DRAINAGE REPORT

for

PUÑO de TIERRA ESTATES

Prepared For

ASI ES
201 Industrial Park Loop
Rio Rancho, NM 87124

January 1998

JAMES D. HYDE
11674
NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER

2-98

RECEIVED
FEB 06 1998
HYDROLOGY SECTION

BERNALILLO COUNTY PUBLIC WORKS DIVISION

MEMORANDUM

DATE: August 2, 2000
TO: **Susan Calongne, P.E.** **CC:** Doug Hughes, P.E.
FROM: **Roger Paul, P.E.** RP
SUBJECT: **Puno de Tierra Subdivision**

The Bernalillo County Public Works Division, Technical Services Section, has inspected the construction of improvements within the Tom Tenorio Park related to drainage infrastructure for the Puno de Tierra Subdivision, Unit 1. The work has been completed, reviewed, and approved by a BCPWD inspector on August 2, 2000. Therefore, the construction obligations of the developer related to the use of and construction within Tom Tenorio Park in conjunction with the Puno de Tierra Subdivision, Unit 1 are complete.

If you should have any questions regarding this matter, please do not hesitate to contact me.

8-14-00

All issues have been addressed – County Approval letter provided. OK to release the financial guarantees for this project.

– SMC

LETTER OF TRANSMITTAL

M-10/D013

D. Mark Goodwin & Associates, P.A.
Consulting Engineers
P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200 FAX 797-9539
e-mail: dmg@swcp.com

DATE 8-3-00 JOB NO.

ATTENTION Susan Colongne

RE: Pueo De Tierra

TO City of Albuquerque Hydrology

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
			Copy of County Grading As-Built
			" " " Application
			" " " Approval

THESE ARE TRANSMITTED as checked below:

~~☐ For approval~~ ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☒ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☒ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
~~☐ For review and comment~~ ☐ _____
☐ FOR BIDS DUE _____ 19 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS Attached are recent submitals and approvals from Bernalillo County.
Please release the financial guarantees

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COPY TO _____

SIGNED: Doug Hughes

If enclosures are not as noted, kindly notify us at once.

BERNALILLO COUNTY

PERMIT APPLICATION

PWD (Use for all PWD permits EXCEPT Street Excavation)

☐ NEW SUBMITTAL

☒ RESUBMITTAL

TODAY'S DATE: 7-21-00

CASE NO: PWD 98-26

OWNER

OWNER	Melendez Concrete	PHONE	896-3821
MAILING ADDRESS	506 Rio Rancho	CITY Rio Rancho	ZIP 87124

AGENT

AGENT / CONTRACTOR	Mark Goodwin & Assoc.	PHONE	828-2200
MAILING ADDRESS	P.O. Box 90606	CITY Albq.	ZIP 87199
STATE LICENSE NO.	EXP DATE	VOLUME	CLASS
ARCHITECT/ENGINEER	Doug Hughes	LICENSE NO.	PHONE

SITE INFORMATION

SITE ADDRESS and/or DIRECTIONS:
Tom Tonorio Park on Arenal Rd.

ZONE ATLAS NO.: M-10

LEGAL DESCRIPTION:
Tract 1A, San Jose Arenal Subdivision

UNIFORM PROPERTY CODE (UPC No.):

PROPERTY SIZE IN ACRES: 28

EXISTING BUILDING(S) AND USE:

PROPOSED BUILDING(S):

TYPE OF SUBMITTAL

- ☐ REPLAT
- ☐ MINOR SUBDIVISION
- ☐ MAJOR SUBDIVISION
- ☐ CONSTRUCTION DRAWINGS
- ☐ GRADING & DRAINAGE PLAN
- ☒ AS-CONSTRUCTED GRADING & DRAINAGE PLAN
- ☐ VARIANCE REQUEST
- ☐ LAND DIVISION
- ☐ TRAFFIC IMPACT ANALYSIS / TRAFFIC STUDY
- ☐ INFRASTRUCTURE LIST / DESIGN REVIEW
- ☐ SPECIAL USE PERMIT
- ☐ BARRICADING PERMIT
- ☐ BUILDING PERMIT
- ☐ INSPECTION
- ☐ OTHER (Specify):

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The issuance of a permit or a review or approval of plan specifications, computations, and shop drawings, shall not be interpreted to be a permit for, or an approval of any variance or violation of any of the provisions of any COUNTY or STATE codes, ordinances, standards, or policies. Nor shall such issuance of a permit or approval of plans, specifications, computations, and shop drawings prevent any authorized COUNTY representative or COUNTY inspector form thereafter requiring the correction of errors in said plans, specifications, computations, or shop drawings or from stopping construction operations which are being carried on thereunder when in violation of any COUNTY or STATE codes, ordinances, standards, or policies.

☐ Owner ☒ Agent ☐ Contractor Signature James D. Begley Date 7-21-00

COUNTY

BERNALILLO COUNTY USE ONLY

C/R's:		TOTAL FEE:	
		Receipt No.:	
		Received By:	

ELEVATION (FT)	AREA (SQ. FT.)	AREA (ACRES)	A1+A2+SQR(A1*A2) (ACRES)	VOLUME (ACRE-FT)	VOLUME SUM (ACRE-FT)
ASBUILT POND @ TENARIO PARK FOR PUNO DE TIERRA ESTATES 5-3-00 by JDH					
72.00	10945	0.251	0.000	0.000	0.000
82.00	29564	0.679	1.343	4.476	4.476
83.00	33993	0.780	2.187	0.729	5.205

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Bernalillo County
Public Works Division

2400 Broadway, SE
Albuquerque, NM 87102
FAX – (505) 848-1510

Fax

To:	Susan Calongne	**From:**	Roger Paul (505) 848-1515
Fax:	924-3864	**Pages:**	2
Phone:	924-3982	**Date:**	08/03/00
Re:	Puno de Tierra Subdivision, Unit 1	**CC:**	Doug Hughes (797-9539 – fax)

☐ **Urgent** X **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

Here is a memorandum that contains the requested approval for the Rayo del Sol Subdivision, Unit 1. I'll get you an original later today. Let me know if you need anything else.....RAP.

R Paul

BERNALILLO COUNTY PUBLIC WORKS DIVISION

MEMORANDUM

DATE: August 2, 2000
TO: Susan Calongne, P.E.
FROM: Roger Paul, P.E. RP
SUBJECT: Puno de Tierra Subdivision

CC: Doug Hughes, P.E.

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DRAINAGE INFORMATION SHEET

M-10/D13A

PROJECT TITLE: Puno De Tierra Estates ZONE ATLAS/DRNG,FILE#: M-10

DRB #: 97-498 EPC #: WORK ORDER #:

LEGAL DESCRIPTION: Tract 1-A San Jose Arenal

CITY ADDRESS: Arenal Rd between Unser Blvd. & Coors Blvd.

ENGINEERING FIRM: Mark Goodwin & Associates, PA CONTACT: Doug Hughes

ADDRESS: P.O. Box 90606, Albuquerque, NM 87199 PHONE: 828-2200

OWNER: A.S.I.- ES. CONTACT: Francisco Melendez

ADDRESS: 201 Industrial Park Loop, Rio Rancho, NM 87124 PHONE: 264-2824

ARCHITECT: CONTACT:

ADDRESS: PHONE:

SURVEYOR: CONTACT:

ADDRESS: PHONE:

CONTRACTOR: CONTACT:

ADDRESS: PHONE:

TYPE OF SUBMITTAL:

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

PRE-DESIGN MEETING:

YES
NO
COPY PROVIDED
X MAYBE

CHECK TYPE OF APPROVAL SOUGHT:

SKETCH PLAT APPROVAL
X PRELIMINARY PLAT APPROVAL
S. DEV. PLAN FOR SUB'D APPROVAL
S. DEV. PLAN FOR BLDG PERMIT APPROVAL
SECTOR PLAN APPROVAL
X FINAL PLAT APPROVAL
FOUNDATION PERMIT APPROVAL
BUILDING PERMIT APPROVAL
CERTIFICATION OF OCCUPANCY APPROVAL
X GRADING PERMIT APPROVAL
PAVING PERMIT APPROVAL
S.A.D. DRAINAGE REPORT
DRAINAGE REQUIREMENTS
OTHER (Specify)

DATE SUBMITTED: 10-19-01

BY: Doug Hughes, PE

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HYDROLOGY SECTION

CITY OF
Albuquerque

February 25, 1998

Doug Hughes, P.E.
Mark Goodwin & Associates, PA
Post Office Box 90606
Albuquerque, New Mexico 87199

RE: Drainage Report and Grading and Drainage Plan for Puno De Tierra Estates, Tract 1-A San Jose Arenal (M10/D13) Engineer's Stamp Dated 1/30/98 on Report and 2/6/98 on Plans.

Dear Mr. Hughes:

The above referenced submittal is inadequate for Preliminary or Final Plat approval. As you know, no grading will be allowed until DRB approves the Preliminary Plat. Prior to Plat approval, the report must be updated to address the following comments:

1. Since this subdivision drains into the County, concurrence must be obtained from County Public Works and County Parks and Recreation prior to DRB approval. The plan identifies permanent ponds and storm drains located within the County. Please identify who will maintains these improvements.

2. It appears that the north pond is located outside of the subdivision boundaries. Is this to be in a public drainage easement or public right-of-way? Who will maintain this retention pond in the interim? Will the County ultimately maintain this pond? These issues must be resolved prior to Preliminary Plat approval.

3. Where is the south temporary retention pond located? Sheet 4 shows the pond within the subdivision, however, Sheet 2 shows the pond in Tom Tenorio Park. How will the runoff from the streets enter this pond in the interim condition?

4. The report must clearly identify the ultimate drainage systems as well as the interim improvements. Both the interim and ultimate improvements must be included on the Infrastructure List. Please provide a copy of the Infrastructure List.

5. What is the status of the Arenal Road/Coors Boulevard intersection improvements project? Has the master plan been approved? When are the improvements to be built? Please provide all information from the master plan pertaining to the design of the ultimate storm drain systems that this subdivision uses. Is downstream capacity an issue? Provide the basin maps and calculations from the master plan. How does the design of this subdivision compare with the master plan?

February 25, 1998

6. Provide a schematic of the ultimate storm drain system. Where does the 18" RCP shown on Sheet 3 go?

7. Address the street flows in the north half of Arenal Road. Where does this runoff go in the interim and in the ultimate conditions? How does it get into the proposed ponds?

8. It appears in Section D-D that you are proposing to grade a swale within the Amole Del Norte right-of-way. Is this swale to be maintained by the City? Where is the water in this swale intercepted? Concurrence from City Storm Drain Maintenance will be required in order to grade within City right-of-way. How deep is the runoff in the swale?

9. Where is Section E-E? This was not provided on any of the sheets. Provide the existing grades around the perimeter of the cemetary to demonstrate that runoff from the subdivision will not impact it.

10. Where does the runoff from Dona Barbara Avenue go?

11. Provide the existing grades along the perimeter on the north side. It is not clear from the plan where off-site flows from the adjacent subdivision go. Is a perimeter wall proposed along the north boundary?

If you have any questions regarding these comments, please call me at 924-3982.

Sincerely,

Susan M. Calongne, P.E.
City/County Floodplain Administrator

c: Brad Catanach, Bernalillo County Public Works Division
File

TO: SUSAN CALONGNE FROM: B. CATANACH

924-3864

Bernalillo County Public Works Division
Case File Comments

Case Number PWD 98 26

Date	Functional Area
18-Feb-98	DRAN

1. Existing topography shows part of basin 212 impacting basin 210. Is there a berm that diverts basin 212 flows from impacting basin 210.

2. Street Flow Summary Table, basins A through I are not clear on the provided plans.

3. Sheet 2 of 4 shows section E on the plan, no section E detail is provided.

4. The entire basin 210 and part of 211 drains to pipes 7 through 12. Basin 210 has a 100-year discharge of 54.43 cfs, however pipe 12 is not designed for this discharge nor are pipes 7 through 11 designed for a reasonable percentage of this discharge.

5. Sheet 1 of 4 shows proposed upgrades to Arenal with the subdivision draining directly on to Arenal. How will these flows be diverted into the South Pond? What is the size of the South Pond? Prior to discharging flows into Tom Tenorio Park, approvals letters will have to be obtained from BC Parks and Recreation Division.

DRAINAGE INFORMATION SHEET

New

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DRB #: 97-498 EPC #: _____ WORK ORDER #: _____

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OWNER: A.S.I.- ES. CONTACT: Francisco Melendez

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ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

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___ DRAINAGE PLAN
___ CONCEPTUAL GRADING & DRAINAGE PLAN
X GRADING PLAN
X EROSION CONTROL PLAN
___ ENGINEER'S CERTIFICATION
___ OTHER

PRE-DESIGN MEETING:

___ YES
___ NO
___ COPY PROVIDED
X MAYBE

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___ SKETCH PLAT APPROVAL
X PRELIMINARY PLAT APPROVAL
___ S. DEV. PLAN FOR SUB'D APPROVAL
___ S. DEV. PLAN FOR BLDG PERMIT APPROVAL
___ SECTOR PLAN APPROVAL
X FINAL PLAT APPROVAL
___ FOUNDATION PERMIT APPROVAL
___ BUILDING PERMIT APPROVAL
___ CERTIFICATION OF OCCUPANCY APPROVAL
X GRADING PERMIT APPROVAL
___ PAVING PERMIT APPROVAL
___ S.A.D. DRAINAGE REPORT
___ DRAINAGE REQUIREMENTS
___ OTHER _____ (Specify)

DATE SUBMITTED: 2-6-98

BY: Doug Hughes
Doug Hughes, PE

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HYDROLOGY SECTION

TABLE OF CONTENTS

I. Purpose of Report

II. Existing Conditions

III. Proposed Management Plan

LIST OF CALCULATIONS AND EXHIBITS

- Summary of Hydrology Table
- Street Flow Summary Table
- Inlets on Grade
- Inlets in Sump
- Emergency Overflow
- Basin Map
- AHYMO
  - Summary Output - 10 year
  - Summary Output - 100 year
  - Input Data - 100 year
  - Output Data - 100 year
- Pond Volume Calculations
- DPM Nomographs
- Grading & Drainage Plan

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PURPOSE

The purpose of this report is to demonstrate the adequacy of the proposed drainage to allow this site to be subdivided into 137 single-family, detached residential lots (zoned R-1), and so the associated public drainage infrastructure can be constructed and turned over to the City of Albuquerque for maintenance. This is not a County subdivision.

EXISTING CONDITIONS

The project comprises an on-site area of 28.27 acres within the City of Albuquerque, that slopes from west to east at approximately 1% - 2%. It is bounded on the west by the Amole del Norte channel which prevents off-site flows from entering this site. It is bounded on the east by private property in Bernalillo County that has no existing drainage improvements. It is bounded on the south by Arenal Road, a major arterial road. And finally, it is bounded on the north by Southwestern Skies Addition, a county subdivision with neither storm sewer, nor paved streets and, under existing conditions there is no drainage across this common boundary. This entire project is located in flood hazard zone "X" (unshaded), thus indicating no floodplain per Flood Insurance Rate Map (FIRM) panel 337, effective September 20, 1996.

Adjacent drainage management plans that have been previously approved include:

1. *"The Drainage Management Study of the North/South Coors Connection," 1983*
2. *"Arenal Road/Coors Blvd Intersection Drainage Report," 1994, and the Environmental Assessment, 1996*
3. *"The Drainage Report for Rayo del Sol Subdivision," 1997*

where does it go?

PROPOSED MANAGEMENT PLAN

No offsite flows enter this property. A portion of the cemetary flows into Dona Barbara Ave. at the east edge of this site. On-site flows are collected by the streets to two low points, one in the north half and the other in the south half. There they are collected in a city storm sewer which conveys the flows underground to temporary retention ponds, one located in the southeast corner of the site and the other adjacent to the northeast corner of the project.

where? in County parks?

The south temporary retention pond will be removed after the Arenal Road/Coors Blvd masterplanned intersection improvements are constructed. The temporary retention pond is to be constructed with Unit 1 and will be sized for the drainage from both Units 1 and 2, and the north half of Arenal Road adjacent to Unit 1.

The north temporary retention pond will be converted into a permanent detention pond after Bernalillo County completes the masterplanned outfall in Eduardo Road, and the masterplanned pond on Coors Blvd just south of the Eduardo intersection. The temporary retention pond is to be constructed with Unit 3 and will be sized for the drainage from both Units 3 & 4 and the portion of the cemetary that drains there (ie...Basins 210 & 211).

Reference Master plan

Status?

County Concurrence?

