CITY OF ALBUQUERQUE

June 30, 2008

David Soule, P.E.
Rio Grande Engineering
5300 Sequoia NW Ste. 206
Albuquerque, NM 87120

RE: Prima Entrada (J-09/D020)
Engineers Certification for Release of Financial Guaranty
Engineers Stamp dated 11/21/2005
Engineers Certification dated 05/15/2008

Mr. Soule:

Based upon the information provided in your Engineer's Certification submittal dated 06/24/2008, the above referenced plan is adequate to satisfy the Grading and Drainage Certification for Release of Financial Guaranty.

If you have any questions, you can contact me at 924-3982.

Sincerely,

Timothy E. Sims
Plan Checker, Planning Dept. - Hydrology
Development and Building Services

C: Marilyn Maldonado, COA# 784481
File

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 01/28/2003rd)

PROJECT TITLE: ***Prima Entrada*** ZONE MAP/DRG. FILE #: J9-D20

DRB #: 1 EPC #: WORK ORDER #: 7 7 8 4 1 8 1

LEGAL DESCRIPTION:

CITY ADDRESS:

ENGINEERING FIRM:	Rio Grande Engineering	CONTACT:	David Soule, PE
ADDRESS:	5300 Sequoia NW Suite 206	PHONE:	(505)321-9099
CITY, STATE:	Alb	ZIP CODE:	87120
OWNER:	***Monterrey Land GroupII***	CONTACT:	Tim
ADDRESS:		PHONE:	991-1154
CITY, STATE:		ZIP CODE:	
ARCHITECT:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
SURVEYOR:	Surv-tek	CONTACT:	Russ Hugg
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
CONTRACTOR:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	

CHECK TYPE OF SUBMITTAL:

- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN 1st SUBMITTAL, ***REQUIRES TCL or equal***
- ____ DRAINAGE PLAN RESUBMITTAL
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- ____ GRADING PLAN
- ____ EROSION CONTROL PLAN
- x ENGINEER'S CERTIFICATION (HYDROLOGY)
- ____ CLOMR/LOMR
- ____ TRAFFIC CIRCULATION LAYOUT (TCL)
- ____ ENGINEERS CERTIFICATION (TCL)
- ____ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ____ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

- x SIA / FINANACIAL GUARANTEE RELEASE
- ____ PRELIMINARY PLAT APPROVAL
- ____ S. DEV. PLAN FOR SUB'D. APPROVAL
- ____ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ____ SECTOR PLAN APPROVAL
- ____ FINAL PLAT APPROVAL
- ____ FOUNDATION PERMIT APPROVAL
- ____ BUILDING PERMIT APPROVAL
- ____ CERTIFICATE OF OCCUPANCY (PERM.)
- ____ CERTIFICATE OF OCCUPANCY (TEMP.)
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ WORK ORDER APPROVAL
- ____ OTHER (SPECIFY)

RECEIVED
JUN 24 2008
HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ____ YES
- ____ NO
- ____ COPY PROVIDED

DATE SUBMITTED: 6/18/2008 BY: David Soule

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a dranage submittal.
The particular nature, location and scope of the proposed development defines the degree of drainage detail.
One or more of the following levels of sumbittal may be required based on the following:

1. **Conceptual Grading and Drainage Plans**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report**: Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

CITY OF ALBUQUERQUE

November 28, 2005

David Soule, P.E.
Rio Grande Engineering
1606 Central Ave SE Suite 201
Albuquerque, NM 87106

Re: Prima Entrada Subdivision, Lands of Atrisco Grant Unit 3
Grading and Drainage Report
Engineer's Stamp dated 11-28-05 (J9-D20)

Dear Mr. Soule

Based upon the information provided in your resubmittal received 11-28-05, the above referenced plan is approved for Preliminary Plat, Site Development Plan for Subdivision and Final Plat action by DRB.

