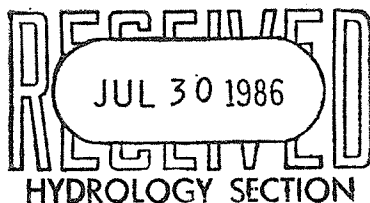


# RAINAGE INFORMATION SHEET

PROJECT TITLE: CIELO GRANDE SUBN ZONE ATLAS/DRAINAGE FILE # H10-D4  
 LEGAL DESCRIPTION: CIELO GRANDE SUBN / CIELO VISTA SUBN  
 CITY ADDRESS: LADERA DR NW @ LAURELWOOD PKWY NW  
 ENGINEERING FIRM: ESPEY HUSTON & ASSOC CONTACT: D. LORENZ  
 ADDRESS: 4801 INDIAN SCHOOL # 204 PHONE: 255-1625  
 OWNER: PRESLEY CO OF NM CONTACT: L. WILMOT  
 ADDRESS: 1909 CARLISLE NE PHONE: 265-5811  
 ARCHITECT: NA CONTACT: —  
 ADDRESS: — PHONE: —  
 SURVEYOR: ESPEY HUSTON & ASSOC CONTACT: T. ALDRICH  
 ADDRESS: SAME PHONE: —  
 CONTRACTOR: MCC CONTACT: B. LINDELL  
 ADDRESS: — PHONE: 865-1018

## PRE-DESIGN MEETING:

☒ YES  
☐ NO  
☐ COPY OF CONFERENCE  
 RECAP SHEET PROVIDED



DRB NO. 86-377  
86-378  
 EPC NO. —  
 PROJECT NO. —

## TYPE OF SUBMITTAL:

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

## CHECK TYPE OF APPROVAL SOUGHT:

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

DATE SUBMITTED: 7-29-86  
 BY: D. LORENZ



X.C.

# City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

## HYDROLOGY SECTION

123 Central NW, Albuquerque, NM 87102  
(505) 766-7644

August 5, 1986

Dennis Lorenz, P.E.  
Espey, Huston & Associates, Inc.  
4801 Indian School Road, NE Suite 204  
Albuquerque, New Mexico 87110

RE: DRAINAGE REPORT OF CIELO GRANDE & CIELO VISTA SUBDIVISIONS  
RECEIVED JULY 30, 1986 FOR PRELIMINARY PLAT APPROVAL  
(H-10/D4)

Dear Dennis:

The above referenced submittal, drawings revised July 29, 1986, is approved for Preliminary Plat.

Prior to Final Plat sign-off by the City Engineer, the following items are required:

1. An executed Subdivision Improvements Agreement.
2. A Drainage Covenant covering maintenance responsibilities for the retention pond required for Cielo Vista Subdivision.

Both subdivisions are approved for Rough Grading provided the following information is added to the final Grading Plans to be included with the construction sets:

1. Identify a T.B.M. adjacent to project sites.
2. Add construction note that a Topsoil Disturbance permit is required.

PUBLIC WORKS DEPARTMENT

Walter Nickerson, P.E., City Engineer

ENGINEERING GROUP

Telephone (505) 768-2500

AN EQUAL OPPORTUNITY EMPLOYER

Dennis Lorenz, P.E.  
August 5, 1986  
Page 2

3. Add construction note that a separate retaining wall permit is required from the Code Administration Division for private retaining wall construction.

If you have any questions, call me at 766-7644.

Cordially,

*Roger A. Green, PE*

Roger A. Green, P.E.  
C.E./Hydrology Section

cc: Lew Wilmont,  
Presley Company of NM

RAG/bsj

EH&A Job No. 8016-03

DRAINAGE REPORT FOR  
CIELO GRANDE AND CIELO VISTA  
SUBDIVISIONS

Prepared for:  
Presley Co. of New Mexico  
1909 Carlisle Boulevard NE  
Albuquerque, New Mexico 87110

May, 1986  
(Revised July, 1986)



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CONCLUSIONS	8
CALCULATIONS	9
EARTHWORK SPECIFICATIONS & RECOMMENDATIONS	Appendix

LIST OF FIGURES AND EXHIBITS

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SOILS MAP - FIGURE 2	4
DOWNSTREAM ANALYSIS	Exhibit "A"
GRADING/DRAINAGE PLAN - SHEET 1, 2, 3	Pocket

### PURPOSE AND SCOPE

The purpose of this report is to establish the criteria for controlling surface storm run-off and to study the hydrologic affects of the proposed drainage/grading and infrastructure improvements to the project and downstream properties. The site is presently described as Tracts 2 and 3, El Rancho Atrisco Phase III. This plan determines the excess run-off resulting from the 100-year/6-hour and 10-year/6-hour frequency storms falling within the site, historic and developed conditions. This report is prepared to facilitate platting, work order, and ultimately building permit approval.

The scope of the proposed plan will not increase the flooding potential to adjacent properties or downstream area. The plan is presented in a manner which is acceptable to the City of Albuquerque, using hydrologic procedures as outlined in Chapter 22, Vol. II, of the Development Process Manual.

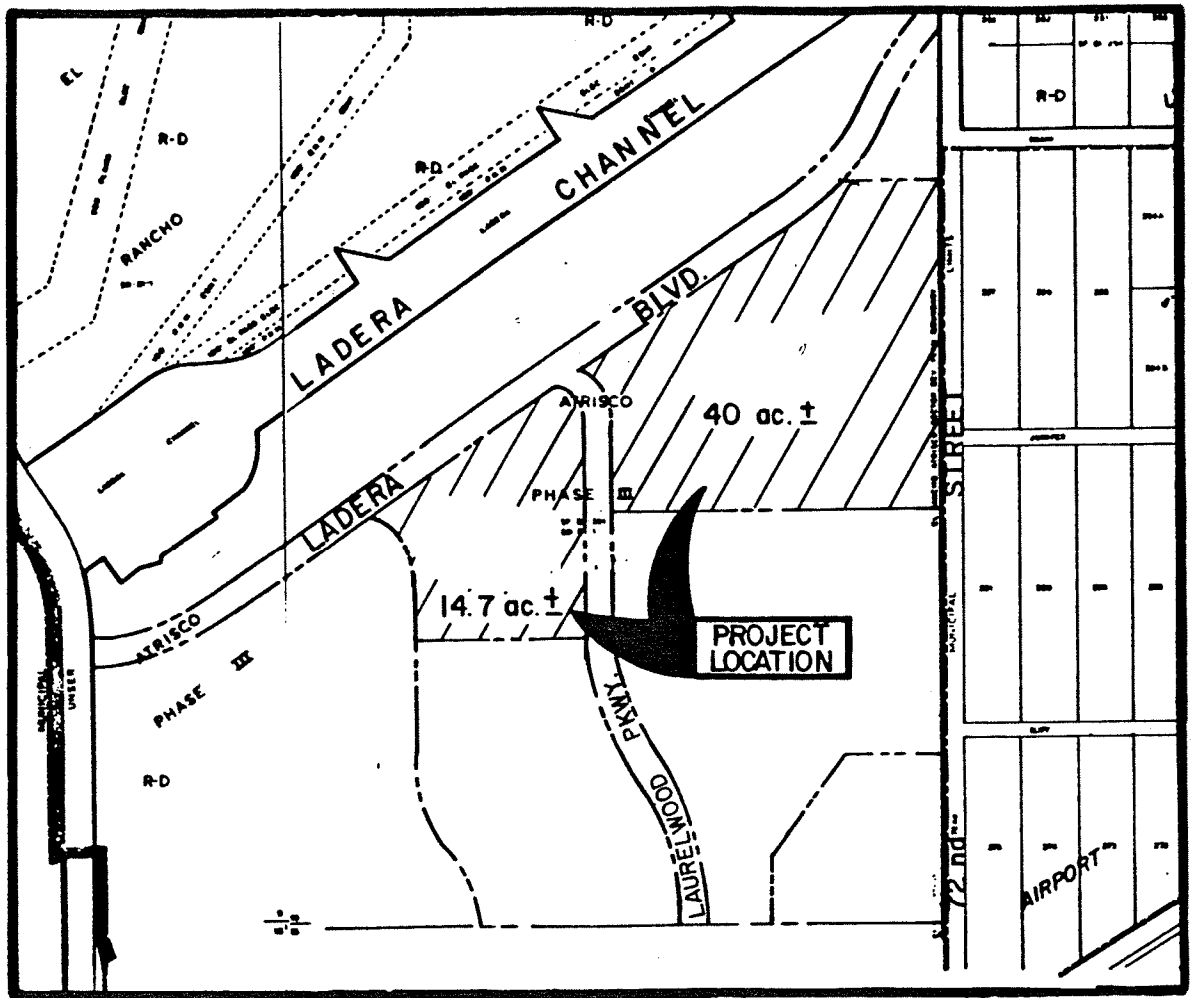
The following drainage plan is in substantial compliance with the drainage scheme established by the Design Report for the Special Assessment District 212, October 1982, of which the two proposed units are within. Additionally, this report is generally in compliance with an approved drainage report for Units 1A & 1B of Laurelwood Subdivision which accepts and programs potential developed run-off from Cielo Grande and Cielo Vista, respectively.

H-10/DS

LOCATION AND DESCRIPTION

The proposed site is located in the northwest portion of Albuquerque, New Mexico approximately 1 mile west of Coors Boulevard and 1/4 mile north of Interstate 40 (see Figure 1, Vicinity Map, following page). The subdivision is proposed for single family residential use.

Proposed Cielo Grande is approximately 14.7 acres and Cielo Vista comprises about 40 acres. Both tracts are currently undeveloped, with each parcel draining essentially from northwest to southeast at 1-2%. The major soil present is the PAC-Pajarito, a loamy fine sand. The United States Department of Agriculture, Soil Conservation Service classifies the soil as type "B" (see Soils Map, Figure 2, page 4).



**VICINITY MAP**  
**SCALE: 1" = 800' ±**

**H-10**

**FIGURE I**



**SOILS MAP**  
SCALE: 1" = 2000'

FIGURE 2

EXISTING DRAINAGE CONDITIONS

As previously stated, the two tracts are presently undeveloped. Cielo Grande is bounded on the north by improved Ladera Boulevard, the east by improved Laurelwood Parkway. Unimproved, although dedicated Applewood Lane is adjacent to the site on the south, being the north boundary of existing developed Laurelwood Unit 1-B. Undeveloped land lies due west.

Cielo Vista is bounded on the north by undeveloped land, the east by undeveloped and dedicated 72nd Street. The site is adjacent to improved Sherwood Drive on the south, being the north boundary of developed Laurelwood Unit 1-A. Improved Laurelwood Parkway abuts the development on the west. Ladera Boulevard is adjacent to the site on the northwest.