SUMMARY OF HYDROLOGY

(From AHYMO and Equation 9 and Table 3 of DPM Sec. 22.2)

Basin No.	Area (Ac.)	Area (Sq. Mi.)	Land Treatment (%)					100 Year		
			Description	A	B	C	D	Q (cfs)	V_{360} (Ac.Ft.)	V_{10day} (Ac.Ft.)
210	16.00	0.02500	Res. (4.8 du/ac)	0	34	18	48	54.43	1.850	2.740
211	15.13	0.02364	Cemetary	0	62	31	7	38.35	1.121	1.244
212	35.58	0.05559	Res. (2.5 du/ac)	0	46	24	30	107.56	3.468	4.704
213	18.36	0.02869	Undeveloped (5.0 du/ac assumed)	0	33	17	50	63.18	2.159	3.222
214	17.79	0.02780	Undeveloped (5.0 du/ac assumed)	0	33	17	50	61.22	2.092	3.122
220	15.51	0.02423	Res. (4.8 du/ac)	0	34	18	48	52.76	1.793	2.655
221	3.13	0.00489	Arterial Street	0	10	10	80	12.83	0.465	0.755
222	9.75	0.01523	Park	0	62	31	7	24.71	0.722	0.801
38.3	1.58	0.00247	Slopes	0	50	50	0	4.00	0.113	0.113

100 YEAR PRECIPITATION

(From Figures D, E and F, and Eq. 28 of DPM 22.2)

$P_{60} = 1.92''$, $P_{360} = 2.25''$, $P_{1440} = 2.65''$, $P_{10days} = 10.0-[24.9/(2.65'')^{1.4}] = 3.64''$

TABLE 1 — STREET FLOW SUMMARY TABLE

Basin No.	Area Acres	% of Total	100 Year Flow (cfs)		Curb Type / Slope %	Flow Depth ft. (1)	Velocity fps	Energy Depth ft. (2)
			Increment.	Cumm.				
A	2.63	16.96	8.95	—	Roll / 0.70%	0.32	2.0	0.38
B	2.32	14.96	7.89	—	Roll / 1.76%	0.25	2.8	0.37
C	3.04	19.60	10.34	27.18	Std. / 0.50%	0.55	2.7	0.66
D	2.84	18.31	9.66	—	Roll / 1.72%	0.28	2.9	0.41
D				36.841	Std. / 1.72%	0.49	4.4	0.79
E	4.68	30.17	15.92	52.76				
TOTAL BASIN 220	15.51	100.00	52.76					
F	3.44	21.50	11.70	—	Roll / 0.60%	0.33	2.0	0.39
G	3.63	22.69	12.35	—	Roll / 0.69%	0.33	2.2	0.41
H	5.70	35.63	19.39	43.44	Std. / 0.60%	0.62	3.4	0.80
I	3.23	20.19	10.99	54.43				
TOTAL BASIN 210	16.00	100.00	54.43		—			
211	15.13	100.00	38.35	92.78				
212	35.58	100.00	107.56					
221	2.40	100.00	12.8cfs		Std./ 1.72%	0.37	3.3	0.52
			10 Year Flow (cfs)					
221	2.40	100.00	8.14	—	Std. / 1.72%	0.32(3)	2.8	0.44

(1) Flow depths are taken from Plate 22.3 D-1 of the DPM and reduced by 3/4" for roll curb types to account for the difference in gutter depression. Allowable depths may not exceed curb heights which are 0.33' for roll curb and gutter and 0.67' for standard curb and gutter.

(2) Energy depth is calculated as flow depth plus energy head. Allowable depths are 0.18' above top of curb, unless the street section is modified to contain the additional height within the right-of-way.

(3) Spread of water for 10 year flow in Arenal is 11.75' allowing 0.125' across first 2' from curb face (1.5" gutter) and 0.195' rise across the next 9.75' at 2.0%. This meets DPM criteria for arterial streets leaving more than one of the two lanes open.

INLETS ON GRADE (#1, 2, 5 and 6)

DESCRIPTION	INLET #	DEPTH [1] FT.	SLOPE [1] (%)	Q APPROACH (cfs)	Q INTERCEPTED [2] (cfs)	BY-PASS (cfs)
Single A	1	0.37'	1.74%	6.4	3.95	2.45
Double C	2	0.28'	1.74%	2.45	2.45	0.00
Single A	6	0.62'	0.60%	21.77	7.10	14.67
Single A	7	0.62'	0.60%	21.77	7.10	14.67
Single C	8	0.55'	0.60%	14.67	5.95	8.72
Single C	9	0.55'	0.60%	14.67	5.95	8.72
Single C	10	0.46'	0.60%	8.72	4.05	4.67
Single C	11	0.46'	0.60%	8.72	4.05	4.67
	TOTAL				38.6	58.57

(1) *From Table 1*

(2) *From Plat 22.3 D-5 for single grates and D-6 for double grates*

INLETS IN SUMP

Capacity is measured by the weir equation at the lip of the gutter assuming an allowable ponding elevation equal to the lowest adjacent right-of-way elevation. The length of the double grate facing the street is 6.5± and the depth is 0.725' at the lip of the gutter. The sides are each 2' long (4' total) and the average depth is 0.892'*. From the weir equation:*

(Front) $Q_{CAP} = 3.0 \times 6.5' \times 0.725^{1.5} = 12.04$ *cfs*
(Sides) $Q_{CAP} = 3.0 \times 4.0' \times 0.892^{1.5} = 10.11$ *cfs*
(Total) $Q_{CAP} = 12.04$ *cfs + 10.11 cfs = 22.15 cfs (Double Grate Capacity)*
* ***Note:*** *These depths assume standard 8" curb with the right-of-way 9' behind the curb and 0.18' above the top of curb.*

SOUTH SUMP INLETS #3, 4 & 5

The 100-year flow to sump inlets #3, 4 and 5 is 54.43 cfs. There are three (3) sump inlets with a combined capacity of 66.45 cfs thus providing a safety factor that would allow 18% of the inlets to clog without exceeding the normal design criteria. For HGL calculations, each inlet is assumed to take one third of the 100-year flow (18.14 cfs each).

SOUTH EMERGENCY OVERFLOW

The south sump has a 35' wide emergency overflow spillway designed to handle the 100-year flow (54.43 cfs) from the south half of the development, in the event that the storm sewer system failed completey. The depth of flow in the emergency overflow spillway is given by the broad crested weir equation as:

Emergency Overflow $Q = 54.43$ *cfs* $= 2.7 \times 35' \times (depth)^{1.5}$
south depth = 0.69'

This depth is measured above the right-of-way elevation. The pads in the sump area are set 1.2' above the right-of-way, thus allowing 6"± for construction tolerances. The emergency overflow swale is at a 0.5% slope, 35' wide, and has the following capacity at a 0.69' depth:

(From Manning's) $Q_{CAP} = (1.486/0.03) \times (35' \times 0.69') \times (0.69')^{0.67} \times (0.005)^{0.5} = 66.0$ *cfs* > 54.43 *(OK)*

NORTH SUMP INLETS #12, 13 & 15

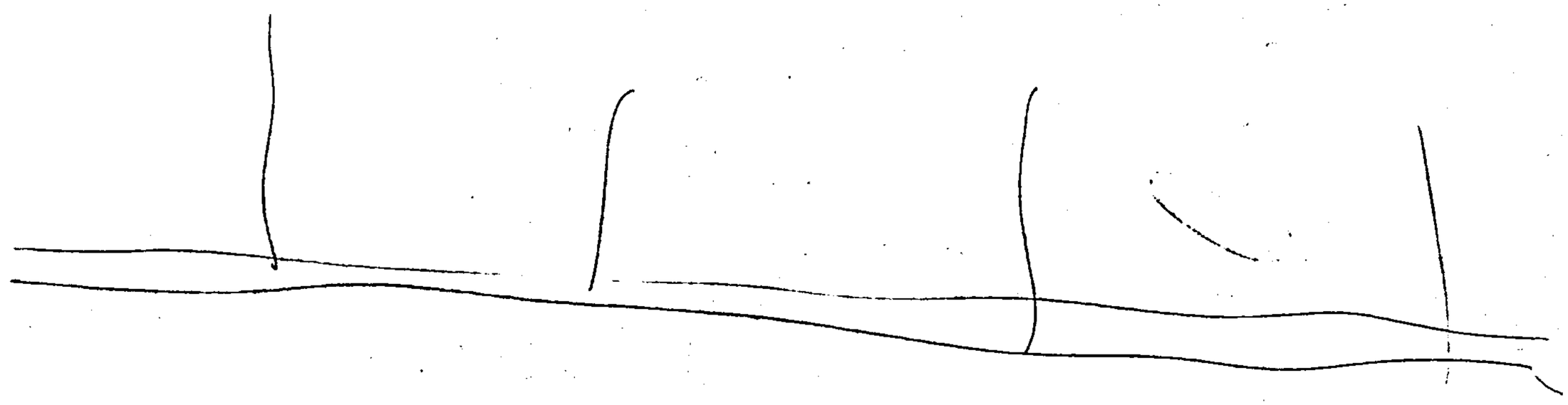
The 100-year flow to sump inlets #13, 14 and 15 is 58.68 cfs which includes 9.34 cfs bypass flow from inlets #6 thru #11 plus the 38.35 cfs from the offsite property to the south, plus 10.99 cfs from future onsite Basin I. There are three (3) sump inlets with a combined capacity of 66.45 cfs thus providing a safety factor that would allow 12% of the inlets to clog without exceeding the normal design criteria. For HGL calculations, each inlet is assumed to take one third of the 100-year flow (19.56 cfs each).

NORTH EMERGENCY OVERFLOW

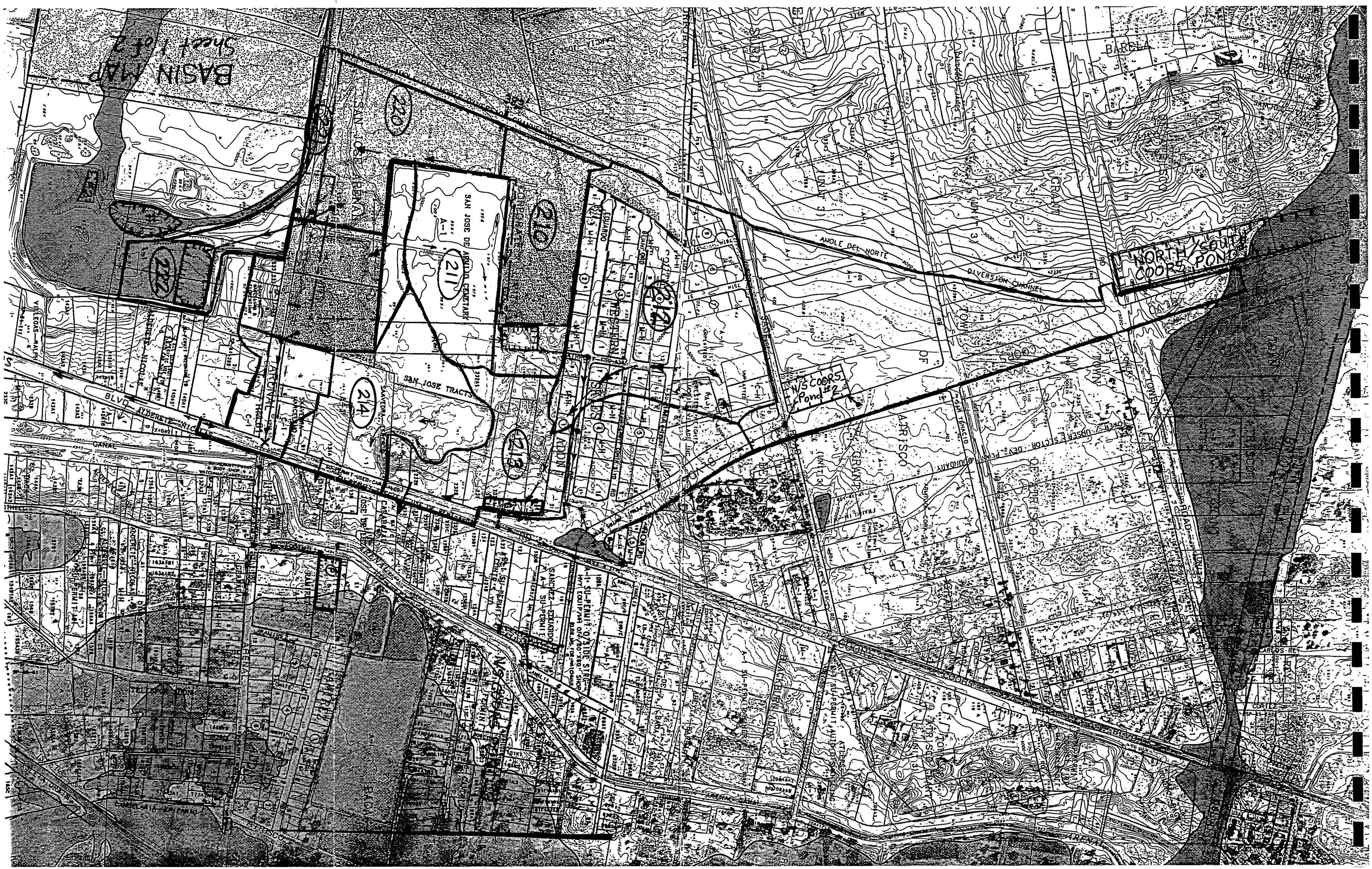
The sump has a 50' wide emergency overflow spillway that is formed by the crest in Airport Drive to the north. It is designed to handle the 100-year flow (92.78 cfs) from the entire north half of this development in the event that the storm sewer system failed completey. The depth of flow in the emergency overflow spillway is given by the broad crested weir equation as:

Emergency Overflow $Q = 92.78$ *cfs* $= 2.7 \times 50' \times (depth)^{1.5}$
depth = 0.78'

This depth is measured above the right-of-way elevation at the sump. The pads and temporary berm in the sump area are set 1.3' above the right-of-way, thus allowing 6"± for construction tolerances. Curb and Gutter in Edwardo would flow at about 0.87' depth at an average slope of 3% at a flow of 200.34 cfs unattenuated peak 100yr. flow, including flow from the existing 35.6 acre offsite basin to the north (basin #212). This might occur if the pond were somehow incapacitated and non-functioning as though it were not there at all (ie...an incredible emergency), and yet the flow stays in the right of way.



Basin 1
Basin 2
BARELA
CRAIG
ANDE DEL NORTE
DIVERSION CHANNEL
NORTH/SOUTH COORS POND
W/S COORS Pond #2
SAN JOSE DE ANDIO GRANT
A-1
SAN JOSE TRACT
BLVD. ALBERTO NICHOLAS
VILLEGAS ALPH
CANAL
ALBERTO NICHOLAS
ALBERTO NICHOLAS
ANTONIO TRUJILLO
SAN JOSE
SAN JOSE
SAN JOSE


BASIN MAP
Sheet 1 of 2
NORTH/SOUTH COORS POND
W/S COORS Pond #2
ANOLE DEL NORTE
DIVERSION CHANNEL
SAN JOSE DE ARGUELLO CEMETARY
SAN JOSE TRACTS
BARELA
CRAIG
GRANT
COONS
ARENAL
BLVD
CANAL
220
210
211
212
213
214
215
216
217

10-YEAR SUMMARY

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =01/20/1998
INPUT FILE = puno10.dat USER NO.= M_GOODWN.I01

PAGE = 1

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 1.500
COMPUTE NM HYD	210.00	-	1	.02500	31.25	1.023	.76725	1.499	1.953	PER IMP= 48.00
COMPUTE NM HYD	211.00	-	2	.02364	17.68	.467	.37017	1.532	1.169	PER IMP= 7.00
ADD HYD	211.90	1& 2	1	.04864	48.61	1.490	.57425	1.499	1.562	
COMPUTE NM HYD	212.00	-	1	.05559	56.97	1.760	.59350	1.499	1.601	PER IMP= 30.00
COMPUTE NM HYD	213.00	-	2	.02869	36.54	1.203	.78591	1.499	1.990	PER IMP= 50.00
ADD HYD	213.90	1& 2	1	.08428	93.50	2.962	.65899	1.499	1.733	
COMPUTE NM HYD	214.00	-	2	.02780	35.40	1.165	.78591	1.499	1.990	PER IMP= 50.00
ADD HYD	214.90	1& 2	1	.11208	128.91	4.127	.69047	1.499	1.797	
COMPUTE NM HYD	220.00	-	1	.02423	30.29	.991	.76725	1.499	1.953	PER IMP= 48.00
COMPUTE NM HYD	221.00	-	2	.00489	8.14	.282	1.08181	1.499	2.601	PER IMP= 80.00
ADD HYD	221.90	1& 2	1	.02912	38.43	1.274	.82005	1.499	2.062	
COMPUTE NM HYD	222.00	-	2	.01523	11.39	.301	.37017	1.532	1.169	PER IMP= 7.00
ADD HYD	222.90	1& 2	1	.04435	49.62	1.574	.66556	1.499	1.748	
COMPUTE NM HYD	38.30	-	2	.00247	1.85	.044	.33742	1.532	1.169	PER IMP= .00
FINISH										

100-YEAR SUMMARY

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =01/14/1998
INPUT FILE = PUNO99.DAT USER NO.= M_GOODWN.I01

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
START										PAGE = 1
										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.250
COMPUTE NM HYD	210.00	-	1	.02500	54.43	1.850	1.38769	1.499	3.402	PER IMP= 48.00
COMPUTE NM HYD	211.00	-	2	.02364	38.35	1.121	.88879	1.499	2.535	PER IMP= 7.00
ADD HYD	211.90	1& 2	1	.04864	92.78	2.971	1.14521	1.499	2.980	
COMPUTE NM HYD	212.00	-	1	.05559	107.56	3.468	1.16960	1.499	3.023	PER IMP= 30.00
COMPUTE NM HYD	213.00	-	2	.02869	63.18	2.159	1.41085	1.499	3.441	PER IMP= 50.00
ADD HYD	213.90	1& 2	1	.08428	170.74	5.626	1.25172	1.499	3.165	
COMPUTE NM HYD	214.00	-	2	.02780	61.22	2.092	1.41085	1.499	3.441	PER IMP= 50.00
ADD HYD	214.90	1& 2	1	.11208	231.96	7.718	1.29119	1.499	3.234	
COMPUTE NM HYD	220.00	-	1	.02423	52.76	1.793	1.38769	1.499	3.402	PER IMP= 48.00
COMPUTE NM HYD	221.00	-	2	.00489	12.83	.465	1.78396	1.499	4.101	PER IMP= 80.00
ADD HYD	221.90	1& 2	1	.02912	65.59	2.258	1.45422	1.499	3.519	
COMPUTE NM HYD	222.00	-	2	.01523	24.71	.722	.88879	1.499	2.535	PER IMP= 7.00
ADD HYD	222.90	1& 2	1	.04435	90.30	2.980	1.26004	1.499	3.181	
COMPUTE NM HYD	38.30	-	2	.00247	4.00	.113	.85748	1.499	2.531	PER IMP= .00
FINISH										

