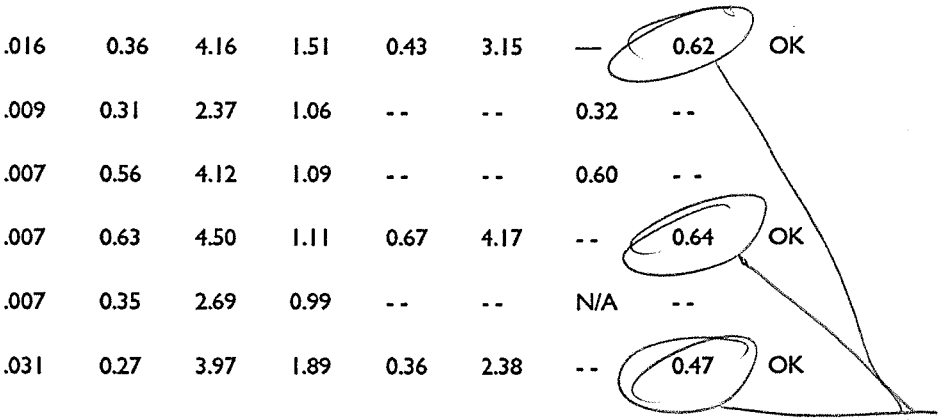
Plate 22.3 D-1
Basin C / 29.8 cfs
1/2 street ≈ 15 cfs
slope = 0.01
d = 0.50
This is for 32' Face to Face

.43 ≈ 0.5
This is for 25' Face to Face.

mountable curb height, Std C&G regal

TABLE 3
FLOW CHARACTERISTICS AT KEY INTERSECTIONS

INTER-SECTION DESIG.	AREA DESIG.	LOCATION	Q_{100}	STREET WIDTH	SLOPE	D_N	V_N	F	D_C	V_C	JUMP DEPTH = $\frac{-Y_1}{2}+\sqrt{\left(\frac{Y_1}{2}\right)^2+\frac{2V_1^2Y_1}{g}}$	POOL DEPTH = $D+\frac{1.25\Delta V^2}{2g}$	REMARKS
1	F1	UPSTREAM	14.2	24	.016	0.29	3.38	1.44	—	—	0.33	—	
	F2	UPSTREAM	9.4	25	.020	0.26	2.80	1.36	—	—	0.27	—	
	F2	DOWNSTREAM	23.6	24	.016	0.36	4.16	1.51	0.43	3.15	—	0.62	OK
2	G2	UPSTREAM	11.5	25	.009	0.31	2.37	1.06	--	--	0.32	--	
	G1	UPSTREAM	45.3	23	.007	0.56	4.12	1.09	--	--	0.60	--	
	G1	DOWNSTREAM	56.8	25	.007	0.63	4.50	1.11	0.67	4.17	--	0.64	OK
3	B1	UPSTREAM	14.9	24	.007	0.35	2.69	0.99	--	--	N/A	--	
	C	DOWNSTREAM	14.9	25	.031	0.27	3.97	1.89	0.36	2.38	--	0.47	OK



requires std C&G

CALCULATIONS

1) DO BALANCE FOR DELTA V AT G1/G2 INTX.

$\frac{44.3\ (4.12)}{56.8}$ = 3.29 FPS

DELTA V = 4.12 - 3.29 = 0.83 FPS

2) SIZE STORM DRAIN FROM BASIN C TO BASIN B3

Q100 = 29.8 CFS
ASSUME RCP PIPE (n = .013) AT 1.0% & FULL FLOW CONDITIONS
TRY 18" - FROM MANNING EQ., CAPACITY = 10.5 CFS, NG
TRY 24" - FROM MANNING EQ., CAPACITY = 22.7 CFS, OK
TRY 36" - FROM MANNING EQ., CAPACITY = 66.9 CFS, OK

36" used ok

3) SIZE STORM DRAIN FROM BASIN B3 TO OUTFALL

Q100 = 49.2 CFS
ASSUME RCP PIPE (n = .013) AT 2.5%
TRY 30" - FROM MANNING EQ., CAPACITY = 65.1 CFS, OK

42" used ok

4) SIZE STORM DRAIN FROM BASIN K

Q100 = 65.1 CFS
FROM ABOVE, 30" RCP WILL BE OK

5) CHECK CAPACITY OF HANOVER STORM DRAIN

IMMEDIATELY DOWNSTREAM OF 54" RCP ACROSS UNSER BOULEVARD THERE IS A 36" RCP AT 2.73%

FROM MANNING'S EQ. (n = .013, FULL FLOW CONDS.)

CAPACITY = 110.5 CFS (15.63 FPS)

6) SIZE AMAFCA CHANNEL (LADERA DIVERSION)

Q = 2000 CFS
SLOPE = 1.77%
USE CONC. LINING (n = .017)
10' BOTTOM, 2:1 SIDESLOPES

FROM MANNING'S EQ.:
DN = 4.50'
VN = 23.39 FPS
FROUDE = 2.36

IF SMALLEST RADIUS = 800':

SUPERELEV. = 0.77'

FREEBOARD = 2.08'

TOTAL REQUIRED DEPTH = 4.50' + 0.77' + 2.08' = 7.35'

7) SIZE STORM DRAIN FROM ON-SITE POND TO OUTFALL

Q100 = 94.6 CFS
USE 36" AT 2.5%, CAPACITY = 105.7 CFS

BREAK UP DRAINAGE BASIN "H" & "YY"

2.5 AC (.0039 SQ.MI.) OF "H" AND 1 AC (.0016) DRAIN TO CULVERT NEAR LADERA/UNSER INTX. CALL THESE H1 AND Y1, RESPECTIVELY.

ASSUME AREA H GOES TO AMAFCA R/W VIA DROP INLET & (AREA Y TOO)

100 YR FLOWS

$$\begin{matrix} H1 \\ + Y1 \end{matrix} \quad \frac{(.0016 + .0039)}{(.0083 + .0125)} (22.1) = 5.9 \text{ CFS}$$

$$\begin{matrix} H2 \\ + Y2 \end{matrix} \quad (22.1 - 5.9) = 16.2 \text{ CFS}$$

10 YR FLOWS

$$\begin{matrix} H1 \\ + Y1 \end{matrix} \quad \frac{5.9}{22.1} (7.1) = 1.9 \text{ CFS}$$

$$\begin{matrix} H2 \\ + Y2 \end{matrix} \quad (7.1 - 1.9) = 5.2 \text{ CFS}$$

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD

FIND CAPACITY OF OUTFALL ON HANOVER OUTFALL

FROM AS-BUILTS OF PROJ. NO. 1577 (SAD 212)

36" RCP ~ SLOPE = 2.73%
USE MANNING'S EQ., n = 0.013

V = 15.63 fps
Q = 110.5 CFS

@ FULL FLOW CONDITIONS (NOT OPT. DEPTH)

COMPARE W/ EXPECTED OUTFLOW FROM PROJECT

USE THE 4-91 VERSION OF AHYMO W/ ROUTING FOR FINAL CALCS.

USE 1-91 VERSION OF DPM FOR ROUGH-OUT

ZONE 1 → $P_{360} = 2.20$
$P_{60} = 1.87$

LAND TREATMENT → ON SITE

TYPE	%
A	0
B	37
C	19
D	44

$\%D = 7\sqrt{(4.31)^2 + (5*4.31)} = 44$

$Q_p = 1.91(.37)(58) + 2.73(.19)(58) + 4.37(.44)(58)$
$= 183$ CFS ±

THIS IMPLIES 72 CFS ± MUST BE ATTENUATED OF 100-YR PEAK IF THIS IS USED AS OUTFALL

FIND CAPACITY OF 4 - 6'X4' CBC @ LINSER/I-40 INTERCHANGE

*USE $H_W/D = 1$ & ASSUME INLET CONTROL & USE SCALE (1)
$Q/B = 23$, $Q = 23(6)(4) = 552$ CFS ±

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD

CROSS-CHECK CAPACITY OF 54" RCP (W/ END SECT.)

ASSUME INLET CONTROL & HW/D = 1 ⇒ Q = 100 CFS.
WHICH COMPARES FAVORABLY

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD

PER LARRY COLLINS ~ Q_{100} IN AMDFCA R/W IS TO BE 2,000 CFS

$$\text{AVG. } \overset{\text{LONG}}{\Delta} \text{ SLOPE} = \frac{5202 - 5179}{(12.5)(100)} = 1.84\%$$

$$\frac{5202 - 5179}{(2.2)(615)} = 1.70\%$$

$$\frac{1.84\% + 1.70\%}{2} = 1.77\%$$

ASSUME CHANNEL X-SEC:

10' BOTTOM
2:1 SIDESLOPES
CONC. LINING ($n = .017$)

FROM MANNING'S EQ:

$d_n = 4.50'$
$V_n = 23.39$ fps
~~FR~~ Froude $= 2.36$

FROM PRELIM PLAT MIN. R = 800'

$$S = \frac{1.3\,(23.39)^2\,(10 + 2(2)4.50)}{32.2(800)}$$

$$= 0.77'$$

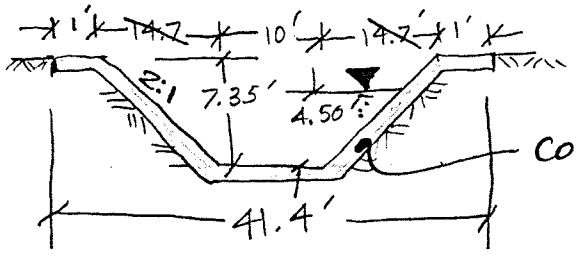
$$L_E = .32\,(10 + 2(2)4.5)\,\frac{23.39}{\sqrt{4.5}} = 98.97'$$

FOR FREEBOARD:

$$F = 0.7\,(2.0 + 0.025(23.39)\,4.5^{1/3}) = 2.08'$$

TOTAL REQ'D DEPTH = $4.50' + 0.77' + 2.08' = 7.35'$

$2 \times 7.35' = 14.70'$



CONC LINING ($n = .017$)
$Q = 2000$ CFS
$d_n = 4.50'$, $V_n = 23.39$ fps Froude = 2.36

FOR 1,000' RADIUS

$S = 0.77\left(\frac{800}{1000}\right) = 0.62'$

$L_E = 98.97'$

41.4' OF CHANNEL + 12' SERVICE RD. = 53.4'

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD

ULTIMATE HYDRAULIC GRADE LINE CALCULATIONS
FOR
UNITS I & II STORM OUTFALL PIPES

The peak flow for ultimately developed conditions Units I through VI as they outfall to the 54 inch CMP under Unser Boulevard will be 110.9 cfs, which is also the pipe full capacity of the downstream 36 inch RCP which extends several hundred feet below its connection with the 54". So, the starting assumption is made at the existing point of connection between the 36 inch RCP and the 54" CMP where the hydraulic grade line is at the soffit of the 36 inch pipe (elevation 74.07).

The contraction loss at that point is:

Delta h = .25 $(\frac{V_2^2 - V_1^2}{2g})$ = .25 (3.82' - 0.76') = 0.76'
where V_2 = 15.7 fps & V_1 = 6.97 fps
HGEL = 74.07 + 0.76' = 74.83

Then pipe full flow through the 140 LF of 54 inch CMP:

where K = 1025.2 will have a head loss of:
Sf = $(Q/K)^2$ = 0.0117 ft/ft
Delta h = 140' X .0117
HGEL = 74.83 + 1.64' = 76.47

The entrance or junction loss at the upstream end of the 54" CMP is:

Delta h = $0.2\frac{V_2}{2g}$ = 0.15'
HGEL = 76.47 + 0.15 = 76.62

Then 168 LF of 42" RCP will convey 49.2 cfs (100-yr flow) from Phase II to the Ex 54 inch pipe with a head loss of:

K = 1006
Sf = $(Q/K)^2$ = 0.00239 ft/ft
Delta h = 168" X .00239 = 0.40'
HGEL = 76.62 + 0.40' = 77.02
and V_{100} = 5.11 fps

0.50%

That 42 inch pipe will be set at the friction slope (0.24%) which will convey the 10 year flow of 24.6 cfs at a velocity of 5.11 fps which meets City of Albuquerque minimum slope criteria which stipulates a minimum 10-year velocity of 3 fps.

The junction loss at the upstream end of that 42 inch pipe is conservatively estimated at:

Delta h = $0.2\frac{V_2}{2g}$ = 0.08'
HGEL = 77.02 + 0.08' = 77.10

Then 269 LF of 36" RCP will convey 29.8 cfs from Unit I with a head loss of:

K = 666.9
Sf = $(Q/K)^2$ = 0.0020 ft/ft
Delta H = 269 X 0.002 = 0.54'
HGEL = 77.10 + 0.54' = 77.64'
V_{100} = 4.22 fps

That 36 inch pipe will be set at the friction slope 0.20% which will convey the 10-yr flow of 14.9 cfs at a velocity of 4.23 fys, which again meets DPM requirements.

These pipe sizes also meet the DPM "Minimum Pipe Size" requirements for conduits that "may carry significant amounts of sediment".

The top of the Double Throat/Double grate Type A Inlet in Unit I must be the following distance above the soffit of the 36 inch pipe which is also the HGEL elevation.

$V = 1.33' + 1.2\frac{V_2}{2g} + 3' = 4.66'$ (above invert of 36" pipe)
or Top = $77.64 + 1.33' + 1.2\frac{V_2}{2g} = 79.30$

The inlet will receive the 29.8 cfs, 100-yr flow from Unit I as follows:

Allowable Ponded Depth = 0.92' above top of grate
Allowable Ponded Depth = 0.84' above center of curb opening

If the actual ponded depth (H) is measured from the top of the grate then using the orifice equation:

$Q = .65\ A\sqrt{2gh}$
$29.8\ cfs = .65\ (6.4\sqrt{64.4(H)} + 3.2\sqrt{64.4(H-0.08')}$
$29.8 = 33.38\ H\ + 16.69\ h-.08'$
$1.786 = 2\sqrt{4} + \sqrt{H-.08'}$
$H = 0.38'$
OK

DISCHARGE CURVE FOR ONSITE POND

$Q_{max} \cong$ 110 CFS @ 4' DEPTH

HOVE OPENINGS @ 0.5', 1.5', 2.5', 3.5'

$Q = CA\sqrt{2gh}$, $C = 0.65$

$$\frac{110}{0.65} = A\left[\sqrt{2g}(.5) + \sqrt{2g}(1.5) + \sqrt{2g}(2.5) + \sqrt{2g}(3.5)\right]$$

A = AREA PER ROW

$$A = \frac{110}{43.2\,(0.65)} = 3.92\ ft^2$$

STAGE (ft)	DISCHARGE (CFS)
0	0
1	14.5
2	39.5
3	71.9
4	110
5	138.9

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD

ANALYZE DISCHARGE CURVE FOR EXISTING OUTLET @ LUARELWOOD POND

$10 \times [(3'' \times 4'') \div 12^2] = 0.83\ ft^2$

$Q = CA\sqrt{2gh}$ $\quad C = 0.65, \quad A = 0.83$

$Q = 0.54\sqrt{2gh}$

DEPTH

Q@ 1' =	$0.54\sqrt{2g(0.83)}$ =	4.0 ✓	CFS
Q@ 2' =	→	9.8 8.3	"
Q@ 3' =		17.1 15.6	"
Q@ 4' =		25.6 24.1	"
Q@ 5' =		31.1 29.6	"
Q@ 5.5		32.0 30.5 ~~39.0~~	

APPARENTLY AS MISTAKE - THESE ARE CORRECTED VALUES

3/3/92 MJY

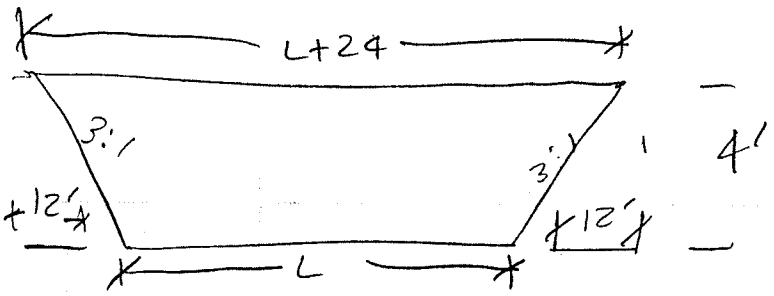
SIZE VOLUME OF POND BASED ON AS-BUILTS

@ EL = 20'	AREA =	27,560 ft^2
@ 22'		36,650 ft^2
@ 23'		78,680 ft^2
@ 24'		219,070 ft^2
@ 25.5'		312,900 ft^2

NOTE - ALL W/ IN ABOUT 1 CFS - RECOMMEND NOT REDOING RESROUTE

DEPTH	VOLUME (ft^3)	VOLUME (AC·FT)
0	0	0
1	32,105	0.74
2	64,210	1.47
3	121,875	2.80
4	270,750	6.22
5.5	669,728	15.4

@ 4' DEEP ONSITE POND $\forall$ = ~~118,800 CF~~ 130,000



$\frac{130,000}{4}$ = 32,500 SF

$\frac{(L^2) + (L+24)^2}{2} = 32,500$

$L^2 + L^2 + 48L + 576 = 65,000$

$L^2 + 24L - \cancel{64,424}\ 32,212 = \emptyset$

TRY L=100

L= 200

L= ~~250~~ 150

USE L= ~~240~~ 170

-19,812

~~-52,024~~

+12,588

~~-19~~

-6

ELEV	VOLUME (ft^3)	VOLUME (AC FT)
100	0	0
101	~~54,058~~ 29,940	0.69
102	62,030	1.42
103	96,370	2.21
104	133,070	3.05
105	172,250	3.95