Sheets 1-3 (see pocket) illustrate the existing topography of the project. Neither proposed tract lies within a 100-year flood hazard zone as per Panel 21 of the Federal Emergency Management Agency maps. Minimal off-site flows enter Ladera Estates from the west. No off-site flows impact Ladera Village, as Laurelwood Parkway and Ladera Boulevard protect the parcel. Both tracts are within the recently completed Special Assessment District 212 which involved extensive drainage improvements with diversion of storm run-off to detention facilities via underground conveyance, channels and public streets.

PROPOSED DRAINAGE CONDITIONSI. Cielo Grande - 14.7+ acres

The street system proposed within the project will essentially be used for conveyance of stormwater. All streets will be residential; 32 feet face to face of curb within dedicated 50' public street rights-of-way. Free discharge shall be permitted at two points of egress. Basin "A" will discharge through the existing developed Laurelwood Unit 1-B as programmed by an approved "Drainage Report for Unit 1A & Unit 1B of Laurelwood Subdivision, El Rancho Atrisco III", by Denney-Gross & Associates, Inc., January, 1983. Basin "A" (see sheet 1, pocket) will discharge at an approximate rate of 14 cubic feet per second for the peak developed 100-year/6-hour storm. Basin "B" will generate a Q100/6-hour developed flow of approximately 20 cfs. Basin "B" storm run-off will exit the site at the proposed entrance on Laurelwood Parkway. Capacity exists downstream in the existing 48" RCP at Laurelwood and Hanover. An additional drop inlet will be necessary to "dry up" street flows since Hanover is unimproved. (See following "Calculations".)

II. Cielo Vista - 40 + acres

The proposed street system will be the primary system of stormwater conveyance. Two points of egress will freely discharge run-off from the site (see sheets 2 & 3, pocket). Basin "A" run-off will be conveyed to Lakewood Avenue through Unit 1A. A Q100/6-hour of 34 cfs will depart the site at the intersection of Sherwood Drive and be conveyed southerly. Basin "C" will generate a run-off figure of 13 cfs and leave the site at Sherwood and Rosewood Avenue and flow down Rosewood through Unit 1A. Capacity exists downstream within Laurelwood Unit 1A (see Calculations). Both Basins "A" and "C" ultimately outfall at the Hanover Detention Pond.

Basin "B", approximately 20 acres, will generate 43 cfs (Q100) and discharge to 72nd Street @ Rosewood Court. Since 72nd Street is unimproved and construction deferred until downstream facilities are in place, Basin "B" run-off will be retained on site. Four lots will be reserved for retention, approximately 3.0 feet

in depth. Pond volume shall be approximately 70,130 CF.

Concurrently submitted with this report is a downstream analysis which programs the ultimate drainage outfall for Basin "B". See Exhibit "A" for the analysis.



CONCLUSIONS

1. Free discharge will be permitted from Cielo Grande. 20 acres of runoff shall be retained on Cielo Vista until downstream facilities are in place.
2. This report is in compliance with applicable approved master drainage reports on file with City Hydrology.
3. The proposed grading and drainage improvements will not increase the flooding potential to downstream or adjacent properties.
4. Erosion control during construction will ensure that sediments remain on site.
5. An approved infrastructure listing and an executed subdivision improvement agreement shall be required for final plat sign-off.
6. Maintenance of the proposed private drainage easements will be the responsibility of the owner.

CALCULATIONS

The following calculations are based on the Rational Method of estimating storm run-off. This is consistent with methods as outlined in "The Design Report for SAD 212" and individual drainage reports for the existing tracts, Units 1A and 1B, Laurelwood Subdivision.

### 'C' Factor

SHEET 1 OF 1 BY PC  
DATE 7/21/86 CK BY

Data :

Site: 14.7 AC.

- 3 AC. Streets (TOTAL  
11.7 AC. R.O.W.)

59 Lots

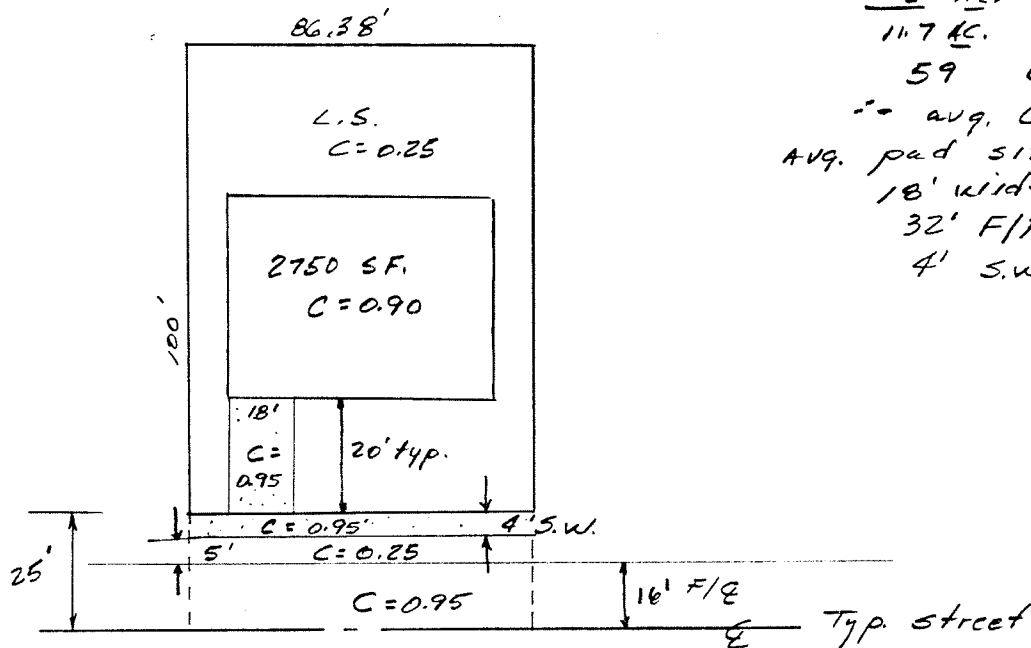
∴ avg. Lot size = 8638 SF.

AVG. pad SIZE =  $55 \times 50 = 2750 \text{ SF}$

18' wide drive pad

32' F/F streets

4' S.W.



$$CC' = \frac{2750(0.90) + 360(0.95) + 5528(0.25) + 1727(0.95)}{10,798 \text{ SF}}$$

$CC' = 0.55$  (used 0.52 in calcs.)

This will affect calculations of Basins by less than 1 cfs. & no need to change. PJC



Ladera Estates

I. BASIN 'A' - 5.9 acres ±

$$TC = 0.0078 \frac{L^{0.77}}{S^{0.385}}$$

$$TC = 6 - \text{use } \underline{10 \text{ min.}}$$

$$L_{100} = 4.65 \text{ in/hr.}$$

$$\underline{Q_{100} = 14.3 \text{ cfs}}$$

$$\underline{Q_{10} = 9.6 \text{ cfs}}$$

$$\underline{Vol. 100 = 24,500 \text{ C.F.}}$$

$$\underline{Vol. 10 = 16,100 \text{ C.F.}}$$

$$L = 800'$$
$$AEL = 70 - 55 = 15'$$
$$S = 0.019' / \text{ft.}$$

$$P = 2.2 \text{ in} - 6 \text{ hr.}$$

$$C = P^{6.84 - 0.51}$$

$$Q = C \cdot A, \text{ Vol} = P \cdot C \cdot A$$

$$C' = 0.95 \quad C_{\text{undev.}} = 0.40$$

Street etc.

$$C'_{L.S.} = 0.25$$

$$CC' = 0.52$$

$$\underline{Q_{100} \text{ exist.} = 11.0 \text{ cfs}}$$

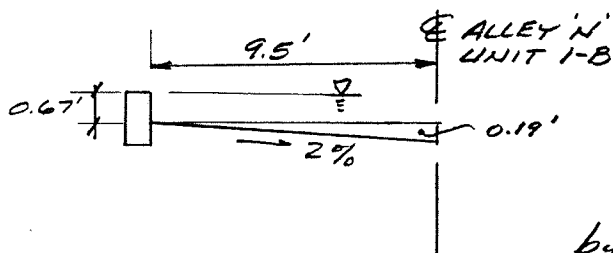
$$\underline{Q_{10} \text{ exist.} = 7.2 \text{ cfs}}$$

→ Check Street Section on Firwood - just north of Appleton

$$32' \text{ F/F} \quad S = 1.5\% \quad \text{per D.P.M. Pl. 22.3, D-1}$$

$$(\frac{1}{2} \text{ street flows}) \quad d_{100} = 0.37' < 0.87' \text{ ok Can use Mountable C \& G}$$

→ Check Street Section @ ALLEY 'N' just South of Appleton  
(1/2 flows) - OFF SITE  
S = 0.5%



$$\text{Area} = 7.04 \text{ SF}$$

to T.C.

$$P = 0.67 + 9.5 = 10.17$$

$$R_h = \frac{A}{P} = 0.69$$

by Mannings ....

$$V = 1.49 R^{2/3} S^{1/2}$$

$$V = 5 \text{ cfs}$$

$$Q = VA$$

$$Q = 35 \text{ cfs} \gg 7 \text{ cfs. ok}$$

Cap.



Ladera Estates

SHEET 2 OF 5 BY PWC

DATE 5/86 CK BY

→ 5.2c Curb cut - Applewood (Basin 'A')

$$Q = 3.0 LH^{3/2} \dots \text{weir eq. for } Q_{100} = 14 \text{ cfs}$$

$$14 = 3(L)(.67)^{3/2} \quad H = .67' \text{ curb}$$

$$\underline{L = 8.5' \text{ USE } 10' \text{ length}}$$

Note: Capacity exists downstream in existing  
Laurelwood Unit 1B with that develop-  
ment accepting flows from Ladera  
Estates — (See Approved report for  
Unit 1B) by Denney, Gross & Assoc.  
OR Sheet 8 of 75, Constr. Plans for Unit 1A  
& 1B Laurelwood

II. Basin 'B' - 9 AC. ±

$$TC = 0.0078 \frac{L^{0.77}}{S^{0.385}}$$

$$TC = 12 \text{ min.}$$

$$\therefore L_{100} = 4.24 \text{ in/hr.}$$

$$Q_{100} = CiA$$

$$\underline{Q_{100} = 20 \text{ cfs}}$$

$$\underline{Q_{10} = 13 \text{ cfs}}$$

$$Vol_{100} = 37,400 \text{ C.F.}$$

$$Vol_{10} = 24,500 \text{ C.F.}$$

$$L = 1380'$$

$$Ael. = 65-51$$

$$S = 0.01' / \text{ft.}$$

$$P = 2.2 \text{ in} - 6 \text{ hr.}$$

$$'CC' = 0.52 \text{ (see previous)}$$

$$'C' \text{ undev.} = 0.40$$

$$\underline{Q_{100} \text{ exist.} = 15 \text{ cfs}}$$

$$\underline{Q_{10} \text{ exist.} = 10 \text{ cfs}}$$



Ladera Estates

SHEET 3 OF 5 BY RWC

DATE \_\_\_\_\_ CK BY \_\_\_\_\_

(rev. ex. SA → DC  
drop inlet 7/21/86)  
\$ Slope per design  
Survey )

## II. Basin 'B' contd.

Basin 'B' will free discharge into Laurelwood Parkway & drain to South, to the intersection of Hanover. Street flows + Basin 'B' shall be the design Q.