100-YEAR INPUT DATA

```
START                TIME=0.0
***** PUNO DE TIERRA ESTATES
***** 100-YEAR 6-HOUR STORM EVENT
***** JAN. 15, 1998
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=1.92 IN RAIN SIX=2.25 IN
                     RAIN DAY=2.66 IN DT=0.0333 HR
COMPUTE NM HYD       ID=1 HYD NO=210.0 AREA=0.02500 SQ MI
                     PER A, B, C, & D 0 34 18 48
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
COMPUTE NM HYD       ID=2 HYD NO=211.0 AREA=0.02364 SQ MI
                     PER A, B, C, & D 0 62 31 7
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
ADD HYD              ID=1 HYD NO=211.9 ID=1 & 2
PRINT HYD            ID=1 CODE=1
COMPUTE NM HYD       ID=1 HYD NO=212.0 AREA=0.05559 SQ MI
                     PER A, B, C, & D 0 46 24 30
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
COMPUTE NM HYD       ID=2 HYD NO=213.0 AREA=0.02869 SQ MI
                     PER A, B, C, & D 0 33 17 50
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
ADD HYD              ID=1 HYD NO=213.9 ID=1 & 2
PRINT HYD            ID=1 CODE=1
COMPUTE NM HYD       ID=2 HYD NO=214.0 AREA=0.02780 SQ MI
                     PER A, B, C, & D 0 33 17 50
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
ADD HYD              ID=1 HYD NO=214.9 ID=1 & 2
PRINT HYD            ID=1 CODE=1
COMPUTE NM HYD       ID=1 HYD NO=220.0 AREA=0.02423 SQ MI
                     PER A, B, C, & D 0 34 18 48
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
COMPUTE NM HYD       ID=2 HYD NO=221.0 AREA=0.00489 SQ MI
                     PER A, B, C, & D 0 10 10 80
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
ADD HYD              ID=1 HYD NO=221.9 ID=1 & 2
PRINT HYD            ID=1 CODE=1
COMPUTE NM HYD       ID=2 HYD NO=222.0 AREA=0.01523 SQ MI
                     PER A, B, C, & D 0 62 31 7
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
ADD HYD              ID=1 HYD NO=222.9 ID=1 & 2
PRINT HYD            ID=1 CODE=1
COMPUTE NM HYD       ID=2 HYD NO=038.3 AREA=0.00247 SQ MI
                     PER A, B, C, & D 0 50 50 0
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
FINISH
```

100-YEAR OUTPUT

```
AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
     RUN DATE (MON/DAY/YR) = 01/14/1998
     START TIME (HR:MIN:SEC) = 16:15:50      USER NO.= M_GOODWN.I01
     INPUT FILE = PUNO99.DAT

START                TIME=0.0
***** PUNO DE TIERRA ESTATES
***** 100-YEAR 6-HOUR STORM EVENT
***** JAN. 15, 1998
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=1.92 IN RAIN SIX=2.25 IN
                     RAIN DAY=2.66 IN DT=0.0333 HR

          COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
          DT =     .033300 HOURS       END TIME =     5.994000 HOURS
             .0000   .0016   .0032   .0049   .0065   .0083   .0100
             .0118   .0137   .0156   .0175   .0195   .0216   .0237
             .0259   .0281   .0304   .0328   .0353   .0378   .0404
             .0432   .0460   .0489   .0520   .0552   .0586   .0621
             .0658   .0697   .0739   .0791   .0848   .0908   .1033
             .1320   .1762   .2399   .3268   .4412   .5872   .7690
             .9911  1.2043  1.2918  1.3654  1.4308  1.4902  1.5449
            1.5957  1.6431  1.6876  1.7294  1.7689  1.8062  1.8415
            1.8749  1.9066  1.9367  1.9653  1.9924  1.9998  2.0056
            2.0112  2.0165  2.0215  2.0264  2.0310  2.0355  2.0398
            2.0439  2.0479  2.0518  2.0556  2.0593  2.0628  2.0663
            2.0697  2.0729  2.0762  2.0793  2.0824  2.0853  2.0883
            2.0912  2.0940  2.0967  2.0994  2.1021  2.1047  2.1072
            2.1098  2.1122  2.1147  2.1171  2.1194  2.1217  2.1240
            2.1263  2.1285  2.1307  2.1328  2.1349  2.1370  2.1391
            2.1411  2.1432  2.1451  2.1471  2.1490  2.1510  2.1529
            2.1547  2.1566  2.1584  2.1602  2.1620  2.1638  2.1655
            2.1673  2.1690  2.1707  2.1724  2.1740  2.1757  2.1773
            2.1789  2.1805  2.1821  2.1837  2.1852  2.1868  2.1883
            2.1898  2.1913  2.1928  2.1943  2.1958  2.1972  2.1987
            2.2001  2.2015  2.2029  2.2043  2.2057  2.2071  2.2085
            2.2098  2.2112  2.2125  2.2138  2.2151  2.2165  2.2178
            2.2190  2.2203  2.2216  2.2229  2.2241  2.2254  2.2266
            2.2278  2.2290  2.2303  2.2315  2.2327  2.2339  2.2350
            2.2362  2.2374  2.2385  2.2397  2.2409  2.2420  2.2431
            2.2443  2.2454  2.2465  2.2476  2.2487  2.2498

COMPUTE NM HYD       ID=1 HYD NO=210.0 AREA=0.02500 SQ MI
                     PER A, B, C, & D 0 34 18 48
                     TP=0.1333 HR MASS RAINFALL=-1

     K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =    47.377    CFS    UNIT VOLUME =     .9991       B =    526.28      P60 = 1.9200
     AREA =       .012000 SQ MI    IA =     .10000 INCHES    INF =     .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300


     K =    .122497HR    TP =    .133300HR    K/TP RATIO =    .918954     SHAPE CONSTANT, N =  3.851978
     UNIT PEAK =    33.663    CFS    UNIT VOLUME =     1.000       B =    345.18      P60 = 1.9200
     AREA =       .013000 SQ MI    IA =     .44808 INCHES    INF =   1.10462 INCHES PER HOUR
```

```
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

PRINT HYD           ID=1 CODE=1

                                PARTIAL HYDROGRAPH   210.00


    RUNOFF VOLUME =      1.38769 INCHES      =       1.8502 ACRE-FEET
    PEAK DISCHARGE RATE =       54.43 CFS  AT   1.499 HOURS   BASIN AREA =   .0250 SQ. MI.


COMPUTE NM HYD      ID=2 HYD NO=211.0 AREA=0.02364 SQ MI
                    PER A, B, C, & D 0 62 31 7
                    TP=0.1333 HR MASS RAINFALL=-1

    K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =    6.5332    CFS   UNIT VOLUME =     .9975       B =   526.28      P60 = 1.9200
    AREA =       .001655 SQ MI    IA =     .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300


    K =    .122812HR    TP =    .133300HR    K/TP RATIO =    .921317     SHAPE CONSTANT, N =  3.841587
    UNIT PEAK =    56.813    CFS   UNIT VOLUME =     1.000       B =   344.47      P60 = 1.9200
    AREA =       .021985 SQ MI    IA =     .45000 INCHES    INF =   1.11000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

PRINT HYD           ID=2 CODE=1

                                PARTIAL HYDROGRAPH   211.00


    RUNOFF VOLUME =       .88879 INCHES      =       1.1206 ACRE-FEET
    PEAK DISCHARGE RATE =       38.35 CFS  AT   1.499 HOURS   BASIN AREA =   .0236 SQ. MI.


ADD HYD             ID=1 HYD NO=211.9 ID=1 & 2
PRINT HYD           ID=1 CODE=1

                                PARTIAL HYDROGRAPH   211.90


    RUNOFF VOLUME =      1.14521 INCHES      =       2.9708 ACRE-FEET
    PEAK DISCHARGE RATE =       92.78 CFS  AT   1.499 HOURS   BASIN AREA =   .0486 SQ. MI.


COMPUTE NM HYD      ID=1 HYD NO=212.0 AREA=0.05559 SQ MI
                    PER A, B, C, & D 0 46 24 30
                    TP=0.1333 HR MASS RAINFALL=-1

    K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =    65.842    CFS   UNIT VOLUME =     .9992       B =   526.28      P60 = 1.9200
    AREA =       .016677 SQ MI    IA =     .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300


    K =    .122578HR    TP =    .133300HR    K/TP RATIO =    .919561     SHAPE CONSTANT, N =  3.849309
```

```
    UNIT PEAK =   100.71    CFS   UNIT VOLUME =    1.000       B =   344.99      P60 = 1.9200
    AREA =      .038913 SQ MI    IA =    .44857 INCHES    INF =   1.10600 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD           ID=1 CODE=1

                                PARTIAL HYDROGRAPH   212.00

    RUNOFF VOLUME =     1.16960 INCHES     =       3.4676 ACRE-FEET
    PEAK DISCHARGE RATE =     107.56 CFS  AT   1.499 HOURS   BASIN AREA =   .0556 SQ. MI.


COMPUTE NM HYD      ID=2 HYD NO=213.0 AREA=0.02869 SQ MI
                    PER A, B, C, & D 0 33 17 50
                    TP=0.1333 HR MASS RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   56.635    CFS   UNIT VOLUME =    .9991       B =   526.28      P60 = 1.9200
    AREA =      .014345 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300


    K =   .122648HR    TP =   .133300HR    K/TP RATIO =   .920088     SHAPE CONSTANT, N =  3.846988
    UNIT PEAK =   37.109    CFS   UNIT VOLUME =    1.000       B =   344.84      P60 = 1.9200
    AREA =      .014345 SQ MI    IA =    .44900 INCHES    INF =   1.10720 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD           ID=2 CODE=1

                                PARTIAL HYDROGRAPH   213.00

    RUNOFF VOLUME =     1.41085 INCHES     =       2.1588 ACRE-FEET
    PEAK DISCHARGE RATE =      63.18 CFS  AT   1.499 HOURS   BASIN AREA =   .0287 SQ. MI.


ADD HYD             ID=1 HYD NO=213.9 ID=1 & 2
PRINT HYD           ID=1 CODE=1

                                PARTIAL HYDROGRAPH   213.90

    RUNOFF VOLUME =     1.25172 INCHES     =       5.6264 ACRE-FEET
    PEAK DISCHARGE RATE =     170.74 CFS  AT   1.499 HOURS   BASIN AREA =   .0843 SQ. MI.


COMPUTE NM HYD      ID=2 HYD NO=214.0 AREA=0.02780 SQ MI
                    PER A, B, C, & D 0 33 17 50
                    TP=0.1333 HR MASS RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   54.878    CFS   UNIT VOLUME =    .9991       B =   526.28      P60 = 1.9200
    AREA =      .013900 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300
```

```
    K =    .122648HR    TP =    .133300HR    K/TP RATIO =    .920088     SHAPE CONSTANT, N =  3.846988
    UNIT PEAK =    35.958    CFS   UNIT VOLUME =    1.000       B =   344.84      P60 = 1.9200
    AREA =       .013900 SQ MI    IA =     .44900 INCHES    INF =   1.10720 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

PRINT HYD           ID=2 CODE=1

                                  PARTIAL HYDROGRAPH   214.00

    RUNOFF VOLUME =     1.41085 INCHES     =       2.0918 ACRE-FEET
    PEAK DISCHARGE RATE =      61.22 CFS  AT   1.499 HOURS   BASIN AREA =   .0278 SQ. MI.


ADD HYD             ID=1 HYD NO=214.9 ID=1 & 2
PRINT HYD           ID=1 CODE=1

                                  PARTIAL HYDROGRAPH   214.90

    RUNOFF VOLUME =     1.29119 INCHES     =       7.7182 ACRE-FEET
    PEAK DISCHARGE RATE =     231.96 CFS  AT   1.499 HOURS   BASIN AREA =   .1121 SQ. MI.


COMPUTE NM HYD      ID=1 HYD NO=220.0 AREA=0.02423 SQ MI
                    PER A, B, C, & D 0 34 18 48
                    TP=0.1333 HR MASS RAINFALL=-1

    K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =    45.917    CFS   UNIT VOLUME =    .9991       B =   526.28      P60 = 1.9200
    AREA =       .011630 SQ MI    IA =     .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300


    K =    .122497HR    TP =    .133300HR    K/TP RATIO =    .918954     SHAPE CONSTANT, N =  3.851978
    UNIT PEAK =    32.626    CFS   UNIT VOLUME =    1.000       B =   345.18      P60 = 1.9200
    AREA =       .012600 SQ MI    IA =     .44808 INCHES    INF =   1.10462 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

PRINT HYD           ID=1 CODE=1

                                  PARTIAL HYDROGRAPH   220.00

    RUNOFF VOLUME =     1.38769 INCHES     =       1.7933 ACRE-FEET
    PEAK DISCHARGE RATE =      52.76 CFS  AT   1.499 HOURS   BASIN AREA =   .0242 SQ. MI.


COMPUTE NM HYD      ID=2 HYD NO=221.0 AREA=0.00489 SQ MI
                    PER A, B, C, & D 0 10 10 80
                    TP=0.1333 HR MASS RAINFALL=-1

    K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =    15.445    CFS   UNIT VOLUME =    .9986       B =   526.28      P60 = 1.9200
    AREA =       .003912 SQ MI    IA =     .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300
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```
K =    .118716HR     TP =    .133300HR     K/TP RATIO =    .890595      SHAPE CONSTANT, N =  3.982164
UNIT PEAK =    2.5971     CFS    UNIT VOLUME =     .9953        B =    353.98       P60 = 1.9200
AREA =       .000978 SQ MI     IA =     .42500 INCHES     INF =    1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

PRINT HYD            ID=2 CODE=1

                                PARTIAL HYDROGRAPH    221.00

RUNOFF VOLUME =      1.78396 INCHES      =          .4653 ACRE-FEET
PEAK DISCHARGE RATE =       12.83 CFS  AT    1.499 HOURS    BASIN AREA =    .0049 SQ. MI.

ADD HYD              ID=1 HYD NO=221.9 ID=1 & 2
PRINT HYD            ID=1 CODE=1

                                PARTIAL HYDROGRAPH    221.90

RUNOFF VOLUME =      1.45422 INCHES      =        2.2585 ACRE-FEET
PEAK DISCHARGE RATE =       65.59 CFS  AT    1.499 HOURS    BASIN AREA =    .0291 SQ. MI.

COMPUTE NM HYD       ID=2 HYD NO=222.0 AREA=0.01523 SQ MI
                     PER A, B, C, & D 0 62 31 7
                     TP=0.1333 HR MASS RAINFALL=-1

K =    .072649HR     TP =    .133300HR     K/TP RATIO =    .545000      SHAPE CONSTANT, N =  7.106420
UNIT PEAK =    4.2090     CFS    UNIT VOLUME =     .9965        B =    526.28       P60 = 1.9200
AREA =       .001066 SQ MI     IA =     .10000 INCHES     INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

K =    .122812HR     TP =    .133300HR     K/TP RATIO =    .921317      SHAPE CONSTANT, N =  3.841587
UNIT PEAK =    36.602     CFS    UNIT VOLUME =    1.000         B =    344.47       P60 = 1.9200
AREA =       .014164 SQ MI     IA =     .45000 INCHES     INF =    1.11000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

PRINT HYD            ID=2 CODE=1

                                PARTIAL HYDROGRAPH    222.00

RUNOFF VOLUME =       .88879 INCHES      =          .7219 ACRE-FEET
PEAK DISCHARGE RATE =       24.71 CFS  AT    1.499 HOURS    BASIN AREA =    .0152 SQ. MI.

ADD HYD              ID=1 HYD NO=222.9 ID=1 & 2
PRINT HYD            ID=1 CODE=1

                                PARTIAL HYDROGRAPH    222.90

RUNOFF VOLUME =      1.26004 INCHES      =        2.9804 ACRE-FEET
```

PEAK DISCHARGE RA[redacted]30 C[redacted]AT [redacted] 1.499 HOURS BASIN AREA = .0444 SQ. MI.