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD

BASIN THAT CONTRIBUTES TO LAUREWOOD POND

BASIN L .0426 mi²

A = 100% B = 0% C = 0% D = 0%

BASINN N .0456 mi²

A = 0% B = 37% C = 19% D = 44%

BASIN M .0875 mi²

A = 0% B = 22% C = 12% D = 66%

BASIN O .0141 mi²

A = 100% B = 0% C = 0% D = 0%

TOTAL AREA = 0.1898 mi²

TREAT AS 1 BASIN

$$\% A = \frac{100(.0426) + 100(.0141)}{.1898} = 30\%$$

$$\% B = \frac{37(.0456) + 22(.0875)}{.1898} = 19\%$$

$$\% C = \frac{19(.0456) + 12(.0875)}{.1898} = 10\%$$

$$\% D = 100 - [30+19+10] = 41\%$$

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD

TC = L = 2600'
SLOPE = 2%
$V = K\sqrt{S}$ K = 3

V = 4.24 fps

$T_c = \frac{2600 \text{ ft}}{4.24 \text{ fps}}$ = 612 seconds = 10 min

USE T_c = 12 min

T_p = 8 min = .1333 HR

CALL WHOLE THING BASIN L

AREA = 0.1898 mi^2
% A = 30
% B = 19
% C = 10
% D = 41

TP = -0.1333 HRS

ROUTE RERVOIR ID = 12 HYD = ____ INFLOW ID = 11 COD = 20

OUTFLOW (CFS)	STORAGE (AC FT)	ELEV (FT)
0	0	20
8.3	1.47	22
15.6	2.80	23
24.1	6.22	24
30.5	15.4	25.5

COMPUTE RATING CURVE RC = 3 VS NO = 3 COD = -1

→ SLOPE = .01 DIA = 3.75 FT N = 0.013

COMPUTE TRAVEL TIME ID = 10 REACH NO = 3 NO VS = 3

L = 2800 FT SLP = .01

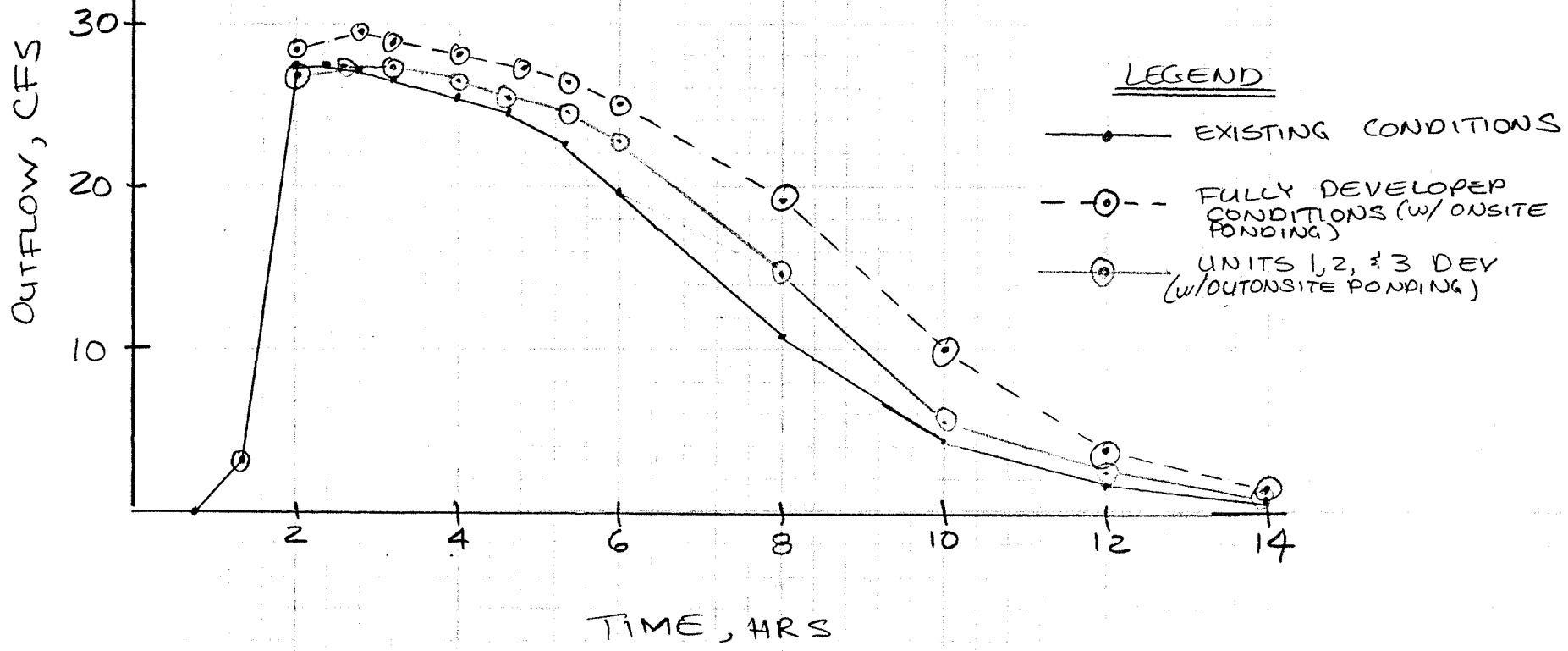
ROUTE ID = 10 HYD NO. = ____ INFOW ID =

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD

AMPAD
22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS

LAUREL WOOD POND OUTLET HYDROGRAPH COMPARISON

100-YR STORM

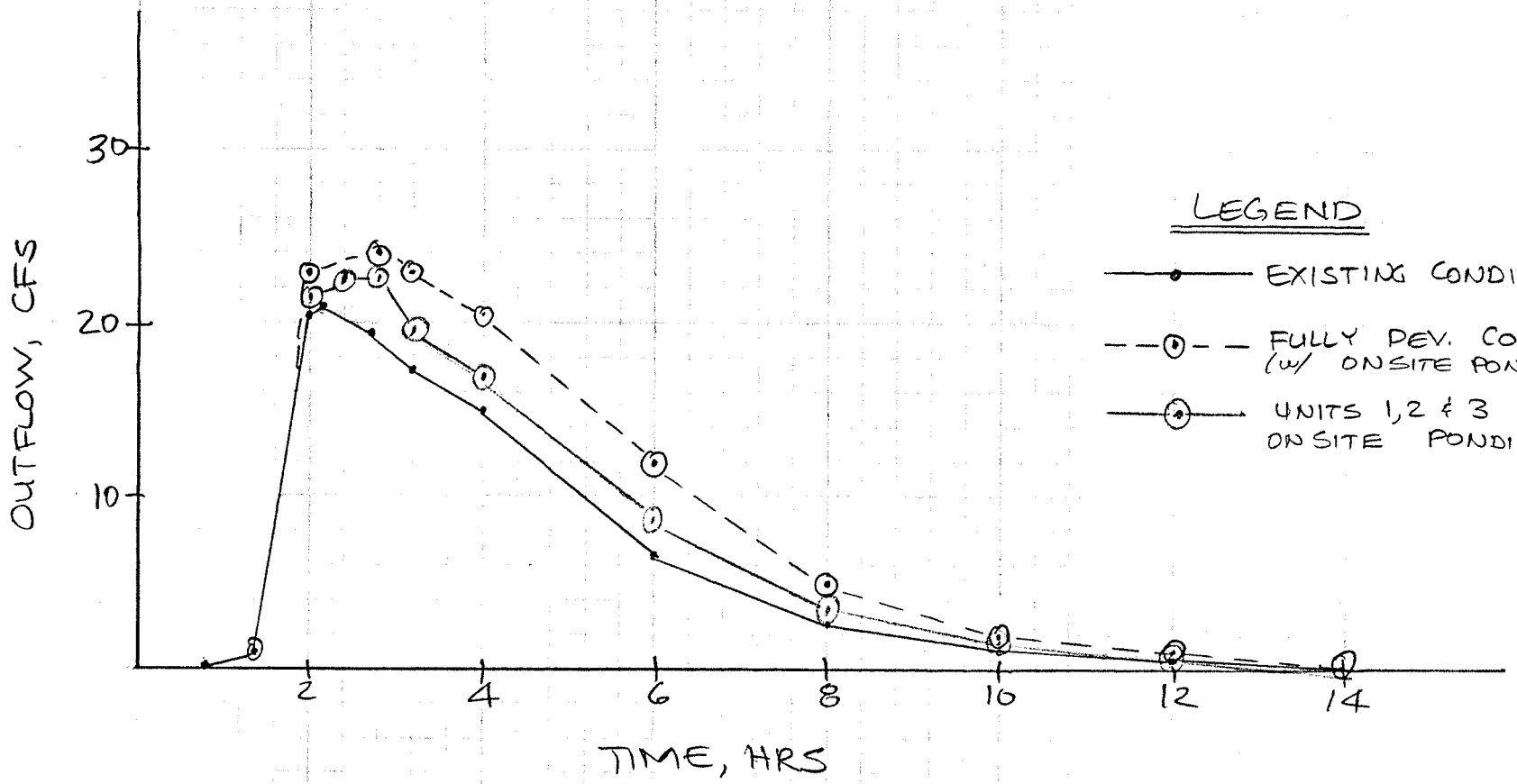


25-02-033 M.S.Y. 10/6/91

AMPAD
22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS

HYDROGRAPH COMPARISON

10-YR STORM



Inlet Capacity Calculations for SD @ Low Point in Somerset Dr.

Try triple grate.

a) 60% total capacity = >

H = 0.67' (curb height) + 0.2' (above TC) - 0.12' (to lip of gutter) = 0.75'

Curb opening capacity = $CLH^{1.5}$ C = 3.0

L = (3 x6.28) + 2 (2) = 22.85'

Q = 3 (22.85) (0.75) $^{1.5}$ = 44.5 cfs

Grate capacity = 3 (4.10 ft^2) $[2g \times 0.92]^{0.5}$ = 94.7 cfs

0.60 (44.5 cfs + 94.7 cfs = 83.5 cfs

b) 100% grate capacity w/no curb opening capacity

Grate capacity = 94.7 cfs (from above)

a) controls, 83.5 cfs > Q_{100} = 65.1 cfs, OK

Use Type A Double throat triple grate inlet.

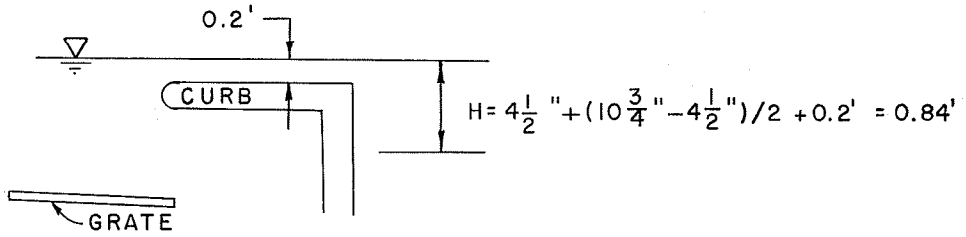
Double Throat/Double Grate Type A Inlet -- Sump Condition

Q_{100} = GS CFS

$$Q = CA\sqrt{2gh}$$

Where: C = 0.65

Curb Opening:



A = (4 x 3.33') x (10 3/4" - 4 1/2") /12"/ft. = 6.94 ft.^{2}

Q = 0.65 (6.94) $\sqrt{2g(0.84)}$ = 33.2 CFS

Grate Opening:

Effective Area of Grate = 4.10 ft.^{2} (2) = 8.20 ft.^{2}

H = (10 3/4" + 6 1/2") /2 = 8.63" = 0.72' + 0.2 = 0.92 ft.

Q = 0.65 (8.20) $\sqrt{2g(0.92)}$ = 41.0 CFS

TOTAL CAPACITY = 41.0 + 33.2 = 74.2 cfs > 65 cfs, OK

UPDATE TO THE PARKWAY

MASTER DRAINAGE MANAGEMENT PLAN

APRIL, 1993

This update to the Parkway MDMP is prepared and submitted concurrent with the submittal of the Parkway Unit 4 final plans for Work Order Approval. At the time of this update, Parkway Units 1, 2 and 3 are essentially complete. It should be noted that each of these three phases substantially followed the MDMP.

The final plans for Parkway Unit 4 also follow the MDMP and the purpose of this Update is to refine some of the conceptual elements to the MDMP. The elements updated herein are addressed in the same order, more e or less, as the City Hydrology Section's comments appear on the preliminary plans for Parkway Unit 4, as submitted to the Design Review Committee.

1. OFFSITE FLOWS FROM LANDS SOUTH OF PARKWAY AND WEST OF LADERA BLVD.

   There are not yet any imminent development plans for these plans. However, should they develop, a likely outfall would be a large diameter storm drain in the Ladera Blvd. right-of-way that would discharge into the AMAFCA right-of-way between Units 3 and 4. Free discharge would not be allowed because the AMAFCA R/W drains into the Laurelwood Pond, where there is no more capacity. However, if the flow is severely throttled down, there may be potential for such an outfall to work and once AMAFCA builds the Ladera Diversion Channel in the R/W, free discharge will probably be acceptable.

2. ACCEPTANCE FROM FLOWS FROM LANDS BETWEEN THE LADERA PONDS AND PARKWAY.

   These flows are already addressed in the MDMP (Portions of Basin Z). There will be 13.2 CFS from this area adjacent to units 4, 5 and 6. This will be intercepted by the bar ditch planned along the westerly edge of the Ladera Blvd. pavement (See Sheet 5 o the Unit 4 plans).

   This bar ditch (which will be at a 3.16% grade) will have the following flow conditions.

   Q_{100} = 13.2 CFS

   Dn = 0.41 FT.

   Yn = 3.0 6 FPS

   Fr = 1.19

   With a velocity of 3.06 FPS at the peak flow, anti-erosion measures are not recommended with this update.

   This flow is to be diverted to the AMAFCA R/W via a 24" storm drain with a bee-hive grate opening. A detail of the opening as well as a riprap lined depression for

sediment control is detailed on Sheet 12 of the Unit 4 plans. In addition, a type "A" drop inlet will be placed to pick up just the flows from the Ladera pavement. The HGL for this 24" storm drain is plotted on the Unit 4 plans. The calculations are as follows:

Q_{100} = 13.2 CFS

Pipe Dia. = 24"

$Sf = (Q/K)^2$, where $K = \frac{1.486\ AR^{2/3}}{n}$

Sf= 0.07%

INITIAL H.G.L. = 90.38' (See Unit 3 Plans)
H.G.L. @ D.I. = (57,98 X .0007) + 90.38 = 90.42'
H.G.L. THROUGH D.I. = 0.05 ($V^2/2g$) + 90.42 = 90.43'
H.G.L. @ 6' DIA. MH = (54.09 X .0007) + 90.43 = 90.47'
H.G.L. IN 6' DIA. MH = 1.2 ($V^2/2g$) + 90.47 = 90.80'

Obviously, the H.G.L. is below the storm drain soffit. Therefore, the H.G. L. is plotted at the soffit on the plans for simplicity. The alignment and end treatment has already been approved by AMAFCA.

3. DISCHARGE OF FLOWS FROM PARKWAY DRIVE INTO AMAFCA RIGHT-OF-WAY

The expected peak design flow for this structure is 23.6 CFS (Basin F1 and F2, combined). The MDMP does not specify the manner of discharge into the AMAFCA R/W. However, given the design profiles developed for Units 1, 2 and 3 and the concern expressed by AMAFCA that the storm drain does not interfere with their future bridge construction, the design shown on the Unit 4 plans is appropriate (and has been approved by AMAFCA). The H.G.L. calculations are as follows:

MAIN: Q_{100} = 23.6 CFS

PIPE DIA. = 24"

Sf = 1.09%

INITIAL H.G.L. = 85.54 (PIPE SOFFIT)
H.G.L. @ 1ST M.H. = (60.72 X .0109) + 85.54 = 86.20
H.G.L. THROUGH M.H. = 0.05 ($V^2/2g$) + 86.20 = 86.21
H.G.L. FOR BEND = 1.3 ($V^2/2g$) + 86.21 = 86.57
H.G.L. @ 2ND M.H. = (40.0 X .0109) + 86.57 = 87.01
H.G.L. THROUGH 2ND M.H. = 0.05 ($V^2/2g$) + 87.01 = 87.02

LATERALS: Q100 = 23.6 2 = 11.8 CFS
PIPE DIA. = 18"
Sf = 1.26%

INITIAL H.G.L. = 87.01
H.G.L. @ D.I.'s = (11.14 X .0126) + 87.91 = 88.05
H.G.L. FOR BEND = 1.3 ($V^2/2g$) + 87.01 = 87.91

H.G.L. IN D.I. = 1.2 (V^2/2g) + 88.05 = 88.74

4. OUTFALL FOR SOMERSET DR. INTO THE AMAFCA R/W.

This storm drain is already addressed in the MDMP. The HGL calculations are as follows:

Q_{100} = 65.1 CFS

PIPE DIA. = 48"

Sf = 0.21%

INITIAL H.G.L. = 77.92* SEE NOTE BELOW
H.G.L. @ BEND = (12 x .0021) + 77.92 = 77.95
H.G.L. FOR BEND = .12 x (V^2/2g) + 77.95 = 78.00
H.G.L. @ M.H. = (112 x .0021) + 78.00 = 78.03
H.G.L. THROUGH M.H. = .05 (V2/2g) + 78.03 = 78.05
H.G.L. FOR BEND = .18 (V^2//2g) + 78.05 = 78.12
H.G.L. @ D.I. = (92 x .0021) + 78.12 = 78.31
H.G.L. IN D.I. = 1.2 (V^2/2g) + 78.31 = 78.81

*NOTE: Initial H.G.L. determined by final "reservoir route" run using AHYMO392, in AMAFCA right-of-way. (Q100 Out of Pond = 46 CFS - not 50 CFS as originally anticipated during design of Unit 3).

143-12-C50 | 2/10/93

PARKWAY UNIT 3

HYDRAULIC GRADE LINE CALCS.

IN UNSER BLVD.

PIPE SIZE	AREA	WP	$R^{2/3}$	$K (= \frac{1.486 A R^{2/3}}{n})$
36"	7.07	9.42	0.83	670.77
42"	9.62	11.00	0.91	1,000.67
48"	12.57	12.57	1.00	1436.85
24"	3.14	6.28	0.63	226.11

BEND LOSSES

$K_b = 0.20 \sqrt{\frac{\Delta}{90°}}$

FOR: 90° ~ $K_b = 0.20$

FOR: 45° ~ $K_b = 0.14$

LOSS = $K_b \left[\frac{V^2}{2g}\right]$

JUNCTION LOSS

JUNCTION @ END OF CUL-DE-SAC (90°)
∴ LOSS = CHANGE IN VELOCITY HEAD

FLOWS:

FROM 54" TO CUL-DE-SAC LATERAL
Q = 64 CFS

FROM CUL-DE-SAC LATERAL TO AMAFCA EASE.
Q = 49 CFS

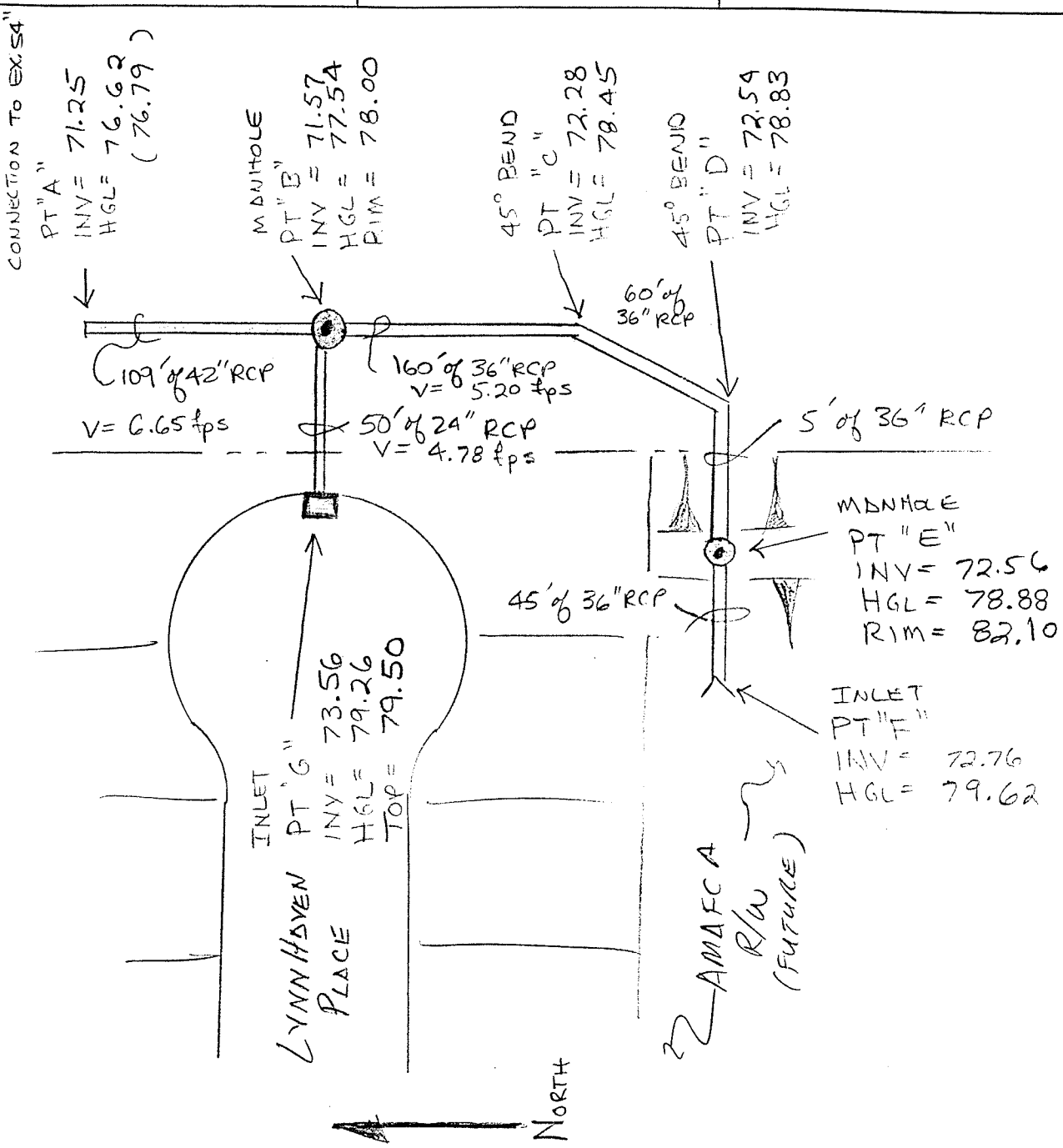
FROM CUL-DE-SAC LATERAL
Q ≅ 15 CFS

M.H. LOSSES

$= .05 \left[\frac{V^2}{2g}\right]$

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD



PLAN LAYOUT

NTS

LOCATION	ORIFICE LOSS	FRICTION LOSS	MH LOSS	JUNCTION LOSS	BEND LOSS	HGL
PT "A"						76.62
					.14	76.76
			.03			76.79 ←
		0.45				77.24
PT "B"				0.27		77.51
			.03			77.54 ←
		.85				78.39
PT "C"					.06	78.45 ←
		.32				78.77
PT "D"					.06	78.83 ←
		.03				78.86
PT "E"			.02			78.88 ←
		.24				79.12
PT "F"	0.50					79.62 ←

PT "B"						77.54
					.07	77.61
		0.22				77.83
PT "G"	0.43					79.26 ←

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD

Daniel W. Cook, Chairman
Pat Higdon, Vice-Chairman
Ron D. Brown, Secretary-Treasurer
Geneiva Meeker, Asst. Secretary-Treas.
Michael Murphy, Director

Larry A. Blair
Executive Engineer

Albuquerque
Metropolitan
Arroyo
Flood
Control
Authority

2600 PROSPECT N.E. - ALBUQUERQUE, N.M. 87107
TELEPHONE (505) 884-2215

January 29, 1993

Gilbert Aldaz, PE & PS
Public Works Dept - Hydrology Div.
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RE: Parkway - Unit 3 - City Project No. 4442.92 (J-9)

Dear Gilbert:

On January 18, 1993, we received a set of plans on the above-referenced project for AMAFCA review. These plans include construction of temporary facilities in right-of-way proposed for dedication to AMAFCA with Parkway Unit 4. With Unit 4, additional construction of temporary facilities is proposed, and it is anticipated that AMAFCA will accept these facilities for maintenance, subject to approval by AMAFCA's Board of Directors.

Sivage Thomas Homes has now requested that AMAFCA not be a party to the approval of Unit 3 because AMAFCA currently does not own the proposed right-of-way and because we will not have any maintenance responsibility with the construction of Unit 3. This approach is acceptable to AMAFCA with the following conditions and understandings:

a. AMAFCA will not have any maintenance responsibility for facilities constructed with Unit 3, including the temporary facilities in the future AMAFCA right-of-way. The City will enter into appropriate improvement and maintenance agreements for this area.

b. AMAFCA will review and must approve the construction of drainage facilities for Unit 4. The construction of any improvements with Unit 4, including accommodation of improvements from Units 1, 2 and 3 may require the reconstruction of facilities placed with Unit 3 in the future AMAFCA easement. Approval by the City of facilities shall not serve as the basis for determination of future approval by AMAFCA. The following items are of particular concern to AMAFCA and will need to be addressed with Unit 4:

1. Allowable velocities in earth channels must be computed, based on the existing soil gradation. Non-erosive velocities should be maintained.