Area -  $\frac{1}{2}$  the R.O.W. of Laurelwood x length

$$50' \times 2200 \text{ L.F.} = 2.5 \text{ AC}$$

→ det.  $Q_{\text{design}}$  conveyed to Hanover/Laurelwood & existing storm drain system

$$\text{Area} = \text{Street} + \text{Basin 'B'}$$

$$2.5 + 9 = 11.5 \text{ AC.}$$

$$\text{ETC} = TC_{\text{(Basin 'B')}} + \text{Laurelwood (Entrance to Hanover)} \left\{ \begin{array}{l} L = 1550' \\ \Delta E = 51 - 35 = 16 \\ S = 1.0\% \end{array} \right.$$

$$\text{ETC} = 12 + 13 = 25 \text{ min.} \quad \therefore TC = 13 \text{ min.}$$

$$L_{100} = 2.91 \text{ in/hr.}$$

$$'CB' = 0.52$$

$$Q_{100} = 17.4 \text{ cfs}$$

$$Q_{10} = 11.4 \text{ cfs}$$

→ Capacity of Exist. <sup>Double rev. 7/21/86</sup> Type 'A' inlet @ Hanover & Laurelwood  
 $S = 1.4\% \rightarrow 1.5\%$

$$Q_{100} = 17 \text{ cfs} \quad \dots \text{all on west side of street}$$

$$d_{100} = 0.51'$$

$$\Rightarrow Q_{\text{cap.}} = 7 \text{ cfs, } 9 \text{ cfs}$$

$$d_{10} = 0.42' < 0.5 \text{ ok}$$

rev. (7/21/86)  
 $\therefore Q_{\text{res.}} = 8 - 5 = 3 \text{ cfs}$

$$17 - 7 = 10 \text{ cfs} \Rightarrow d_{100} = 0.42' \text{ } ^{0.39}$$

$$\Rightarrow \text{Cap. Type 'C'} = 5 \text{ cfs}$$

Construct Double 'C' inlet w/ 20 L.F. of RCP @  
HANOVER & Laurelwood 18"

USE N.M.S.H.D. Nomograph Curb opening  $d_{100} = 0.39'$ ,  $h = 0.5'$   
 $\Rightarrow \text{Cap.} = 4 \text{ cfs for Double 'C', } 47 \text{ cfs}$



ESPEY, HUSTON & ASSOCIATES INC.  
Engineering & Environmental Consultants

SUBJECT Ciclo Grande

Hydraulics

SHEET 3A OF        BY RLC  
DATE 7/21/86 CK BY       

→ det. cap. of ex. 18" RCP to 48" RCP (in Hanover)

$$S = 0.023' / \text{ft.}$$

$$n = 0.013 \text{ --- RCP}$$

$$\phi = 18"$$

$$Q_{\text{cap}} = 16 \text{ cfs} \text{ ..... per Manning's EQ.}$$

@ Laurelwood Pkwy. - Hanover

17 x 16 cfs, slightly under pressure

∴ OK

Ladera Village

± 8016

I. Basin A' - 15 ac.  $\pm$

(Same design criteria as Calcs. for Unit 1C)

$$\angle = 1400'$$

$$del = 58 - 38 = 20'$$

$$S = 1.4\%$$

$$TC = 0.0078 L^{0.77} / S^{0.385} = 11 \text{ min.}$$

$$L_{100} = PG.84 TC^{-0.51} = 4.4 \text{ in/hr}$$

$$Q_{100} = 34 \text{ cfs}$$

$$Q_{100}(\text{exist}) = 26 \text{ cfs}$$

$$Q_{10} = 23 \text{ cfs}$$

$$Q_{ID}(\text{exist.}) = 17 \text{ cfs}$$

$$VOL_{100} = 62,290 \text{ CF}$$

$$VOL_{10} = 40,900 \text{ CF}$$

✓ Street Section

on Lakewood - Just North of Sherwo.

32' F/F,  $S = 0.5\%$

Requires STD.  $C \leq G$

$$Q_{100 \text{ } \frac{1}{2} \text{ street}} = 17 \text{ cfs}$$

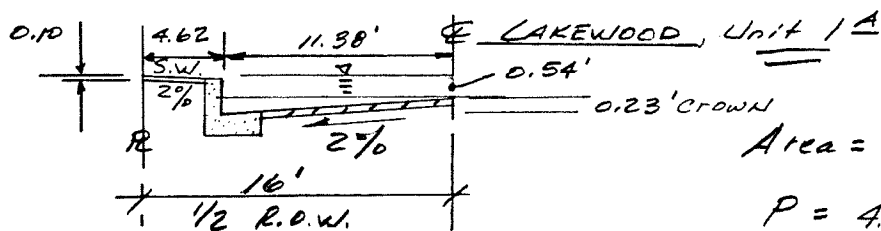
$$\Rightarrow d = \frac{0.58}{100}$$

✓ Street Section

on Lakewood - Just South of Sherman

22.75 F/F,  $S = 0.6\%$

by Manning's



$$\text{Area} = 1.31 + 6.15 + 0.23 = 7.69 \text{ SF}$$

$$P = 4.62 + .67 + 11.38 = 16.67$$

$$R_h = 0.46$$

$$n = 0.017$$

$$V = \frac{1.49}{5} R^{2/3} S^{1/2} = 4.0 \text{ fps}$$

$$Q_{cap.} (1/2 \text{ Street flows}) = VA = 31 \text{ cfs} < 17 \text{ cfs}$$

Capacity exists in LAKEWOOD



eh

ESPEY, HUSTON & ASSOCIATES INC.  
Engineering & Environmental Consultants

SUBJECT Hydrology

Ladera Village

SHEET 5 OF 6 BY PWC  
DATE 6/86 CK BY ✓  
# 8016

## II. Ladera Village Cont'd

Basin C' — Ladera Village  
(5 AC. ±)

$$TC = 10 \text{ min.}$$

$$P_{100} = 2.2 \text{ in}$$

$$L = 4.65 \text{ in/hr.}$$

$$C = 0.52$$

$$Q_{100} = 0.52(4.65)5$$

$$Q_{100} = 12 \text{ cfs}$$

$$Q_{10} = 8 \text{ cfs}$$

## III. LADERA VILLAGE - BASIN B' (20 AC. ±)

: Basin B' is outfall is within a Study  
by Andrews, Asbury & Roberts using "Hymo"  
(See following Hydrograph Worksheet)

→ SIZE Basin B' RETENTION Detention Pond - Required  
Until Downstream Improvements are in-place

$$VOL_{100} = 61,710 \text{ C.F.} \quad \text{Area} = 20 \text{ AC.}$$

Assume: 0.5 cfs/Acre release rate

$$20 \text{ AC.} \times 0.5 \text{ cfs/AC.} = 10 \text{ cfs} = Q_r$$

No  
Release  
allowed.

$$\underline{VOL. (pond) = 34,800 \text{ C.F. (from hydrograph)}}$$

(6 lots approx. 1' deep)

or 4 lots 1.5' deep

PROJECT LADERA VILLAGE

LOCATION 72<sup>nd</sup> Street & Juniper

ANALYSIS POINT # Basin 'B'

(DR. AREA) A = 20 ACRES

$T_c$  12 MIN del. 46-24 = 22'  
L = 1650', S = 1.38%

POINT RAINFALL 2.2 IN. FROM PLATE 22.2 D-1

CN = 83 FROM PLATES 22.2 C-2, 22.2 C-3

RUNOFF VOLUME R = .85 IN. FROM PLATE 22.2 C-4

COMPUTED  $T_p$  = 12 MIN.  $T_p = T_c$   
(Rounded to even minute)

$q_p = \frac{45.4A}{T_p} = \frac{75}{12}$  CFS./INCH OF RUNOFF

$(R \times q_p) = Q_{peak} = \frac{64}{12}$  CFS \*\*

$t(COLUMN) = (t/T_p) \quad t = T_p(t/T_p)$

$y = \frac{Q}{Q_{peak}} \quad Q = y(Q_{peak})$

	(t/T <sub>p</sub> )	t (min.)	y	Q (cfs)
1	0	0	0	0
2	.1	1.2	.03	1.3
3	.2	2.4	.10	4.3
4	.3	3.6	.190	8
5	.4	4.8	.310	
6	.5	6.0	.470	20
7	.6	7.2	.660	
8	.7	8.4	.820	35
9	.8	9.6	.930	
10	.9	10.8	.990	
11	1.0	12	1.00	43
12	1.1	13.2	.990	
13	1.2	14.4	.930	
14	1.3	15.6	.860	
15	1.4	16.8	.780	34
16	1.5	18	.680	
17	1.6	19.2	.560	
18	1.7	20.4	.460	
19	1.8		.390	
20	1.9		.330	
21	2.0	24	.280	12
22	2.2		.207	
23	2.4		.147	
24	2.6		.107	
25	2.8		.077	
26	3.0	36	.055	2
27	3.2		.040	
28	3.4		.029	
29	3.6		.021	
30	3.8		.015	
31	4.0	48	.011	.43
32	4.5		.005	
33	5.0	60	.000	