COMPUTE NM HYD ID=2 HYD NO=038.3 AREA=0.00247 SQ MI
PER A, B, C, & D 0 50 50 0
TP=0.1333 HR MASS RAINFALL=-1

K = .118716HR TP = .133300HR K/TP RATIO = .890595 SHAPE CONSTANT, N = 3.982164
UNIT PEAK = 6.5591 CFS UNIT VOLUME = .9984 B = 353.98 P60 = 1.9200
AREA = .002470 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=1

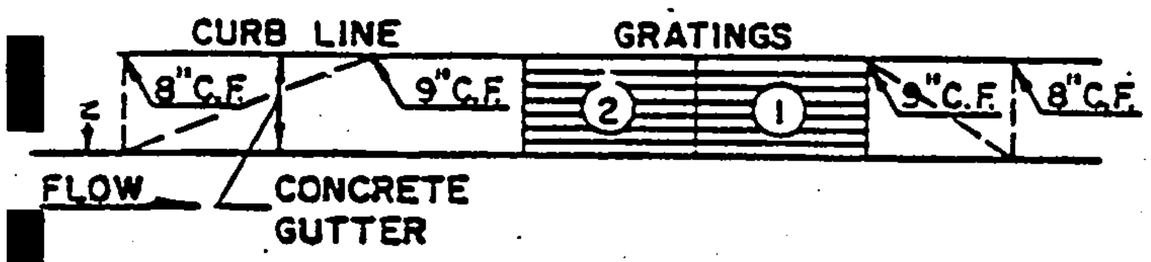
OUTFLOW HYDROGRAPH REACH 38.30

RUNOFF VOLUME = .85748 INCHES = .1130 ACRE-FEET
PEAK DISCHARGE RATE = 4.00 CFS AT 1.499 HOURS BASIN AREA = .0025 SQ. MI.

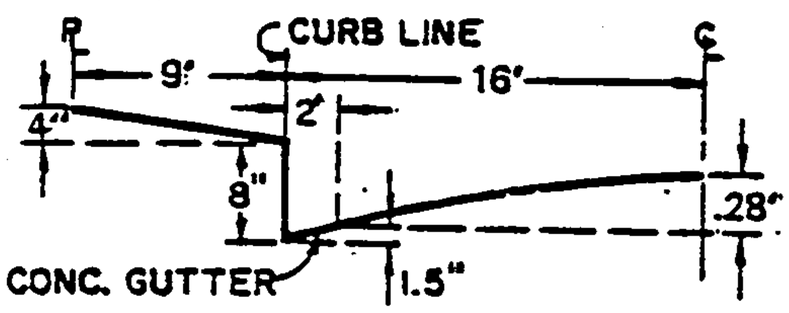
FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 16:15:51

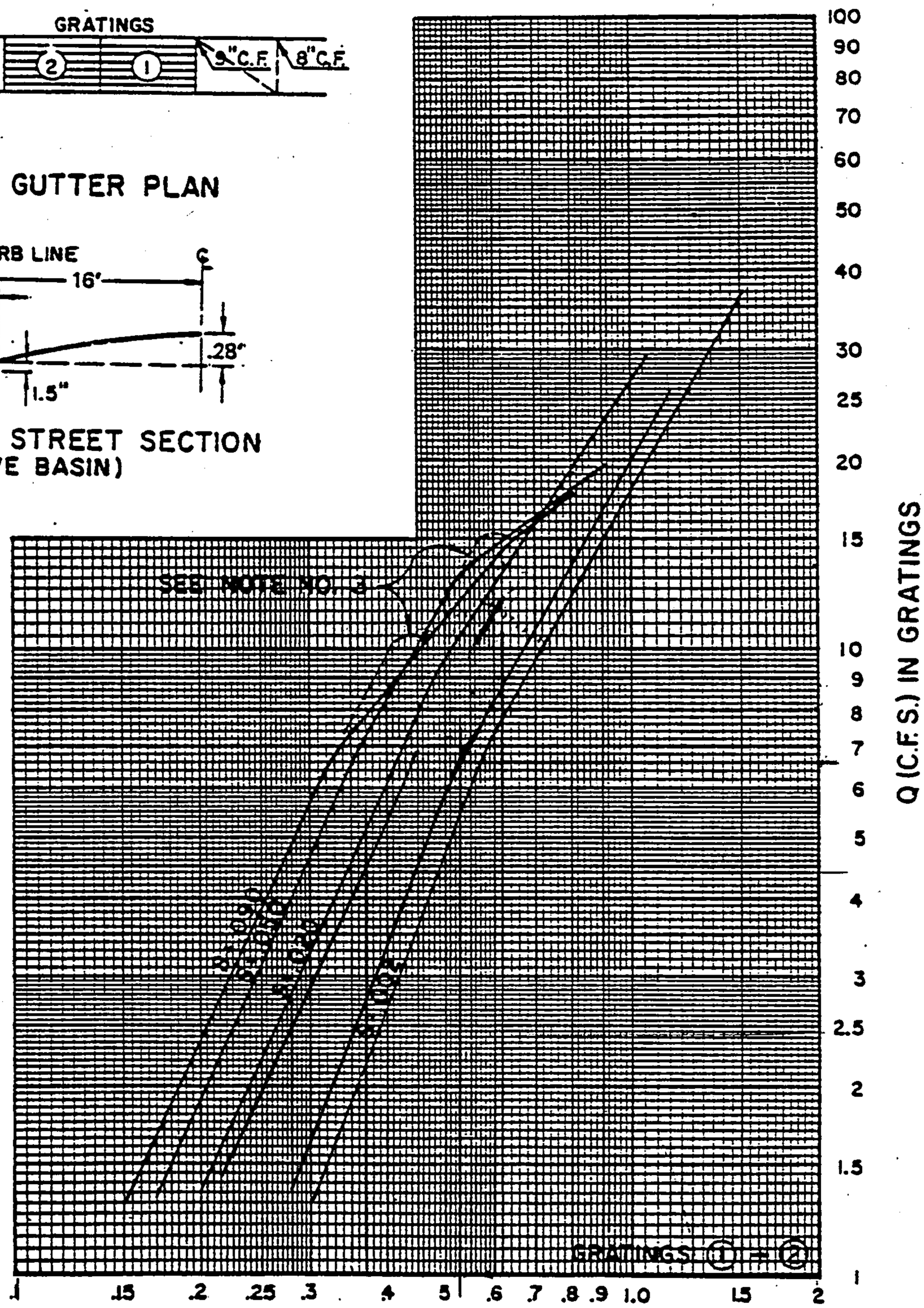
GRATING CAPACITIES FOR TYPE DOUBLE "C," AND "D"



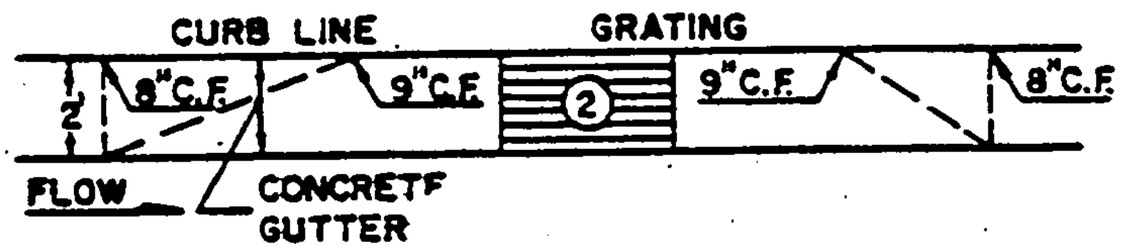
GRATING & GUTTER PLAN



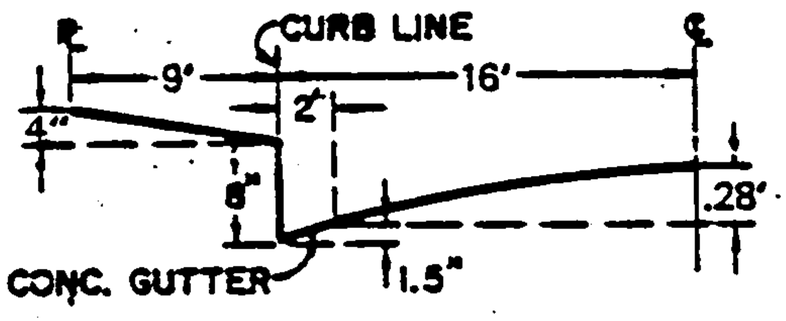
TYPICAL HALF STREET SECTION
(ABOVE BASIN)



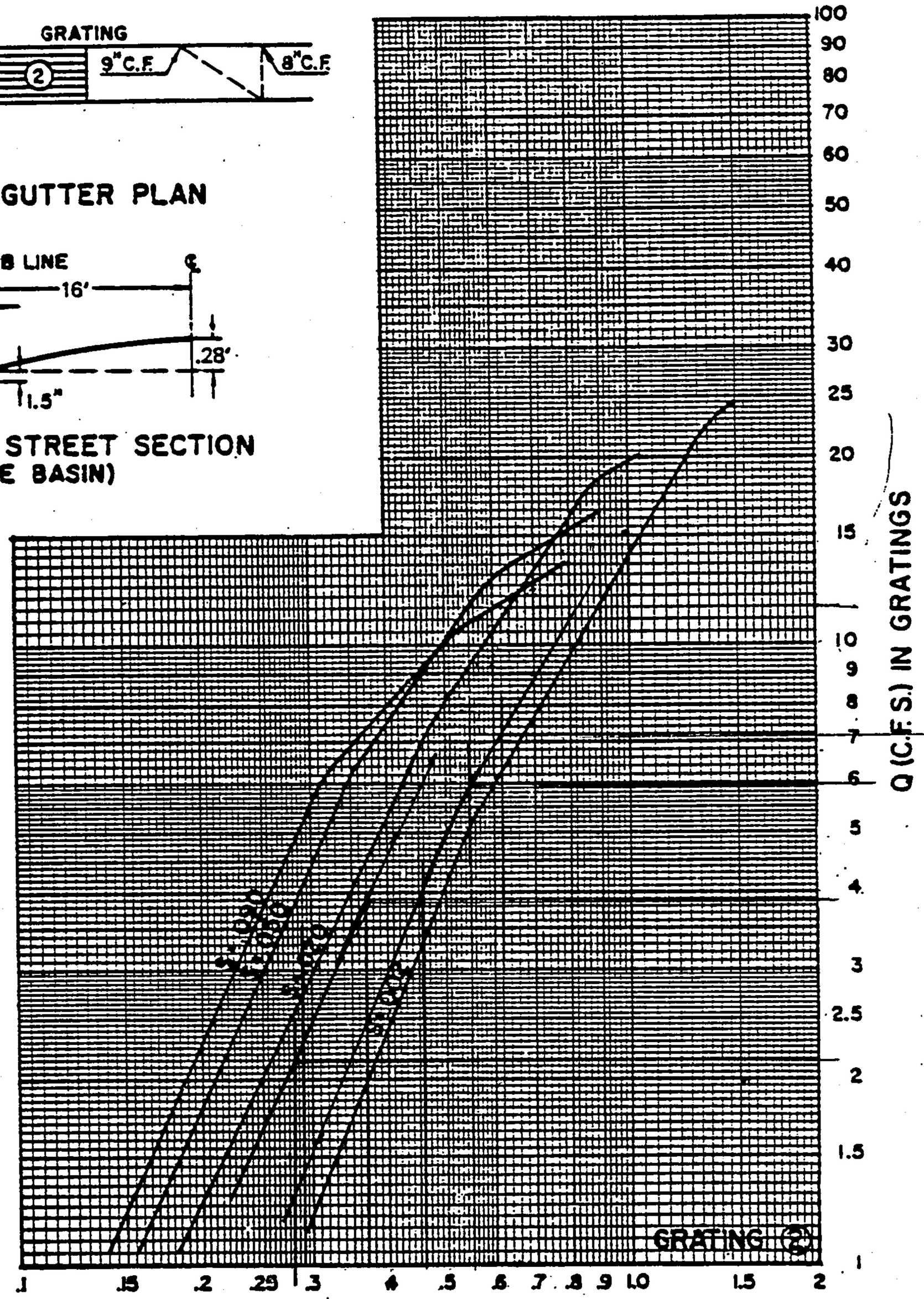
GRATING CAPACITIES FOR TYPE "A", "C" and "D"



GRATING & GUTTER PLAN

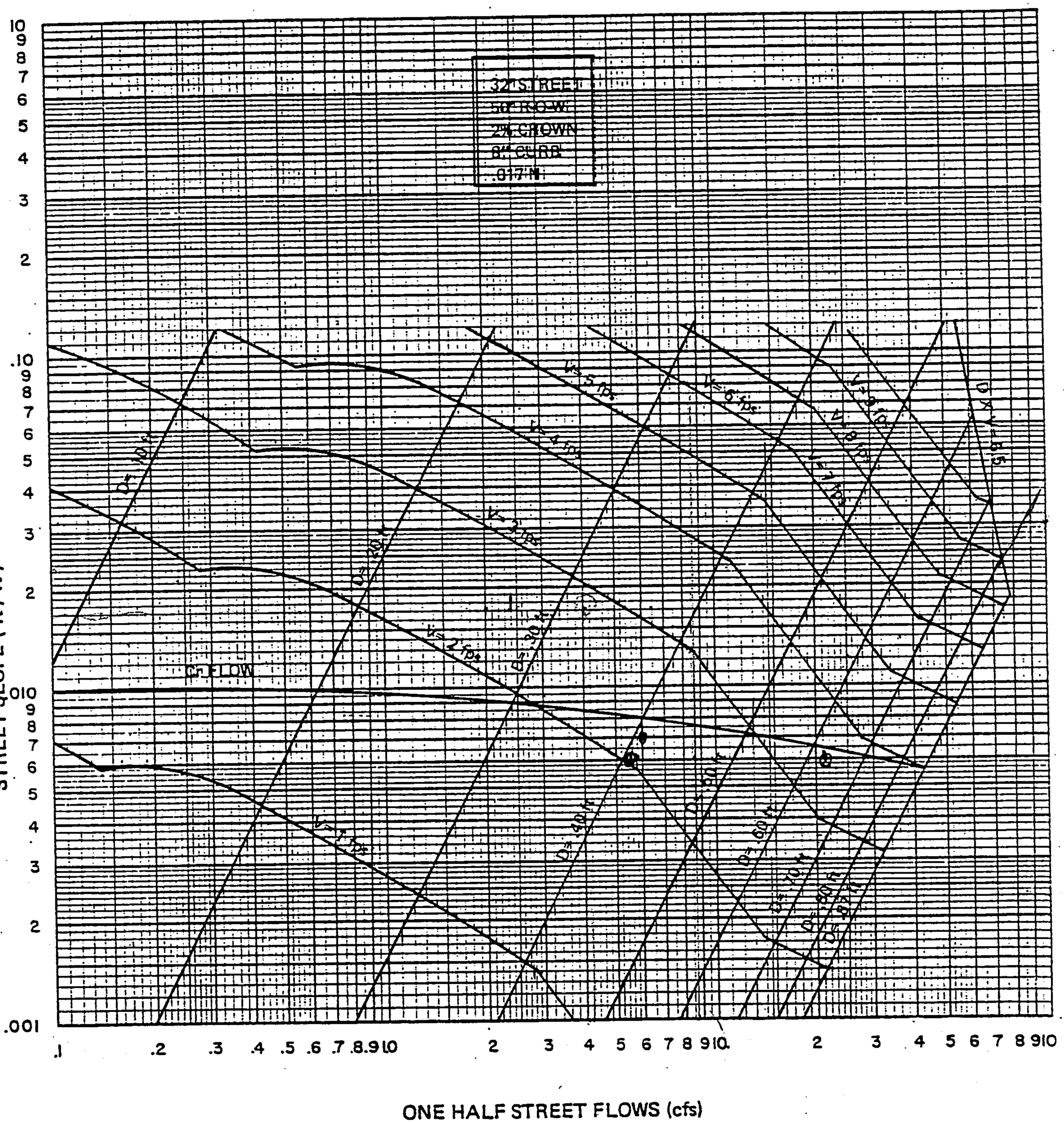


TYPICAL HALF STREET SECTION
(ABOVE BASIN)



D = DEPTH OF FLOW (FT.) ABOVE NORMAL GUTTER GRADE

STREET CAPACITY



REV. 3-83

PLATE 22.3 D-1

POND-2 Version: 4.01
S/N: 88020607

North Pond

CALCULATED 01-28-1998 17:16:38
DISK FILE : C:PUNO-N .VOL

Planimeter scale: 1 inch = 1 ft.

Elevation (ft)	Planimeter (sq.in.)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	* Volume (acre-ft)	Volume Sum (acre-ft)
80.60	0.00	0.00	0.00	0.00	0.00
82.10	9,000.00	0.21	0.21	0.10	0.10
90.10	*I*	0.54	1.08	2.87	2.97
91.83	*I*	0.63	1.19	3.87	3.98
92.10	28,000.00	0.64	1.21	4.05	4.15

I ---> Interpolated area from closest two planimeter readings.

$$IA = (sq.rt(Area1) + ((Ei-E1)/(E2-E1))*(sq.rt(Area2)-sq.rt(Area1)))^2$$

where: E1, E2 = Closest two elevations with planimeter data
Ei = Elevation at which to interpolate area
Area1,Area2 = Areas computed for E1, E2, respectively
IA = Interpolated area for Ei

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

POND-2 Version: 4.01
S/N: 88020607

South Pond

CALCULATED 01-29-1998 12:14:36
DISK FILE : C:PUNO-S .VOL

Planimeter scale: 1 inch = 1 ft.

Elevation (ft)	Planimeter (sq.in.)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	* Volume (acre-ft)	Volume Sum (acre-ft)
79.10	6,900.00	0.16	0.00	0.00	0.00
87.10	*I*	0.43	0.85	2.26	2.26
88.76	*I*	0.50	0.94	3.03	3.03
89.10	22,500.00	0.52	0.96	3.20	3.20

I ---> Interpolated area from closest two planimeter readings.

$$IA = (sq.rt(Area1) + ((Ei-E1)/(E2-E1))*(sq.rt(Area2)-sq.rt(Area1)))^2$$

where: E1, E2 = Closest two elevations with planimeter data
Ei = Elevation at which to interpolate area
Area1,Area2 = Areas computed for E1, E2, respectively
IA = Interpolated area for Ei

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

facsimile
TRANSMITTAL

to: Susan Calongne
fax #: 924-3864
re: Puno de Tierra Estates
date: September 18, 1998
pages: 5, including this cover sheet.