2. The capacity of existing ponding must accept the 100-year storm and expected 100-year sediment volume, with adequate allowance for sediment maintenance based on average annual sediment yields.

3. The suitability and maintainability of drainage facilities and ability to meet AMAFCA standards must be evaluated. Riprap protection without an acceptable granular filter will require removal and replacement with appropriate riprap and filter. Corrugated metal pipe pond outlets which are easily damaged by pond maintenance will require replacement or substantial reinforcement.

c. With the Unit 4 review, the adequacy of the preliminary design for the permanent drainage facility will need to be evaluated as it relates to the existing and proposed development. We realize that a conceptual alignment and right-of-way width has been developed based on a very limited analysis. With Unit 4, we will need to determine that the proposed facility can actually be placed between Units 3 and 4 with the grading and street configuration proposed. We will need to examine the proposed water surface elevation and freeboard based on DPM and FEMA criteria. Access for maintenance will need to be further investigated. The elevation of adjacent lots and the proposed street crossing will require special attention. Because one side of the proposed channel will have existing facilities and houses, the design of Unit 4 may require additional provisions to protect Unit 3 in addition to the protection of Unit 4. The road crossing with Unit 4 may require modification of the elevation of the road segment constructed with Unit 3.

d. AMAFCA's "Designee" with the City of Albuquerque will only sign the drawings and plat with the notation "Drainage not reviewed by AMAFCA." Reference to this letter may also be made.

We trust that this information provides you with sufficient direction for your review of this project. By copy of this letter we are notifying Sivage Thomas Homes of this decision, so they can anticipate our requirements as they proceed with planning and engineering for Unit 4.

Sincerely,
AMAFCA

Clifford E. Anderson, P.E. & L.S.
Drainage Engineer

CEA:ij

copy: Larry Collins, Sivage Thomas Homes
Michael J. Yost, Community Sciences Corporation
Fred Aguirre, Hydrologist, City of Albuquerque, PWD
John Kelly, Field Engineer, AMAFCA

Albuquerque
Metropolitan
Arroyo
Flood
Control
Authority

X 92253278 H9/DIA1 #444P.81

0002382

(NOT DEVELOPER OWNED PROPERTY)

FILED WITH CITY CLERK'S OFFICE
6/5/92

PRIVATE FACILITY
DRAINAGE COVENANT AND
RESERVATION OF DRAINAGE EASEMENT

This Drainage Covenant, between [state the name of the present real property owner exactly as shown on the real estate document conveying title to the present owner and state the legal status of the owner, for example, "single person," "husband and wife," "corporation of the State of _____," "partnership":] WESTLAND DEVELOPMENT CO. INC, a New Mexico corporation ("Owner"), whose address is 401 Coors Road NW, Albuquerque, NM 87121; [state the name of the developer or subdivider required to construct the drainage facility and state the legal status of the developer, for example, "single person," "husband and wife," "corporation of the State of _____," "partnership":] SAVAGE THOMAS HOMES INC., a New Mexico corporation ("Developer"), whose address is 5741 Montrose St NE, Alb, NM 87109, and the City of Albuquerque, a New Mexico municipal corporation ("City"), whose address is P. O. Box 1293, Albuquerque, New Mexico 87103, is made in Albuquerque, Bernalillo County, New Mexico and is entered into as of the date Owner and Developer sign this Covenant.

1. Recital. The Owner is the owner of the following described real property located at [give legal description, and street address:] UNPLATTED LANDS IN THE TOWN OF ATRISCO GRANT, PROJECTED SECTIONS 9 & 16, T10N, R2E, LAND CURRENTLY BEING RERATTED AS PARKWAY UNIT 1, LEGAL DESCRIPTIONS ATTACHED FOR PARCEL ONE (UNIT 1) AND PARCEL TWO (LOCATION OF PRIVATE FACILITY).
in Bernalillo County, New Mexico (the "Property").

Pursuant to City ordinances, regulations and other applicable laws, the Developer is required to construct and maintain certain drainage facilities and the Owner, for good and valuable consideration received from the Developer, is willing to allow construction and maintenance of the Drainage Facility on its Property, and the parties wish to enter into this Covenant to establish the obligations and responsibilities of the parties.

2. Description and Construction of Drainage Facility. The Developer shall construct the following "Drainage Facility" within the Property at the Developer's sole expense in accordance with the standards, plans and specifications approved by the City:
TEMPORARY DRAINAGE SWALE ADJACENT TO SOUTHERN LIMIT OF PROPOSED PARKWAY UNIT 1, AS SHOWN ON GRADING & EROSION CONTROL PLAN, CITY PROJ. 4442.
The Drainage Facility is more particularly described in Exhibit A attached hereto and made a part hereof.

(APPROVED BY LEGAL AS TO FORM ONLY 9-6-88)

3. Reservation of Easement. The Owner, for itself, its heirs, successors and assigns, jointly and severally, hereby grants to Developer, its heirs, successors and assigns, jointly and severally, a perpetual easement over and across a portion of the Owner's property for the benefit of [describe the lots, parcels or tracts which are to be benefited by the Drainage Facility and easement] PARKWAY UNIT I

for the purpose of permitting the flow, conveyance, and discharge of storm water runoff and for the purpose of permitting ingress and egress for the construction, maintenance and repair of the drainage facility. The land affected by the grant of this easement is more particularly described as: THE MOST EASTERLY 25 feet of PARCEL TWO (LEGAL DESCRIPTION ATTACHED) OF UNPLATTED LANDS NOTED IN PARAGRAPH 1 ABOVE AND ALSO KNOWN AS ~~ATTACHED~~ THE COMMON BOUNDARY LINE OF PARCEL ONE AND PARCEL TWO. BP

4. Maintenance of Drainage Facility. The Developer shall maintain the Drainage Facility and Easement at the Developer's sole cost in accordance with the approved Drainage Report and plans. In the event the Developer fails to maintain the Drainage Facility, Owner agrees that it shall be responsible for maintenance of the Drainage Facility and Easement in accordance with the approved Drainage Report and plans.

5. Benefit to Property. The Developer and Owner acknowledge and understand that the Drainage Facility required herein to be constructed is for the private benefit and protection of the Developer's property and that failure to maintain such facility could result in damage or loss to the Owner's Property and to the property of Developer.

6. Inspection of Drainage Facility. The City shall have no duty or obligation whatsoever to perform any inspection, maintenance or repair of the Drainage Facility, it being the duty of the Developer, its heirs, successors and assigns to construct and maintain the facility in accordance with approved plans and specifications.

7. Liability of City. The Developer and Owner understand and agree that the City shall not be liable to the Developer or the Owner, or their respective heirs, successors or assigns, or to any third parties for any damages resulting from the Developer's or Owner's failure to construct, maintain or repair the Drainage Facility.

8. Indemnification. The Developer owns and controls the Drainage Facility and shall not permit the Drainage Facility to constitute a hazard to the health or safety of the general public. The Developer agrees to indemnify, defend and hold harmless the City, its officials, agents and employees, and the Owner, its heirs, successors and assigns from any claims, actions, suits or other proceedings arising from or out of the negligent acts or omissions of the Developer, its agents, representatives, contractors or subcontractors or arising from the failure of the Developer, its agents, representatives, contractors or subcontractors to perform any act or duty required of the Developer herein; provided, however, to the extent, if at all, Section 56-7-1 NMSA 1978 is applicable to this Agreement, this Agreement to indemnify will not extend to liability, claims, damages, losses or expenses, including attorney's fees, arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications by the respective indemnitee, or the agents or employees of the respective indemnitee; or (2) the giving of or the failure to give direction or instructions by the respective indemnitee, where such giving or failure to give directions or instructions is the primary cause of bodily injury to persons or damage to property.

9. Assessment. Nothing in this Easement and Covenant shall be construed to relieve the Owner or Developer, or their respective heirs, assigns and successors from an assessment against the Owner's or Developer's property for improvements under a duly authorized and approved Special Assessment District. The parties specifically agree that the value of the Drainage Facility will not reduce the amount assessed by the City.

10. Binding on Owner's Property. The easement, covenants and obligations of the Owner and Developer set forth herein shall be binding on the Owner and Developer, and their respective heirs, assigns and successors and on the Owner's Property and constitute covenants running with the Owner's Property until released by the City's Chief Administrative Officer as approved by the City Engineer.

11. Entire Covenant. This Covenant contains the entire agreement of the parties and supersedes any and all other agreements or understandings, oral or written, whether previous to the execution hereof or contemporaneous herewith.

12. Changes to Covenant. Changes to this Covenant are not binding unless made in writing, signed by all parties.

13. Effective Date of Covenant. This Covenant shall be effective as of the date of signature of the Owner and Developer.

DEVELOPER:

Michael Sivage

By: Michael Sivage
Its: Vice President
Dated: 4/30/92

OWNER:

Barbara Page

By: Barbara Page
Its: President/CEO
Dated: May 8, 1992

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

The foregoing instrument was acknowledged before me this 8 day of MAY, 1992, by [name of person signing:] Barbara Page, [title or capacity, for instance, "President" or "Owner":] President/CEO of [name of the entity which owns the Property if other than the individual signing, for instance, the name of the corporation, partnership, or joint venture:] WESTLAND DEVELOPMENT CO. INC.

OFFICIAL SEAL
LINDA J. BLAIR
NOTARY PUBLIC STATE OF NEW MEXICO
Notary Bond Filed with Secretary of State

Linda J. Blair
Notary Public

My Commission Expires: 8/5/93

STATE OF NEW MEXICO
COUNTY OF BERNALILLO
FILED FOR RECORD
92 JUN -5 AM 9:34
BK 92-13 PG 2382
GLADYS T. DAVIS
CO CLERK & RECORDER 23390
DEPUTY

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

The foregoing instrument was acknowledged before me this 30th day of April, 1992, by [name of person signing:] Michael Sivage, [title or capacity, for instance, "President" or "Owner":] Vice President of [the Developer if other than an individual, for instance, the name of the corporation, partnership, or joint venture:] SIVAGE THOMAS HOMES, INC.

Debra E. Whitlock
Notary Public

My Commission Expires:
October 29, 1995

CITY OF ALBUQUERQUE:

Accepted:

By: [signature]
CITY ENGINEER: Public Works Department
Dated: 5/29/92

[EXHIBIT A ATTACHED]

Parcel One:
That certain Tract of land situate within the Town of Atrisco Grant, "Projected" Sections 9 and 16, Township 10 North, Range 2 East, New Mexico Principal Meridian, City of Albuquerque, Bernalillo County, New Mexico and being more particularly described by metes and bounds as follows:
BEGINNING at a point on the west Right-of-Way line of Unser Boulevard, N.W. (156' R/W), said point being the southeasterly corner of Tract 2-A-2, Replat of El Rancho Atrisco Phase V (filed for record on September 25, 1987; Volume C34, folio 162) A 5/8" rebar with caps stamped "8324" whence for a tie the ACS Brass cap station "3-H10" bears N 33 deg. 55' 57"E, 577.63 feet; THENCE along the westerly Right-of-Way line said Unser Boulevard, N.W., S 00 deg. 39' 11"E, 663.59 feet to an angle point, said point being a bent rebar replaced by this survey with a 5/8" rebar with cap stamped "4972"; THENCE, S 89 DEG. 38' 27"E, 25.29 feet to an angle point (said point also being where Unser Boulevard NW coincides with the beginning of New Mexico State Highway and Transportation Interchange Access Control Line for Interstate Project I-40-3 (54) 154; THENCE, S 12 deg. 49' 39"W, 268.90 feet to the southeast corner of the parcel herein described; THENCE leaving the westerly Right-of-Way line of said Unser Boulevard, N.W. and the Interchange Access Control Line, N 75 deg. 57' 00"W, 391.70 feet to an angle point; THENCE, N64 deg. 15' 02"W, 21.91 feet to a point being on a proposed extension of the centerline of a Residential Street; THENCE continuing, N 64 deg. 15' 02"W, 22.10 feet to an angle point; THENCE, N 38 deg. 20' 10"W, 58.21 feet to an angle point; THENCE, N 67 deg. 00' 42"W, 97.98 feet to an angle point; THENCE, N 54 deg. 12' 30"W, 100.46 feet to an angle point; THENCE, N 33 deg. 26' 51"W, 102.18 feet to an angle point; THENCE, N 17 deg. 29' 45"E, 32.80 feet to an angle point; THENCE, N 35 deg. 47' 30"E, 80.69 feet to a point on curve; THENCE, Northwesterly, 36.95 feet along the arc of a curve bearing to the left (said arc having a radius of 100.00 feet, a central angle of 21 deg. 10' 05" and a chord that bears N 86 deg. 41' 42"W, 36.74 feet) to a point of curvature; THENCE, S 82 deg. 43' 15"W, 43.81 feet to a point of tangency; THENCE, southwesterly, 38.57 feet along the arc of a curve bearing to the left (said arc having a radius of 100.00 feet, a central angle of 22 deg. 05' 47", and a chord that bears S 71 deg. 40' 22"W, 38.33 feet) to a non-tangent point; N 54 deg. 12' 30"W, 9.25 feet to a point, said point being on a proposed extension of the southerly Right-of-Way of Ladera Drive NW; THENCE continuing, N 54 deg. 12' 30"W, 53.00 feet to a point; said point being on a proposed extension of the centerline of Ladera Drive NW: THENCE continuing, N 54 deg. 12' 30"W, 53.00 feet to a point; said point being on a proposed extension of the northerly Right-of-Way of Ladera Drive NW and being the southwest corner of the parcel herein described; THENCE along the proposed northerly Right-of-Way of Ladera Drive: N 35 deg. 47' 30"E, 261.65 feet to a point of curvature; THENCE, northeasterly, 593.80 feet along the arc of a curve bearing to the right (said arc having a radius of 993.00 feet, a central angle of 34 deg. 15' 44", and a chord that bears N 52 deg. 55' 22"E, 584.99 feet to a point of tangency; THENCE, N 70 deg. 03' 14"E, 94.29 feet to a point of curvature; THENCE, northeasterly, 178.35 feet along the arc of a curve bearing to the left (said arc having a radius of 200.00 feet, a central angle of 51 deg. 05' 37", and a chord that bears N 44 deg. 30' 25"E, 172.50 feet to a non-tangent point, a point on the boundary of Tract A-2-A, replat of El Rancho Atrisco Phase V (filed for record on September 25, 1987; Volume C34, folio 162) and the most northerly corner of the parcel herein described; THENCE along the boundary of Tract A-2-A, replat of El Rancho Atrisco Phase V: southeasterly, 246.83 feet along the arc of a curve bearing to the right (said arc having a radius of 1272.00 feet, a central angle of 11 deg. 07' 05", and a chord that bears S 04 deg. 54' 21"E, 246.45 feet) to a non-tangent point; THENCE, S 89 deg. 20' 49"E, 50.00 feet to a point on the westerly Right-of-Way line of Unser Boulevard, N.W. and the place of beginning of the parcel herein described.

Parcel Two:

That certain Tract of Land situate chin the Town of Atrisco Grant "Projected" Sections 9 and 16, Township 10 North, Range 2 East, New Mexico Principal Meridian, City of Albuquerque, Bernalillo County, New Mexico and being more particularly described by metes and bounds as follows: BEGINNING at a point on a porposed extension of the Right-of-Way line Ladera Drive, N.W. (106' R/W), said point being the southwesterly corner of Parcel One (as hereinabove described) WHENCE for a tie the ACS Brass Cap Station "BH-40" bears S 77 deg. 46' 22"E, 2944.51 feet; THENCE, along the southerly line of Parcel One (as hereinabove described), S 54 deg. 12' 30"W, 53.00 feet to a point on a proposed extension of the centerline of Ladera Drive NW; THENCE continuing, S 54 deg. 12' 30"E, 53.00 feet to a point; said point being on a proposed extension of the southerly Right-of-Way of Ladera Drive NW; THENCE continuing, S 54 deg. 12' 30"E, 9.25 feet to a non-tangent point; THENCE, northeasterly, 38.57 feet along the arc of a curve bearing to the right (said arc having a radius of 100.00 feet, a central angle of 22 deg. 05' 47", and a chord that bears N 71 deg. 40' 22"E, 38.33 feet to a point of tangency; THENCE, N 82 deg. 43' 15"E, 43.81 feet to a point of curvature; THENCE, southeasterly, 36.95 feet along the arc of a curve bearing to the right (said arc having a radius of 100.00 feet, a central angle of 21 deg. 10' 05" and a chord that bears S 86 deg. 41' 42"E, 36.74 feet) to a non-tangent point; THENCE, S 35 deg. 47' 30"W, 80.69 feet to an angle point; THENCE, S 17 deg. 29' 45"W, 32.80 feet to an angle point; THENCE, S 33 deg. 26' 51"E, 102.18 feet to an angle point; THENCE, S 54 deg. 12' 30"E, 100.46 feet to an angle point; THENCE, S 67 deg. 00' 42"E, 97.98 feet to an angle point; THENCE, S 83 deg. 20' 10"E, 58.21 feet to an angle point; THENCE, S 64 deg. 15' 02"E, 22.10 feet to a point, said point being on the projected centerline of a proposed Residential Street; THENCE continuing, S 64 deg. 15' 02"E, 21.91 feet to an angle point; THENCE, S 75 deg. 57' 00"E, 391.70 feet to the northeast corner of the parcel herein described being also the southeast corner of the aforedescribed Parcel One, a point on the westerly Right-of-Way line of Unser Boulevard NW and a point on the New Mexico States Highway and Transportation Interchange Access Control Line for Interstate Project I-40-3 (54) 154; THENCE along the westerly Right-of-Way line for Unser Boulevard NW and the Interchange Access Control Line, S 12 deg. 49' 39"W, 37.82 feet to an angle point; THENCE, S 00 deg. 37' 05"W, 241.73 feet to the southeast corner of the parcel herein described; THENCE leaving the westerly Right-of-Way Line for Unser Boulevard NW and the Interchange Access Control Line, N 79 deg. 13' 49"W, 105.22 feet to an angle point; THENCE, N 66 deg. 10' 21"W, 60.30 feet to an angle point; THENCE, N 69 deg. 50' 49"W, 136.91 feet to an angle point; THENCE, N 76 deg. 21' 13"W, 178.61 feet to an angle point; THENCE, N 81 deg. 45' 49"W, 47.26 feet to an angle point; THENCE, N 71 deg. 26' 30"W, 108.68 feet to an angle point; THENCE, N 61 deg. 40' 19"W, 118.48 feet to an angle point; THENCE, N 55 deg. 34' 02"W, 97.78 feet to an angle point; THENCE, N 43 deg. 08' 52"W, 100.85 feet to an angle point; THENCE, N 33 deg. 04' 29"W, 52.42 feet to an angle point; THENCE, N 52 deg. 23' 40"W, 55.03 feet to an angle point, said point being on a proposed extension of the southerly Right-of-Way of Ladera Drive NW; THENCE, N 50 deg. 34' 45"W, 106.00 feet to the southeast corner of the parcel herein described, said point being on the southerly line of a 100' wide Public Service Company of New Mexico Electric Easement and being on a proposed extension of the northerly Right-of-Way of Ladera Drive NW and being the southwest corner of the parcel herein described; THENCE along the proposed northerly Right-of-Way of Ladera Drive NW, N 39 deg. 25' 08"E, 71.53 feet to a point of tangency (also being a point where this parcel leaves the southerly easement line of the aforesaid P.N.M. Electric Easement); THENCE, northeasterly, 66.31 feet along the arc of a curve bearing to the left (said arc having a radius of 1047.00 feet, a central angle of 03 deg. 37' 43" and a chord which bears N 37 deg. 36' 35"E, 66.30 feet to a point of tangency; THENCE, N 35 deg. 47' 30"E, 145.61 feet to the northwest corner and place of beginning of the parcel herein described.

0002388

R. WARD HUNNICUTT, CHAIRMAN
PAT D. HIGDON, VICE-CHAIRMAN
DANIEL W. COOK, SECRETARY-TREASURER
GENEIVA MEEKER, DIRECTOR
RONALD D. BROWN, DIRECTOR

LARRY A. BLAIR
EXECUTIVE ENGINEER

Albuquerque
Metropolitan
Arroyo
Flood
Control
Authority

2600 PROSPECT N.E. - ALBUQUERQUE, N.M. 87107
TELEPHONE (505) 884-2215

RECEIVED
MAY 19 1992
HYDROLOGY DIVISION

May 14, 1992

Gilbert Aldaz, P.E. & P.S.
City of Albuquerque
Hydrology, PWD
P.O. Box 1293
Albuquerque, NM 87103

RE: Parkway Subdivision, Drainage Management Plan by Community Sciences Corporation updated March, 1992 (DRB-91-222, H-9)

Dear Gilbert;

AMAFCA has reviewed the above-referenced plan and in particular, the "Conceptual Grading and Drainage Plan" (Plate 1). Of particular concern to AMAFCA is the outfall from Dam No. 12 of the Ladera Diversion.

AMAFCA approves the "Conceptual Grading and Drainage Plan" and the 72 foot wide right-of-way proposed. AMAFCA will need to approve plans for any proposed grading or construction on, or immediately adjacent to, this right-of-way. We understand that Units 1 and 2, as shown on the plan, will not require grading approval by AMAFCA.