This project requires a National Pollutant Discharge Elimination System (NPDES) permit. If you have any questions regarding this permit please feel free to call the DMD Storm Drainage Design section at 768-3654 (Charles Caruso).
If you have any questions, you can contact me at 924-3986.

Sincerely,

Rudy E. Rael Associate Engineer
Planning Department.
Development and Building Services

RER

C: Charles Caruso, DMD Storm Drainage Design
CC: Lynn Mazur AMAFCA
File

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

CITY OF ALBUQUERQUE

November 28, 2005

David Soule, P.E.
Rio Grande Engineering
1606 Central Ave SE Suite 201
Albuquerque, NM 87106

Re: Prima Entrada Subdivision, Lands of Atrisco Grant Unit 3
Grading and Drainage Report
Engineer's Stamp dated 11-~~28~~-05 (J9-D20)
21 BUB

Dear Mr. Soule

Based upon the information provided in your resubmittal received 11-28-05, the above referenced plan is approved for Preliminary Plat, Site Development Plan for Subdivision and Final Plat action by DRB.

This project requires a National Pollutant Discharge Elimination System (NPDES) permit. If you have any questions regarding this permit please feel free to call the DMD Storm Drainage Design section at 768-3654 (Charles Caruso).
If you have any questions, you can contact me at 924-3986.

Sincerely,

Rudy E. Rael Associate Engineer
Planning Department.
Development and Building Services

C: Charles Caruso, DMD Storm Drainage Design
CC: Lynn Mazur AMAFCA
File

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

Rio Grande Engineering
Land Development and Civil Engineering Services

November 21, 2005

Mr. Bradley Bingham
Principal Engineer
City of Albuquerque
600 2nd Street NW
Albuquerque, NM 87102

RE: Prima Entrada Subdivision
J9- D20

Dear Mr. Bingham:

The purpose of this letter is to respond to your written comments dated September 6, 2005. The grading plan has been revised to address your comments as follows:

1.An AMAFCA approval along with a preliminary plan of the design and profile of the west I-40 Channel. This should tie to the portion further east (Designed by Mark Goodwin & Associates)
AMAFCA has authorized Lynn to approve the preliminary plat. The channel section has been added to the grading plan.
2. A profile of 94th St. to Endee Rd.
The adjacent subdivision vacated 94th. We are tying into the existing roadway of 94th street and matching there design grades

3. A profile of Endee Rd. Show the existing storm drain from the Master Plan
A plan view of this is included. We are tying into the existing flow lines.

4. Analyze and quantify runoff for the Tract east of Entrada Vista as a contributing offsite basin. Include this on the basin map
The adjacent subdivision has been designed by Thompson Engineering. A small portion of that site in the current condition can enter the pond and the appendix A includes this volume.

5. Water surface elevation of pond on sheet 1 of 2.
This has been added.

I believe I have addressed your comment and hope to get your approval of the enclosed Plan. Please contact me should you have any questions or comments.

Sincerely,

David Soule, PE

Enclosures

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 01/28/2003rd)

PROJECT TITLE: ***Prima Entrada*** ZONE MAP/DRG. FILE #: J9-D20

DRB #: ***10031523*** EPC #: WORK ORDER #:

LEGAL DESCRIPTION: **Tracts 355 & 356, Lands of Atrisco Grant unit 3, and Tracts A & B, Lands of Hector Rojo**

CITY ADDRESS:

ENGINEERING FIRM:	Rio Grande Engineering	CONTACT:	David Soule, PE
ADDRESS:	1606 Central NW Suite 201	PHONE:	(505)321-9099
CITY, STATE:	ALBUQUERQUE, NM	ZIP CODE:	87106
OWNER:	***Fuller homes***	CONTACT:	Jody Pauza
ADDRESS:	***PO Box 13900***	PHONE:	888-4740
CITY, STATE:	***Albuquerque, NM***	ZIP CODE:	87192
ARCHITECT:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
SURVEYOR:	JGI	CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
CONTRACTOR:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	