This easement is being routed for signature and recording. Brad has approved separate Pond Grading Plan and the DRC plans are being routed for signature. Please sign them when they come to you.

From the desk of...

JAMES D. HUGHES, PE
Senior Engineer
Mark GOODWIN & Associates, P.A.
P.O. Box 90606
Albuquerque, NM 87199

(505) 828-2200
Fax: (505) 797-9539

BERNALILLO COUNTY GRANT OF TEMPORARY PUBLIC MAINTENANCE EASEMENT FOR DRAINAGE FACILITY TO THE CITY OF ALBUQUERQUE

Pursuant to the County of Bernalillo and City of Albuquerque, New Mexico Master Utility Easement and Right-of-Way Agreement dated August 20, 1990;

THIS AGREEMENT is made and entered into this 14th day of July, 1998, by and between the County of Bernalillo, a political subdivision of the State of New Mexico, hereinafter referred to as the "County", and the City of Albuquerque, a New Mexico Municipal Corporation, hereinafter referred to as the "City".

Section 1. **Grant of Easement.** There is hereby granted to the City an exclusive right, license, privilege, and easement to maintain, repair, replace and remove a temporary drainage facility for the diversion and/or storage of water along, under, across, on and about the real property described in **Exhibit 1** attached hereto "Easement", together with the right to remove trees, bushes, and undergrowth and any other obstacles upon said easement with the consent of the County.

A. A temporary easement within Section 24, township 10 North, Range 2 East, N.M.P.M. Bernalillo County, New Mexico, being within LANDS OF BERNALILLO COUNTY (TOM TENORIO PARK) as the same described in the WARRANTY DEED filed in the Office of the County Clerk of Bernalillo County, New Mexico as document number 7374075 and being more particularly described on the attached EXHIBIT 1.

Section 2. **Binding of County's Property.** This Grant and other provisions of this Easement constitute covenants running with title to the property shown on Exhibit 1 for the benefit of the City and its successors and assigns until terminated pursuant to Section 5 herein.

Section 3. **Quiet Enjoyment.** This Grant of Easement is subject to the County's reserved right to full use and enjoyment of the property. In the event the City's exercise of its rights granted herein result in damage to any of the County's uses of the property and improvements thereon, the City shall restore the uses or improvements to the condition which existed immediately prior to said damage.

Section 4. **Liability.** As part of consideration for the Grant of this Easement, the City agrees, subject to the immunities and limitations of the New Mexico Tort Claims Act §41-4-1 et. seq., to be liable for any event or action arising from the City's use of said easement for the purpose herein set forth.

Section 5. Termination. At such time as the permanent drainage facilities are constructed this Temporary Drainage Easement shall be terminated by the City Engineer subject to the concurrence of the City Hydrologist.

Done this 14th day of July, 1998.

BOARD OF COUNTY COMMISSIONERS:

EXCUSED
Steve D. Gallegos Chairman

Ken Sanchez, Vice Chairman

Les Houston, Member

Tom Rutherford, Member

Barbara J. Seward, Member

APPROVED AS TO FORM ONLY:

County Attorney

ATTEST:

Judy D. Woodward
County Clerk

CITY OF ALBUQUERQUE:

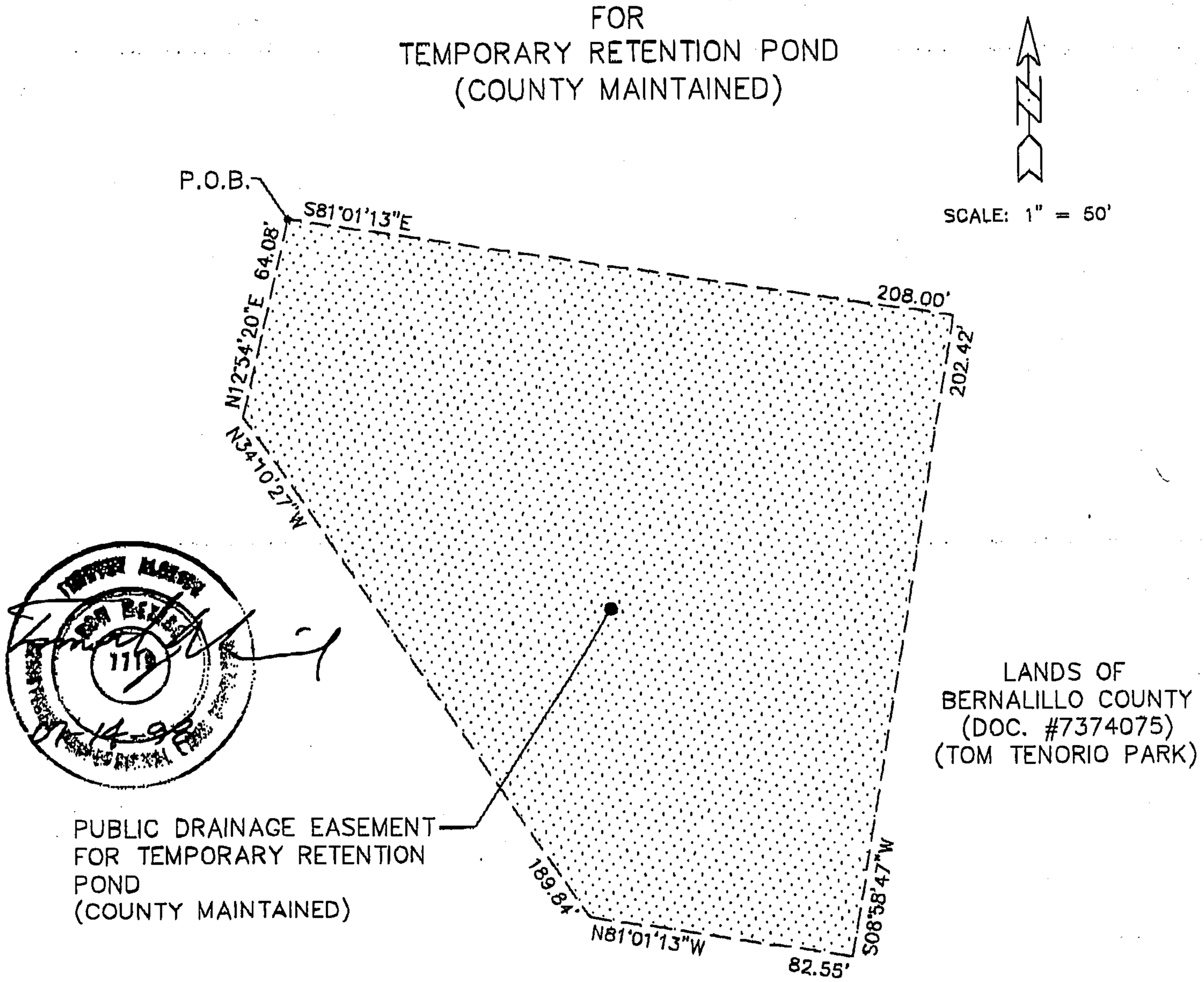
ACCEPTED:

City Engineer

Dated: _____

ORIGINAL

"EXHIBIT FOR"
PUBLIC DRAINAGE EASEMENT
FOR
TEMPORARY RETENTION POND
(COUNTY MAINTAINED)



DESCRIPTION

A Public Drainage Easement for temporary retention pond within the Town of Atrisco Grant, projected Section 34, Township 10 North, Range 2 East, New Mexico Principal Meridian, City of Albuquerque, Bernalillo County, New Mexico being within LANDS OF BERNALILLO COUNTY, (TOM TENORIO PARK) as the same is described in WARRANTY DEED filed for record in the office of the County Clerk of Bernalillo County, New Mexico as Document #7374075 and being more particularly described as follows:

BEGINNING at the northwest corner of the herein described tract from whence the Albuquerque Control Survey Monument "1–M10" bears N 52°30'27" W, 3810.70 feet;

THENCE S 81°01'13" E, 208.00 feet to the northeast corner;

THENCE S 08°58'47" W, 202.42 feet to the southeast corner;

THENCE N 81°01'13" W, 82.55 feet to a point;

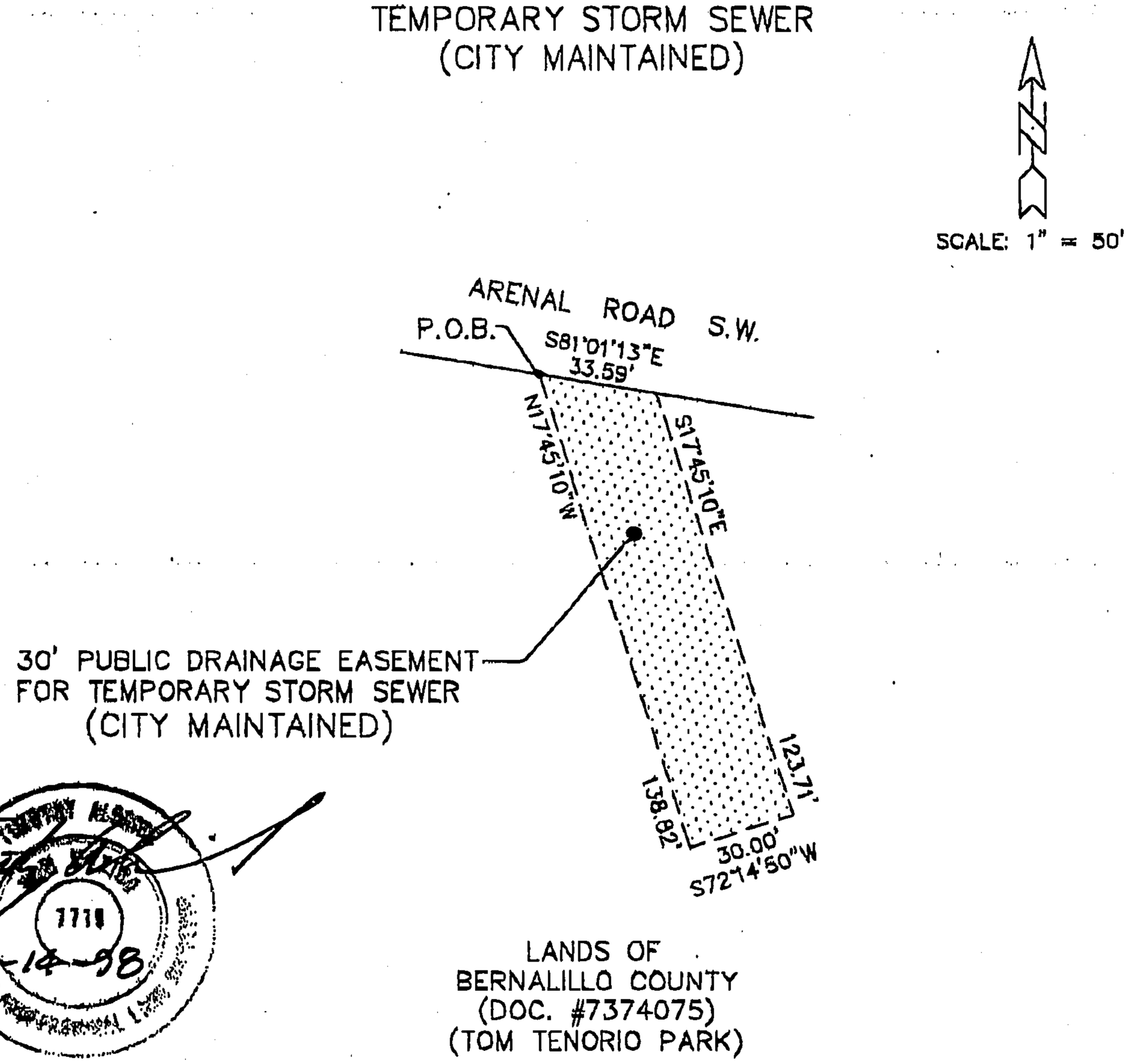
THENCE N 34°10'27" W, 189.84 feet to a point;

THENCE N 12°54'20" E, 64.08 feet to the point of beginning and containing 0.7773 acres more or less.

Exhibit I page 1 of 2

ORIGINAL

"EXHIBIT FOR"
30' PUBLIC DRAINAGE EASEMENT
FOR
TEMPORARY STORM SEWER
(CITY MAINTAINED)



7711
02-14-98

DESCRIPTION

A 30' Public Drainage Easement for temporary storm sewer within the Town of Atrisco Grant, projected Section 34, Township 10 North, Range 2 East, New Mexico Principal Meridian, City of Albuquerque, Bernalillo County, New Mexico being within LANDS OF BERNALILLO COUNTY, (TOM TENORIO PARK) as the same is described in WARRANTY DEED filed for record in the office of the County Clerk of Bernalillo County, New Mexico as Document #7374075 and being more particularly described as follows:

BEGINNING at the northwest corner of the herein described tract; said point being on the southerly right-of-way line of Arenal Road S.W. from whence the Albuquerque Control Survey Monument "1-M10" bears N 53°20'28" W, 3789.89 feet;

THENCE along said southerly right-of-way line S 81°01'13" E, 33.59 feet to the northeast corner;

THENCE leaving said southerly right-of-way line S 17°45'10" W, 123.71 feet to the southeast corner;

THENCE S 72°14'50" W, 30.00 feet to the southwest corner;

THENCE N 17°45'10" W, 138.82 feet to the point of beginning and containing 0.0904 acres more or less.

Exhibit 1 page 2 of 2

CITY OF
Albuquerque

June 2, 1998

Doug Hughes, P.E.
Mark Goodwin & Associates, PA
Post Office Box 90606
Albuquerque, New Mexico 87199

RE: Grading and Drainage Plan for Puno De Tierra Estates, Tract 1-A San Jose Arenal (M10/D13) Engineer's Stamp Dated 5/5/98.

Dear Mr. Hughes:

The above referenced plan for Puno De Tierra Estates was reviewed by Steve Kemna of Smith Engineering Company. Please address his comments per the attached letter.

It appears that some of my previous comments were not addressed. Since this subdivision drains into a pond located in the County park, written concurrence must be obtained from the County prior to preliminary plat approval. Concurrence from Glenn Jurgensen of City Storm Drain Maintenance is also required for the proposed grading within the Amole Del Norte right-of-way. His concurrence must be obtained prior to approval by the DRB.

If you have any questions regarding the comments, please call me at 924-3982 or contact Steve Kemna at Smith Engineering.

Sincerely,

Susan M. Calongne, P.E.
City/County Floodplain Administrator

c: Brad Catanach, Bernalillo County Public Works Division
File

Smith Engineering Company

A Full Service Engineering Company

June 2, 1998

Susan Calongne
City of Albuquerque
Public Works Department
P.O. Box 1293
Albuquerque, NM 87103

Re: Grading and Drainage Plan for Puno De Tierra Estates
Mark Goodwin and Associates, Plans dated May 5, 1998
Report dated January 30, 1998
Drainage File # M10/D13
Request for Preliminary Plat for Units 1 and 2 only
SEC Job # 198624.B4

Dear Ms. Calongne:

Smith Engineering Company (SEC) is pleased to submit the review comments for the "Grading and Drainage Plan for Puno De Tierra Estates" . This review pertains to Units 1 and 2 only. The review comments are as follows:

1. It appears in Section D-D that you are proposing to grade a swale with the Amole Del Norte right-of-way. Is this swale to be maintained by the City? Where does the swale ultimately drain or is it a retention basin? Please show runoff/volume calculations for the swale as appropriate. Please obtain concurrence from Glenn Jurgensen at Storm Drainage Maintenance for the proposed grading within the COA right-of-way.
2. Please show the slope symbols and existing contours on the grading plan between the boundary of Unit 1 and the cemetery.
3. The COA typically requires a perimeter fence around retention ponds with a depth greater than 18 inches. This issue is deferred to Bernalillo County.
4. Please show the drive pads at lots 4, 5, and 6 of Block 1 and lot 6 of Block 2.
5. Please show a typical lot layout.
6. Please show the project benchmark and reference the Albuquerque Control Survey Vertical Datum.
7. Please show that the dead end cul de sac (dead end as far as drainage) at the intersection of Don Santos and Don Angelica has the overflow capacity for two 100-year events. This can be demonstrated by over sizing the inlets and storm drain pipe or by showing that the cul de sac has the volume capacity for another 100-year event. Another option is to demonstrate that the storm drain easement can pass the 100-year event (including appropriate finished grade elevations and openings through any perimeter wall).

Thank you for the opportunity to review this drainage report. If you have any questions please feel free to contact me at 884-0700.

Sincerely,

Smith Engineering Company

Stephen Paul Kemna

Stephen P. Kemna, P.E.

6400 Uptown Boulevard, N.E. Suite 500E Albuquerque, N. M. 87110 Telephone 505/884-0700 Fax 505/884-2376

facsimile
TRANSMITTAL

to: Susan Calongne
fax #: 924-3864
re: Puno de Tierra Estates
date: September 21, 1998
pages: 6, including this cover sheet.

Here is Brad Catanach's approval of Puno de Tierra Estates.

From the desk of...