Please note that this subdivision is immediately below the emergency spillway of Ladera Dam No. 12. A storm larger than a 100-year storm will cause water to flow through this emergency spillway and is likely to create severe problems in this subdivision. In a 30-year period, there is a 26 percent chance that a 100-year storm will be exceeded.

Because of the existing development downstream of Ladera Dam No. 12, the existing dam is currently assigned a moderate hazard classification by the New Mexico State Engineer Office. With the construction of this subdivision, Ladera Dam No. 12 will need to have a high hazard classification. An updated Inspection Report and Dam Safety Study will likely need to be completed for Ladera Dam No. 12 as a result of a new hazard classification. Funding to complete such a study has not been allocated by any organization or agency.

Please let us know if you have any questions regarding the information presented herein.

Sincerely,
AMAFCA

Clifford E. Anderson, P.E. & L.S.
Drainage Engineer

CEA:ij

copy: Michael Yost, Community Sciences Corporation
Larry Collins, Sivage Thomas Homes

Parkway Subdivision 3-23-92 For Gilbert:

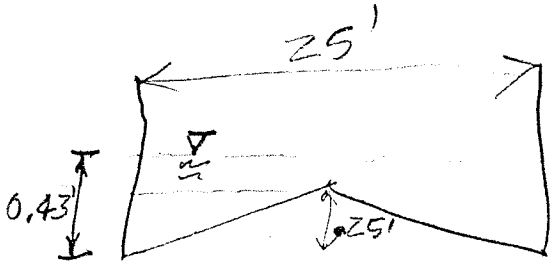
Conclusion:

There is no substantial error in the CSC drainage calculations as submitted; and, the use of mountable curb throughout Phase I meets the requirements of the Drainage Ordinance, Section 7 "Surface Use of Streets for Drainage and Flood Control Purposes". Additionally, the 10yr. depths are almost completely contained within the streets without overtoping the curbs.

The new policy of freeboard requirements for street flows, catches this project at a bad time. Substantial additional engineering costs will be necessary to revise street and Right of Way widths as necessary to accomodate standard C&G. Construction costs will also be substantially increased with the introduction of curb cuts for driveways.

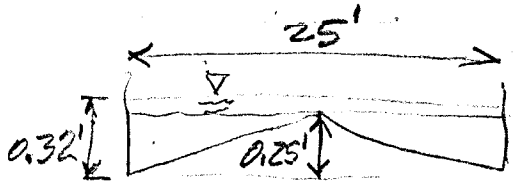
Please consider the following supplimental calculations and the recomendation for limited use of standard C&G as indicated at the botom of sheet 4.

Check CSG Calcs:



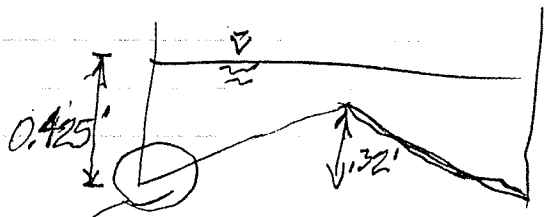
$S_o = 1.0\%$

$A = .25 \times 25'/2 + .18' \times 25' = 7.63$ sf
$P \approx 25.86'$
$R = 0.295$
$Q = \frac{1.486}{.017} \times 7.63 \text{ sf} \times (0.295)^{.67} \times (.01)^{.5} = 29.43$ cfs close enough



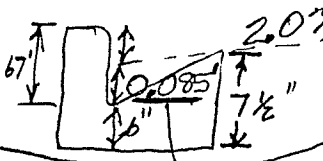
$A = .25 \times 25'/2 + 0.07 \times 25' = 4.88$ sf
$P = 25.64'$
$R = 0.190$
$Q = (1.486/0.017) \times 4.88 \text{ sf} \times (0.190)^{0.67} \times (0.01)^{0.5} = 14.0$ cfs OK

Check Nomograph



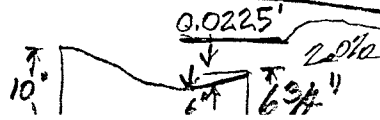
$A = .32 \times 32'/2 + 0.105 \times 32' = 8.48$ sf
$P \approx 32.85'$
$R = 0.258$
$Q = (1.486/0.017) \times 8.48 \text{ sf} \times (0.258')^{.67} \times (0.01)^{0.5} = 29.92$ cfs

Standard C&G: ⟹



This height should be added to the above depths to get the true depth of water at the face of curb.

Mountable Curb: ⟹



This height should be added to normal depths for mountab

So, when applying city nomographs to streets with mountable curb & Gutter, 0.0625' should be subtracted from the depth given by the nomograph.

Furthermore, 0.0225' needs to be added to all street flow depths in the March 1992 Drainage Management Plan for the development of Parkway Subdivision.

Thus the last 110' of Bridgewater Place N.W. has:

$S_o = 1.0\%$

$Q_{100} = 29.8$ cfs **$D_{100} = 0.45'$** $V = 29.8/7.63 sf = 3.9$ fps

$Q_{10} = 13.8$ cfs **$D_{10} = 0.34'$** $V = 13.8/4.88 sf = 2.8$ fps

both in supercritical flow regime.

As indicated in the plan, the 14.9 cfs 100 yr flow will Pond to a depth of 0.47' plus 0.0225' which equals **0.49'** depth at intersection of Bridgewater and Parkway. The above depth is based on calculations which assume that Bridgewater has a normal crown. Since there is no crown at the intersection, the 0.49' depth is a very conservative estimate of a situation that will probably occur for less than 15 min. out of

every 100yrs.

One More annalysis point might be added. at the intersection of Bridgewater and Brookhaven. Flows in the two approaching streets are:

Bridgewater

Q_{100} = 14.9 cfs Q_{10} = 8.1 cfs.
S_o = 2.55%
D_{100} = .276 + 0.0225 0.30' D_{10} = 0.24'
V_{100} = 3.95 fps V_{10} = 3.30 fps
= 1.79 F = 1.64
Jump Depth = 0.41'

Brookhaven

Q_{100} = 6.7 cfs Q_{10} = 3.8 cfs
S_o = 1.23%
D_{100} = 0.25' D_{10} = 0.21'
V_{100} = 2.4 fps V_{10} = 2.1 fps
= 1.19 F =
Jump Depth = 0.20'

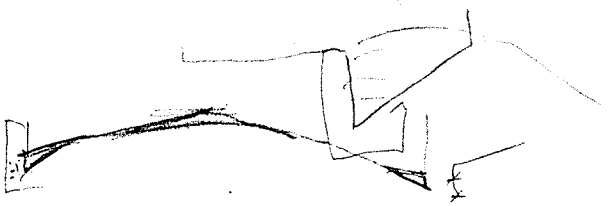
The combined exiting flow from that intersection is:

Q_{100} = 21.6 cfs Q_{10} = 11.9 cfs
S_o = 2.55%
D_{100} = 0.34' D_{10} = 0.28'
V_{100} = 4.56 fps V_{10} = 3.57 fps
F_{100} = 1.85 F_{10} = 1.72
D_c = 0.43'
V_c = 3.03'
Ponded Depth = $1.25 \frac{V_c^2}{29} + D_c$ = 0.61'

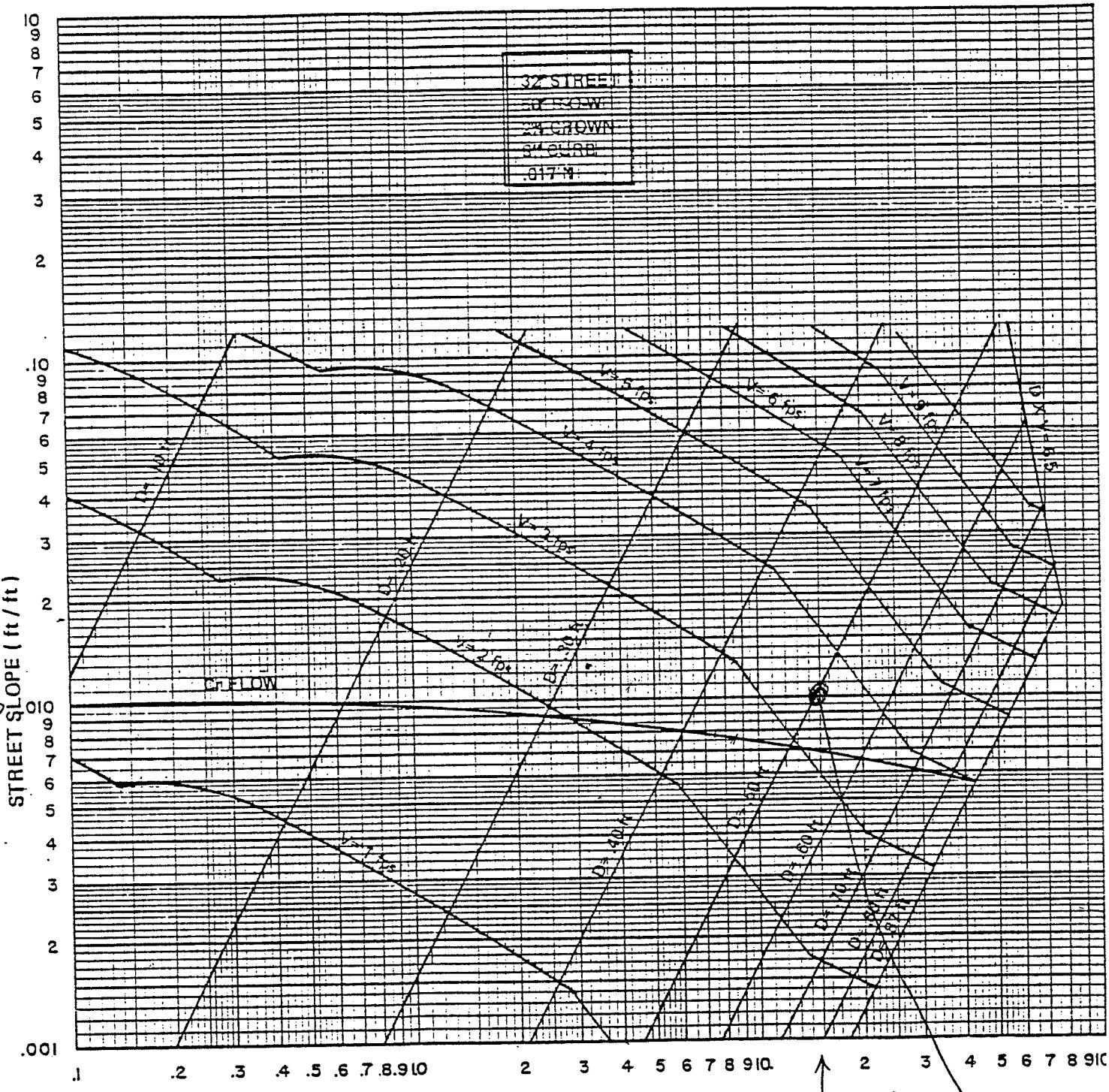
Ponded depth calculati
are not valid for this
intersection because one
2/3 of the flow approac
the intersection with dese
idly supercritical velocity
and has a straight, undistra
path through that intersec

Just to be sure, I suggest adding standard C&G at the East curb return and 50' at the botom of Brookhaven on the East side

STREET CAPACITY



+ .08'



30/2 = 15cfs

REV. 3-83

Ridgewater Place

PLATE 22.3 D-1

Street D=0.50'
for 32' width
CSC has 25' width
D=.043 ? ~~one=0.5'~~

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

KEN SCHULTZ
MAYOR

August 18, 1989

Dennis Lorenz, P.E.
Espey, Huston, Inc.
317 Commercial Street, NE
Albuquerque, New Mexico 87102

RE: PRE-DESIGN FOR WESTLAND PROPERTY
WEST OF UNSER BOULEVARD @ HANOVER ROAD ~~(J-9)~~ H9/D1A1

Dear Mr. Lorenz:

Per your request, I will discuss important issues and limitations on the discharge from the referenced property. The two master plans which apply to the area are the West Bluff Study and SAD 212. The SAD report designed the Laurelwood detention ponds for certain basins and runoff. Since the Westland property is in that watershed it will be limited to the SAD's approved runoff release rates. The West Bluff Study indicates that Hanover Road and its storm drain need to convey 314 cfs in the developed condition. Therefore, if Hanover Road and its storm drain cannot convey these flows then there will be upstream drainage limitations which will be enforced. I will have a difficult time enforcing discharge limitations on the undeveloped property north of Hanover Road and east of Unser Boulevard. These properties have already been assessed in the SAD 212 for free discharge. In conclusion, the development discharge release rate will be limited by either the SAD 212 or the West Bluff studies.

SAD 218 did not make the improvements in Hanover Road because of the following reasons. First, SAD 218 did not assess properties north of Hanover Road or west of Unser Boulevard. These properties did not pay for any drainage improvements on Hanover Road or the Laurelwood Pond. Second, the proposed channel improvements north of I-40 will allow discharge from your proposed development. Improvements of Hanover Road or the storm drain would be duplicated when the I-40 channel is built.

Should you need further information, please call me at 768-2650.

Cordially,

Carlos A. Montoya

Carlos A. Montoya, P.E.
City/County Floodplain Administrator

xc: Fred Aguirre
Lee Lunsford

PUBLIC WORKS DEPARTMENT

Walter H. Nickerson, Jr., P.E.
Assistant Director Public Works

ENGINEERING GROUP

Telephone (505) 768-2500

CAM/bs
(WP+1187)

AN EQUAL OPPORTUNITY EMPLOYER

ESPEY,
HUSTON &
ASSOCIATES, INC.
Engineering & Environmental Consultants

July 5, 1989

RECEIVED
JUL 0 5 1989
HYDROLOGY SECTION

Mr. Fred Aguirre, P.E.
City Engineer - Hydrology Division
Public Works Department
City of Albuquerque
P. O. Box 1293
Albuquerque, New Mexico 87103

SUBJECT: 20-Acre Subdivision at El Rancho Atrisco, Phase V
EH&A Job No. 11802

Dear Fred:

The purpose of this letter is to establish the drainage criteria for the subject project, based on downstream capacity, prior to submittal of a formal drainage report.

The subject site is located west of Unser Boulevard NW just north of I-40 (see attached Vicinity Map). Existing undeveloped flows drain eastward to an existing 54-inch RCP storm drain which is connected to the Hannover Road storm drain constructed by SAD 212. The Hanover storm drain varies in size from 36 inches to 54 inches and outfalls into the Laurelwood Detention Area located at Hanover and 72nd Street. The detention area has a capacity of approximately 15.6 acre-feet which drains by a 24-inch outlet pipe. The outlet pipe discharges into an open field on the south side of I-40.

In order to identify downstream capacity, we reviewed as-built drawings and existing drainage studies prepared to support the improvements constructed in Hanover Road from Unser Boulevard to the Laurelwood Detention Area. The following documents were used to make this analysis:

- o "Design Report for Special Assessment District No. 212", prepared by Denney Gross & Associates, Inc., October, 1982
- o "West Bluff Drainage Plan, Phase III", prepared by Andrews, Asbury and Robert, Inc., January 1987
- o "Engineer's Drainage Report, Special Assessment District No. 218", prepared by Wilson and Company, January 1988
- o As-Built drawings for Special Assessment District No. 212, dated March 31, 1986

The Design Report for SAD 212 is the official document used to establish drainage criteria for the SAD 212 drainage area, which includes the subject site. Regional hydrology was developed utilizing the Rational formula with reasonable "C" factors (see pages D-7 thru D-9). This hydrology was used to size conveyance systems (at the time a channel was planned, but a storm drain was constructed) and the Laurelwood Detention Area. The hydrology anticipated a 20 acre offsite basin with residential zoning, contributing 61 cfs to the system. Review of as-built drawings indicates that capacity exists in excess of 61 cfs (HGL calculated at 80 cfs) at the upstream end of the Hanover storm drain.

The Engineer's Drainage Report for SAD 218 addresses the construction of Hanover Road. This report relys on the SAD 212 report which programmed storm drains and surface improvements to convey the 100-year/6-hour storm to the Laurelwood Detention Area without introducing excess surface flow into Hanover Road. Therefore, SAD 218 provides drainage improvements required to discharge flows generated by the Hanover Road street improvements only.

The West Bluff Drainage Plan reports excess flow in Hanover Road (see Plate C-5) which would indicate that downstream capacity is severely limited by the inadequacy of Hanover Road and the storm drain system. These results appear to be in direct conflict with the drainage reports for SAD 212 and SAD 218. I feel it necessary to report that Hanover Road is presently being constructed under SAD 218, without additional storm drainage improvements that would be required if the findings of the West Bluff Drainage Plan are accurate. Some verification of this hydrology should be made by the appropriate engineers.

Based on our review of the existing documentation, we can find no reliable information that would prohibit the subject site from free discharging into the Hanover storm drain and Laurelwood Detention Area. Some concern has been stated on your part regarding the Laurelwood Detention Area outfall. The pond outfall was predicated on the City's criteria at the time, which allowed discharge of historic rates into historic drainageways. The pond outfall merely utilizes this criteria, which was approved by the City of Albuquerque and permitted by the New Mexico State Highway and Transportation Department. A field visit by this office failed to observe any erosion caused by this outfall condition. The outfall pipe discharges into an undeveloped parcel that is well vegetated and very flat. Flows that do not pond in local depressions are directed southeasterly to Glenrio Road (see attached map) which conveys runoff to existing flood hazard zones. The City of Albuquerque will certainly have to evaluate the Laurelwood pond outfall condition; however, it does not seem reasonable to penalize this project.

One last item to consider is that the Laurelwood Detention Area outfall is only a temporary measure until the I-40 Interceptor is constructed. The Interceptor will intercept and convey the pond outfall to the West Bluff Outfall and Rio Grande. The West Bluff Outfall is presently under construction. SAD 218 is also providing drainage improvements within the I-40 interceptor corridor in anticipation of systems 603.05 and 605.13.

Please review this information at your earliest convenience and respond by letter so that we may have some basis from which to prepare our drainage report. Our schedule is to submit the Drainage Report and Preliminary Plat by August 1, 1989. Your timely response would be greatly appreciated. If you have any questions on this matter, please call.

Sincerely,

Dennis A. Lorenz, P.E.

/kh

Enclosures

cc: Steve Crawford, Westland Development Co., Inc.

WEST BLUFF DRAINAGE PLAN
SUMMARY OF EXISTING STORM DRAINS

LADERA DRIVE STORM DRAIN (cont.)			PIPE SIZE (inches)	TYPE OF PIPE	LENGTH (feet)	SLOPE (ft./ft.)	FLOW VELOCITY (ft./sec.)	EXISTING CAPACITY (c.f.s.)	TOTAL 10 YEAR DISCHARGE (c.f.s.)	TOTAL 100 YEAR DISCHARGE (c.f.s.)	MAP No.	COMMENTS
LOCATION	FROM	TO										
LADERA DRIVE	185' W. OF OURAY ROAD SOUTH SIDE	NORTH SIDE	24	RCP	88.34	0.0052	4.5	14	9	38	H-10	COLLECTS SOUTH SIDE (L
LADERA DRIVE	NORTH SIDE	LADERA DRAINAGE SYSTEM, DAM NO. 15	24	RCP	95.33	0.0157	7.8	25	17	76	H-10	
HANOVER ROAD STORM DRAIN												
HANOVER ROAD	UNSER BOULEVARD	435' E. OF UNSER BOULEVARD	36	RCP	435	0.0274	13.5	96	50	110	J-9	
HANOVER ROAD	435' E. OF UNSER BOULEVARD	865' E. OF UNSER BOULEVARD	42	RCP	420	0.0245	14.2	136	50	110	J-9	
HANOVER ROAD	865' E. OF UNSER BOULEVARD	CHERRYWOOD AVENUE	42	RCP	450	0.0127	10.2	98	107	232	J-10	
HANOVER ROAD	CHERRYWOOD AVENUE	380' E. OF CHERRYWOOD AVENUE	42	RCP	380	0.0132	10.4	100	127	279	J-10	
HANOVER ROAD	380' E. OF CHERRYWOOD AVENUE	W. SIDE OF LAURELWOOD PKWY	48	RCP	380	0.0124	11.0	139	127	279	J-10	
HANOVER ROAD	W. SIDE OF LAURELWOOD PKWY	E. SIDE OF LAURELWOOD PKWY	48	RCP	131	0.0099	9.9	124	127	279	J-10	
HANOVER ROAD	E. SIDE OF LAURELWOOD PKWY	30' W. OF DETENTION POND	54	RCP	269	0.0080	9.6	152	132	314	J-10	
HANOVER ROAD	30' W. OF DETENTION POND	DETENTION POND CHANNEL	54	RCP	30	0.0083	9.8	155	132	152	J-10	72nd STREET

DI DTE C-E

2. Composite Runoff Coefficient

Right-of-Way Width = 100 feet

Pavement = 2 x 25 = 50 feet

Sidewalk = 2 x 4 = 8 feet

Total Hard Surface = 60 feet or 60%

Composite Runoff Coefficient = .6 x .9 + .4 x .3 = 0.66

D. Hanover Channel Design

Hanover Channel will convey runoff from El Rancho Atrisco Phase III to a detention basin that will be located at the southeast corner of the site.

The channel will intercept a 54" culvert at Unser Boulevard and convey this runoff, as well as additional runoff that enters the channel, via future rundowns throughout the subdivision. All drainage areas including the off-site area to the west is assumed developed.