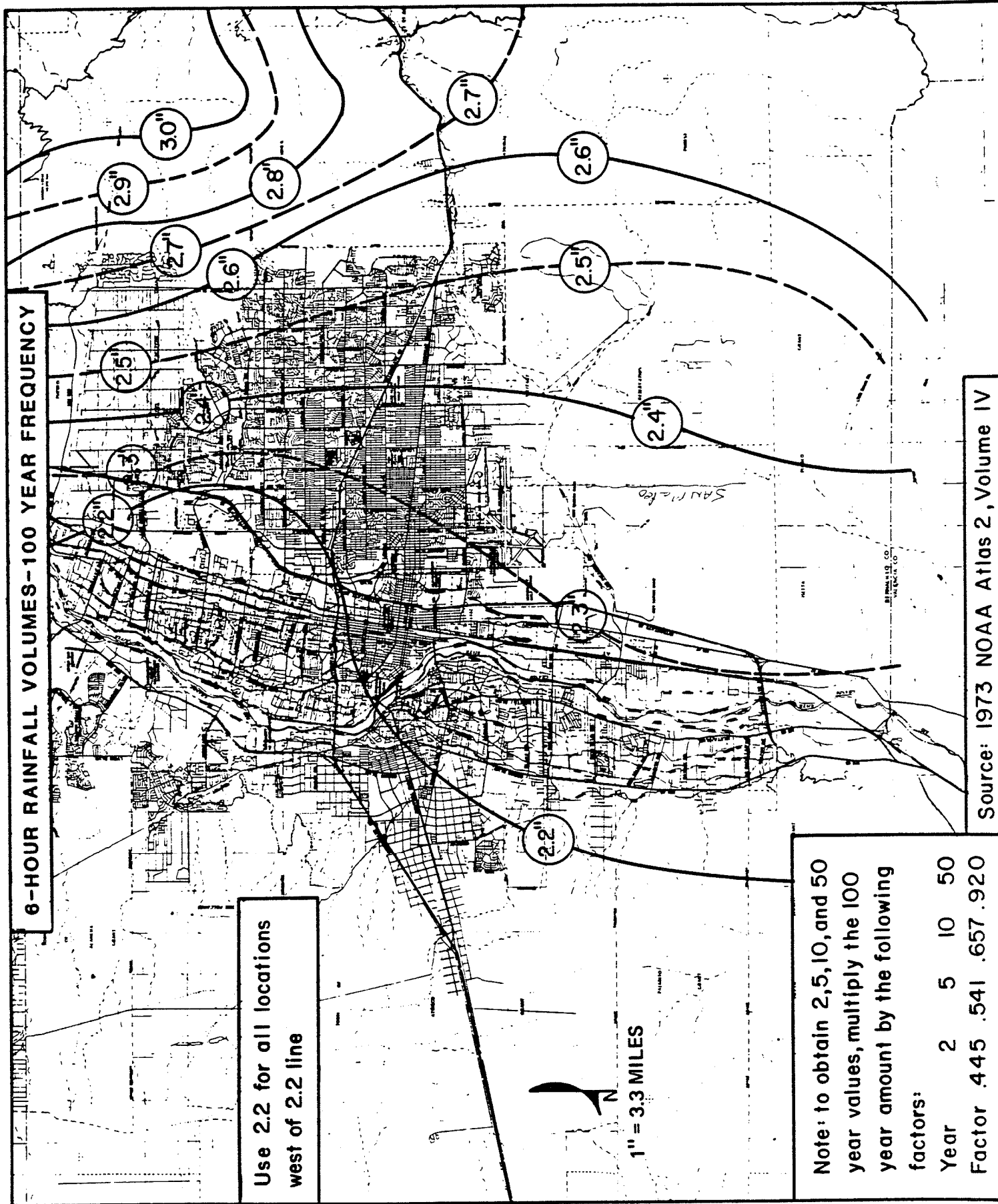
\*\* since this basin is 2/3 the size of A.A. & R's Basin 620 then 2/3 x the error in comparing Hymo and SCS = 0.49  
Therefore Basin 'B'  $Q_{peak}$  (SCS) is 49% higher than  $Q_{peak}$  (Hymo).

$$\Rightarrow \frac{**Q_{peak}}{1.49} = \frac{43 \text{ cfs}}{1.49} \Rightarrow Vol. = \frac{61,710}{100} \text{ C.F.} = R \times A$$

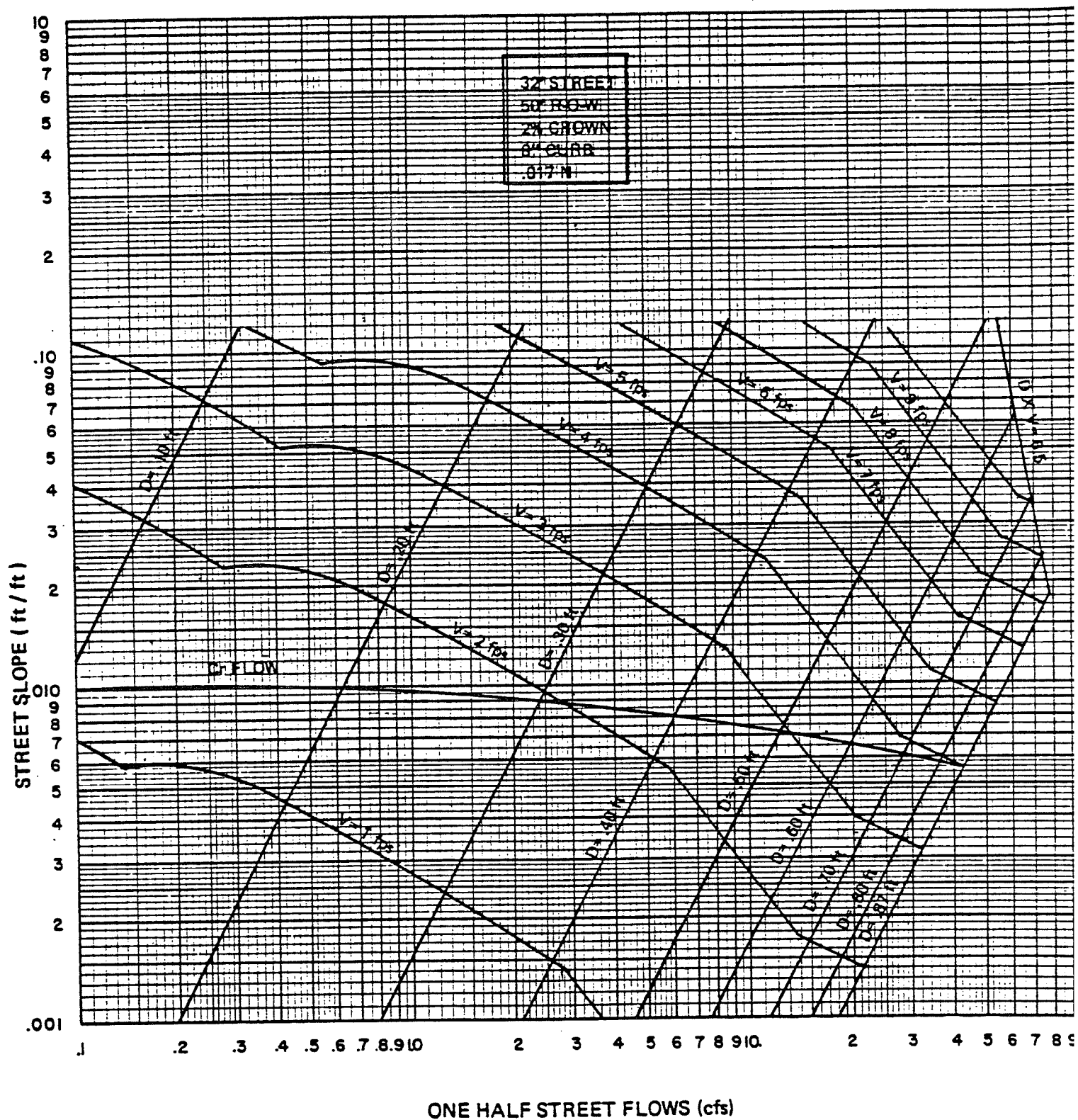
OK  
Same as CSC model

$\frac{.85}{12} \times 20 \times 43560$   
PLATE 22.2 F-1

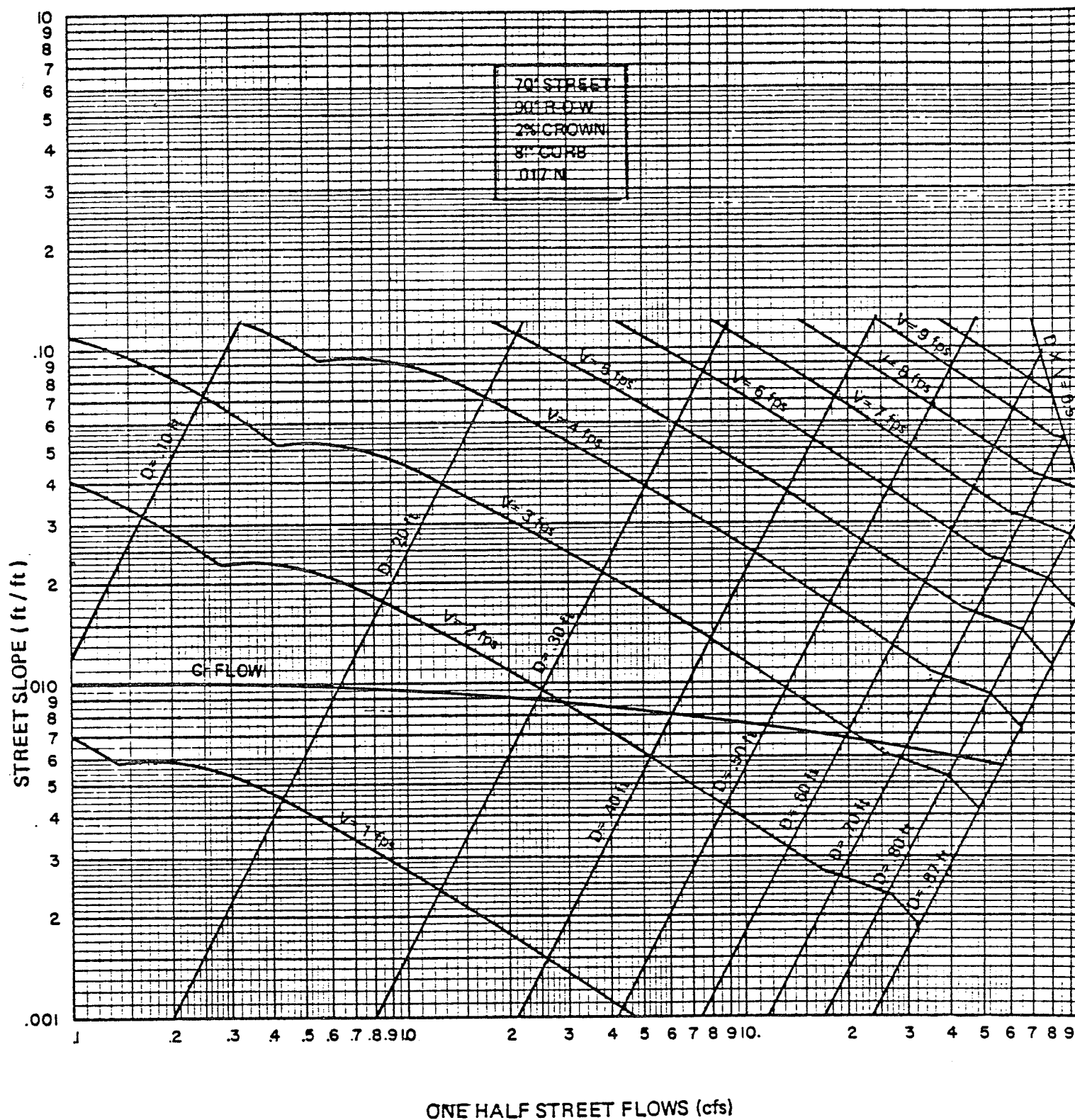
\*\*\* Interestingly, this is same result if used Rational 20 Method: with  $C = 0.52$   
 $T_c = 12$  min.