CHECK TYPE OF SUBMITTAL:

- ___ DRAINAGE REPORT
- ___ DRAINAGE PLAN 1st SUBMITTAL, ***REQUIRES TCL or equal***
- ___ DRAINAGE PLAN RESUBMITTAL
- ___ CONCEPTUAL GRADING & DRAINAGE PLAN
- x GRADING PLAN
- ___ EROSION CONTROL PLAN
- ___ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ___ CLOMR/LOMR
- ___ TRAFFIC CIRCULATION LAYOUT (TCL)
- ___ ENGINEERS CERTIFICATION (TCL)
- ___ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ___ OTHER

Need $800.00 fee 3/pd 9/2/05

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SIA / FINANACIAL GUARANTEE RELEASE
- x PRELIMINARY PLAT APPROVAL
- x 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
- ___ CERTIFICATE OF OCCUPANCY (PERM.)
- ___ CERTIFICATE OF OCCUPANCY (TEMP.)
- ___ GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ WORK ORDER APPROVAL
- ___ OTHER (SPECIFY) **Concurance for Bern. Co**

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ___ YES
- ___ NO
- ___ COPY PROVIDED

RECEIVED
NOV 22 2005
HYDROLOGY SECTION

DATE SUBMITTED: 11/21/2005 BY: David Soule

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a dranage submittal.
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One or more of the following levels of sumbittal may be required based on the following:

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2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report**: Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

REVISED
DRAINAGE REPORT

For

PRIMA ENTRADA SUBDIVISION
Albuquerque, New Mexico

Prepared by

Rio Grande Engineering
1606 Central Ave SE
Albuquerque, New Mexico 87106

November 21, 2005

David Soule P.E. No. 14522

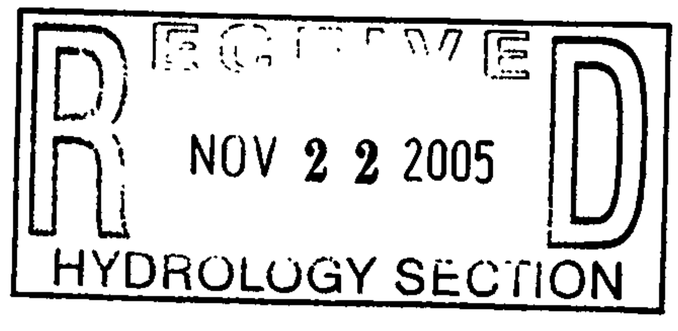


TABLE OF CONTENTS

PURPOSE

The purpose of this report is to provide the Drainage Management Plan for the development of the Prima Entrada Subdivision. This plan will be utilized for the development of the subject property as an 85-lot single family residential subdivision. This plan was prepared in accordance with the City of Albuquerque's Development Process Manual. This report will demonstrate that the proposed improvements do not adversely affect the surrounding properties, nor the upstream or downstream facilities.

INTRODUCTION

The subject of this report, as shown on the Exhibit A, is a 14.34-acre parcel of land located on the north side of Interstate 25 directly east of 98th street. The site is located in the Westland master plan area of Albuquerque. The legal description of this site is Tracts 31,31,32,33, Town of Atrisco Grant Unit 5. As shown on FIRM map 35001C0328E, the site is located entirely within Flood Zone X. The site is currently undeveloped.

The site is located within the West bluff Drainage Plan boundaries. The development of this property will be in conformance to this West bluff Master Drainage Plan. This plan calls for the construction of an AMFACA channel along the north side of Interstate 25. This subdivision must contribute an amount of $2,719.50 per acre to AMAFACA for this channel and retain onsite until the channel is constructed. Based upon the AMAFCA channel alignment, the channel adjacent to this site is located within the NMDOT right-of-way.