1. Composite Runoff Coefficient

Area	Composite Runoff Coefficient
Off-Site Area to West	Assume total development C = 0.65
Area 3F Planned office & commercial development (assume 65% hard surface)	C_{comp} = .65 x .9 + .35 x .3 = .69
Area 3F Multi-family (assume 65% hard surface)	C = .65 x .9 + .35 x .3 = .69
Area 3E Single family (assume 60% hard surface)	C = .6 x .9 + .4 x .3 = .66

TABLE IV

HANOVER CHANNEL

Area	Acreage	Longest Drainage Path	Tc	I_{10}	I_{100}	C	Q_{10}	Q_{100}	Improvements
Off-Site Area to West	20	----	10.0	3.10	4.71	0.65	40 cfs	61 cfs	Design channel for 100 cfs from Sta. 31+85 to 23+50.
	28+20 = 48	2400' on pavement @ average slope of 1.2%	14.0	2.52	3.85	0.69	84 cfs	127 cfs	Design channel for 160 cfs from Sta. 23+50 to culvert @ Hanover & Laurelwood
3G & 3F	48+8 = 56	2400' on pavement @ average slope of 1.2% & 250' in channel @ average velocity of 10 fps	14.5	2.48	3.72	0.69	94 cfs	143 cfs	Design channel for 160 cfs from Sta. 23+50 to culvert @ Hanover & Laurelwood to Detention Basin
3C, 3D, 3E, 3F & 3G	56+35+1.4+1.17 = 93.5	2400' on pavement with average slope of 1.2% & 1100' in channel with average velocity of of 10 fps.	16.0	2.45	3.74	0.67	154 cfs	235 cfs	Design Channel & culvert for 260 cfs from 42" culvert @ Hanover & Laurelwood to Detention Basin
3C, 3D 3E, 3F 3G & 3H	97.5	2400' on pavement with average slope of 1.2% & 1400' in channel @ average velocity of 10 fps	16.5	2.40	3.70	0.67	158 cfs	241 cfs	Design Channel & culvert for 260 cfs from 42" culvert @ Hanover & Laurelwood to Detention Basin

148413

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\14308\SHT4.DWG

N

0 12 25 50 100 150
GRAPHIC SCALE IN FEET:

45 L.F. 6' WIDE TYPE 'VL' RIPRAP 1' DEEP W/ FILTER FABRIC & 4:1 CROSS SLOPE.

DESILTATION POND

FL = 88.71

16' WIDE CONC. VALLEY GUTTER PER STD. DWG. 2422

FL = 88.51

PERMA-CURB

existing fence

EXIST. 6' SIDEWALK

UNSER BOULEVARD NW

LADERA BOULEVARD NW

AVONDALE PLACE NW

PARKWAY DRIVE

BROOKHAVEN PLACE NW

BRIDGEWATER PLACE NW

NOTES:

A. EROSION CONTROL – DURING CONSTRUCTION, THE CONTRACTOR WILL BE RESPONSIBLE FOR CONTROL OF EXCESSIVE AIRBORNE DUST AND RUNOFF SEDIMENT. THAT CONTRACTOR SHALL ALSO ENSURE THAT NO SOIL ERODES FROM SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AT THE PROPERTY LINES AND WETTING THE SOIL TO KEEP IT FROM BLOWING. THE CONTRACTOR SHALL PROMPTLY CLEAN UP ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY SO THAT IT IS NOT SUSCEPTIBLE TO BEING WASHED DOWN THE STREET.

B. TOP SOIL DISTURBANCE PERMIT – THE CONTRACTOR SHALL OBTAIN A TOP SOIL DISTURBANCE PERMIT PRIOR TO COMMENCING ANY LAND DISTURBING ACTIVITIES.

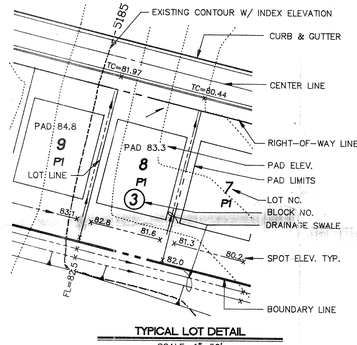
LEGEND

- X TC=98.43 — PROPOSED TOP OF CURB ELEVATION
- X 99.0 — PROPOSED SPOT ELEVATION
- 09.0 Ø — EXISTING SPOT ELEVATION (GRND & TC)
- EROSION CONTROL BERM
- PROPOSED CONCRETE VALLEY GUTTER
- EXISTING CURB & GUTTER
- PROPOSED MOUNTABLE CURB & GUTTER
- PROPOSED STANDARD CURB & GUTTER
- 4973 — EXISTING CONTOUR W/ INDEX ELEVATION
- SWALE
- FLOW ARROW
- PROPOSED RETAINING WALL
- E — EXISTING U.G. ELECTRICAL
- EXISTING WATER LINE
- G — EXISTING GAS LINE
- 30" SD — EXISTING STORM DRAIN
- 30" SD — PROPOSED STORM DRAIN
- "PERMA-CURB" OR APPROVED EQUAL

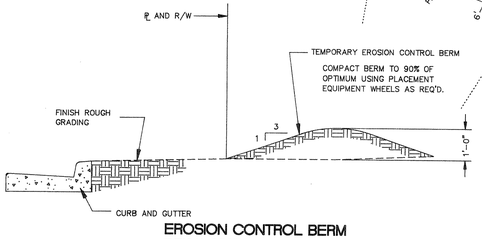
DOUBLE THROAT DOUBLE GRATE TYPE A INLET

STORM DRAIN MH # 8

BACK OF WALK



TYPICAL LOT DETAIL
SCALE: 1"=50'
NOTE: SIDE YARD SWALES 1.0% MIN.



EROSION CONTROL BERM
TYPICAL SECTION THROUGH BERM
NOT TO SCALE

CUT VOLUME = 32,000 C.Y.
FILL VOLUME = 23,100 C.Y.
C/F = 1.39

APPROVED FOR ROUGH GRADING (± 1 FT.)

CITY HYDROLOGY — DATE 3-09-92

SURVEY INFORMATION — FIELD NOTES

NO.	BY	DATE
1	COMMUNITY SCIENCES	12/91

BENCH MARKS

ACS BRASS CAP "3-HIO" SET FLUSH IN CONCRETE SURFACE OF SPILLWAY LOCATED 386'± NORTH OF CENTER LINE OF LADERA DRIVE & 308'± EAST OF THE CENTER LINE OF UNSER BLVD. ELEV.=5133.38

AS BUILT INFORMATION

CONTRACTOR
WORK STAKED BY
INSPECTOR'S ACCEPTANCE BY — DATE
AS BUILTS BY — DATE
VERIFICATION BY
DRAWINGS CORRECTED BY — DATE

MICRO-FILM INFORMATION

RECORDED BY — DATE
NO

ENGINEER'S SEAL

MICHAEL J. YOST — NEW MEXICO — 9761 — REGISTERED PROFESSIONAL ENGINEER

Michael J. Yost 2/14/92

REV 3/12/92
REV 3/19/92

NO.	DATE	REMARKS
1	3-6-92	GRADES AT BRIDEWATER & LADERA

REVISIONS — BY: D.H.

DESIGN — DATE FEB., 1992

DESIGNED BY D.H. — DATE FEB., 1992
DRAWN BY R.D.Q. — DATE
CHECKED BY: — DATE

DATE FEBRUARY, 1992
SCALE 1" = 50'
DESIGNED D.H.
DRAWN R.D.Q.
JOB NO. 143-08-043

community sciences corporation
LAND PLANNING ENGINEERING SURVEYING
P.O. Box 1328 Corrales, N.M. 87048

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: PARKWAY- UNIT 1

GRADING & EROSION CONTROL PLAN

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
DRC CHAIRMAN			WATER		
TRANSPORTATION			WASTE WATER		
HYDROLOGY					

PROJECT NO. | MAP NO. H-9 | SHEET 4 OF 15

155632

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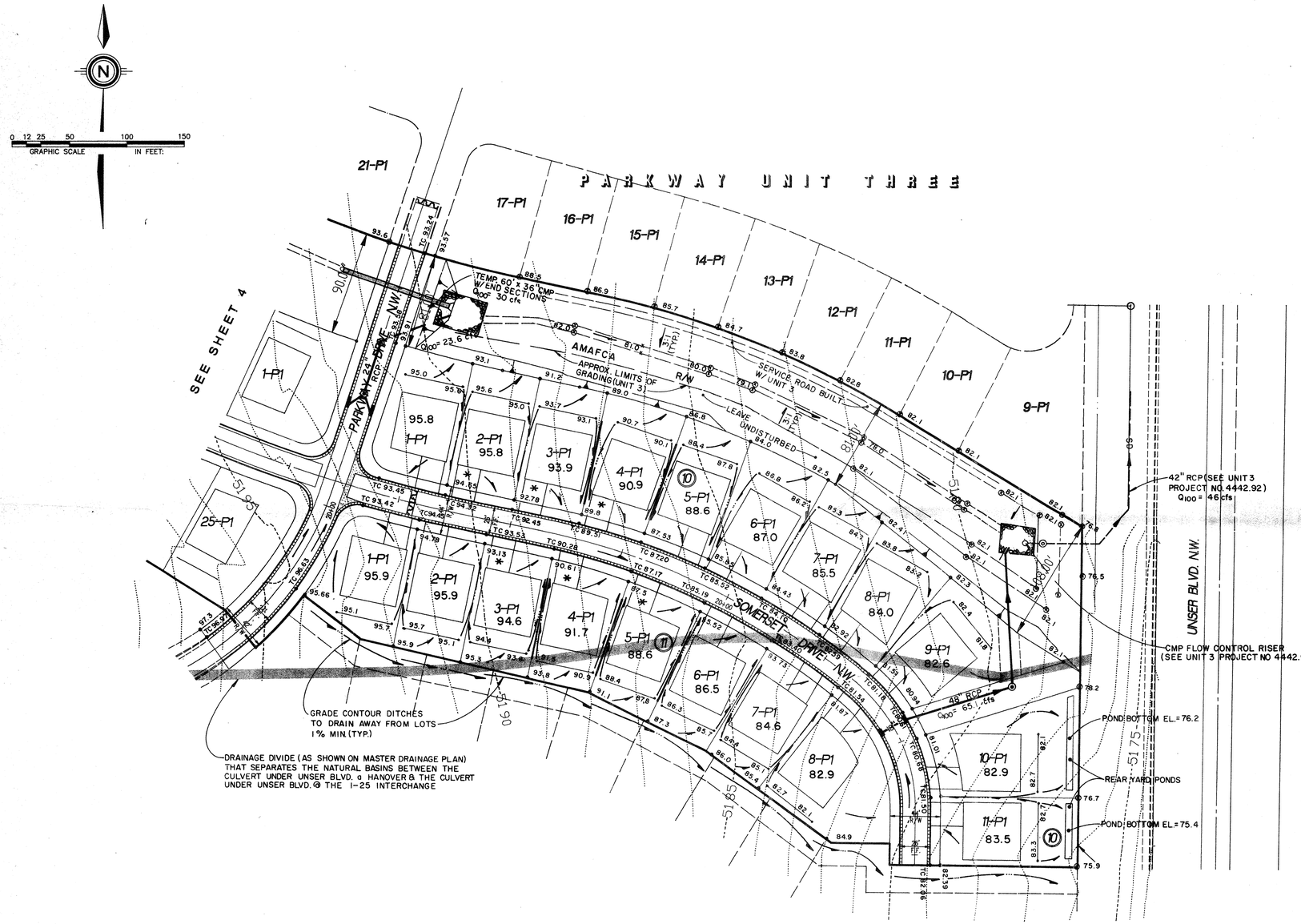


LOT GRADING SPECIFICATIONS:

1. CROSS LOT DRAINAGE WILL NOT BE PERMITTED. IF LOCAL CONDITIONS SHOULD DICTATE A RELAXATION OF THIS RULE, THEN THE APPROPRIATE PUBLIC OR PRIATE DRAINAGE EASEMENTS WILL BE DEDICATED ON THE PLAT.
2. CRITERIA FOR SETTING LOT ELEVATION CONTROL GRADES SHALL INCLUDE THE FOLLOWING:
   - A. ALL DRAINAGE SWALES AND YARD AREAS SHALL HAVE MINIMUM SLOPES OF 1% AND MAXIMUM SLOPES OF 4 HORIZONTAL TO 1 VERTICAL.
   - B. BUILDING PADS SHALL BE SET AT LEAST 0.2' ABOVE THE HIGHEST ELEVATION OF ADJACENT SWALES.
   - C. PAD ELEVATIONS WILL BE ASSUMED TO BE EQUAL TO FINISHED FLOOR OF GARAGE. MINIMUM DRIVEWAY SLOPES SHALL BE 1% AND DRIVEWAY SLOPES SHALL NOT EXCEED 14%.
   - D. USABLE YARD AREAS SHALL HAVE MINIMUM DIMENSIONS OF 30' X 15', SHALL HAVE MINIMUM SLOPES OF 1%.
3. WHERE YARD GRADES OF ADJACENT LOTS AT PROPERTY LINES CANNOT BE MATCHED USING THE ABOVE CRITERIA, RETAINING WALLS SHALL BE PROVIDED TO ACCOMMODATE GRADE DIFFERENTIALS.

SPECIAL FHA REQUIREMENTS:

- A. LONGITUDINAL GRADIENT OF DRIVEWAY SHALL NOT BE LESS THAN ONE PERCENT (1%) AND NOT STEEPER THAN TEN PERCENT (10%), IF DRIVEWAY IS ALSO USED AS A REQUIRED WALK. IF USED ONLY AS A DRIVEWAY, THE LONGITUDINAL GRADIENT SHALL NOT EXCEED 14% (1 IN 7).
- B. PROVIDE MINIMUM FALL AWAY FROM STRUCTURE OF 6 INCHES IN 10 FEET, EXCEPT AS RESTRICTED BY SIDE LOT LINES OR OTHER FROST CONDITIONS. THE HORIZONTAL LENGTH OF SUCH SLOPES MAY BE REDUCED AS NECESSARY AT BUILDING CORNERS AND SIDE YARDS.
- C. SIDEWALK GRADIENT SHALL NOT EXCEED 10%.
- D. SLOPES SHALL NOT EXCEED FOUR -TO-ONE (4 TO 1).

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE
		ACS BRASS CAP "3410" SET FLUSH IN CONCRETE SURFACE OF
1	C.S.C.	12/91 SPILLWAY LOCATED 398' ± NORTH OF THE CENTERLINE OF LADERA
2	C.S.C.	1/93 DRIVE & 309' ± EAST OF THE CENTERLINE OF UNSER BOULEVARD.
		ELEVATION = 6193.39

BENCH MARKS

AS BUILT INFORMATION

CONTRACTOR
WORK STAKED BY
INSPECTOR'S ACCEPTANCE BY — DATE
FIELD VERIFICATION BY — DATE
DRAWINGS CORRECTED BY — DATE

MICRO-FILM INFORMATION
RECORDED BY — DATE
NO

ENGINEER'S SEAL

MICHAEL J. YOST — NEW MEXICO — 9665 — REGISTERED PROFESSIONAL ENGINEER
3/5/93

NO.	DATE	REMARKS
		REVISIONS:
		DESIGN
		DESIGNED BY M.J.Y. — DATE 3/93
		DRAWN BY A.M. — DATE 3/93
		CHECKED BY M.J.Y. — DATE 3/93

RECEIVED
MAY - 6 1993
HYDROLOGY SECTION

DATE: MAR. 1993
SCALE: 1" = 50'
DESIGNED: M.J.Y.
DRAWN: A.M.
JOB NO.: 143-14-PRE

Communities Sciences Corporation

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: PARKWAY - UNIT 4
GRADING & EROSION CONTROL PLAN

APPROVED FOR ROUGH GRADING (±1 FT.)

John Kelly — AMAFCA — 4/8/93 DATE

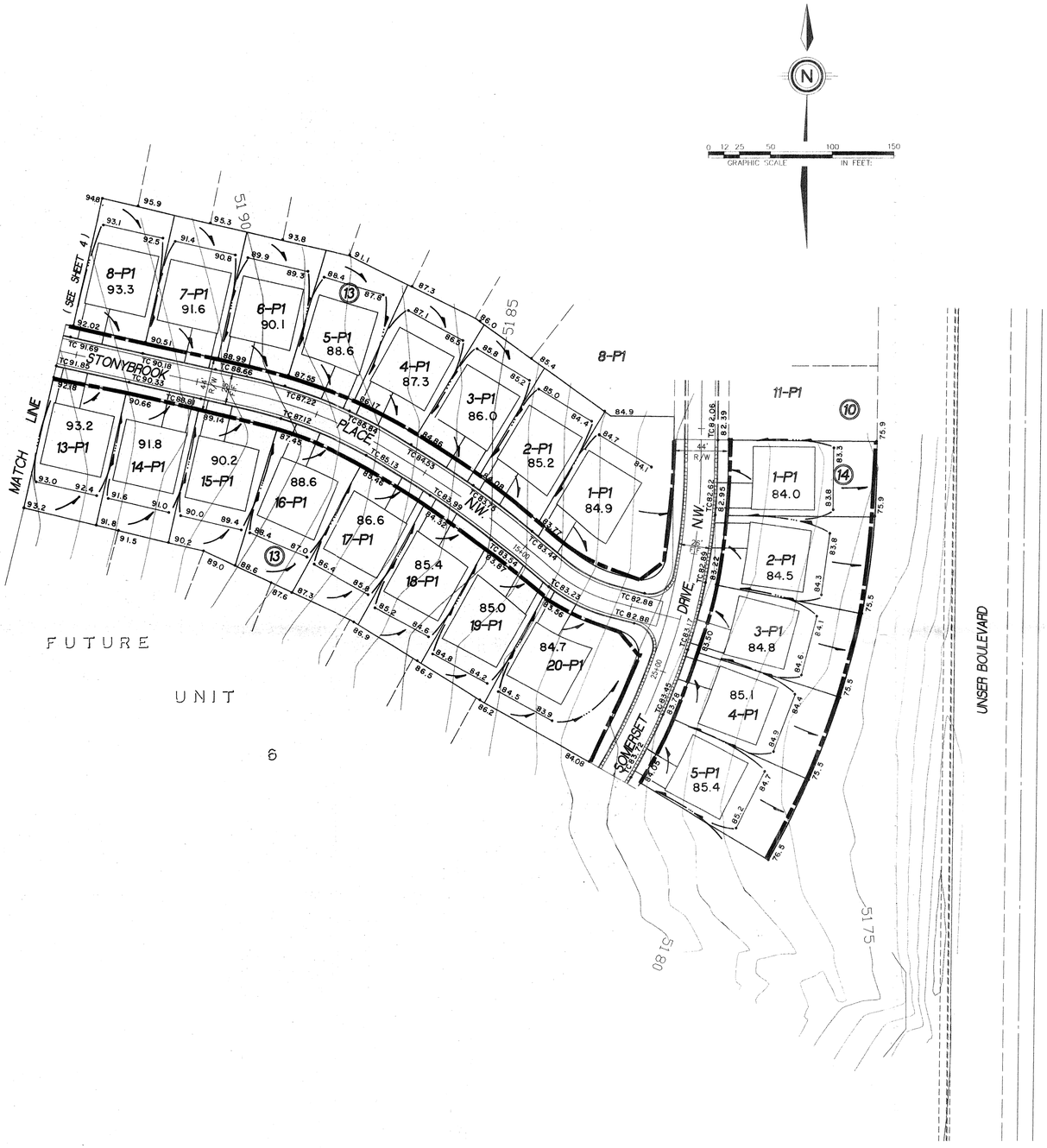
CITY HYDROLOGY — DATE

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
DRC CHAIRMAN			WATER		
TRANSPORTATION			WASTE WATER		
HYDROLOGY					
AMAFCA	John Kelly	4/8/93			

PROJECT NO. 4442.93 — MAP NO. J9 — SHEET 5 OF 15

SHEETS1434

COMMUNITY SCIENCES CORPORATION - CORRALES, NEW MEXICO - (505) 897-0000



LEGEND

x TC=98.43	PROPOSED TOP OF CURB ELEVATION
x 99.0	PROPOSED SPOT ELEVATION
09.0 ⊗	EXISTING SPOT ELEVATION (GRND & TC)
	EROSION CONTROL BERM
	PROPOSED CONCRETE VALLEY GUTTER
	EXISTING CURB & GUTTER
	PROPOSED MOUNTABLE CURB & GUTTER
	PROPOSED STANDARD CURB & GUTTER
4973	EXISTING CONTOUR W/ INDEX ELEVATION
	SWALE
	FLOW ARROW
	PROPOSED RETAINING WALL
-UE-	EXISTING U.G. ELECTRICAL
-W-	EXISTING WATER LINE
-G-	EXISTING GAS LINE
30" SD	EXISTING STORM DRAIN
30" SD	PROPOSED STORM DRAIN
	EROSION CONTROL BERM

NOTES:

A. EROSION CONTROL - DURING CONSTRUCTION, THE CONTRACTOR WILL BE RESPONSIBLE FOR CONTROL OF EXCESSIVE AIRBORNE DUST AND RUNOFF SEDIMENT. THAT CONTRACTOR SHALL ALSO ENSURE THAT NO SOIL ERODES FROM SITE INTO PUBLIC RIGHT-OF-WAY OR ON TO PRIVATE PROPERTY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AT THE PROPERTY LINES AND WETTING THE SOIL TO KEEP IT FROM BLOWING. THE CONTRACTOR SHALL PROMPTLY CLEAN UP ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY SO IT IS NOT SUSCEPTIBLE TO BEING WASHED DOWN THE STREET.