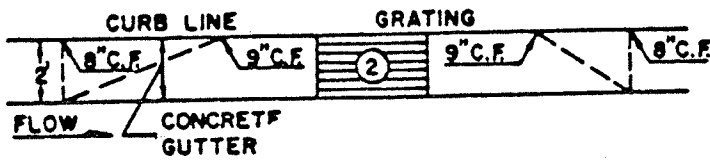
## STREET CAPACITY



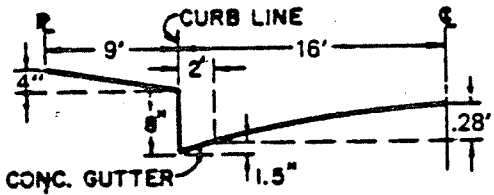
## STREET CAPACITY



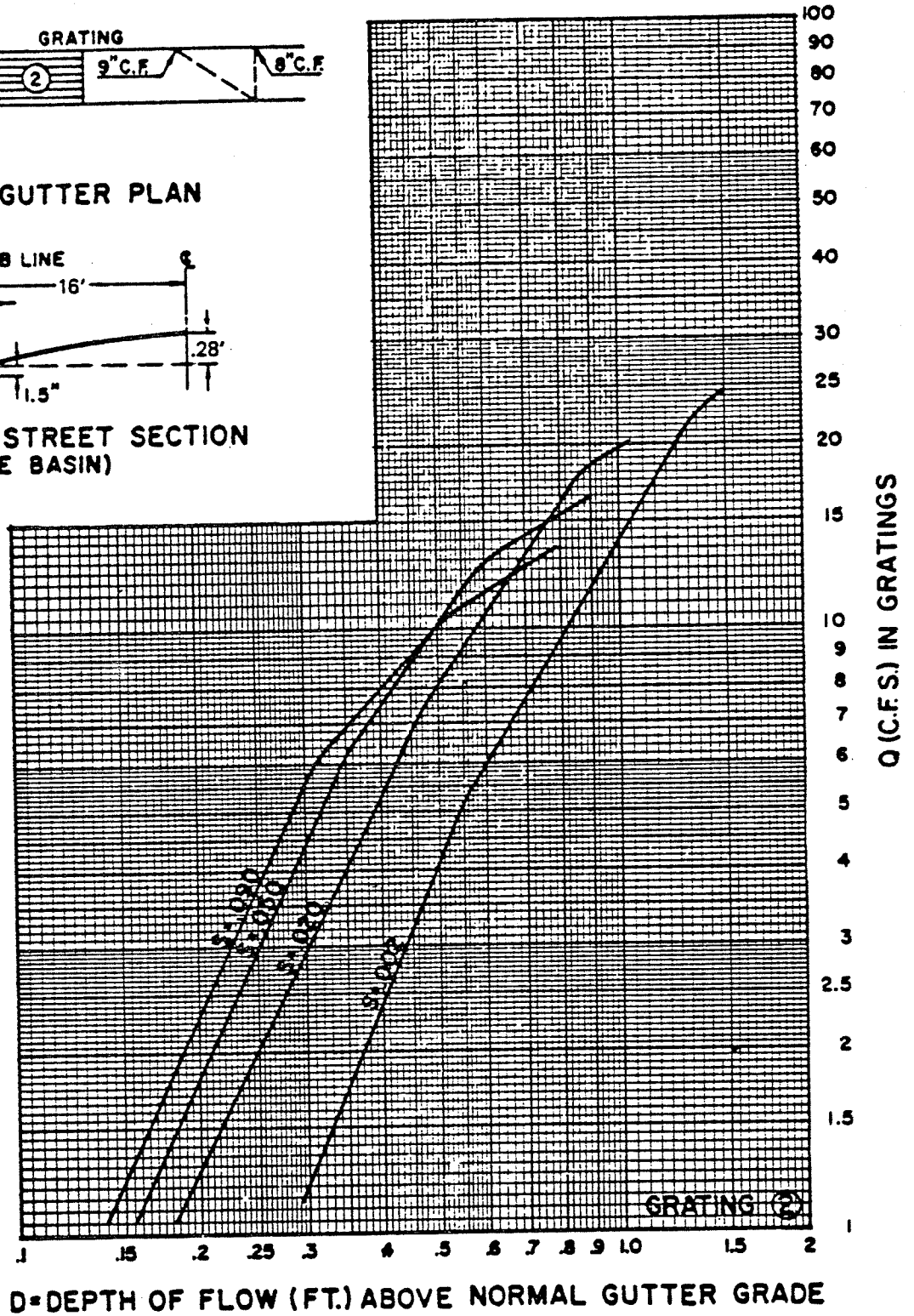
# GRATING CAPACITIES FOR TYPE "A" , "C" and "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION  
(ABOVE BASIN)



**EXHIBIT "A"**



CIELO VISTA

SHEET 1 OF 4 BY DL  
DATE 7-28-86 CK BY \_\_\_\_\_

## 1. PURPOSE

PURPOSE OF THIS ANALYSIS IS TO PROGRAM AN OUTFALL SCHEME FOR BASIN 'B' OF CIELO VISTA SUBDIVISION. THE SCHEME WILL BE LISTED ON THE INFRASTRUCTURE LISTING REQUIRED FOR PRELIMINARY PLAT APPROVAL, AND FINANCIAL GUARANTEES WILL BE REQUIRED FOR FINAL PLAT APPROVAL.

## 2. PROPOSED SCHEME

THE PROPOSED DRAINAGE SCHEME UTILIZES THE FUTURE STREET AND DRAINAGE IMPROVEMENTS ANTICIPATED TO BE PROVIDED BY A S.A.D AND THE WEST BLUFF IMPROVEMENTS.

THE SAD IS CURRENTLY BEING FORMED BY LEE LUNDSFORD, CITY SAD ENGINEER. WEST BLUFF IMPROVEMENT STUDIES ARE IN FINAL STAGES OF REVIEW AND ARE BEING PROGRAMMED BY JIM FINK.

IN THE DEVELOPED (ULTIMATE) CONDITION, BASIN 'B' CIELO GRANDE WILL DRAIN OVERLAND





CIELO VISTA

SHEET 2 OF 4 BY DL  
DATE 7-28-86 CK BY \_\_\_\_\_

DOWN JUNIPER AND 68TH ST TO  
THE INTERSECTION OF ILIFF AND 68TH.  
AT THIS POINT THE 100 YR RUNOFF WILL  
BE CLEARED FROM THE STREET SYSTEM BY  
A DROP INLET SYSTEM WITH A 48" RCP  
DRAIN TO THE FUTURE WEST BLUFF CHANNEL.  
THIS SCHEME HAS BEEN APPROVED, IN CONCEPT,  
BY FRED AGUIRRE AND JIM FINK.

### 3. CALCULATIONS

#### A. RUNOFF

RATION METHOD IS USED AS OUTLINED IN  
THE DPM BECAUSE IT MORE CLOSELY  
APPROXIMATES METHOD USED IN WEST  
BLUFF STUDY (HYMO):

AP #1 72<sup>ND</sup> E JUNIPER

$$L = 1000$$

$$H = 24$$

$$t_c = 10$$

$$L_{100} = 4.65$$

$$C = 0.52 \text{ (RESIDENTIAL)}$$

$$A = 20 \text{ AC}$$

$$S = 0.014 \text{ (JUNIPER)}$$

$$P_{100} = 2.2" \text{ (TYP)}$$



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

SUBJECT DOWNSIDE  
ST

CIELO VISTA

SHEET 3 OF 4 BY DL  
DATE 7-28-86 CK BY

$$Q_{100} = 48.4 \text{ CFS} \quad Q_{10} = 31.8 \text{ CFS}$$

$$\text{STREET DEPTH (40' FF)} : d_{100} = 0.56' \text{ OK}$$

AP #2 JUNIPER @ 68TH

$$L = 2100'$$

$$C = 0.52$$

$$S = 0.014 \text{ (JUNIPER)}$$

$$H = 36'$$

$$A = 34.2 \text{ AC}$$

$$t_c = 13 \text{ min}$$

$$C_{100} = 4.07$$

$$Q_{100} = 72.4 \text{ CFS}$$

$$Q_{10} = 47.6 \text{ CFS}$$

$$\text{STREET DEPTH (40' FF)} : d_{100} = 0.64' \text{ OK}$$

AP #3 68TH @ ILIFF

$$L = 3250$$

$$C = 0.52$$

$$H = 42$$

$$A = 66.2 \text{ AC}$$

$$t_c = 21$$

$$S = 0.005 \text{ (68TH)}$$

$$C_{100} = 3.18$$

$$Q_{100} = 109.6 \text{ CFS}$$

$$Q_{10} = 72.0 \text{ CFS}$$

$$\text{STREET DEPTH (40' FF)} : d_{100} = 0.9' > 0.87'_{\text{ALLOW}}$$

SD REQUIRED AT INTERSECTION TO CONVEY  
RUNOFF TO CHANNEL



CIELO VISTA

## B. DESIGN SD SYSTEM

### 1. SIZE INLETS

$$d_{100} = 0.90' \pm$$

$$S = 0.005$$

PER PLATES 22.3 D5-7

SINGLE A CAPACITY = 12 CFS  $\pm$

DBL B " 15 CFS  $\pm$

DBL C " 15 CFS  $\pm$

$\Rightarrow$  USE 2 SINGLE A @ 24 CFS

6 DBL 'B' OR 'C' @ 90 CFS

$$\Sigma 114 \text{ CFS} > Q_{100}$$

### 2. SIZE PIPE

PER MANNINGS @  $S = 0.006$  (SEE PLAN)

$$Q_{48"} = 111.6 \text{ CFS} > Q_{100}$$

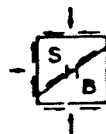
**APPENDIX**

## APPENDIX

### 5. DISCUSSION & RECOMMENDATIONS

#### 5.1 Analysis of Results

Based on classification, penetration and consolidation test data, many of the looser surface soils underlying the site would be weakened and their compressibility increased upon moisture increase. Experience with other projects located nearby with similar subsoil conditions indicates that these looser zones have the potential to settle several inches should they become saturated. This settlement could occur even with the use of very low bearing pressures in design. However, with proper



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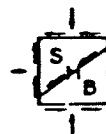
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site preparation and provisions for positive site drainage, the residential structures can be supported on shallow spread-type footings bearing on densified native soils.