JAMES D. HUGHES, PE
Senior Engineer
Mark GOODWIN & Associates, P.A.
P.O. Box 90608
Albuquerque, NM 87199

(505) 828-2200
Fax: (505) 797-9539

County of Bernalillo

State of New Mexico

BOARD OF COUNTY COMMISSIONERS
STEVE D. GALLEGOS, CHAIRMAN
DISTRICT 2
KEN SANCHEZ, VICE CHAIRMAN
DISTRICT 1
TOM RUTHERFORD, MEMBER
DISTRICT 3
BARBARA J. SEWARD, MEMBER
DISTRICT 4
LES HOUSTON, MEMBER
DISTRICT 5
JUAN R. VIGIL, COUNTY MANAGER

2400 BROADWAY, S.E.
ALBUQUERQUE, NEW MEXICO 87102
PUBLIC WORKS (505) 848-1500

DAVID K. ANDERSON, ASSESSOR
JUDY D. WOODWARD, CLERK
THOMAS J. MESCALL, PROBATE JUDGE
JOE BOWDICH, SHERIFF
ORLANDO VIGIL, TREASURER

Date: 9/17/98

Subject: CASE REVIEW COMMENTS

Case No.: PWD-98-26

Zone Map No: M-10

Street Address: ARENAL SW

Legal Description: TR 1-A SAN JOSE ARENAL

Name of Applicant: ASI ES

Dear Applicant:

Bernalillo County Public Works Department will require **TWO WEEKS for review and comment of submittal and resubmittals, and ONE WEEK for final review and plat sign-off.** Major submittals may require more than two weeks for review and comment. The issuance of a permit or a review or approval of plan specifications, computations, and shop drawings shall not be interpreted to be a permit for or an approval of any variance or violation of any of the provisions of any county or State codes, ordinances, standards, or policies. Nor shall such issuance of a permit or approval of plans, specifications, computations, and shop drawings prevent any authorized County representative or County inspector from thereafter requiring the corrections of errors in said plans, specifications, computations, or shop drawings or from stopping construction operations which are being carried on thereunder when in violation of any County or state codes, ordinances, standards, or policies. Review of construction plans, specifications, computations, and shop drawings is only for general conformance with the design concept of the project and general compliance with the plans and specifications and shall not be construed as relieving the Contractor, Land Divider, Subdivider, Engineer/Surveyor, or applicant of the full responsibility for: providing materials, equipment, and work required by the contract; the proper fitting and construction for the work; the accuracy and completeness of the submittal; selecting fabrication processes and techniques of construction; and performing the work in a safe manner.

REV 4-22-91 BR

COUNTY OF BERNALILLO

APPLICATION FOR CASE REVIEW

Please complete pages one and two of this application for review of your case. **Submit THREE bluelines of plat, drawings, or information with case submittals and THREE bluelines of plat, drawings, or information along with the original mylar for final sign-off applications. Submit a County Zone Atlas Map with subject property marked on the map.** If a Grading and Drainage plan is not included with a land division, replat, or conceptual plan, please submit on 8.5"x11" photocopy of a USGS quad map with the subject property superimposed.

NOTE: INCOMPLETE APPLICATIONS WILL BE RETURNED WITHOUT REVIEW.

1. APPLICANT INFORMATION:

a. Applicant is (check one):
__X__ OWNER _____ SURVEYOR ____ AGENT
_____ ENGINEER ____ DRAINAGE ENGINEER

b. Date of this application: 5/5/98

c. Signature of applicant:
(print)_____(sign)_____

d. OWNER: ASI ES PHONE: 264-2824
201 Industrial Park Loop
Rio Rancho, NM 87124

e. AGENT: Mark Goodwin & Associates PHONE: 828-2200
PO Box 90606
Albuquerque, NM 87199

f. OTHER (specify):

2. TYPE OF SUBMITTAL (check one):

____ REPLAT
____ LAND DIVISION (MINOR SUBDIVISION)
____ MAJOR SUBDIVISION
____ CONSTRUCTION DRAWINGS
__X__ GRADING/DRAINAGE PLAN
____ AS-CONSTRUCTED GRADING/DRAINAGE PLAN
____ VARIANCE REQUEST
____ TRAFFIC IMPACT ANALYSIS/TRAFFIC STUDY
____ INFRASTRUCTURE LIST/DESIGN REVIEW FEE
____ OTHER (specify):

County of Bernalillo

TO BE FILLED OUT BY COUNTY PUBLIC WORKS DIVISION ONLY

Your: ✓ submittal of drainage information
___ resubmittal of drainage information

is: ___ approved.
✓ approved with comments/conditions.
___ disapproved.
___ deferred to County Floodplain Administrator.

Case review comments are:

✓ attached.
___ not attached.
___ not attached. See remarks below.

Resubmittal is:

___ not required.
✓ required. When resubmitting, please use Resubmittal Form.

Please submit:

___ grading/drainage plan with revisions.
✓ as-constructed grading/drainage plan.
___ other: ___

It is required that:

___ Bernalillo County Public Works Division inspects improvements prior to final sign-off of plat.
___ Bernalillo County Public Works Division signature line be placed on plat.

Remarks: ___

Brad Catanach 9/16/98
Brad Catanach, P.E.
Drainage Engineer
Bernalillo County Public Works Division

cc:
___ Sandia Heights Homeowners Association
___ Owner: ASI ES
___ Agent: GOODWIN
___ Case File PWD-98-26
___ Susan Calongne, County Floodplain Administrator, COA
___ Molzen-Corbin & Associates
___ Other: ___

Bernalillo County
Public Works Division
2400 Broadway Ave SE Albuquerque, NM 87102

16-Sep-98

Case Number

pwd - 98 - 26

MARK GOODWIN & ASSOCIATES
PO Box 90606
Albuquerque NM 87199

Arenal SW
TR 1-A SAN JOSE ARENAL

M-10

Dear Applicant;

Attached are the Public Works Division comments regarding your building permit application. Should you require further information, please contact Hoss Foster or Jim Best at 848-1502.

Development Review Engineer

cc:
Agent
Case File
Zoning, Building, Planning Dept.
Molzen-Corbin Associates
Other: _____

Bernalillo County Public Works Division
Case File Comments

Case Number PWD 98 26

Date	Functional Area

18-Feb-98 DRAN

1. Existing topography shows part of basin 212 impacting basin 210. Is there a berm that diverts basin 212 flows from impacting basin 210.

2. Street Flow Summary Table, basins A through I are not clear on the provided plans.

3. Sheet 2 of 4 shows section E on the plan, no section E detail is provided.

4. The entire basin 210 and part of 211 drains to pipes 7 through 12. Basin 210 has a 100-year discharge of 54.43 cfs, however pipe 12 is not designed for this discharge nor are pipes 7 through 11 designed for a reasonable percentage of this discharge.

5. Sheet 1 of 4 shows proposed upgrades to Arenal with the subdivision draining directly on to Arenal. How will these flows be diverted into the South Pond? What is the size of the South Pond? Prior to discharging flows into Tom Tenorio Park, approvals letters will have to be obtained from BC Parks and Recreation Division.

16-Sep-98 DRAN

1. Based on the information provided on the grading and drainage plan, with engineer's seal dated 9/3/98, this plan appears to meet the requirements established for this area and is therefore acceptable.

2. An "As-Constructed Grading and Drainage Plan, with engineer's certification that the constructed improvements are in substantial compliance with this plan, will be required prior to County Building and Zoning issuing an occupancy permit.

3. Inspection required, applicant required to obtain permits from Bernalillo County Public Works Division. Phone (505) 848-1520.

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Puno De Tierra Estates ZONE ATLAS/DRNG,FILE#: M-10/D-13

DRB #: 97-498 EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: Tract 1-A San Jose Arenal

CITY ADDRESS: Arenal Rd between Unser Blvd. & Coors Blvd.

ENGINEERING FIRM: Mark Goodwin & Associates, PA CONTACT: Doug Hughes

ADDRESS: P.O. Box 90606, Albuquerque, NM 87199 PHONE: 828-2200

OWNER: A.S.I.- ES. CONTACT: Francisco Melendez

ADDRESS: 201 Industrial Park Loop, Rio Rancho, NM 87124 PHONE: 264-2824

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

X DRAINAGE REPORT
___ DRAINAGE PLAN
___ CONCEPTUAL GRADING & DRAINAGE PLAN
X GRADING PLAN
X EROSION CONTROL PLAN
___ ENGINEER'S CERTIFICATION
___ OTHER

PRE-DESIGN MEETING:

___ YES
___ NO
___ COPY PROVIDED
X MAYBE

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL
X PRELIMINARY PLAT APPROVAL
___ S. DEV. PLAN FOR SUB'D APPROVAL
___ S. DEV. PLAN FOR BLDG PERMIT APPROVAL
___ SECTOR PLAN APPROVAL
X FINAL PLAT APPROVAL
___ FOUNDATION PERMIT APPROVAL
___ BUILDING PERMIT APPROVAL
___ CERTIFICATION OF OCCUPANCY APPROVAL
X GRADING PERMIT APPROVAL
___ PAVING PERMIT APPROVAL
___ S.A.D. DRAINAGE REPORT
___ DRAINAGE REQUIREMENTS
___ OTHER _____ (Specify)

RECEIVED
MAY 05 1998
HYDROLOGY SECTION

DATE SUBMITTED: _____

BY: _____
Doug Hughes, PE

CITY OF
Albuquerque

June 11, 1998

Doug Hughes, P.E.
Mark Goodwin & Associates, PA
Post Office Box 90606
Albuquerque, New Mexico 87199

RE: Grading and Drainage Plan for Puno De Tierra Estates, Tract 1-A San Jose Arenal (M10/D13) Engineer's Stamp Dated 6/4/98.

Dear Mr. Hughes:

The above referenced plan for Puno De Tierra Estates was reviewed by Steve Kemna of Smith Engineering Company. Based on his review, see attached letter, the above referenced plan is acceptable for Preliminary Plat approval and Grading permit approval for Units 1 & 2 only. This approval is still subject to concurrence from Bernalillo County Public Works Division since the subdivision drains into a pond located in the County park.

Preliminary Plat approval and Grading permit approval for Units 3 & 4, as shown on Sheet 3 of 4, are not granted at this time.

As you are aware, the Grading and Drainage Certification for Units 1 & 2 will be required prior to release of financial guarantees for those Units.

If you have any questions, please call me at 924-3982.

Sincerely,

Susan Calongne

Susan M. Calongne, P.E.
City/County Floodplain Administrator

c: Fred Aguirre, City Hydrology (DRB-97-498)
Brad Catanach, Bernalillo County Public Works Division
File

Smith Engineering Company

A Full Service Engineering Company

June 8, 1998

Susan Calongne
City of Albuquerque
Public Works Department
P.O. Box 1293
Albuquerque, NM 87103

Re: Grading and Drainage Plan for Puno De Tierra Estates
Mark Goodwin and Associates, Plans dated June 4, 1998
Report dated January 30, 1998
Drainage File # M10/D13
Request for Preliminary Plat for Units 1 and 2 only
SEC Job # 198624.B4

Dear Ms. Calongne:

Smith Engineering Company (SEC) has reviewed the response to comments provided by Mark Goodwin and Associates dated June 4, 1998. It appears that all of the City's previous comments dated June 2, 1998 have been addressed. Some points of interest are discussed below:

Please note that the latest plan set dated June 4, 1998 does not show any grading within the COA right-of-way (along the east bank of the Amole Channel). Rough calculations show that the 100-year volume of runoff produced by this portion of the Amole right-of-way is only about 0.04 ac-ft. Mark Goodwin and Associates proposes building a floodwall that will provide at least 0.6 ac-ft of storage in depressions behind the wall. The 100-year runoff of 0.04 ac-ft will only pond to an average depth of about 4 inches behind the floodwall. However, there is no detail of the proposed floodwall shown on the plans.

The infrastructure list dated May 19, 1998 properly lists the storm drain improvements and the retention pond that are shown on the plans for Units 1 and 2 of the subdivision.

Thank you for the opportunity to review this drainage report. If you have any questions please feel free to contact me at 884-0700.

Sincerely,

Smith Engineering Company

Stephen Paul Kemna

Stephen P. Kemna, P.E.

6400 Uptown Boulevard, N.E. Suite 500E Albuquerque, N. M. 87110 Telephone 505/884-0700 Fax 505/884-2376

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Puno De Tierra Estates ZONE ATLAS/DRNG,FILE#: M-10

DRB #: 97-498 EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: Tract 1-A San Jose Arenal

CITY ADDRESS: Arenal Rd between Unser Blvd. & Coors Blvd.

ENGINEERING FIRM: Mark Goodwin & Associates, PA CONTACT: Doug Hughes

ADDRESS: P.O. Box 90606, Albuquerque, NM 87199 PHONE: 828-2200

OWNER: A.S.I.- ES. CONTACT: Francisco Melendez

ADDRESS: 201 Industrial Park Loop, Rio Rancho, NM 87124 PHONE: 264-2824

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

X DRAINAGE REPORT
_____ DRAINAGE PLAN
_____ CONCEPTUAL GRADING & DRAINAGE PLAN
X GRADING PLAN
X EROSION CONTROL PLAN
_____ ENGINEER'S CERTIFICATION
_____ OTHER

PRE-DESIGN MEETING:

_____ YES
_____ NO
_____ COPY PROVIDED
X MAYBE

CHECK TYPE OF APPROVAL SOUGHT:

_____ SKETCH PLAT APPROVAL
X PRELIMINARY PLAT APPROVAL units 1 & 2
_____ S. DEV. PLAN FOR SUB'D APPROVAL
_____ S. DEV. PLAN FOR BLDG PERMIT APPROVAL
_____ SECTOR PLAN APPROVAL
X FINAL PLAT APPROVAL
_____ FOUNDATION PERMIT APPROVAL
_____ BUILDING PERMIT APPROVAL
_____ CERTIFICATION OF OCCUPANCY APPROVAL
X GRADING PERMIT APPROVAL units 1 & 2
_____ PAVING PERMIT APPROVAL
_____ S.A.D. DRAINAGE REPORT
_____ DRAINAGE REQUIREMENTS
_____ OTHER _____ (Specify)

units 3 & 4 - not

DATE SUBMITTED: 6-4-98

BY: Doug Hughes
Doug Hughes, PE

RECEIVED
JUN 04 1998
HYDROLOGY SECTION

Concurrence from Co PWD

LETTER OF TRANSMITTAL

D. Mark Goodwin & Associates, P.A.
Consulting Engineers
P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200 FAX 797-9539
e-mail: dmg@swcp.com

DATE 6-4-98 JOB NO.

ATTENTION Kym Dicome

RE: Puna de Tierra Estates
DRB 97-498

TO COA DRB

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following Items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
			Revised Grading Plan Dated 6-4-98

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS Grading in AMOLE right of way was deleted and other minor drainage comments were addressed.

RECEIVED
JUN 04 1998
HYDROLOGY SECTION

cc: Richard Dourte, Brad Cotanach
Roger Green
Fred Aguirre
Ed Stang
Susan Calongne w/ Drain Info Sheet
Steve Kemma

COPY TO

SIGNED: Doug Decker

If enclosures are not as noted, kindly notify us at once.

MARK GOODWIN

& ASSOCIATES

MEMO

To: Steve Kemna @ Smith Engineering

From: James D. Hughes, PE

Subject: Puno de Tierra Estates DRB 97-498, M10/D13 Response to Comments Dated 6/2/98

Date: June 4, 1998

1. Grading on the AMOLE Right of Way was deleted so Glen Jurgensen's concurrence will not be required (per discussion with Susan Calongne on 6/3/98). A floodwall was added on the side that will prevent those offsite flows from entering this development.
2. Slope symbols were added next to the cemetery on sheets 1 and 2.
3. An 8' chain link fence was added to the pond on Tenorio Park as requested by County Public Works in a meeting on 6/2/98.
4. Drive pads were added on sheet 1 to all lots with storm inlets.
5. A typical lot layout was added to sheet 3.
6. The project benchmark was added to all sheets in the title block.
7. A note was added to sheet 1 at the 35' emergency overflow and storm sewer easement requiring a 38' (skew) unobstructed opening in the perimeter fence and the calculations are on page 5 of the report.

facsimlle
TRANSMITTAL

to: Susan Calongne
fax #: 924-3864
re: Puno de Tierra Estates
date: June 4, 1998
pages: 2, including this cover sheet.

1. Attached please find the county's agreement to allow temporary ponding on Tenorio Park and to accommodate a permanent solution either on the park or elsewhere.
2. Roger Paul at Public Works said by the next DRB be would try to verify the appropriateness of the scope of the referenced Drainage Management Plan to coordinate with other Master Drainage studies in the area.
3. Grading of the Amole del Norte Right of Way has been eliminated and a floodwall has been added on that property line . So Glen Jerginson's concurrence is no longer required.
4. The remaining requests from Smith Engineering dated 6/2/98 have been added to the revised grading plan dated 6/4/98 which will be distributed to the DRB members, City Hydrology, County Public Works and the County Manager's Office.

Hopefully this addresses all comments to date satisfactorily, and we can expect approval at the next DRB.

Please call if you have any questions or concerns.

From the desk of...

JAMES D. HUGHES, PE
Senior Engineer
Mark GOODWIN and Associates, PA
PO Box 90606
Albuquerque, NM 87199

(505) 828-2200
Fax: (505) 797-9539

Asi Es, Inc.

201 Industrial Pk Lp NE
Rio Rancho, New Mexico 87124
USA

Phone 505/896-3821
Fax 505/896-6946

May 12, 1998

Thaddeus Lucero, Division Director
Community Services
One Civic Plaza, NW ,10th Floor
Albuquerque, New Mexico 87102

Dear Mr. Lucero,

I am writing this letter to confirm our understanding concerning the solution to your drainage problem at Puno de Tierra Subdivision.