B. TOP SOIL DISTURBANCE PERMIT - THE CONTRACTOR SHALL OBTAIN A TOP SOIL DISTURBANCE PERMIT PRIOR TO COMMENCING ANY LAND DISTURBING ACTIVITIES.

C. IF CONSTRUCTION OF PARKWAY UNITS 5 & 6 ARE NOT COMPLETE BY 2-15-94 THE OWNER WILL SEED AND MULCH ALL DISTURBED AREAS.

LOT GRADING SPECIFICATIONS:

1. CROSS LOT DRAINAGE WILL NOT BE PERMITTED. IF LOCAL CONDITIONS SHOULD DICTATE A RELAXATION OF THIS RULE, THEN THE APPROPRIATE PUBLIC OR PRIVATE DRAINAGE EASEMENTS WILL BE DEDICATED ON THE PLAT.

2. CRITERIA FOR SETTING LOT ELEVATION CONTROL GRADES SHALL INCLUDE THE FOLLOWING:
   - A. ALL DRAINAGE SWALES AND YARD AREAS SHALL HAVE MINIMUM SLOPES OF 1% AND MAXIMUM SLOPES OF 4 HORIZONTAL TO 1 VERTICAL.
   - B. BUILDING PADS SHALL BE SET AT LEAST 0.2' ABOVE THE HIGHEST ELEVATION OF ADJACENT SWALES.
   - C. PAD ELEVATIONS WILL BE ASSUMED TO BE EQUAL TO FINISHED FLOOR OF GARAGE. MINIMUM DRIVEWAY SLOPES SHALL BE 1% AND DRIVEWAY SLOPES SHALL NOT EXCEED 14%.
   - D. USABLE YARD AREAS SHALL HAVE MINIMUM DIMENSIONS OF 30' X 15', SHALL HAVE MINIMUM SLOPES OF 1%, AND MAXIMUM SLOPES OF 5%.

3. WHERE YARD GRADES OF ADJACENT LOTS AT PROPERTY LINES CANNOT BE MATCHED USING THE ABOVE CRITERIA, RETAINING WALLS SHALL BE PROVIDED TO ACCOMMODATE GRADE DIFFERENTIALS.

SPECIAL FHA REQUIREMENTS:

A. LONGITUDINAL GRADIENT OF DRIVEWAY SHALL NOT BE LESS THAN ONE PERCENT (1%) AND NOT STEEPER THAN TEN PER-CENT (10%) IF DRIVEWAY IS ALSO USED AS A REQUIRED WALK. IF USED ONLY AS A DRIVEWAY, THE LONGITUDINAL GRADIENT SHALL NOT EXCEED 14% (1 IN 7).

B. PROVIDE MINIMUM FALL AWAY FROM STRUCTURE OF 6 INCHES IN 10 FEET, EXCEPT AS RESTRICTED BY SIDE LOT LINES OR OTHER FROST CONDITIONS. THE HORIZONTAL LENGTH OF SUCH SLOPES MAY BE REDUCED AS NECESSARY AT BUILDING CORNERS AND SIDE YARDS.

C. SIDEWALK GRADIENT SHALL NOT EXCEED 10%.

D. SLOPES SHALL NOT EXCEED FOUR -TO-ONE (4 TO 1).

AS BUILT INFORMATION
CONTRACTOR
STAKE BY DATE
INSPECTOR'S ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
AS-BUILTS CORRECTED BY DATE

BENCH MARKS
ACS BRASS CAP "3-H10" SET FLUSH IN CONCRETE SURFACE OF SPILLWAY LOCATED 386' ± NORTH OF THE CENTERLINE OF LADERA DRIVE & 308' ± EAST OF THE CENTERLINE OF UNSER BOULEVARD.
ELEVATION = 5193.38

MICRO-FILM INFORMATION
RECORDED BY DATE
NO.

SURVEY INFORMATION
FIELD NOTES
I. C S C 1/93

ENGINEER'S SEAL
MICHAEL J. YOST NEW MEXICO 9665 REGISTERED PROFESSIONAL ENGINEER
6/14/93

APPROVED FOR ROUGH GRADING (±1 FT.)
CITY HYDROLOGY 06-15-93 DATE

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY MJY DATE APRIL, 1993
DRAWN BY A.M. DATE APRIL, 1993
CHECKED BY MJY DATE APRIL, 1993

DATE: APRIL, 1993
SCALE: AS SHOWN
DESIGNED: MJY
DRAWN: A.M.
JOB NO.: 143-15-041

community sciences corporation
LAND PLANNING ENGINEERING SURVEYING
P.O. Box 1539 Corrales, N.M. 87048

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: PARKWAY - UNIT 5
GRADING & EROSION CONTROL PLAN

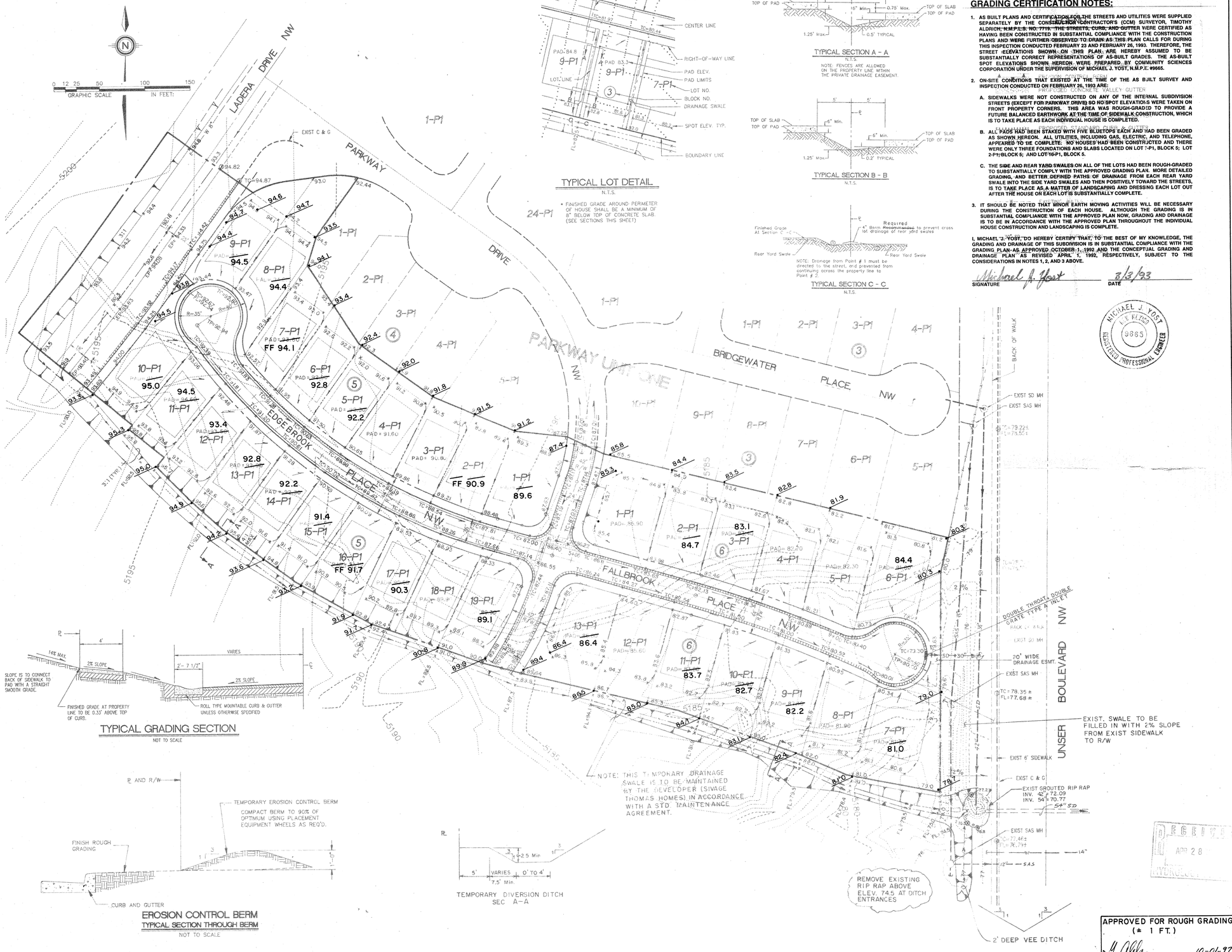
APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
DRC CHAIRMAN			WATER		
TRANSPORTATION			WASTE WATER		
HYDROLOGY					

PROJECT NO. 4442.94 MAP NO. J-9 SHEET 5 OF 15

14315\SH15

148413

COMMUNITY SCIENCES CORPORATION - CORRALES, NEW MEXICO - (505) 897-0000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GRAPHIC SCALE IN FEET:
LADERA DRIVE NW
PARKWAY
DRIVE
PARKWAY UNIT ONE
BRIDGEWATER PLACE NW
EDGE BROOK PLACE NW
FALLBROOK PLACE NW
UNSER BOULEVARD NW
EXIST C & G
TC=94.82
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COMMUNITY SCIENCES CORPORATION - CORRALES, NEW MEXICO - (505) 897-0000

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GRAPHIC SCALE IN FEET

45 L.F. 6' WIDE TYPE 'VL' RIPRAP 1' DEEP W/ FILTER FABRIC @ 4:1 CROSS SLOPE.

DESILTATION POND

FL = 88.71

16' WIDE CONC. VALLEY GUTTER PER STD. DWG. 2422

FL = 88.51

PERMA-CURB

UNSER BOULEVARD NW

EXIST. 6' SIDEWALK

LADERA BOULEVARD NW

AVONDALE PLACE NW

PARKWAY DRIVE

BROOKHAVEN PLACE NW

BRIDGEWATER PLACE NW

NOTES:

4. EROSION CONTROL – DURING CONSTRUCTION, THE CONTRACTOR WILL BE RESPONSIBLE FOR CONTROL OF EXCESSIVE AIRBORNE DUST AND RUNOFF SEDIMENT. THAT CONTRACTOR SHALL ALSO ENSURE THAT NO SOIL ERODES FROM SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AT THE PROPERTY LINES AND WETTING THE SOIL TO KEEP IT FROM BLOWING. THE CONTRACTOR SHALL PROMPTLY CLEAN UP ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY SO THAT IT IS NOT SUSCEPTIBLE TO BEING WASHED DOWN THE STREET.

B. TOP SOIL DISTURBANCE PERMIT – THE CONTRACTOR SHALL OBTAIN A TOP SOIL DISTURBANCE PERMIT PRIOR TO COMMENCING ANY LAND DISTURBING ACTIVITIES.

LEGEND

- X TC=98.43 — PROPOSED TOP OF CURB ELEVATION
- X 99.0 — PROPOSED SPOT ELEVATION
- 09.0 ⊕ — EXISTING SPOT ELEVATION (GRND & TC)
- EROSION CONTROL BERM
- PROPOSED CONCRETE VALLEY GUTTER
- EXISTING CURB & GUTTER
- PROPOSED MOUNTABLE CURB & GUTTER
- PROPOSED STANDARD CURB & GUTTER
- 4973 — EXISTING CONTOUR W/ INDEX ELEVATION
- SWALE
- FLOW ARROW
- PROPOSED RETAINING WALL
- E — EXISTING U.G. ELECTRICAL
- EXISTING WATER LINE
- G — EXISTING GAS LINE
- 30" SD — EXISTING STORM DRAIN
- 30" SD — PROPOSED STORM DRAIN
- "PERMA-CURB" OR APPROVED EQUAL

EXISTING CONTOUR W/ INDEX ELEVATION
CURB & GUTTER
CENTER LINE
RIGHT-OF-WAY LINE
PAD ELEV.
PAD LIMITS
LOT NO.
BLOCK NO.
DRAINAGE SWALE
SPOT ELEV. TYP.
BOUNDARY LINE
LOT LINE

TYPICAL LOT DETAIL
SCALE: 1"=50'
NOTE: SIDE YARD SWALES 1.0% MIN.

BACK OF WALK

DOUBLE THROAT DOUBLE GRATE TYPE A INLET

STORM DRAIN MH # B

℄ AND R/W

TEMPORARY EROSION CONTROL BERM
COMPACT BERM TO 90% OF OPTIMUM USING PLACEMENT EQUIPMENT WHEELS AS REQ'D.

FINISH ROUGH GRADING

CURB AND GUTTER

EROSION CONTROL BERM
TYPICAL SECTION THROUGH BERM
NOT TO SCALE

CUT VOLUME = 32,000 C.Y.
FILL VOLUME = 23,100 C.Y.
C/F = 1.39

APPROVED FOR ROUGH GRADING
(± 1 FT.)
CITY HYDROLOGY — DATE 3-09-92

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE
1	COMMUNITY SCIENCES	12/91

BENCH MARKS

ACS BRASS CAP "3-H10" SET FLUSH IN CONCRETE SURFACE OF SPILLWAY LOCATED 386'± NORTH OF CENTER LINE OF LADERA DRIVE & 308'± EAST OF THE CENTER LINE OF UNSER BLVD. ELEV.= 5193.38

AS BUILT INFORMATION

CONTRACTOR — DATE
STAKED BY — DATE
INSPECTORS — DATE
FIELD VERIFICATION BY — DATE
DRAWING CORRECTED BY — DATE

MICRO-FILM INFORMATION

RECORDED BY — DATE
NO.

ENGINEER'S SEAL
MICHAEL J. YOST
NEW MEXICO 9396
REGISTERED PROFESSIONAL ENGINEER
2/14/92

NO.	BY	REMARKS	DATE
1	D.H	GRADES AT BRIDGEWATER & LADERA	3-6-92

REVISIONS

DESIGN — DATE FEB., 1992
DESIGNED BY D.H.
DRAWN BY R.D.Q. — DATE FEB., 1992
CHECKED BY: — DATE

DATE FEBRUARY, 1992
SCALE 1" = 50'
DESIGNED D.H.
DRAWN R.D.Q.
JOB NO. 143.06.043

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: PARKWAY- UNIT 1

GRADING & EROSION CONTROL PLAN

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
DRC CHAIRMAN			WATER		
TRANSPORTATION			WASTE WATER		
HYDROLOGY					

PROJECT NO.

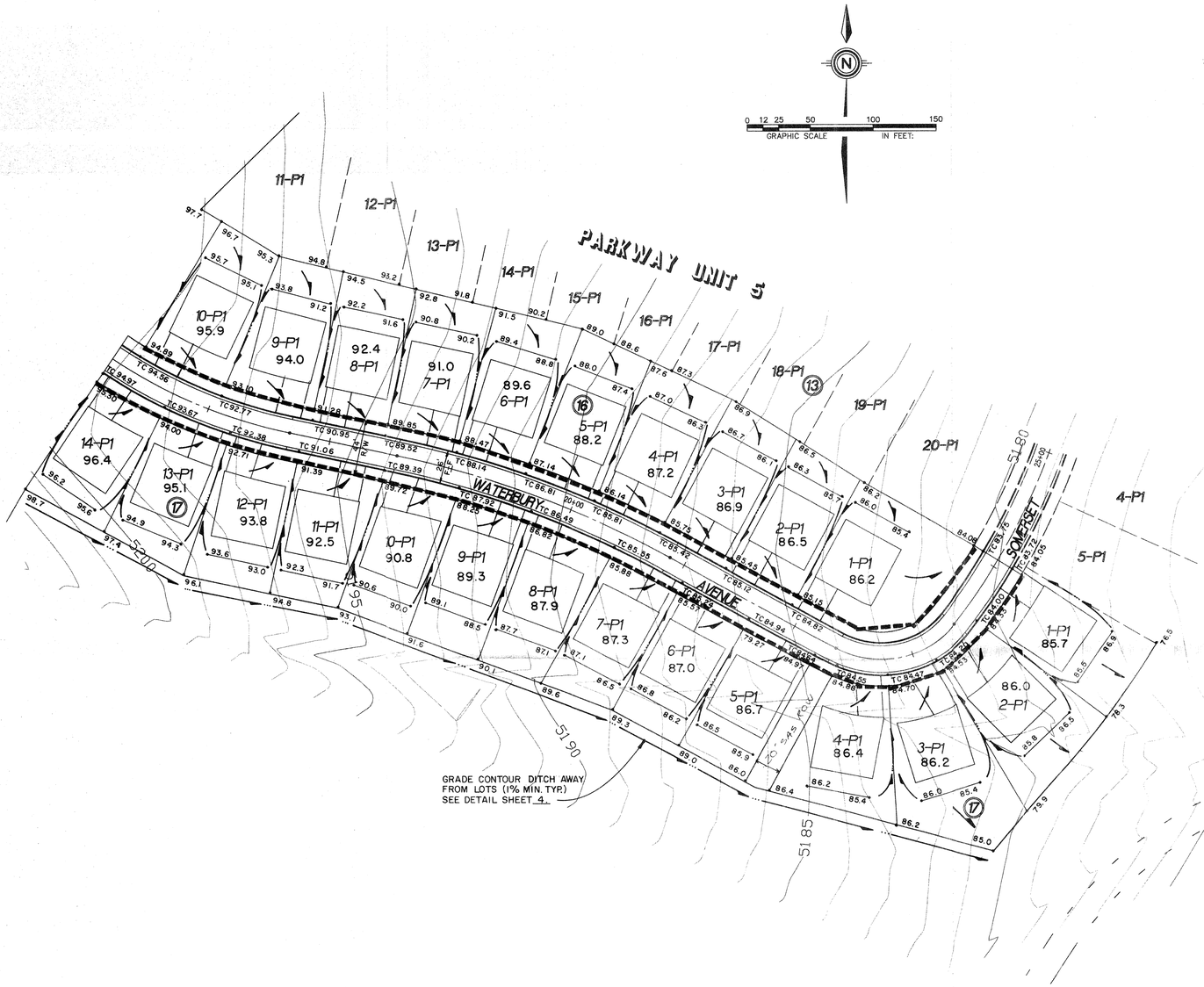
MAP NO. H-9

SHEET 4 OF 15

EXHIBIT "A"

\14308\SHT4.DWG

COMMUNITY SCIENCES CORPORATION - CORRALES, NEW MEXICO - (505) 897-0000



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C. SIDEWALK GRADIENT SHALL NOT EXCEED 10%.

D. SLOPES SHALL NOT EXCEED FOUR -TO-ONE (4 TO 1).

AS BUILT INFORMATION
CONTRACTOR
WORK BY
INSPECTOR'S
PROJECT MGR. BY
DATE
VERIFICATION BY
DRAWINGS BY
DATE

BENCH MARKS
ACS BRASS CAP "3-H10" SET FLUSH IN CONCRETE SURFACE OF SPILLWAY LOCATED 386'± NORTH OF THE CENTERLINE OF LADERA DRIVE & 308'± EAST OF THE CENTERLINE OF UNSER BOULEVARD. ELEVATION = 5193.38

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE
1	COMMUNITY SCIENCES	1/93

MICRO-FILM INFORMATION
RECORDED BY
DATE
NO.