The recommended site preparation consists of prewetting to a depth of 5.0 feet below finished grade and compacting the natural ground surface in fill sections using a vibratory roller. The site should then be brought to finished subgrade elevation with properly compacted structural fill. Cut sections should be wetted and compacted with a vibratory roller, as above, after cutting to approximate finished grade. Guide specifications for site preparation are presented in Appendix C of this report.

It should be recognized that a risk of damage to the structures may be involved with this approach. Should a broken water line or other source of moisture develop after construction, excessive footing settlements may occur in some areas of the site. Moreover, permeability of the soils is such that relatively rapid infiltration of water would occur if a source of moisture developed. The site preparation recommended will lessen the risk and reduce the potential for settlement considerably; however, it will not completely eliminate the risk involved.

Alternate approaches involving deep overexcavation and recompaction of the surface soils, rigid structural



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slabs, or deep foundations with structurally suspended floors could further reduce the calculated risk of excessive settlements. These alternate approaches do not appear to be economically feasible for this project. However, recommendations for these more costly systems can be provided by this firm, if desired.

## 5.2 Foundations

Provided site grading is carried out as recommended hereafter, shallow spread-type footings are recommended for support of the structures. A safe soil bearing pressure of 2,000 psf is recommended for footing design. Minimum recommended depths of footings are 2.0 feet below lowest adjacent finished grade for exterior footings and 1.0 foot below finished floor elevation for interior footings.

Due to the required site grading, footings designed as recommended above will bear on fill in some areas of the site and on densified native soils in other areas of the site.

The bearing value recommended above applies to full dead plus realistic live loads and can be safely increased by one-third for total loads including wind or seismic forces.

Two feet and 1.33 feet are the minimum recommended widths of square and continuous footings, respectively.



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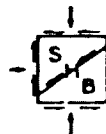
The following provisions are recommended to minimize the sensitivity of the structures to differential movements that may occur. Stem walls, interior columns and other structural elements should be isolated from slabs-on-grade by positive separation with expansion joint material. The slabs should not bear directly on stem walls or interior footings. As much flexibility as practicable should be built into the superstructure to accommodate possible downward movement of the roof structure relative to interior non-bearing walls.

It is estimated that total and differential settlements of foundations designed in accordance with the above criteria will not exceed 3/4 inch and 1/2 inch, respectively, for soil moisture contents encountered at the time of test drilling or compaction moisture introduced during construction.

### 5.3 Site Grading & Slab Support

Recommendations relative to site grading for slab and footing support are presented in Appendix C. These recommended guide specifications are presented in a format that meets the requirements of FHA Data Sheet 79G.

Site grading recommendations presented in this report will result in subgrade preparation which will provide adequate support for lightly loaded slab-on-grade floors so that granular base course is not considered necessary



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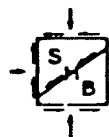
for this purpose. However, should it be desired as a working surface, a 4-inch course of granular base can be placed beneath concrete floor slabs.

Where granular base is used, it should meet the following grading requirements as determined in accordance with ASTM C 136.

<u>Sieve Size (Square Openings)</u>	<u>Percent Passing by Weight</u>
1 inch	100
3/4 inch	85-100
no. 4	45-95
no. 200	0-8

The granular base should have a plasticity index of no greater than 3 when tested in accordance with ASTM D 423 and D 424. Coarse aggregate should have a percent of wear, when subjected to the Los Angeles abrasion test (ASTM C 131), of no greater than 50. The granular base should be compacted to at least 95 percent of ASTM D 1557 maximum dry density.

Granular base as recommended will not provide a positive capillary break against the rise of moisture to slabs. If moisture sensitive or impervious floor coverings are used, an impervious membrane vapor barrier should be placed beneath the floor slabs. In order to minimize shrinkage cracking of concrete slabs due to differential



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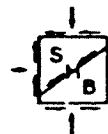
curing rates, a 2-inch layer of clean, nonplastic sand should be placed between the vapor barrier and the slabs.

#### 5.4 Site Drainage & Moisture Protection

Substantial moisture increases in the subsoils would reduce their support value and increase foundation settlements. Therefore, positive site drainage should be provided during construction and maintained thereafter. Where slabs or paved surfaces do not immediately adjoin the structures, the ground surface should be sloped away from their perimeter in a manner to allow flow along drainage lines at a minimum grade of 2 percent to points at least 15.0 feet away from the structures. Positive drainage should be provided from these points to streets or natural water courses. Roof runoff should be conveyed away from the structures by nonerosive devices at the ground surface. In no case should long-term ponding of water be allowed around the perimeters of the structures.

The possibility of moisture infiltration beneath the structures, in the event of plumbing leaks, should be considered in the design and inspection of underground water and sewer conduits.

If landscaped areas are planned immediately adjacent to the building perimeters, it is recommended that native plants requiring little or no irrigation waters be used.



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Otherwise, watertight boxes with provisions for drainage of excess irrigation water should be installed if landscape irrigating is planned.

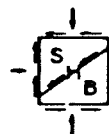
### 5.5 Paved Areas

The upper 8 inches of subgrade soils for paved streets should be nonplastic to low plasticity and meet the gradation specifications for structural fill presented in Appendix C. Generally, the upper portions of the site soils will meet the gradation specifications. The subgrade soils should be compacted as specified in Appendix C of this report.

The pavement should consist of asphaltic concrete placed directly on the compacted subgrade. The pavement should have a minimum thickness of 4 inches.

In our opinion, full-depth asphalt pavement should be used to provide moisture protection for the subgrade soils. The full-depth asphalt also exceeds City of Albuquerque minimum requirements. Recommendations for asphalt pavement used in conjunction with granular base course can be provided by this firm upon request.

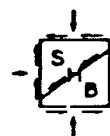
Asphaltic concrete materials quality and construction requirements should conform to Section 115 of current City of Albuquerque Contract Documents for City-Wide Utilities and Cash Paving. The mineral aggregate should comply with Grading C and, if a surface course is



desired, Grading D for that course. A job mix formula should be established using the Marshall method of mix design, with the stability and flow being determined in accordance with ASTM D 1559. The bituminous material and aggregate proposed for use in construction by the contractor should be used in the mix design.

#### 5.6 Construction Observation & Testing

Recommendations presented in previous sections of this report are predicated on the fact that there will be continuous observation and testing by the geotechnical engineer during earthwork operations. Verification of recommended excavation, moisture increases, prewetting and required degree of compaction should be performed in accordance with "Guide Specifications for Earthwork", Appendix C.



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SPECIFICATIONS FOR EARTHWORK

1. SCOPE

Includes all clearing and grubbing, removal of obstructions, general excavating, grading and filling, and any related items necessary to complete the grading for the entire project in accordance with these specifications.

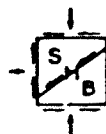
2. SUBSURFACE SOIL DATA

Subsurface soil investigations have been made, and the results are available for examination by the contractor. The contractor is expected to examine the site and determine for himself the character of materials to be encountered.

No additional allowance will be made for rock removal, site clearing and grading, filling, compaction, disposal or removal of any unclassified materials.

3. CLEARING & GRUBBING

- A. General: Clearing and grubbing will be required for all areas shown on the plans to be excavated or on which fill is to be constructed.
- B. Clearing: Clearing shall consist of removal and disposal of other vegetation as well as brush and any rubbish within the areas to be cleared.
- C. Grubbing: Stumps, matted roots and roots larger than 2 inches in diameter shall be removed from within 6 inches of the surface of areas on which fills are to be constructed except in roadways. Materials as described above within 18 inches of finished subgrade of roadways in either cut or fill sections shall be removed. Areas disturbed by grubbing will be filled as specified hereinafter for EMBANKMENT.
- D. Grass & Topsoil: Grass, grass roots and the incidental topsoil shall not be left beneath a fill



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area, nor shall this material be used as fill material. Grass, grass roots and topsoil may be stockpiled and later used in the top 6 inches of fills outside roadways and building pads.

4. EARTH EXCAVATION

- A. Earth excavation shall consist of the excavation and removal of suitable soils for use as embankment, as well as the satisfactory disposal of all vegetation, debris and deleterious materials encountered within the area to be graded and/or in a borrow area.
- B. Excavated areas shall be continuously maintained so that the surface shall be smooth and have sufficient slope to allow water to drain from the surface.

5. EMBANKMENT

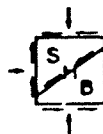
- A. General: Embankments shall consist of a controlled fill constructed in the areas indicated on the grading plans.
- B. Embankment Materials: Embankment fill material shall consist of soils that conform to the following physical characteristics:

<u>Sieve Size</u> <u>(Square Openings)</u>	<u>Percent Passing</u> <u>by Weight</u>
6 inch	100
no. 200	10-40

The plasticity index of the material, as determined in accordance with ASTM D423 and D424, shall not be more than 15.

The fill material shall be free from roots, grass, other vegetable matter, clay lumps, rocks larger than 6 inches, or other deleterious materials.

(1) Site Soils: The site soils from the cuts may be used for fill, provided they meet the requirements in paragraph 5.B.



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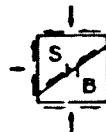
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(2) Borrow: When the quantity of suitable material required for embankments is not available within the limits of the jobsite, the contractor shall provide sufficient material to construct the embankments to the lines, elevations and cross sections as shown on the drawings from borrow areas. The contractor shall obtain from the owners of said borrow areas the right to excavate material, shall pay all royalties and other charges involved and shall pay all expenses in developing the source including the cost of right-of-way required for hauling the material.

C. Construction

(1) Treatment of the Natural Ground Surface: All building pad areas on which fills are to be constructed shall be scarified to a minimum depth of 12 inches and watered to bring the moisture content of the upper 5.0 feet as close as practicable to the optimum moisture content. Moisture increases achieved shall be verified by a representative of the geotechnical engineer by augering small holes to 5.0 feet and obtaining representative samples in order to confirm proper prewetting. In the event that infiltration does not take place to the prescribed depth, the geotechnical engineer's representative shall make a judgment decision based on the nature of the soil in question. The ground surface shall then be subjected to 20 coverages of a heavy steel drum vibratory roller (10 ton minimum weight). The upper 6 inches of the native soils shall be compacted to the minimum density required in paragraph 5.C(2). Building pads in cut areas shall be wetted and rolled, as specified above, after cutting to approximate finished grade.

(2) Compaction: The fill shall be spread in layers not exceeding 8 inches, watered as necessary, and compacted. The moisture content at the time of compaction shall be 2 percent below optimum or higher. Compaction shall be by mechanical methods only for a density of not less than 95 percent of maximum dry density for building pads. Embankments outside the building pads shall be compacted to 90 percent of maximum dry density.



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Optimum moisture and maximum dry density for each soil type used shall be determined in accordance with ASTM D1557.