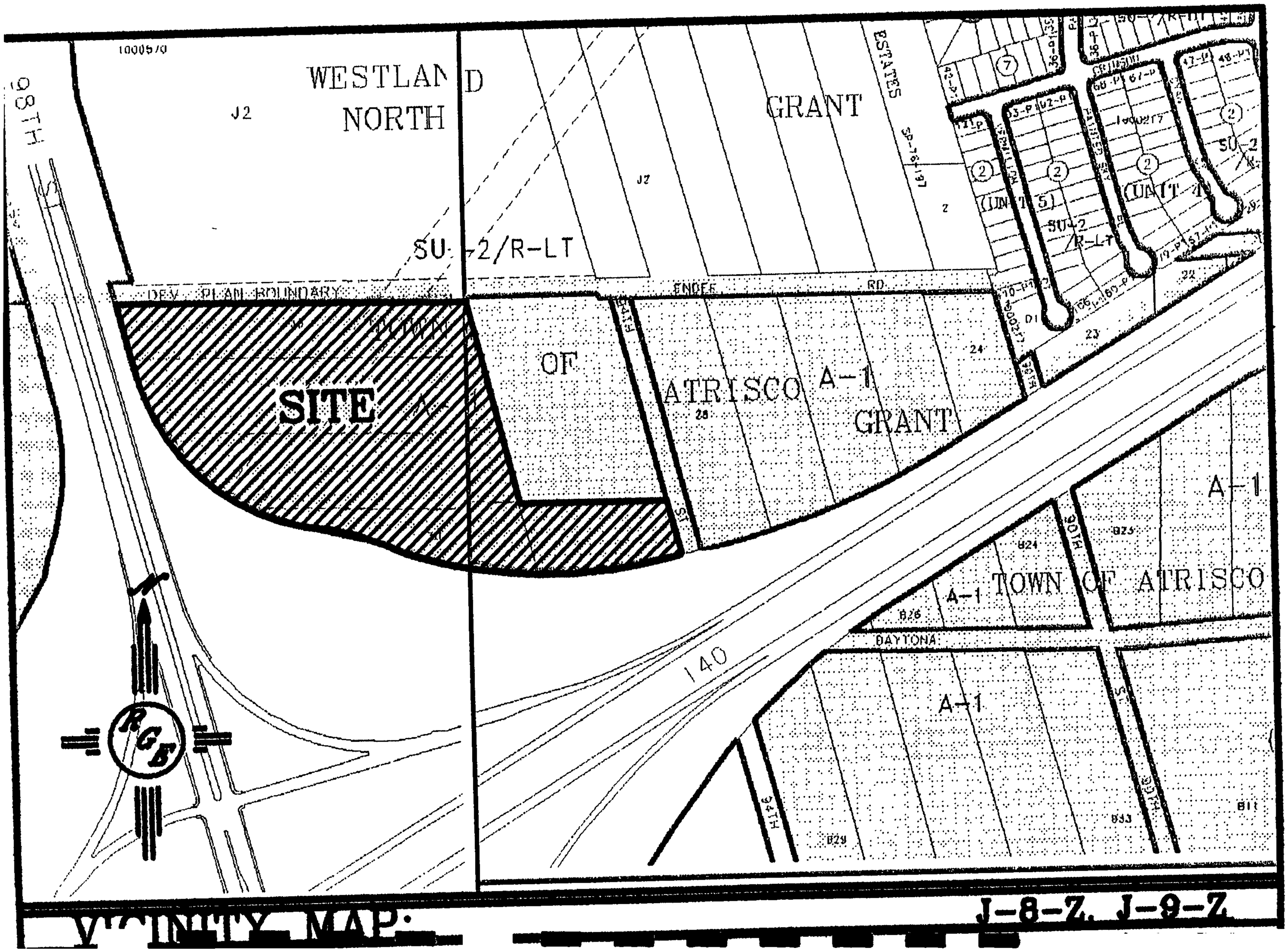


Exhibit A- Vicinity Map

4

EXISTING CONDITIONS

The site is currently undeveloped. The site is covered with native grasses; there are a few signs of current and previous impact from human activities, roadways and small stock piles of earthen material. The site slopes from the northwest to the south east at a typical 3% slope. The site is not impacted by any offsite flows. The site currently generates 20.16 cfs of storm water runoff during a 100-year, 6-hour storm event. This onsite flow sheet flows to an existing earthen channel located within the NMDOT right of way.