Asi Es as the developer agrees to:

1) Have a drainage study of the immediate area where the long term drainage is to take place, as described on the attached proposal from D. Mark Goodwin & Associates.

2) Provide to Bernalillo County Parks and Recreation $ 22,500.00 by certified check made out to the County of Bernalillo or in kind improvements valued at $ 22,500.00 if drainage facilities on land other than Tom Tenorio Park have not been built by May 01, 2001.

Bernalillo County agrees to:

1) Present to the Bernalillo County Commission an agenda item requesting approval to allow storm water from Puno de Tierra Subdivision to drain to Tom Tenorio Park until final drainage facilities are built on land other than Tom Tenorio Park.

In the event alternative final drainage facilities on land other than Tom Teronio Park are not built by May 1, 2001, the County of Bernalillo shall retain the $ 22,500.00 referenced in paragraph 2, above or, final plans for completing construction of in kind improvements must be submitted. Puno de Tierra Subdivision would then be allowed to continue its storm water drainage to Tom Tenorio Park on an indefinite basis.

It is our understanding that this was in fact the agreement we have verbally in place, and would ask that you provide a copy of this agreement for us as well as to Fred Aguirre of the City of Albuquerque.

Futhermore, this agreement is subject to final plat approval by the City of Albuquerque.

Sincerely,

Francisco L. Melendez
Asi Es, Inc.

Bernalillo County Date 5/12/98

Francisco L. Melendez Date 5/12/98

D. Mark Goodwin & Associates, P.A.
Consulting Engineers

P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200 FAX 797-9539
e-mail: dmg@swcp.com

May 1, 1998

Ms. Susan Calongne
City of Albuquerque
Hydrology Department
P.O. Box 1293
Albuquerque, NM 87103

RECEIVED
MAY 05 1998
HYDROLOGY SECTION

Re: Puno De Tierra Estates (M10/D13)

Dear Ms. Calongne:

Attached please find the revised Grading Plan (4 sheets) and the drainage information sheet, the Preliminary Plat and the revised Infrastructure List. Please approve the Infrastructure List for the DRB. The only revision to the report is on page 1, the last sentence in the first paragraph of the "Proposed Management Plan". Please draw a line through the words "in the southeast corner of the site" and write under them the words "south of Arenal Rd in Tenario Park". The comments are addressed as follows:

1. The county is in general agreement with the proposed drainage plan and is willing to allow temporary ponding on Tenario Park. It is anticipated that the county will maintain the temporary pond and the city will maintain the onsite storm sewer and the temporary pipe to the pond. A separate master plan is to be prepared that will identify a series of centrally located ponds that will control drainage into the Arenal Main Canal between Bridge St. and Rio Bravo Blvd. It will also identify the necessary storm sewer collection systems throughout the study area. Regional funding for the Master Plan improvements will then be sought by the county and a program of implementation will be developed. Construction and maintenance of the Master Planned facilities will be the primary responsibility of the county. But where jurisdictions overlap, the responsibilities may be divided between several agencies. On Arenal the city limits ends about 700' east of this site and from there it is about another 700' east through the county to the intersection of Coors Rd. where some state highway department interests begin. Maintenance of the permanent system can not be specifically identified at this time.

2. The north pond is to be a permanent detention pond in a Public Right of Way, either city or county to be determined at a later date. It is expected that Unit 3 of this project will build both the ultimate pond and the ultimate storm sewer outfall in Eduardo, but the inlets in Eduardo will have to be constructed at a later date when an additional pond is constructed near the Coors intersection as part of the master plan. In the mean time the Eduardo storm sewer will have no outfall and so the pond will be maintained by the developers as a temporary retention pond. It is anticipated that the pond and some of the other land east of the pond will be annexed into the city to meet the water and sewer needs of development of that property. In which case the pond will ultimately become the city's responsibility for maintenance as a permanent detention pond. But if the land remains county then it will become county maintained at such time as the rest of the master plan makes that possible. In the mean time the temporary privately maintained retention pond will be in a Public Drainage Easement with private maintenance covenants and emergency overflow capacity down Eduardo as previously documented in the drainage report. The pipe size in Eduardo has been increased, so with the later addition of inlets (by others, not part of this project) at the intersection of Airport Dr. and Eduardo, the surface drainage in Eduardo will be reduced to contain the 100 year energy gradient within the Right of Way.

3. The new temporary south pond is to be located on Tenario Park immediately south of Arenal Rd.. (Corrected on both sheet 2 and 4 of the Grading and Drainage Plan) thus minimizing the amount of temporary pipe to the pond.

4. A separate master plan will address offsite regional drainage concerns. Because the infrastructure serves other land outside of this development and that regional infrastructure is not on the frontage of this development, the offsite ultimate infrastructure is not included on the infrastructure list, except the storm sewer in Eduardo. (See enclosed Infrastructure List)

5. The county currently does not have a schedule for the "Improvements at the Intersection of Arenal Rd. and Coors Blvd" The original drainage report by AA&R addressed and resolved the issue of Down Stream Capacity by identifying several alternative solutions to the intersection drainage problems and the subsequent Environmental Accessment singled out the selected alternative which was approved in a "Finding of No Significant Impact" (attached). But that county project has no funds according to Frank Williams the county project manager. This development will be in substantial compliance with either the previously approved AA&R report or a new separately approved master plan.

6. A schematic of the Ultimate storm drain system will be provided with a separate master plan. See Item 2 regarding the outfall to the north.

7. Inlets #1 and 2 on Grading Plan sheet 1 intercept all of the 100 year flow in the north half of Arenal Rd adjacent to this development. The 10 year spread of water leaves one lane open. Both in the interim and in the ultimate condition the Arenal Rd drainage will flow to the same outfall as the rest of this subdivision (ie...interim pond on Tenario Park, Ultimate in storm sewer east on Arenal, per separate master plan). See the calculations in the report, pages 3 and 4.

8. Storm water runoff from the AMOLE DEL NORTE right of way currently drains into this private property.

9. Section E-E has been added to sheet 3 and spot elevations shown on the cemetery.

10. The Dona Barbara Ave drains east to inlets 6 thru 11 with some flow bypassing those inlets to inlets 12, 13 and 14. But the street capacity is not exceeded and the drainage from the inlets enters the north pond. (See item 2 above for interim and ultimate drainage at the north pond.)

11. Existing grades will be held and not changed at the north property line, where no significant drainage enters this property. The subdivision to the north drains mostly to the east, not into this subdivision. Existing grades are shown on sheet 3 and the developer has not yet decided if there will be a wall there.

Please call if you have any questions or concerns.

Sincerely,

MARK GOODWIN & ASSOCIATES, PA

James D. Hughes, PE
Senior Engineer

Attachments: FONSI
Basin Maps from Master Plan

JDH/st

f:\\puno\comments.no7

D.R.B. Case No. 97-498
D.R.C. Project No. _____
Date Submitted 4/21-98
Prelim. Plat Approved _____
Prelim. Plat Expires _____

Figure 12

EXHIBIT "A"

To Subdivision Improvements Agreement
DEVELOPMENT REVIEW BOARD (DRB) REQUIRED INFRASTRUCTURE LISTING
for Puño de Tierra Estates — Units 1, 2, 3 & 4

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

Size	Type Improvement	Location	From	To
		UNIT I		
TRANSPORTATION				
25' FF	Art Pvmt Std & Med C & G 6' Sdwk, N side w/ Transitions as required	Arenal Rd	W Prop Line	E Prop Line
36' FF	Res Pvmt Std C & G 4' Sdwk Both sides(1)	Don Aragon Dr	Arenal Rd	Dona Angelica Ave
32' FF	Res Pvmt Std C & G 4' Sdwk Both sides(1)	Don Aragon Dr	Dona Angelica Ave	Dona Adelina Ave.
32' FF	Res Pvmt Std C&G 4' Sdwk W side only	Don Aragon Dr	Dona Angelica Ave	N side, Lot 21, Blk 7
26' FF	Res Pvmt Roll C & G(2) 4' Sdwk Both sides(1)	Dona Angelica Ave	Dona Arcelia St	Don Santos St
26' FF	Res Pvmt Roll C & G(2) 4' Sdwk Both sides(1)	Dona Arcelia St	Dona Angelica Ave	Dona Adelina Ave

D.R.B. Case No. 97-498
D.R.C. Project No. _____
Date Submitted 4/21-98
Prelim. Plat Approved _____
Prelim. Plat Expires _____

26' FF	Res Pvmt Roll C & G[2] 4' Sdwk Both sides[1]	Don Santos St	Dona Angelica Ave	Dona Adelina Ave
26' FF	Res Pvmt Roll C&G[2] 4' Sdwk Both sides[1]	Dona Adelina Ave	Dona Arcelia St	Don Aragon Dr
26' FF	Res Pvmt Roll C & G[2] 4' Sdwk S side only[1]	Dona Adelina Ave	Don Aragon Dr	Don Santos St
Per DPM	Res Street Lights			
WATER				
10"	Waterline	Arenal Rd	30" Water @ W Prop line	Existing 8" @ E Prop Line
8"	Waterline	Don Aragon Dr	Arenal Rd	Phase 2
6"	Waterline	Dona Angelica Ave	Dona Arcelia St	Don Santos St
6"	Waterline	Dona Adelina Ave	Dona Arcelia St	Don Santos St
6"	Waterline	Dona Arcelia St	Dona Angelica Ave	Dona Adelina Ave
6"	Waterline	Don Santos St	Dona Angelica Ave	Dona Adelina Ave
—	Disconnect existing 8" water in Arenal Rd from Zone OW 36" Waterline.			
SANITARY SEWER				
8"	SAS	Dona Angelica Ave	Dona Arcelia St	Don Santos St
8"	SAS	Dona Adelina Ave	Dona Arcelia St	Don Santos St
8"	SAS	Dona Arcelia St	Dona Angelica Ave	Dona Adelina Ave
8"	SAS	Don Santos St	Dona Angelica Ave	Dona Adelina Ave
8"	SAS	Don Aragon Dr	Dona Adelina Ave	Unit 2
8"	SAS	35' Esmt Lot 6,Blk 1	Dona Angelica Ave	Arenal Rd
STORM DRAIN				
18"-36"	Strm Sewer	Dona Angelica Ave	Lot 4, Blk 1	Lot 6, Blk 1

D.R.B. Case No. 97-498
D.R.C. Project No. _____
Date Submitted 4/21-98
Prelim. Plat Approved _____
Prelim. Plat Expires _____

36"	Strm Sewer	35' Esmt Lot 6,Blk1	Dona Angelica Ave	Arenal Rd
3 ac•ft	Temp Ret Pond	Lots 2,3,4&5 Blk 1		

Engineer's Certification for Private Grading & Drainage per DPM for release of Finacial Guarantee.

UNIT II

PAVING

32' FF	Res Pvmt Std C & G 4' Sdwk W side only(1)	Don Aragon Dr	N Edge Lot 21,Blk 7	N Edge Lot 37,Blk 7
26' FF	Res Pvmt Roll C & G(2) 4' Sdwk Both sides(1)	Dona Esmera Ave	Dona Arcelia St	Don Aragon Dr
26' FF	Res Pvmt Roll C & G(2) 4' Sdwk Both sides(1)	Dona Delia Ave	Dona Arcelia St	Don Aragon Dr
26' FF	Res Pvmt Roll C & G(2) 4' Sdwk Both sides(1)	Dona Arcelia St	Dona Esmera Ave	Dona Delia Ave
Per DPM	Res Street Lights			

WATER

8"	Waterline	Don Aragon Dr	Phase I	PhaseIII
6"	Waterline	Dona Esmera Ave	Dona Arcelia St	Dona Aragon Dr
6"	Waterline	Dona Delia Ave	Dona Arcelia St	Dona Aragon Dr
6"	Waterline	Dona Arcelia St	Dona Esmera Ave	Dona Delia Ave

SANITARY SEWER

8"	SAS	Don Aragon Dr	Dona Esmera Ave	Phase I
8"	SAS	Dona Esmera Ave	Dona Arcelia St	Dona Aragon Dr
8"	SAS	Dona Delia Ave	Dona Arcelia St	Dona Aragon Dr
8"	SAS	Dona Arcelia St	Dona Esmera Ave	Dona Delia Ave

M10/D13

facsimile
TRANSMITTAL

to: Kevin Curran
Terri Martin

fax #: 924-3864

re: Puno de Tierra Estates Units 1 & 2, City Project #5940.81

date: April 12, 1999

pages: 4, including this cover sheet.

When we last talked a month ago the only thing missing was a signed copy of the "Maintenance Agreement" which no one has been able to find. So the county manager's office signed another copy. This should satisfy hydrology so they can sign the plans, and this copy of the agreement should be kept with your file. The easement is ready to record. The SIA with financial guarantees should be submitted in a day or so.

From the desk of...

JAMES D. HUGHES, PE
Senior Engineer
Mark Goodwin & Associates, PA
P.O. Box 90606
Albuquerque, NM 87199

(505) 828-2200
Fax: (505) 797-9539

BERNALILLO COUNTY COMMISSION
&
COUNTY MANAGER'S OFFICE

10TH FLOOR, ONE CIVIC PLAZA NW
ALBUQUERQUE, NM 87102

FAX COVER SHEET

FAX NUMBER: (505)768-4329 PHONE NUMBER: (505)768-4000

DATE: 4-12-99 PAGES: 3

TO: Cous Fleshes 799-9539

FROM: FRANCISCO MELENDEZ (by HEIDI)

COMMENTS: Want Agree

County of Bernalillo

State of New Mexico

BOARD OF COUNTY COMMISSIONERS
TOM RUTHERFORD, CHAIR
DISTRICT 3
BARBARA J. SEWARD, VICE CHAIR
DISTRICT 4
REN SANCHEZ, MEMBER
DISTRICT 1
STEVE D. GALLEGOS, MEMBER
DISTRICT 2
LES HOUSTON, MEMBER
DISTRICT 5
JUAN R. VIGIL, COUNTY MANAGER

MARK J. CARRILLO, ASSESSOR
JUDY D. WOODWARD, CLERK
IRA ROBINSON, PROBATE JUDGE
JOE EDWDICH, SHERIFF
ORLANDO VIGIL, TREASURER

ONE CIVIC PLAZA, N.W.
ALBUQUERQUE, NEW MEXICO 87102
ADMINISTRATION (505) 768-4000
COMMISSION (505) 768-4217
FAX (505) 768-4329

MAINTENANCE AGREEMENT
FOR DRAINAGE FACILITY EASEMENT

THIS AGREEMENT is made and entered into this 8th day of May, 1999, by and between the County of Bernalillo, a political subdivision of the State of New Mexico, and Asi Es, Inc., the developer of Puno de Tierra Estates Subdivision.

WHEREAS, Puno de Tierra Estates Subdivision developed by Asi Es, Inc. is located within the City of Albuquerque; and

WHEREAS, the County of Bernalillo has granted easements to the city of Albuquerque in order to allow drainage at Tom Tenorio Park from Asi Es, Inc. and other subdivisions on a temporary basis pursuant to the Master Utility and Right-of-Way Agreement between the City of Albuquerque and the County of Bernalillo dated August 20, 1990; and

WHEREAS, Asi Es, Inc. desires the drainage facility easement to be cleaned and maintained for the benefit of the residents of Puno de Tierra Estates Subdivision; and

WHEREAS, the County of Bernalillo must maintain the major portion of the drainage facility easement for the benefit of its residents; and

WHEREAS, it is more efficient for all parties if one entity maintains the drainage facility located at Tom Tenorio Park; and

WHEREAS, Asi Es, Inc. is willing to pay for its portion of the drainage facility easement located at Tom Tenorio Park for the temporary period.

IT IS HEREBY AGREED AS FOLLOWS:

1. Cost. That Asi Es, Inc. agrees to pay the County of Bernalillo the sum of Two Thousand Seven Hundred Dollars ($2,700)

CONTINUATION PAGE 2, MAINTENANCE AGREEMENT FOR DRAINAGE FACILITY EASEMENT

per year for the County of Bernalillo's maintenance of the ponding facility easement described on Exhibit A attached hereto and incorporated herein by reference. This maintenance does not include the storm sewer piping and outfall structure. The initial Two Thousand Seven Hundred Dollars ($2,700) shall be due on the date of the signing of this Agreement and continue on each anniversary thereafter until termination of this Maintenance Agreement.

In the event of termination of this Agreement on other than the anniversary date of the Agreement, any funds due or paid shall be pro-rated to the date of termination.

2. Term. The term of this Maintenance Agreement will continue until such time as permanent drainage facilities are constructed and the Grant of Temporary Public Maintenance Easement for Drainage Facility is terminated by the City of Albuquerque subject to the concurrence of the City Hydrologist as stated in the Grant of Temporary Public Maintenance Easement for Drainage Facility dated July 14, 1998, attached hereto and incorporated by reference as Exhibit B.

DONE THIS 8th day of May, 1999.

ASI ES, INC.

BY _____

APPROVED AS TO FORM:

_____
Bernalillo County Legal Dept.

COUNTY OF BERNALILLO

BY _____ 4/8/99
Juan R. Vigil, County Manager
CKTC 4/8/99

D.R.B. Case No. 97-498
D.R.C. Project No. _____
Date Submitted 4/21-98
Prelim. Plat Approved _____
Prelim. Plat Expires _____

Engineer's certification for Private Grading & Drainage per DPM for Release of Financial Guarantees.