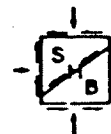
(3) Weather Limitations: Controlled fill shall not be constructed when the atmospheric temperature is below 35 degrees F. When the temperature falls below 35 degrees, it shall be the responsibility of the contractor to protect all areas of completed surface against any detrimental effects by methods approved by the geotechnical engineer. Any areas that are damaged by freezing shall be reconditioned and reshaped and recompactd by the contractor in conformance with the requirements of this specification without additional cost to the owner.

(4) Special Compaction of Ponding Areas: After finished grading, all ponding areas located within the individual lot lines shall be subjected to 20 coverages of a vibratory roller complying with the requirements of paragraph 5.C.(2).

D. Slope Protection & Drainage: The edges of the controlled fill embankments shall be graded to the contours shown on the drawings and compacted to the density required in paragraph 5.C(2). Slopes steeper than 1 vertical to 3 horizontal shall be protected from erosion.

## 6. INSPECTION & TESTS

A. Field Inspection & Testing: The developer shall employ the services of a registered, licensed geotechnical engineer to observe all controlled earthwork. The geotechnical engineer shall provide continuous on-site inspection by experienced personnel during construction of controlled earthwork. The contractor shall notify the engineer at least two working days in advance of any field operations of the controlled earthwork, or of any resumption of operations after stoppages. Tests of fill materials and embankments will be made at the following rates:

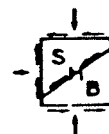


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- (1) One field density test per each 1,000 square yards of original ground surface prior to placing fill or in cut areas.
  - (2) One field density test per each 350 cubic yards of fill placed or each layer of fill for each work area, whichever is greater.
  - (3) One moisture-density curve for each type of material used, as indicated by sieve analysis and plasticity index.
- B. Report of Field Density Tests: The geotechnical engineer shall submit, daily, the results of field density tests required by these specifications.
- C. Costs of Tests & Inspection: The costs of tests, inspection and engineering, as specified in this section of the specifications, shall be borne by the developer.



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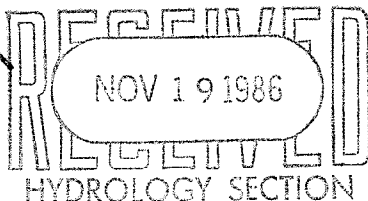
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H10/D



# City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103



November 11, 1986

Mr. Lewis Wilmot  
Presley Company of New Mexico  
1909 Carlisle N.E.  
Albuquerque, NM 87110

RE: CIELO DORADO PROJECT NO.: 3017

Dear Mr. Wilmot:

Enclosed is a copy of Drainage Covenant for subject project as filed with the City Clerk's Office for the subject project.

Please call me if I may be of further assistance.

Sincerely,

*Della Gallegos*  
Della Gallegos  
Administrative Assistant

Enclosures

cc: Espey-Huston, Inc.  
Fred Aguirre, Hydrology Department  
Allen Summers  
Project File

PUBLIC WORKS DEPARTMENT

George E. Selvia, P.E.,  
Assistant Director Public Works

ENGINEERING GROUP

Telephone (505) 768-2500

AN EQUAL OPPORTUNITY EMPLOYER

X  
86109170

DRAINAGE COVENANT

8600 50  
44

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 X," "partnership":]

PRESLEY COMPANY OF NEW MEXICO

("Owner"), whose address is 1909 CAZLISLE BLVD NE, ALBUQUERQUE, NEW MEXICO 87106, 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 signs this Easement.

1. Recital. Owner is the owner of certain real property located at [give general description, for instance, subdivision, lot and block or street address:] LOTS 3, 4, 5 AND 6, BLOCK J, CIELO DORADO SUBDIVISION in Bernalillo County, New Mexico (the "Property").

Pursuant to City ordinances, regulations and other applicable laws, the Owner is required to construct and maintain certain drainage facilities on the Property, and the parties wish to enter into this agreement to establish the obligations and responsibilities of the parties.

2. Description and Construction of Drainage Facilities. Owner shall construct the following "Drainage Facility" within the Property at Owner's sole expense in accordance with the standards, plans and specifications approved by the City:  
TEMPORARY RETENTION POND AS DETAILED ON PROJECT NO. 3017, PAGES 5 AND 35 OF 38.

*AMW*  
~~The Drainage Facility is more particularly described in the attached Exhibit A.~~ The Owner will not permit the Drainage Facility to constitute a hazard to the health or safety of the general public.

3. Maintenance of Drainage Facility. The Owner will maintain the Drainage Facility at Owner's cost in accordance with the approved Drainage Report and plans.

4. City's Right of Entry. The City has the right to enter upon the Property at any time and perform whatever inspection of the Drainage Facility it deems appropriate, without liability to the Owner.

5. Demand for Construction or Repair. The City may send written notice ("Notice") to the Owner requiring the Owner to construct or repair the Drainage Facility within \_\_\_\_\_ days ("Deadline") of receipt of the Notice, as provided in Section 12, and the Owner will comply promptly with the requirements of

the Notice. The Owner will perform all required work by the Deadline, at Owner's sole expense.

6. Failure to Perform by Owner and Emergency Work by City. If the Owner fails to comply with the terms of the Notice by the Deadline, or if the City determines that an emergency condition exists, the City may perform the work itself. The City then may assess the Owner for the cost of the work and for any other expenses or damages which result from Owner's failure to perform. The Owner agrees promptly to pay the City the amount assessed. If the Owner fails to pay the City within thirty (30) days after the City gives the Owner written notice of the amount due, the City may impose a lien against Owner's Property for the total resulting amount.

7. Liability of City for Repair after Notice or as a Result of Emergency. The City shall not be liable to the Owner for any damages resulting from the City's repair or maintenance following notice to the Owner as required in this agreement or in an emergency unless the damages are the result of the reckless conduct or gross negligence of the City.

8. Indemnification. As a part of the consideration for this grant, subject to the provisions of the New Mexico Tort Claims Act and all other applicable New Mexico laws, the City agrees to save Owner harmless from any and all liability arising from the City's negligent use of the Drainage Facility. The City does not agree to save Owner harmless from any liability which may arise from Owner's use of the Drainage Facility and the Property.

9. Cancellation of Agreement and Release of Covenant. This agreement may be cancelled and Owner's covenants released by the City following by the City's mailing to the Owner notice of the City's intention to record a Cancellation and Release with the Bernalillo County Clerk. The Cancellation and Release will be effective thirty (30) days after the date of mailing the notice to the User unless a later date is stated in the notice or in the Cancellation and Release. After the effective date, the City will record the Cancellation and Release with the Bernalillo County Clerk.

10. Assessment. Nothing in this agreement shall be construed to relieve the Owner, his heirs, assigns and successors from an assessment against Owner's Property for improvements to the Property 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.

11. Notice. For purposes of giving formal written notice to the Owner, Owner's address is:

PRESLEY COMPANY OF NEW MEXICO  
1909 CARLISLE BLVD NE  
ALBUQUERQUE, NM 87106

Notice may be given to the Owner either in person or by mailing the notice by regular U.S. mail, postage paid. Notice will be considered to have been received by the Owner within 6 days after the notice is mailed if there is no actual evidence of receipt. The Owner may change Owner's address by giving written notice of the change by certified mail, return receipt requested, to the City Public Works Department, P.O. Box 1293, Albuquerque, New Mexico 87103.

12. Term. This agreement shall continue until terminated by the City pursuant to Section 7 above.

13. Binding on Owner's Property. The covenants and obligations of the Owner set forth herein shall be binding on Owner, his heirs, assigns and successors and on Owner's Property and constitute covenants running the Owner's Property until released by the City.

14. Entire Agreement. This agreement 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.

15. Changes to Agreement. Changes to this agreement are not binding unless made in writing, signed by both parties.

16. Construction and Severability. If any part of this agreement is held to be invalid or unenforceable, the remainder of the agreement will remain valid and enforceable if the remainder is reasonably capable of completion.

17. Captions. The captions to the sections or paragraphs of this agreement are not part of this agreement and will not affect the meaning or construction of any of its provisions.

18. Form Not Changed. Owner agrees that changes to the wording of this form are not binding upon the City unless initiated by the Owner and approved and signed by the City Legal Department in writing on this form.

OWNER:

STATE OF NEW MEXICO ) ss  
COUNTY OF BERNALILLO)

By: Louis M. Wilmet  
Its: Fres  
Dated: 9-26-86

On this 26 day of September, 1986  
the foregoing instrument was acknowledged  
before me.

My commission expires 5-19-90

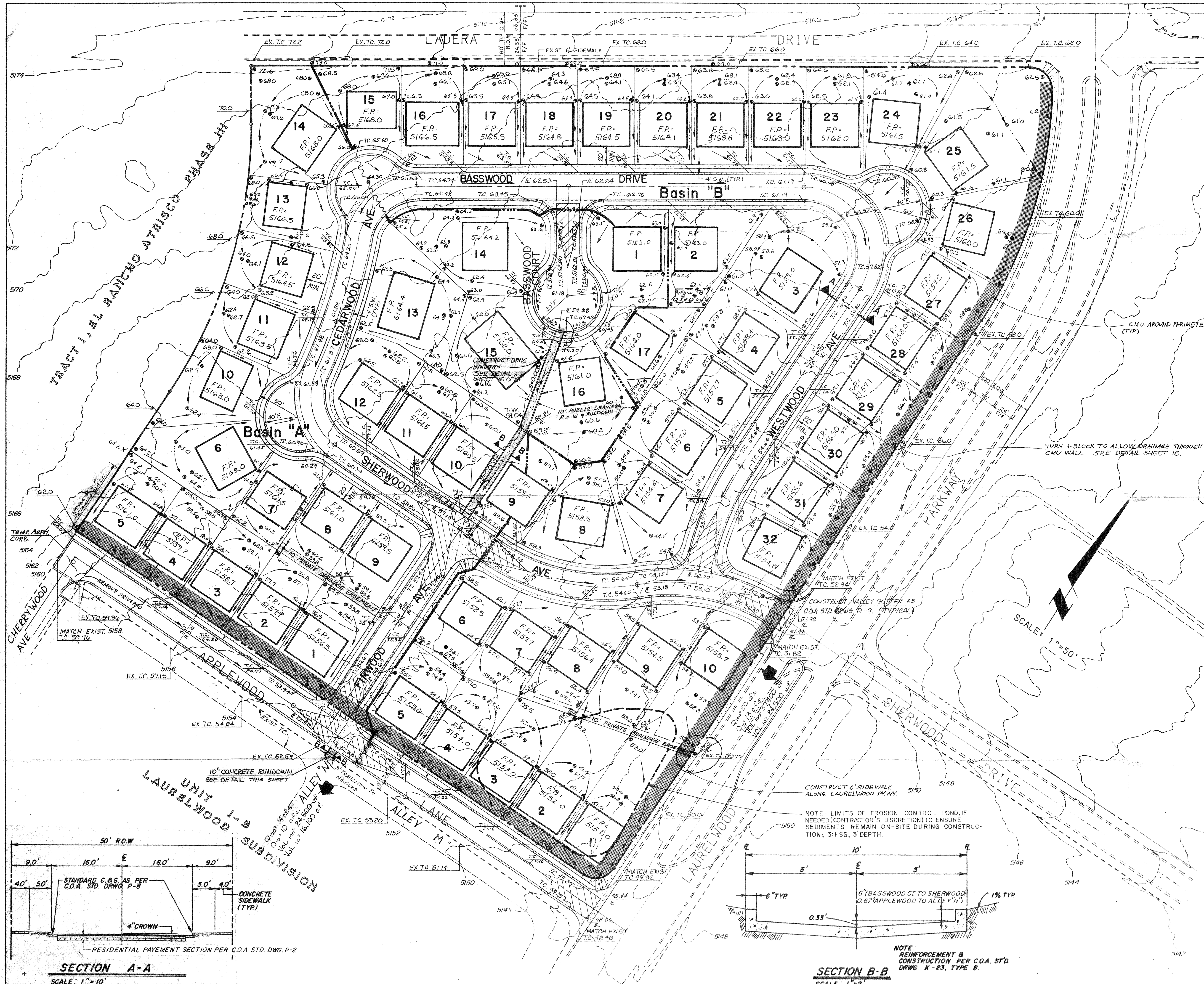
Donna Schwalbe  
Notary Public

(Approved by Legal Dept.  
as to form only-5/28/86)