ENGINEER'S SEAL
MICHAEL J. MOYA
NEW MEXICO
9046
REGISTERED PROFESSIONAL ENGINEER
6/15/93

NO.	DATE	REMARKS
		REVISIONS
		DESIGN
		DESIGNED BY MJY/JL/JND DATE
		DRAWN BY SPS/AM/DW/ROQ DATE
		CHECKED BY

RECEIVED
JUN 16 1993
HYDROLOGY DIVISION

DATE: MAY , 1993
SCALE: AS SHOWN
DESIGNED: MJY
DRAWN: A. M.
JOB NO.: 143-16-041

community sciences corporation
LAND PLANNING ENGINEERING SURVEYING
CORRALES, NEW MEXICO

APPROVED FOR ROUGH GRADING (±1 FT.)
CITY HYDROLOGY
06-15-93
DATE

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

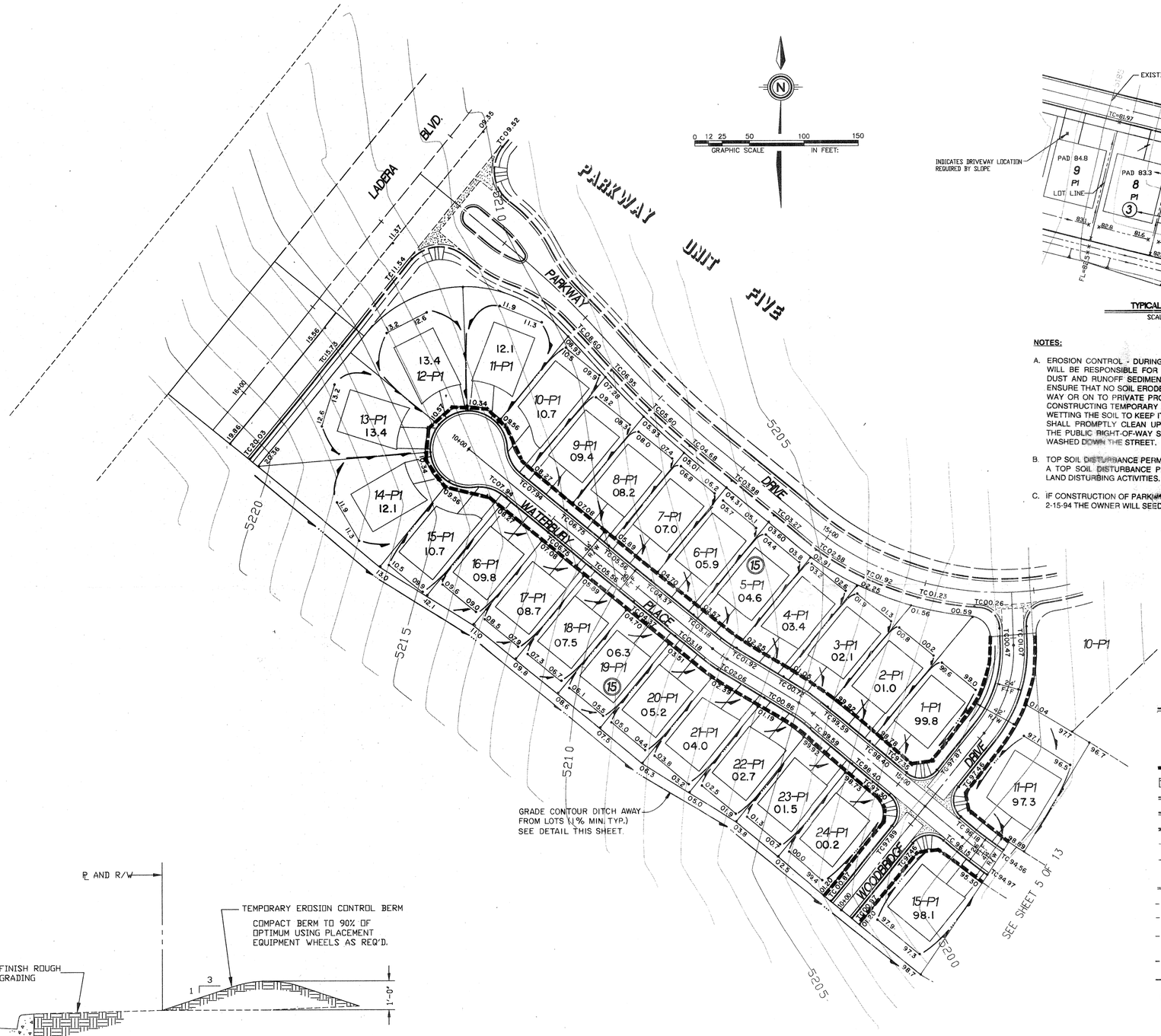
TITLE: PARKWAY - UNIT 6
GRADING & EROSION CONTROL PLAN

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
DRC CHAIRMAN			WATER		
TRANSPORTATION			WASTE WATER		
HYDROLOGY					

PROJECT NO. 4442.95 | MAP NO. J-9 | SHEET 5 OF 13

143\16\GSHT5.DWG

COMMUNITY SCIENCES CORPORATION - CORRALES, NEW MEXICO - (505) 897-0000



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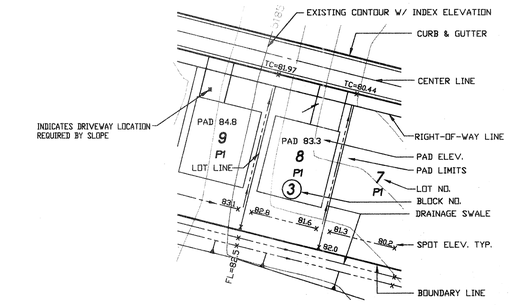


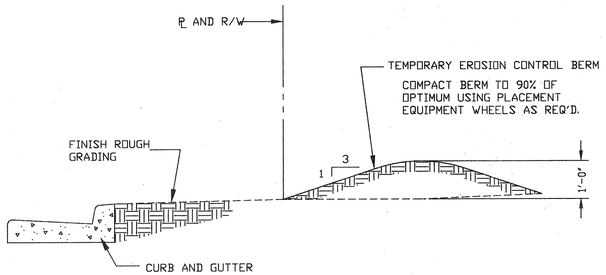
TYPICAL LOT DETAIL
SCALE: 1"=50'

NOTES:

A. EROSION CONTROL - DURING CONSTRUCTION, THE CONTRACTOR WILL BE RESPONSIBLE FOR CONTROL OF EXCESSIVE AIRBORNE DUST AND RUNOFF SEDIMENT. THAT CONTRACTOR SHALL ALSO ENSURE THAT NO SOIL ERODES FROM SITE INTO PUBLIC RIGHT-OF-WAY OR ON TO PRIVATE PROPERTY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AT THE PROPERTY LINES AND WETTING THE SOIL TO KEEP IT FROM BLOWING. THE CONTRACTOR SHALL PROMPTLY CLEAN UP ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY SO IT IS NOT SUSCEPTIBLE TO BEING WASHED DOWN THE STREET.

B. TOP SOIL DISTURBANCE PERMIT - THE CONTRACTOR SHALL OBTAIN A TOP SOIL DISTURBANCE PERMIT PRIOR TO COMMENCING ANY LAND DISTURBING ACTIVITIES.

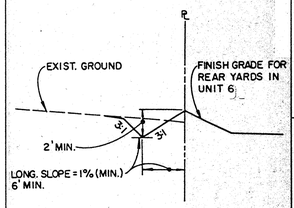
C. IF CONSTRUCTION OF PARKWAY UNITS 5 & 6 ARE NOT COMPLETE BY 2-15-94 THE OWNER WILL SEED AND MULCH ALL DISTURBED AREAS.



EROSION CONTROL BERM
TYPICAL SECTION THROUGH BERM
NOT TO SCALE

LEGEND

X TC=98.43	PROPOSED TOP OF CURB ELEVATION
X 99.0	PROPOSED SPOT ELEVATION
09.0 ⊗	EXISTING SPOT ELEVATION (GRND & TC)
	EROSION CONTROL BERM
	PROPOSED CONCRETE VALLEY GUTTER
	EXISTING CURB & GUTTER
	PROPOSED MOUNTABLE CURB & GUTTER
	PROPOSED STANDARD CURB & GUTTER
4973	EXISTING CONTOUR W/ INDEX ELEVATION
	SWALE
	FLOW ARROW
	PROPOSED RETAINING WALL
UE	EXISTING U.G. ELECTRICAL
W	EXISTING WATER LINE
G	EXISTING GAS LINE
30" SD	EXISTING STORM DRAIN
30" SD	PROPOSED STORM DRAIN
	WATER BLOCK



TYP. CONTOUR DITCH SECTION
NTS

NOTE: CONTOUR DITCHES SHALL BE TURNED SOUTH AWAY FROM UNIT 6 @ 100' INTERVALS TO DISTRIBUTE FLOWS EVENLY OUT OVER NATURAL VEGETATION SO AS NOT TO INDUCE UNDUE EROSION.

APPROVED FOR ROUGH GRADING (±1 FT.)

CITY HYDROLOGY — DATE: 06-15-93

RECEIVED JUN 16 1993 HYDROLOGY DIVISION

AS BUILT INFORMATION

BENCH MARKS
ACS BRASS CAP "3-H10" SET FLUSH IN CONCRETE SURFACE OF SPILLWAY LOCATED 386'± NORTH OF THE CENTERLINE OF LADERA DRIVE & 308'± EAST OF THE CENTERLINE OF UNSER BOULEVARD. ELEVATION = 5193.38

CONTRACTOR
WORK STAKE BY — DATE
ACCEPTANCE BY — DATE
FIELD LOCATION BY — DATE
DRAWINGS CORRECTED BY — DATE

MICRO-FILM INFORMATION
RECORDED BY — DATE
NO.

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE
1	COMMUNITY SCIENCES	1/93

ENGINEER'S SEAL
MICHAEL J. YOUNG 9307 NEW MEXICO REGISTERED PROFESSIONAL ENGINEER
6/15/93

NO.	DATE	REMARKS
		REVISIONS
		DESIGN
		DESIGNED BY — DATE
		DRAWN BY — DATE
		CHECKED BY

DATE: MAY, 1993
SCALE: AS SHOWN
DESIGNED: MJY
DRAWN: A.M.
JOB NO.: 143-16-041

community sciences corporation
LAND PLANNING ENGINEERING SURVEYING

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

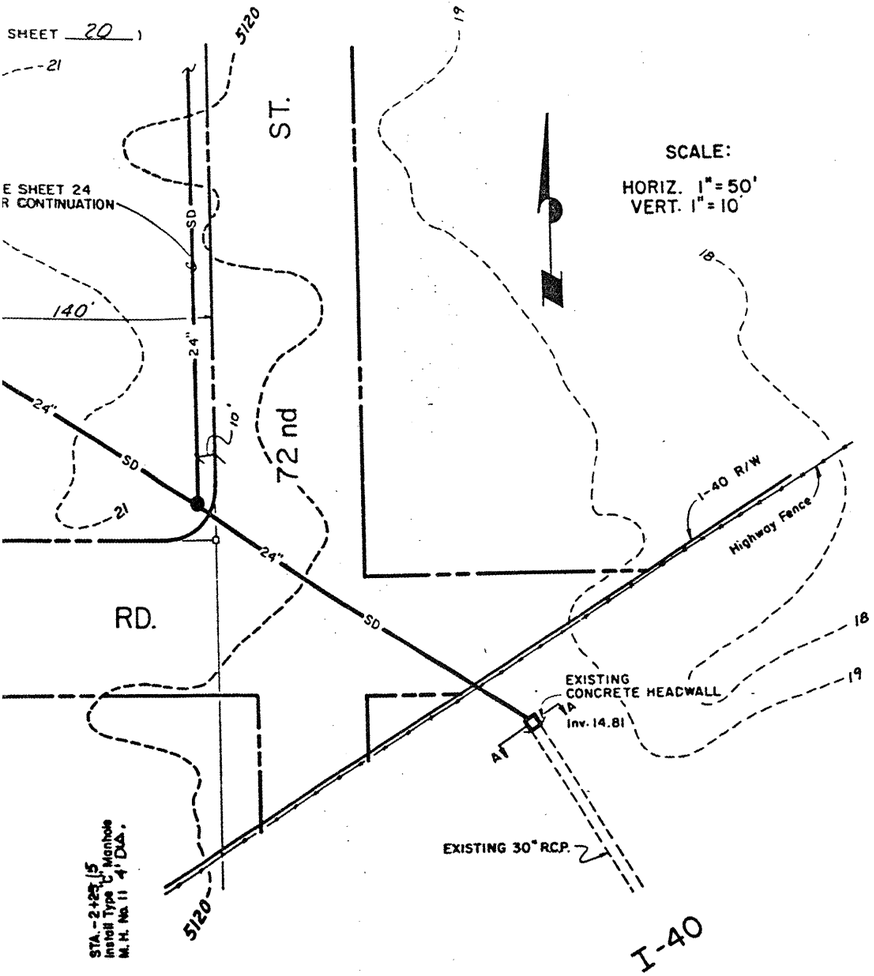
TITLE: PARKWAY - UNIT 6
GRADING & EROSION CONTROL PLAN

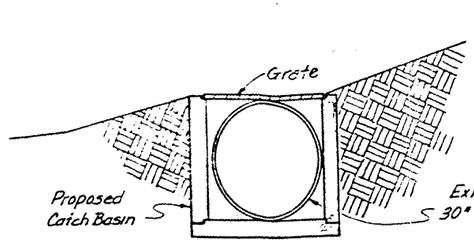
APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
DRC CHAIRMAN			WATER		
TRANSPORTATION			WASTE WATER		
HYDROLOGY					

PROJECT NO. 4442.95 | MAP NO. J-9 | SHEET 4 OF 13

143\16\GRSHT4.DWG

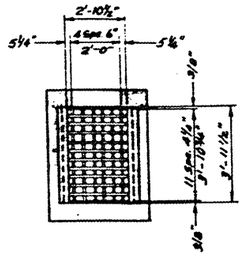
SHEET 20





SECTION A-A

Not to Scale

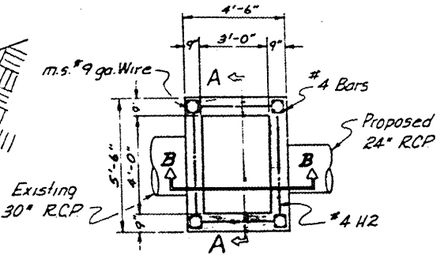


GRATE-PLAN VIEW

Scale: 1/4" = 1'-0"

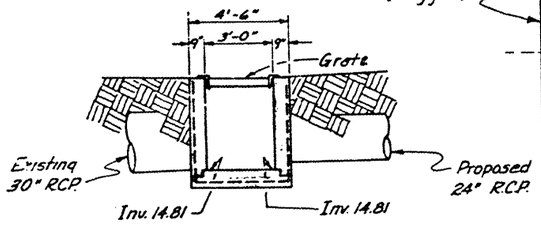
NOTE.

See NMSHD Std. No. DR-I-E
For Details.



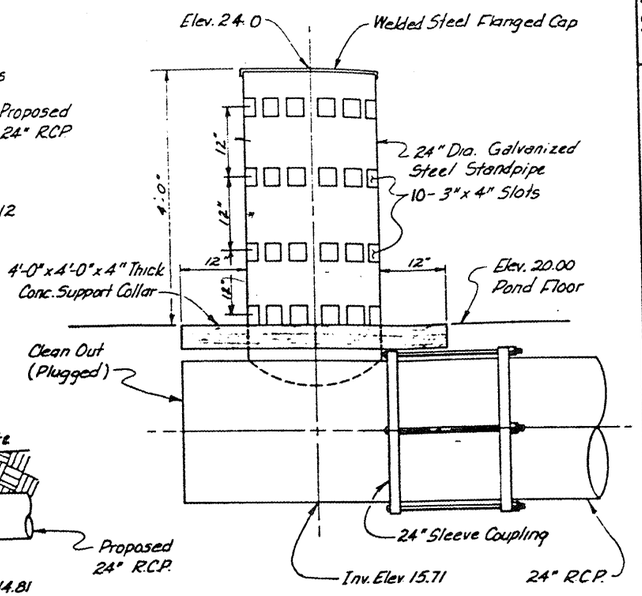
DROP INLET PLAN VIEW

Scale: 1/4" = 1'-0"



SECTION B-B

Scale: 1/4" = 1'-0"



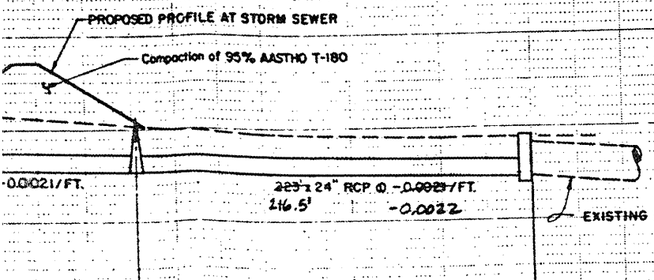
STEEL STANDPIPE & COUPLING DETAIL

Scale: 3/4" = 1'-0"

RECORD DRAWING

THE DRAWINGS HAVE BEEN REVISED IN ACCORDANCE WITH INFORMATION FURNISHED BY ESPEY, HUSTON AND ASSOCIATES, INC. THROUGH SURVEYING AND CONSTRUCTION ADMINISTRATION AND BROCE CONSTRUCTION COMPANY, INC., CONTRACTOR, TO REFLECT THE CONSTRUCTION AS ACTUALLY ACCOMPLISHED, TO THE BEST OF MY KNOWLEDGE AND BELIEF.

WILLIAM J. COLEMAN, P.E. 5945 — DATE 3/21/89



AS BUILT INFORMATION

CONTRACTOR BROCE CONSTRUCTION DATE
STAKED BY ESPEY, HUSTON DATE
INSPECTORS
ACCEPTANCE BY ESPEY, HUSTON DATE
FIELD
VERIFICATION BY ESPEY, HUSTON DATE
CORRECTED BY ESPEY, HUSTON DATE
MICRO-FILM INFORMATION
RECORDED BY DATE
NO.

BENCH MARKS

A.C.S. BRASS CAP 4-H10, ELEV.=5129.20, Intersection of I-40 and Coors N.W., North on Coors 0.4 Mile to Ouray Road, West on Ouray about 0.7 Mile to end of Pavement, cont. West 0.2 Mile to top of Detention Dam, go S.E. along top of Dam about 850' to a dirt Road on the Lt., turn Lt., go South 0.4 Mile to the Station on the Lt.

SURVEY INFORMATION
FIELD NOTES
DATE
BY

REFERENCES
MAP NO. H-10, J-10
W.O. NO.
EST. NO.

NO.	REMARKS	DATE	BY
	REVISIONS		
	DESIGN	DATE 4/88	DRAWN BY J.A
		DATE 6/88	CHECKED BY T.M.
		DATE 7/88	APPROVED BY 4.S.J

PLATE I

CONCEPTUAL GRADING AND DRAINAGE PLAN

PARKWAY

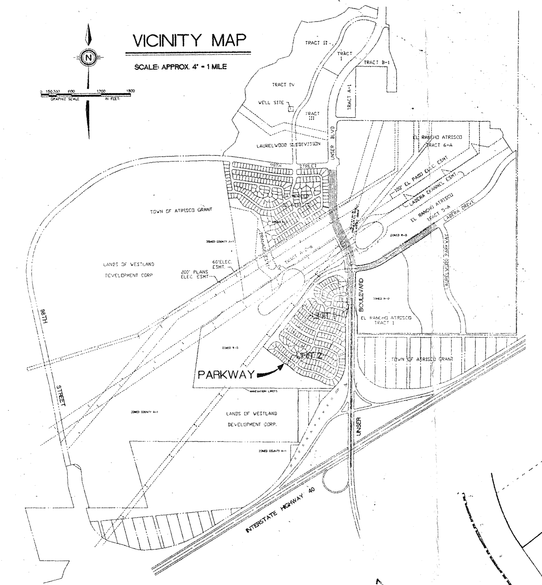
CITY OF ALBUQUERQUE
BERNALILLO COUNTY
NEW MEXICO

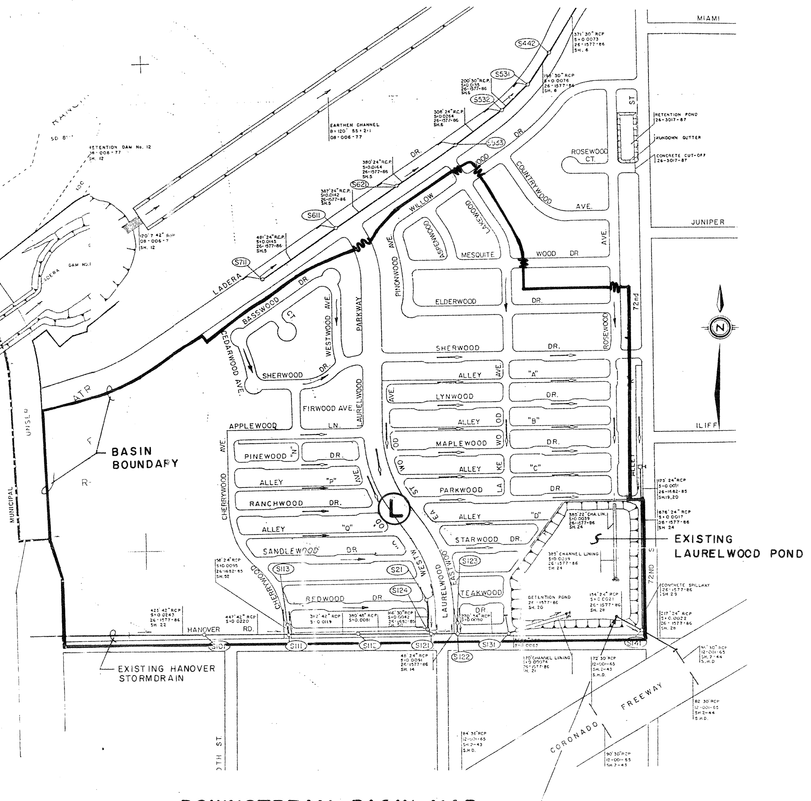
WESTLAND DEVELOPMENT CO. AND
BROWN AND ASSOCIATES
AUGUST, 1991
ATLAS J9/H9

COMMUNITY SCIENCES CORPORATION - CORRALES, NEW MEXICO - (505) 897-0000

GRAPHIC SCALE 0 25 50 100 200 300 IN FEET

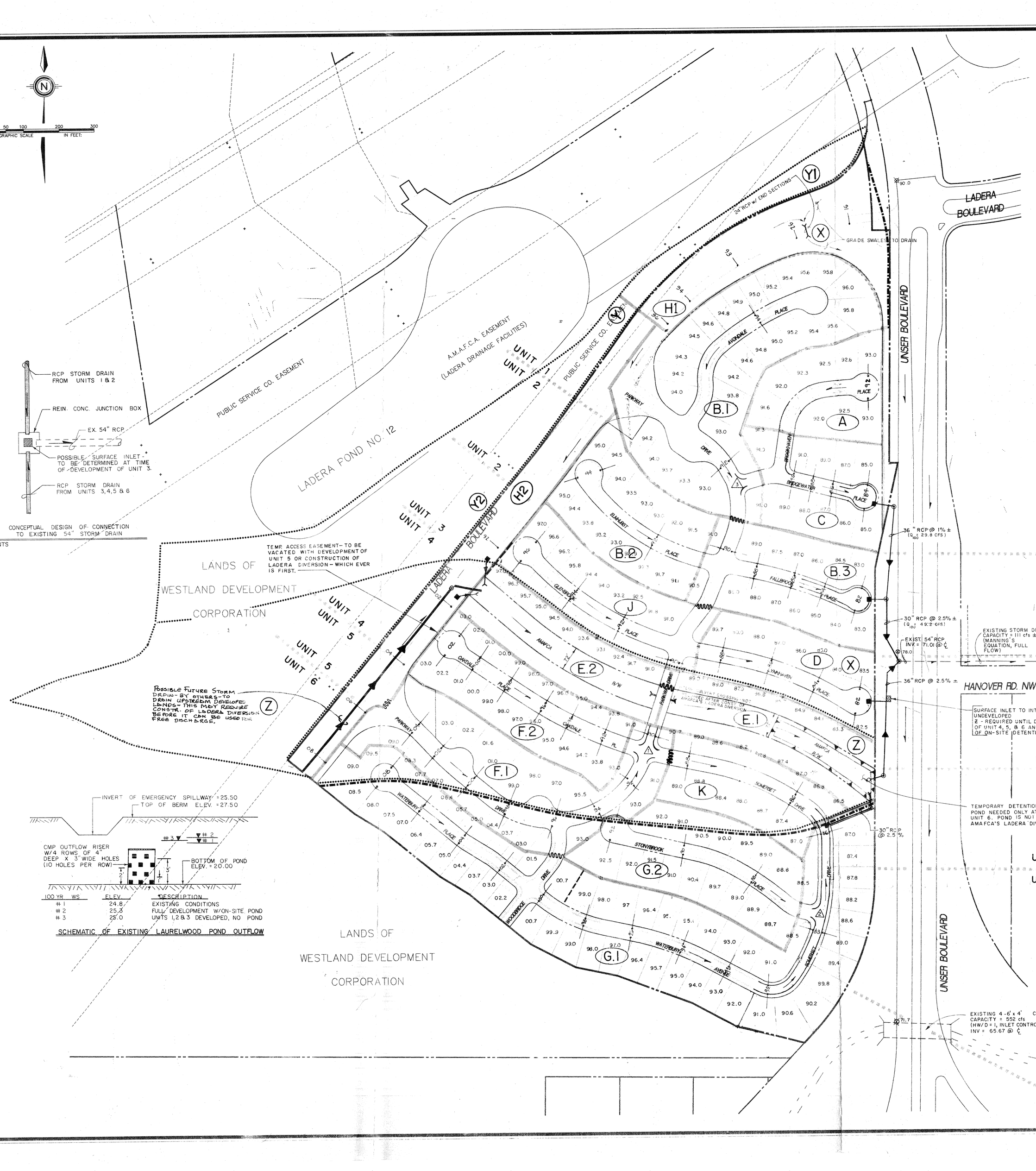
VICINITY MAP
SCALE: APPROX. 4" = 1 MILE





DOWNSTREAM BASIN MAP
1" = 400'