UNIT III

PAVING

32' FF	Res Pvmt Std C & G 4' Sdwk W side only[1]	Don Aragon Dr	N edge Lot 37,Blk7	Dona Barbara Ave
32' FF	Res Pvmt Std C & G 4' Sdwk N side only[1]	Dona Barbara Ave	Don Aragon Dr	Lot 61, Blk 7
32' FF	Res Pvmt Std C & G	Dona Barbara Ave	E Prop Line	Airport Dr
32' FF	Res Pvmt Std C & G	Eduardo Rd	Airport Dr	Coors Blvd
32' FF	Res Pvmt Std C & G	Airport Dr	Dona Barbara Ave	Eduardo Rd
26' FF	Res Pvmt Roll C & G[2] 4' Sdwk Both sides[1]	Dona Arcelia St	Dona Barbara Ave	Don Xavier Ave
26' FF	Res Pvmt Roll C & G[2] 4' Sdwk Both sides[1]	Don Reynaldo St	Dona Barbara Ave	Don Xavier Ave
26' FF	Res Pvmt Roll C & G[2] 4' Sdwk Both sides[1]	Dona Xavier Ave	Dona Arcelia St	Dona Reynaldo St
Per DPM	Res Steet Lights			

D.R.B. Case No. 97-498
D.R.C. Project No. _____
Date Submitted 4/21-98
Prelim. Plat Approved _____
Prelim. Plat Expires _____

WATER

8"	Waterline	Don Aragon Dr	Unit II	Dona Barbara Ave
8"	Waterline	Dona Barbara Ave	Don Aragon Dr	Airport Dr
8"	Waterline	Airport Dr	Dona Barbara Ave	Eduardo Rd
6"	Waterline	Dona Arcelia St	Dona Barbara Ave	Don Xavier Ave
6"	Waterline	Don Reynaldo St	Dona Barbara Ave	Don Xavier Ave
6"	Waterline	Don Xavier Ave	Dona Arcelia St	Don Reynaldo St

SANITARY SEWER

8"	SAS	Dona Arcelia St	Dona Barbara Ave	Don Xavier Ave
8"	SAS	Don Reynaldo St	Dona Barbara Ave	Don Xavier Ave
8"	SAS	Don Xavier Ave	Dona Arcelia St	Don Reynaldo St
8'	SAS	Dona Barbara Ave	Don Reynaldo St	Airport Dr
8"	SAS	Airport Dr	Dona Barbara Ave	Eduardo Rd

STORM DRAINAGE

4 ac•ft	Temp Ret Pond	PDE E. of site		
18"-30"	Strm Sewer	Dona Barbara Ave	Inlets	Pond
24"-36"	Strm Sewer	Airport Dr	Inlets	Pond
18"	Strm Sewer(3)	Airport Dr	Pond	Eduardo Rd
18"	Strm Sewer(3)	Eduardo Rd	Airport Dr	Coors Rd

Engineer's certification for Private Grading & Drainage per DPM for Release of Financial Guarantee.

D.R.B. Case No. 97-498
D.R.C. Project No. _____
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UNIT IV

TRANSPORTATION

26' FF	Res Pvmt Roll C & G[2] 4' Sdwk Both sides[1]	Dona Luisa St	Dona Barbara Ave	Don Xavier Ave
26' FF	Res Pvmt Roll C & G[2] 4' Sdwk Both sides[1]	Dona Carmen St	Dona Barbara Ave	Don Xavier Ave
26' FF	Res Pvmt Roll C & G[2] 4' Sdwk Both sides[1]	Don Xavier Ave	Dona Luisa St	Dona Carmen St
Per DPM	Res Street Lights			

WATER

6"	Waterline	Dona Luisa St	Dona Barbara Ave	Don Xavier Ave
6"	Waterline	Dona Carmen St	Dona Barbara Ave	Don Xavier Ave
6"	Waterline	Don Xavier Ave	Dona Luisa St	Dona Carmen St

SANITARY SEWER

8"	SAS	Dona Luisa St	Dona Barbara Ave	Don Xavier Ave
8"	SAS	Dona Carmen St	Dona Barbara Ave	Don Xavier Ave
8"	SAS	Don Xavier Ave	Dona Luisa St	Dona Carmen St

Engineer's certification for Private Grading & Drainage per DPM for Release of Financial Guarantees.

D.R.B. Case No. 97-498
D.R.C. Project No. _____
Date Submitted 4/21-98
Prelim. Plat Approved _____
Prelim. Plat Expires _____

(1) Construction of all 4 sidewalks is to be deferred and financially guaranteed seperately. 6' side walks are constructed and not deferred.

(2) Standard C & G will be used in place of roll C & G where required for drainage purposes.

(3) Procedure 'C'.

Stormdrain to include manholes, inlets, riprap and outfall.

Water infrastructure to include valves, fittings, valveboxes and fire hydrants.

Sanitary sewer to include manholes and service connections.

Prepared By: _____
Print Name: James D. Hughes, PE
Firm: Mark Goodwin & Associates, PA

* * * *

D.R.B. Case No. 97-498
D.R.C. Project No. _____
Date Submitted 5/19/98
Prelim. Plat Approved _____
Prelim. Plat Expires _____

Figure 12

EXHIBIT "A"
To Subdivision Improvements Agreement
DEVELOPMENT REVIEW BOARD (DRB) REQUIRED INFRASTRUCTURE LISTING
for Puño de Tierra Estates — Units 1 & 2

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

Size	Type Improvement	Location	From	To
	UNIT I			
TRANSPORTATION				
25' FF	Art Pvmt Std & Med C & G 6' Sdwk, N side w/ Transitions as required	Arenal Rd	W Prop Line	E Prop Line
36' FF	Res Pvmt Std C & G 4' Sdwk Both sides(1)	Don Aragon Dr	Arenal Rd	Dona Angelica Ave
32' FF	Res Pvmt Std C & G 4' Sdwk Both sides(1)	Don Aragon Dr	Dona Angelica Ave	Dona Adelina Ave.
32' FF	Res Pvmt Std C&G 4' Sdwk W side only	Don Aragon Dr	Dona Angelica Ave	N side, Lot 21, Blk 7
26' FF	Res Pvmt Roll C & G(2) 4' Sdwk Both sides(1)	Dona Angelica Ave	Dona Arcelia St	Don Santos St
26' FF	Res Pvmt Roll C & G(2) 4' Sdwk Both sides(1)	Dona Arcelia St	Dona Angelica Ave	Dona Adelina Ave

D.R.B. Case No. 97-498
D.R.C. Project No. _____
Date Submitted 5/19/98
Prelim. Plat Approved _____
Prelim. Plat Expires _____

Size	Type Improvement	Location	From	To
26' FF	Res Pvmt Roll C & G[2] 4' Sdwk Both sides[1]	Don Santos St	Dona Angelica Ave	Dona Adelina Ave
26' FF	Res Pvmt Roll C&G[2] 4' Sdwk Both sides[1]	Dona Adelina Ave	Dona Arcelia St	Don Aragon Dr
26' FF	Res Pvmt Roll C & G[2] 4' Sdwk S side only[1]	Dona Adelina Ave	Don Aragon Dr	Don Santos St
Per DPM	Res Street Lights			
WATER				
30"	Waterline[3]	Amole Del Norte Right of Way Per City Project# 5431.92		
10"	Waterline	Arenal Rd	30" Water @ W Prop line	Existing 8" @ E Prop Line
8"	Waterline	Don Aragon Dr	Arenal Rd	Phase 2
6"	Waterline	Dona Angelica Ave	Dona Arcelia St	Don Santos St
6"	Waterline	Dona Adelina Ave	Dona Arcelia St	Don Santos St
6"	Waterline	Dona Arcelia St	Dona Angelica Ave	Dona Adelina Ave
6"	Waterline	Don Santos St	Dona Angelica Ave	Dona Adelina Ave
—	Disconnect existing 8" water in Arenal Rd from Zone 0W 36" Waterline.			
SANITARY SEWER				
8"	SAS	Dona Angelica Ave	Dona Arcelia St	Don Santos St
8"	SAS	Dona Adelina Ave	Dona Arcelia St	Don Santos St
8"	SAS	Dona Arcelia St	Dona Angelica Ave	Dona Adelina Ave
8"	SAS	Don Santos St	Dona Angelica Ave	Dona Adelina Ave
8"	SAS	Don Aragon Dr	Dona Adelina Ave	Unit 2
8"	SAS	35' Esmt Lot 6,Blk 1	Dona Angelica Ave	Arenal Rd

D.R.B. Case No. 97-498
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Prelim. Plat Expires _____

Size	Type Improvement	Location	From	To
STORM DRAIN				
18"-36"	Strm Sewer	Dona Angelica Ave	Lot 4, Blk 1	Lot 6, Blk 1
36"	Strm Sewer	35' Esmt Lot 6,Blk1	Dona Angelica Ave	Pond in Tenario Park
4 ac•ft	Temp Ret Pond	Esm't on Tenario Park		

Engineer's Certification for Private Grading & Drainage per DPM for release of Financial Guarantee.

UNIT II

PAVING				
32' FF	Res Pvmt Std C & G 4' Sdwk W side only(1)	Don Aragon Dr	N Edge Lot 21,Blk 7	N Edge Lot 37,Blk 7
26' FF	Res Pvmt Roll C & G(2) 4' Sdwk Both sides(1)	Dona Esmera Ave	Dona Arcelia St	Don Aragon Dr
26' FF	Res Pvmt Roll C & G(2) 4' Sdwk Both sides(1)	Dona Delia Ave	Dona Arcelia St	Don Aragon Dr
26' FF	Res Pvmt Roll C & G(2) 4' Sdwk Both sides(1)	Dona Arcelia St	Dona Esmera Ave	Dona Delia Ave
Per DPM	Res Street Lights			
WATER				
8"	Waterline	Don Aragon Dr	Phase I	PhaseIII
6"	Waterline	Dona Esmera Ave	Dona Arcelia St	Dona Aragon Dr
6"	Waterline	Dona Delia Ave	Dona Arcelia St	Dona Aragon Dr
6"	Waterline	Dona Arcelia St	Dona Esmera Ave	Dona Delia Ave

D.R.B. Case No. 97-498
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Size	Type Improvement	Location	From	To
SANITARY SEWER				
8"	SAS	Don Aragon Dr	Dona Esmera Ave	Phase I
8"	SAS	Dona Esmera Ave	Dona Arcelia St	Dona Aragon Dr
8"	SAS	Dona Delia Ave	Dona Arcelia St	Dona Aragon Dr
8"	SAS	Dona Arcelia St	Dona Esmera Ave	Dona Delia Ave

Engineer's certification for Private Grading & Drainage per DPM for Release of Financial Guarantees.

D.R.B. Case No. 97-498
D.R.C. Project No. _____
Date Submitted 5/19/98
Prelim. Plat Approved _____
Prelim. Plat Expires _____

(1) Construction of all 4' sidewalks is to be deferred and financially guaranteed separately. The 6' side walks are constructed and not deferred.

(2) Standard C & G will be used in place of roll C & G where required for drainage purposes.

(3) The C.I.P.# 5431.92 construction must be completed and accepted by the City of Albuquerque prior to release of Subdivision Improvement Agreement (not to be financially guaranteed).

Stormdrain to include manholes, inlets, riprap and outfall.

Water infrastructure to include valves, fittings, valveboxes and fire hydrants.

Sanitary sewer to include manholes and service connections.

Prepared By: _____
Print Name: James D. Hughes, PE
Firm: Mark GOODWIN & Associates, PA

* * * *

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

May 19, 2000

Doug Hughes, P.E.
Mark Goodwin & Associates, PA
Post Office Box 90606
Albuquerque, New Mexico 87199

RE: Grading and Drainage Certification Plan for Units 1 & 2, Puno De Tierra Estates, (M10/D13) Engineer's Certification Stamp Dated 5/3/00.

Dear Mr. Hughes:

Although the above referenced plan is adequate for the Grading and Drainage Certification requirement, financial guarantees for Puno De Tierra Units 1 & 2 may not be released until the County has accepted the pond that was constructed in Tom Tenorio park just south of Arenal Road. Please provide a copy of the County's acceptance letter with your resubmittal.

If you have any questions, or if I may be of further assistance to you, please call me at 924-3982.

Sincerely,

Susan M. Calongne, P.E.
City/County Floodplain Administrator

c: Terri Martin, DRB-97-498
Roger Paul, P.E., Bernalillo County Public Works Division
File

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Puno De Tierra Estates Units 1 & 2 ZONE ATLAS/DRNG.FILE#: M-10

DRB #: 97-498 EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: Tract 1-A San Jose Arenal

CITY ADDRESS: Arenal Rd between Unser Blvd. & Coors Blvd.

ENGINEERING FIRM: Mark Goodwin & Associates, PA CONTACT: Doug Hughes

ADDRESS: P.O. Box 90606, Albuquerque, NM 87199 PHONE: 828-2200

OWNER: A.S.I.- ES. CONTACT: Francisco Melendez

ADDRESS: 201 Industrial Park Loop, Rio Rancho, NM 87124 PHONE: 264-2824

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

____ DRAINAGE REPORT

____ DRAINAGE PLAN

____ CONCEPTUAL GRADING & DRAINAGE PLAN

____ GRADING PLAN

____ EROSION CONTROL PLAN

X ENGINEER'S CERTIFICATION

____ OTHER

PRE-DESIGN MEETING:

____ YES

____ NO

____ COPY PROVIDED

X MAYBE

CHECK TYPE OF APPROVAL SOUGHT:

____ SKETCH PLAT APPROVAL

____ PRELIMINARY PLAT APPROVAL

____ S. DEV. PLAN FOR SUB'D APPROVAL

____ S. DEV. PLAN FOR BLDG PERMIT APPROVAL

____ SECTOR PLAN APPROVAL

____ FINAL PLAT APPROVAL

____ FOUNDATION PERMIT APPROVAL

____ BUILDING PERMIT APPROVAL

____ CERTIFICATION OF OCCUPANCY APPROVAL

____ GRADING PERMIT APPROVAL

____ PAVING PERMIT APPROVAL

____ S.A.D. DRAINAGE REPORT

____ DRAINAGE REQUIREMENTS

X OTHER Release Financial Guarantee's (Specify)

DATE SUBMITTED: 5-5-00

BY: Doug Hughes
Doug Hughes, PE

RECEIVED
MAY 05 2000
HYDROLOGY SECTION

LETTER OF TRANSMITTAL

M-16/D013

D. Mark Goodwin & Associates, P.A.
Consulting Engineers
P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200 FAX 797-9539
e-mail: dmg@swcp.com

DATE 5-4-00 JOB NO.

ATTENTION Susan Colongne

RE: Puno De Tierra Estates Units 1 & 2

TO City of Albuquerque Hydrology Department

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
1	5-4-00	1 Page	Drainage Information Sheet
1	5-3-00	2 sheets	Engineer's Certification of Onsite Private Grading

RECEIVED MAY 05 2000 HYDROLOGY SECTION

THESE ARE TRANSMITTED as checked below:

☑ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS County Park Improvements will be certified seperately to County Public Works and you will be copied with that certification later.

For now the grading is complete both on-site and in the pond on the county park as noted by the as-built volumes on sheet 2. Grading on the park is not included in the city plans or in the city permits. Park grading is per a seperate plan that has been approved and permited for construction by the County Parks Dept. and County Public Works Department.

COPY TO Francisco Melendez

SIGNED: Doug Hughes

If enclosures are not as noted, kindly notify us at once.

POND-2 Version: 4.01
S/N: 88020607

CALCULATED 05-01-1998 10:09:39
DISK FILE : C:PUNO-S .VOL

Planimeter scale: 1 inch = 1 ft.

Elevation (ft)	Planimeter (sq.in.)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	* Volume (acre-ft)	Volume Sum (acre-ft)
73.00	11,100.00	0.25	0.00	0.00	0.00
82.48	*I*	0.67	1.33	4.21	4.21
83.00	*I*	0.69	1.37	4.57	4.57
84.00	32,680.00	0.75	1.44	5.29	5.29

I ---> Interpolated area from closest two planimeter readings.

$$IA = (sq.rt(Area1) + ((Ei-E1)/(E2-E1))*(sq.rt(Area2)-sq.rt(Area1)))^2$$

where: E1, E2 = Closest two elevations with planimeter data
Ei = Elevation at which to interpolate area
Area1,Area2 = Areas computed for E1, E2, respectively
IA = Interpolated area for Ei

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

COUNTY OF BERNALILLO
FINDING OF NO SIGNIFICANT IMPACT
for

Proposed Improvements to the Intersection of Arenal Road and Coors Road

The County of Bernalillo has determined that this project will not have any significant impact on the human environment. This finding of no significant impact is based upon the attached Environmental Assessment which has been independently evaluated by the County and determined to adequately and accurately discuss the environmental issues and impacts of the proposed project. It provides sufficient evidence and analysis for determining that an environmental impact statement is not required. The County takes full responsibility for the accuracy, scope and content of the attached Environmental Assessment.

The letter from the Bernalillo County Public Works Department, along with attachments, requesting a "Finding of No Significant Impact" is attached as part of this finding. The following are the attachments to the Public Works Department's letter:

1. The Environmental Assessment for this project.
2. The Input Synopsis for this project.

February 17, 1997
Date of Approval:

Juan Vigil
Bernalillo County Manager

The following person may be contacted for additional information concerning this document:

Mr. Frank Williams
Project Manager
Bernalillo County Public Works Division
2400 Broadway SE
Albuquerque, NM 87102
(505) 848-1572