**VICINITY MAP**  
SCALE: 1"=800'

**NOTE**  
1. THE FOLLOWING C.O.A. STD. DWGS. ARE APPLICABLE: P-2, P-8, P-9, P-10, P-13, P-16, P-17, P-23, K-22, K-23.  
2. A DRAINAGE REPORT IS AVAILABLE UPON REQUEST ON FILE AT CITY HYDROLOGY.  
3. ALL CURB AND GUTTER SHALL BE STANDARD PER C.O.A. STD DWGS.  
4. C.M.U. GARDEN WALL @ SIDE & REAR LOT LINES.

**LEGAL DESCRIPTION:**  
THE REMAINING PORTION OF TRACTS 2 AND TRACT 3, EL. RANCHO ATARSCO, PHASE III

**LEGEND**

- WATER BLOCK
- EXIST. CURB & GUTTER
- PROPOSED CURB & GUTTER
- EXIST. SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- PROPOSED TOP CURB ELEV.
- FINISH PAD ELEVATION
- BASIN BOUNDARY
- PROPOSED SWALE
- FLOW DIRECTION
- PRIVATE DRAINAGE EASEMENT
- GRADE BREAK
- 50' CROWN TRANSITION
- EROSION CONTROL BERM

**ESPEY, HUSTON & ASSOC., INC.**  
Engineering & Environmental Consultants  
4801 INDIAN SCHOOL ROAD NE SUITE 204  
ALBUQUERQUE, NEW MEXICO 87110  
PHONE (505) 255-1825

**CITY OF ALBUQUERQUE**  
MUNICIPAL DEVELOPMENT DEPARTMENT  
ENGINEERING DIVISION

**TITLE:** CIELO GRANDE SUBDIVISION  
OVERALL GRADING, DRAINAGE & PAVING PLAN 30 1986

APPROVALS	ENGINEER	DATE	APPROVALS	HYDROLOGY STATION
City Engineer			Liquid Waste	
A.C.E. Design			Traffic	
A.C.E. Hydrology			Water	

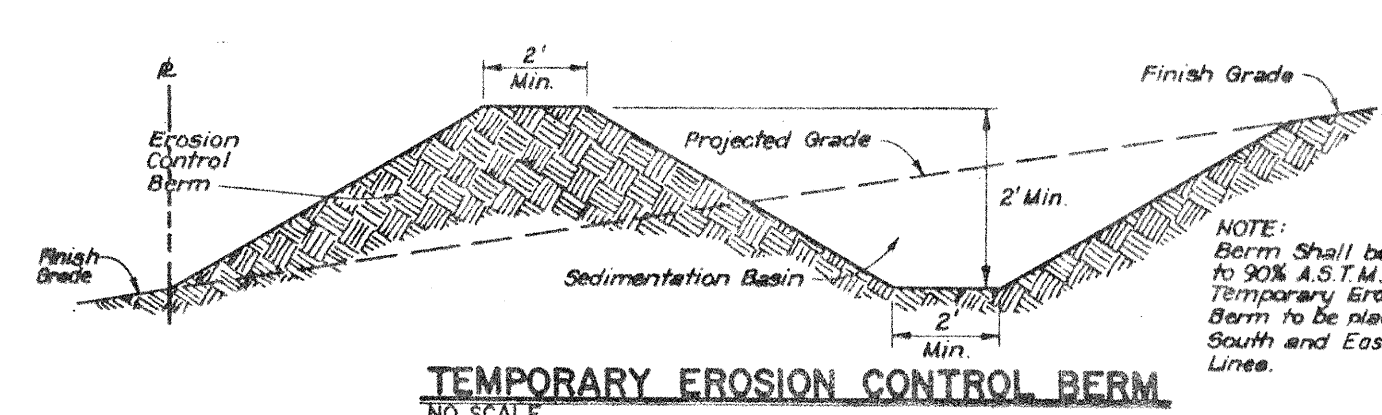
**REVISIONS**

NO.	DATE	REMARKS
1	7/2/86	ADDED TC'S @ R. REV. LOT LINES IN BAY C.
2	6/10/86	PER HYDRO. COMMENTS ON 6/3/86

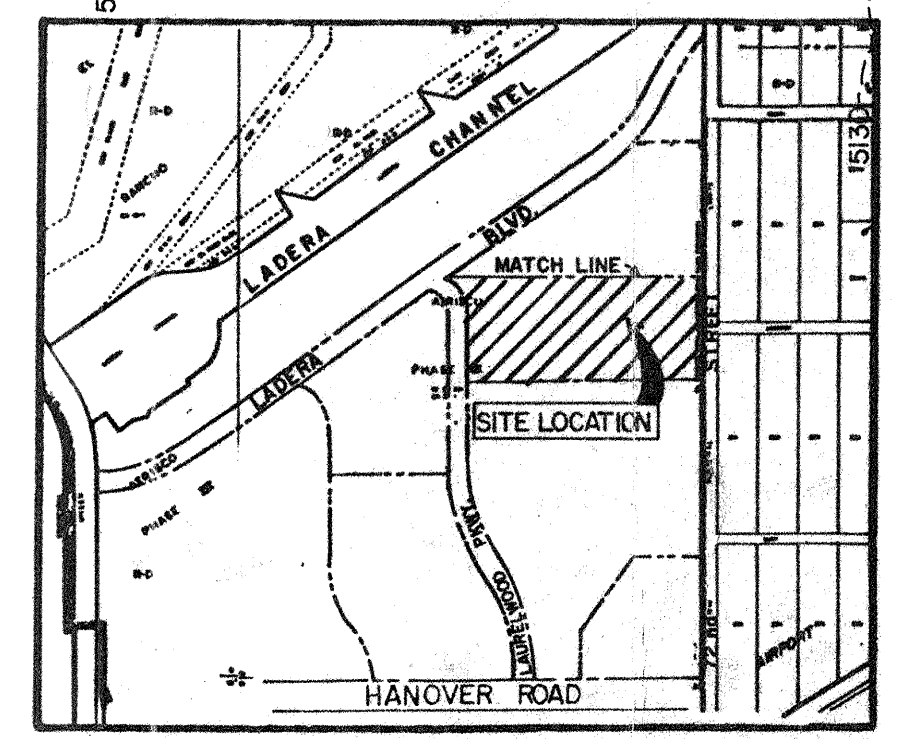
**DESIGNED BY:** P.W.C. **DATE:** 5/22/86  
**DRAWN BY:** M.E.C. **DATE:** 5/22/86  
**CHECKED BY:** J.L. **DATE:** 5/23/86

**DRAWING NO:** H-10 **SHEET 1 OF 3**





- LEGEND**
- FP=5162.0 FINISH PAD ELEVATION
  - BASIN BOUNDARY
  - PROPOSED SWALE
  - FLOW DIRECTION
  - EXIST. UTIL EASEMENT
  - GRADE BREAK
  - 50' CROWN TRANSITION
  - WATER BLOCK
  - EXIST. CURB & GUTTER
  - PROPOSED CURB & GUTTER
  - EXIST. SPOT ELEVATION
  - PROPOSED SPOT ELEVATION
  - PROPOSED TOP CURB ELEV.
  - EROSION CONTROL BERM
  - RETAINING WALL



**CITY OF ALBUQUERQUE**  
**MUNICIPAL DEVELOPMENT DEPARTMENT**  
**ENGINEERING DIVISION**

**TITLE:** LABERA VILLAGE SUBDIVISION  
INTERIM GRADING, DRAINAGE, PAVING AND EROSION CONTROL PLAN

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer			Liquid Waste		
A C E - Design			Traffic		
A C E - Hydrology			Water		

**DRAWING NO.** H-10 **MAP NO.** H-10 **SHEET NO.** 3

**DESIGNED BY:** P.W.C. **DATE:** 6/19/86  
**DRAWN BY:** M.E.C. **DATE:** 6/19/86  
**CHECKED BY:** D.L. **DATE:** 6/19/86

**REVISIONS**

NO.	DATE	REMARKS
1		DESIGN

**AS BUILT INFORMATION**

**BENCH MARKS**  
THE STATION IS LOCATED 45 MILES NORTHWEST OF DOWNTOWN ALBUQUERQUE, NEW MEXICO. TO REACH THE STATION FROM THE INTERSECTION OF I-40 AND COORS ROAD, GO NORTH ON COORS ROAD 0.4 MILE TO OUBAY ROAD. TURN LEFT, GO WEST ON OUBAY ROAD 0.8 MILE. TURN LEFT, GO SOUTH TO THE TOP OF THE DETENTION DAM. TURN LEFT, GO WEST ALONG THE SOUTHWEST SIDE OF THE DAM AND THE SOUTHERLY DRAINAGE CHANNEL 0.75 MILES TO ANOTHER DETENTION DAM. CONTINUE SOUTHEAST ALONG THE TOP OF THE DAM APPROXIMATELY 500 FEET TO THE STATION. THE STATION MARK IS A STANDARD ACS BRASS TABLET, STAMPED "3-HIO" SET IN A CONCRETE POST FLUSH WITH THE GROUND.

**SURVEY INFORMATION**

**FIELD NOTES**

NO.	DATE	BY

**ENGINEER'S SEAL**

**REVISIONS**

NO.	DATE	REMARKS
1		DESIGN

**ENGINEER'S SEAL**

**REVISIONS**

NO.	DATE	REMARKS
1		DESIGN