CONCEPTUAL DESIGN OF CONNECTION TO EXISTING 54" STORM DRAIN
NTS

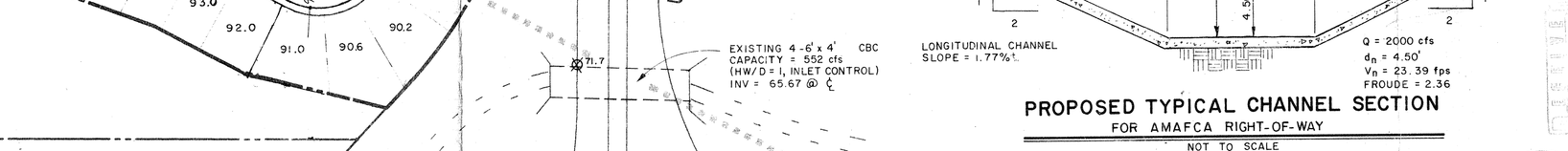


100 YR WS	ELEV	DESCRIPTION
# 1	24.8	EXISTING CONDITIONS
# 2	25.3	FULL DEVELOPMENT W/ON-SITE POND
# 3	25.0	UNITS 1,2 & 3 DEVELOPED, NO POND

SCHEMATIC OF EXISTING LAURELWOOD POND OUTFLOW

LEGEND

- B.2 — DRAINAGE BASIN OR SUB-BASIN BOUNDARY: UNITS 1 AND 2, DEVELOPED CONDITIONS
- Y — DRAINAGE BASIN BOUNDARY: UNDEVELOPED CONDITIONS OUTSIDE OF SUBDIVISION
- X — DRAINAGE BASIN BOUNDARY: UNDEVELOPED CONDITIONS WITHIN SUBDIVISION
- Z — OFFSITE DRAINAGE BASIN FOR UNIT 1
- 78.0 — EXISTING SPOT ELEVATION
- 80 — CONCEPTUAL PROPOSED TOP OF CURB ELEVATION
- DIRECTION OF FLOW
- WATER BLOCK
- PROPOSED STORM DRAIN WITH CATCH BASIN
- POSSIBLE RETAINING WALL LOCATION - FINAL RETAINING WALL DESIGN WILL BE SHOWN ON THE FINAL GRADING PLANS.
- DENOTES STAND-UP CURB (8") REQUIRED SUBJECT TO REVISIONS PER FINAL DESIGN CALCULATIONS.
- POINTS OF KEY INTERSECTION ANALYSIS - SEE TABLE 3 OF TEXT.

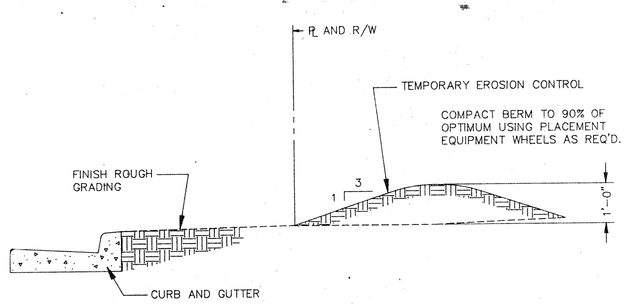


LONGITUDINAL CHANNEL SLOPE = 1.77%.

Q = 2000 cfs
d_n = 4.50'
V_n = 23.39 fps
FROUDE = 2.36

PROPOSED TYPICAL CHANNEL SECTION
FOR AMAFCA RIGHT-OF-WAY
NOT TO SCALE

NOTE: DEVELOPER WILL GRADE THE AMAFCA R/W TO A BALANCED EARTHWORK SECTION TO MATCH THE CHANNEL DESIGN PROFILE AT THE TIME OF DEVELOPMENT OF UNIT 4.



EROSION CONTROL BERM
TYPICAL SECTION THROUGH BERM
NOT TO SCALE

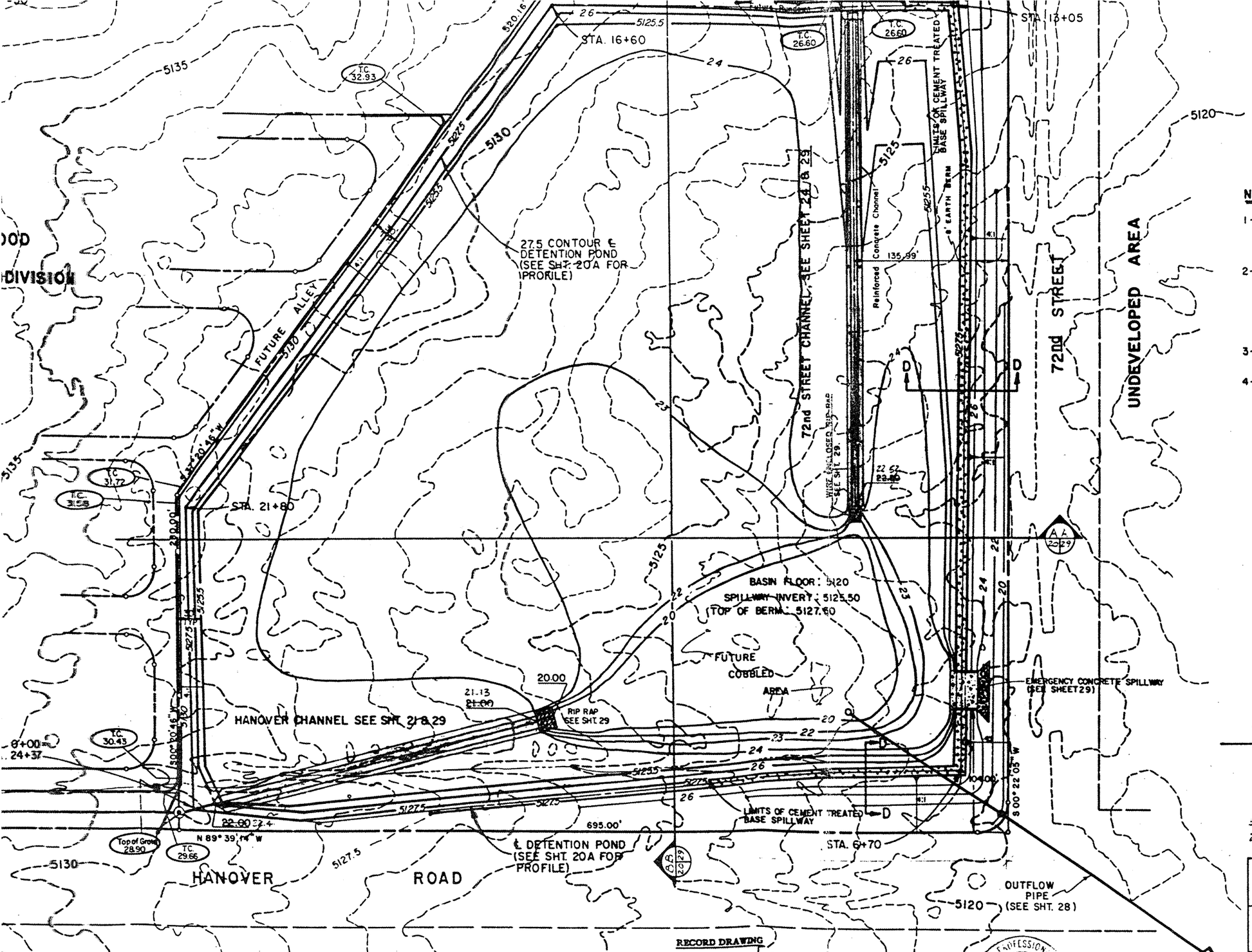
LOT GRADING SPECIFICATIONS

1. CROSS LOT DRAINAGE WILL NOT BE PERMITTED. IF LOCAL CONDITIONS SHOULD DICTATE A RELAXATION OF THIS RULE, THEN THE APPROPRIATE PUBLIC OR PRIVATE DRAINAGE EASEMENTS WILL BE DEDICATED ON THE PLAT.
2. CRITERIA FOR SETTING LOT ELEVATION CONTROL GRADES SHALL INCLUDE THE FOLLOWING:
   - A. ALL DRAINAGE SWALES AND YARD AREAS SHALL HAVE MINIMUM SLOPES OF 1% AND MAXIMUM SLOPES OF 3 HORIZONTAL TO 1 VERTICAL.
   - B. BUILDING PADS SHALL BE SET AT LEAST 0.2' ABOVE THE HIGHEST ELEVATION OF ADJACENT SWALES.
   - C. PAD ELEVATIONS WILL BE ASSUMED TO BE EQUAL TO FINISHED FLOOR OF GARAGE. MINIMUM DRIVEWAY SLOPES SHALL BE 1% AND DRIVEWAY SLOPES SHALL NOT EXCEED 14%.
   - D. USABLE YARD AREAS SHALL HAVE MINIMUM DIMENSIONS OF 30' X 15' SHALL HAVE MINIMUM SLOPES OF 1% AND MAXIMUM SLOPES OF 5%.
3. WHERE YARD GRADES OF ADJACENT LOTS AT PROPERTY LINES CANNOT BE MATCHED USING THE ABOVE CRITERIA, RETAINING WALL SHALL BE PROVIDED TO ACCOMMODATE GRADE DIFFERENTIALS.

REV. 3/6/92
REV. 3/12/92 - 4/1/92 M.J.Y.
REVISED 4/13/93 M.J.Y.
REV. 2/13/92 M.J.Y.

DATE	SEPT. 1991
SCALE	1" = 100'
DESIGN	M.J.Y.
DRAWN	C.A.S./S.B.H.
JOB NO.	25102

community sciences corporation
LAND PLANNING ENGINEERING SURVEYING
P.O. Box 1539 Corrales, N.M. 87048



NOTES:

1- ALL FILL CONSTRUCTION MUST BE COMPACTED TO 95% AASTHO T-180 AND IS TO BE PLACED IN LIFTS NOT TO EXCEED 8".

2- CONTRACTOR WILL TAKE MATERIAL EXCAVATED FROM THE DETENTION BASIN (NOT USED IN BERM CONSTRUCTION) AND GRADE AREA SHOWN ON SHEET 20-A TO CONFORM TO THE CONTOURS SHOWN.

3- SEE SHEET 29 FOR DETENTION POND SECTIONS.

4- GRADING WILL BE IN ACCORDANCE WITH THE CONTRACT DOCUMENT WHICH REFERENCE THE NEW MEXICO STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.

LEGEND

T.C. 32.93 — FUTURE FINISHED ELEV.

CTB SPILLWAY

SCALE: 1" = 83' ±

26 15 77 2086

RECORD DRAWING

THE DRAWINGS HAVE BEEN REVISED IN ACCORDANCE WITH INFORMATION FURNISHED BY ESPEY, HUSTON AND ASSOCIATES, INC. THROUGH SURVEYING AND CONSTRUCTION ADMINISTRATION AND BROCE CONSTRUCTION COMPANY, INC., CONTRACTOR, TO REFLECT THE CONSTRUCTION AS ACTUALLY ACCOMPLISHED, TO THE BEST OF MY KNOWLEDGE AND BELIEF.

WILLIAM F. COLEMAN, P.E. 5945 — 3/21/86 DATE

APPROVED FOR CONSTRUCTION — C.D. Sheppard — 10/17/83 — CITY ENGINEER — DATE

BENCH MARKS
A.C.S. BRASS CAP 4-H10, ELEV.=5 section of I-40 and Coors N.W., 0.4 Mile to Ouray Road, West on 0.7 Mile to end of Pavement, co Mile to top of Detention Dam, g top of Dam about 850' to a dirt turn Lt., go South 0.4 Mile to the Lt.

SURVEY INFORMATION		
FIELD NOTES		
NO.	BY	DATE

REFERENCES	
MAP NO.	H-10, J-10
EST. NO	W.O. NO.

NO.	DATE	REMARKS	BY
		REVISIONS	

DESIGN

DESIGNED BY J.A.	DATE	4/83
DRAWN BY T.M. / P.F.	DATE	6/83
CHECKED BY L.S.J.	DATE	7/83

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

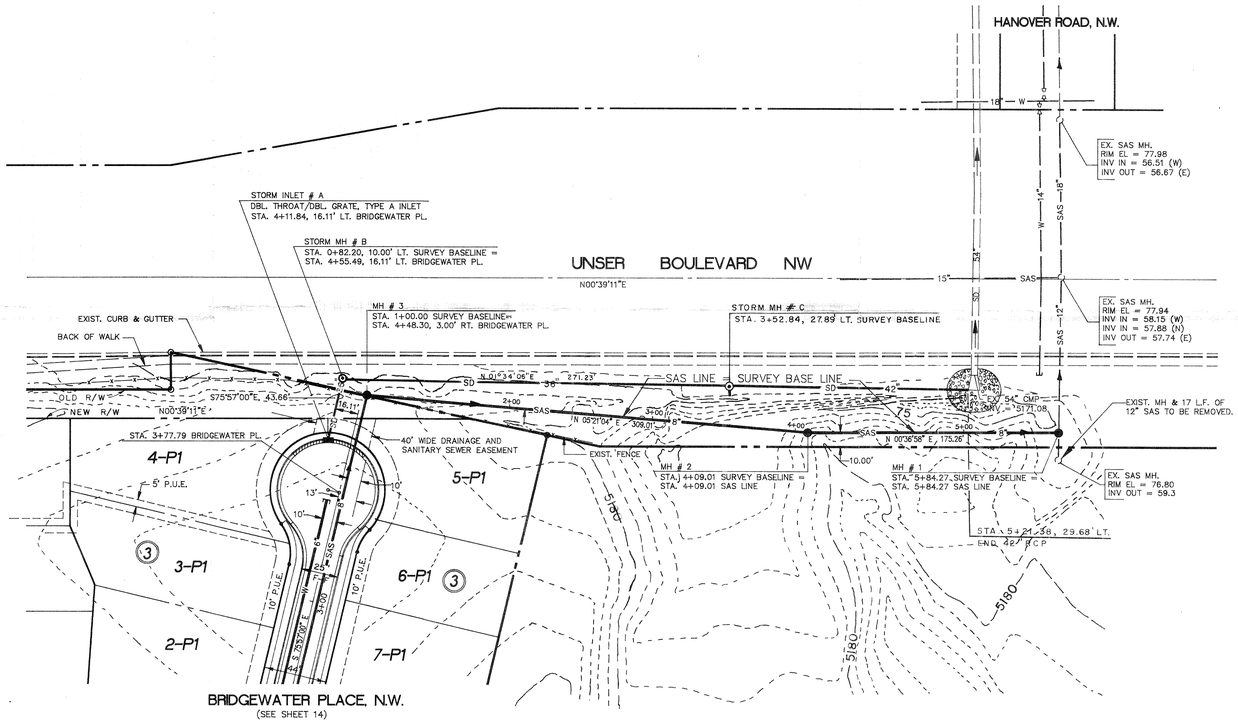
TITLE: SAD № 212 DETENTION POND

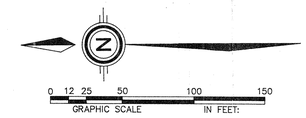
APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer			Liquid Waste	N.A. [signature]	8-31-83
A C E - Design			Traffic	N.A. [signature]	
A C E - Hydrology	[signature]	9/1/83	Water	N.A. [signature]	8-31-83

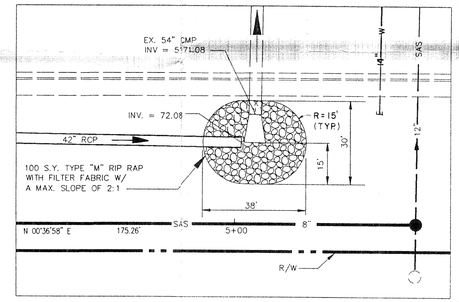
DRAWING NO. 1577

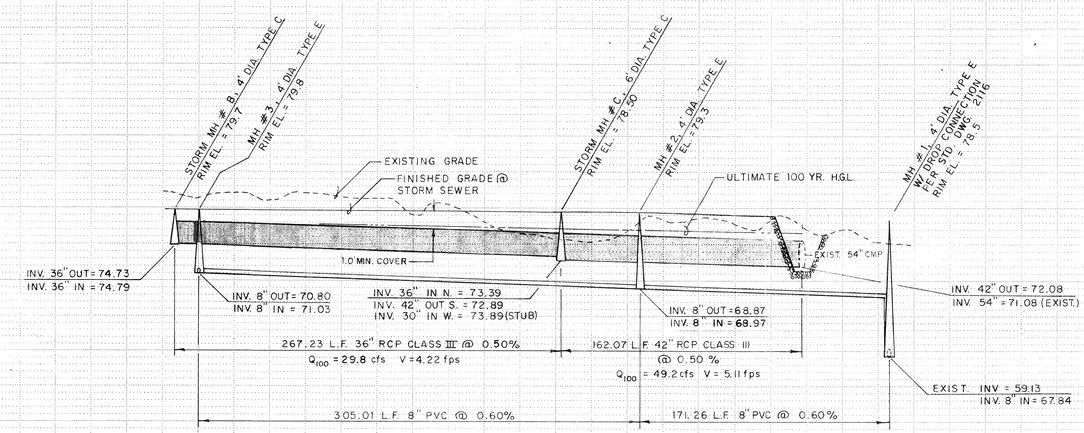
SHEET 20 OF 43

COMMUNITY SCIENCES CORPORATION - CORRALES, NEW MEXICO - (505) 897-0000









AS BUILT INFORMATION

CONTRACTOR

WORK STAKED BY — DATE

WORK INSPECTED BY

ACCEPTANCE BY — DATE

FIELD VERIFICATION BY — DATE

DRAWINGS CORRECTED BY — DATE

MICRO-FILM INFORMATION

RECORDED BY — DATE

NO.

BENCH MARKS

ACS BRASS CAP "3-H10" SET FLUSH IN CONCRETE

SURFACE OF SPILLWAY LOCATED 386'± NORTH OF CENTER LINE OF LADERA DRIVE & 308'± EAST OF THE CENTER LINE OF UNSER BLVD. ELEV.=5193.38

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE
1	COMMUNITY SCIENCES	12/91

ENGINEER'S SEAL

Michael D. Hoost
3/13/92

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	D.H.
			DATE MAR., 1992
			DRAWN BY R.D.Q.
			DATE MAR., 1992
			CHECKED BY
			DATE

DATE: MARCH, 1992
SCALE: 1" = 50'H, 10'V
DESIGNED: D.H.
DRAWN: R.D.Q.
JOB NO: 143 - 08 - 050

community sciences corporation
LAND PLANNING ENGINEERING SURVEYING
P.O. Box 1328 Corrales, N.M. 87048

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: PARKWAY - UNIT 1

STORM DRAIN AND SANITARY SEWER OUTFALL

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
DRC CHAIRMAN			WATER		
TRANSPORTATION			WASTE WATER		
HYDROLOGY					

PROJECT NO.

MAP NO. H-9

SHEET 15 OF 15

\143081\SHEET15.DWG