PROPOSED CONDITIONS

The proposed improvements consist of an 85-lot single family residential lot subdivision with approximately 3400 lineal feet of 28' wide public roads. The onsite lot grading shall consist of a building pad and rear and side yard swales with typical grades of 1%. Each lot will drain directly to the adjacent roadway. The proposed roadway will consist of a 2% crowned roadway section with mountable and standard curb and gutters. As shown in Appendix A the site contains 14 acres. The developed storm water generation rates were calculated using the simplified procedure for 40 acre and smaller basins as shown in chapter 23 part A of the Development Process Manual. As shown in Appendix A, the total developed flow developed on the site is predicted to be 48.69 cfs during a 100-year, 6-hour storm event. The adjacent site is currently under design and should be graded close to the same time as this site. A small portion of this site enters the site adjacent to the pond, therefore the minor offsite flow volume has been included. The streets storm water conveyance capacity was calculated using the Manning's Equation and an Excel spreadsheet. As shown in Appendix B, the 100-year peak discharge rate will stay within the roadway, and the energy grade line will be contained within the right of way.

As shown in the West Bluff Master Drainage Study, this site is allowed free discharge once the AMAFCA channel is constructed. This site must retain the entire flow onsite in the

interim. As shown in Appendix A the 100-year 10-day volume is predicted to be 2.61 acre-feet. As shown on the grading plan the pond volume of 3.52 acre feet is sufficient. The storm drain system was designed based upon manning equation and has the capacity for the entire peak flow. The system has been designed for the ultimate condition and partially plugged for the interim retention solution. Due to the inlets being in a sump condition, they have been designed for double the design flow rate.

SUMMARY AND RECOMMENDATIONS

This site is an undeveloped portion of land located within the boundaries of the West Bluff master drainage plan. As regulated by this plan the site is allowed to free discharge once AMAFCA constructs the channel. This site is not responsible to construct the channel but must make a monetary contribution to AMAFCA for a portion of the channel. In the interim condition this site will retain the 100-year 10-day storm event.

The proposed site development does not adversely affect the upstream or downstream facilities. The site was designed in conformance to City of Albuquerque Drainage Policy. Therefore, we request approval of the site-grading plan. Since public improvements will be constructed a work order and Subdivision Improvement Agreement will be required. Since this site encompasses more than 1 acre, a NPDES permit will be required prior to any construction activity.

APPENDIX A

SITE HYDROLOGY

Weighted E Method

Existing Basins

										100-Year		
Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
			%	(acres)	%	(acres)	%	(acres)	%	(acres)			
onsite	653400.00	14.340	90%	12.906	5%	0.717	5%	0.717	0%	0.000	0.479	0.572	20.16
Total	653400 00	14.340		12.906		0.717		0.717		0.000		0.572	20.16

Proposed Developed Basins

										100-Year, 6-hr.			10-day
Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Volume (ac-ft)
			%	(acres)	%	(acres)	%	(acres)	%	(acres)				
1	162605.12	3.733		0	42%	1.568	8%	0.29863	50%	1.866	1.346	0.419	12.20	0.667
2	70458.30	1.618		0	44%	0.712	10%	0.16175	46%	0.744	1.300	0.175	5.16	0.274
3	182952 00	4.200		0	42%	1.764	7%	0.294	51%	2.142	1.355	0.474	13.79	0.760
4	100305.61	2.303		0	38%	0.875	10%	0.23027	52%	1.197	1.378	0.264	7.67	0.424
5	108325.01	2.487		0	42%	1.044	10%	0.24868	48%	1.194	1.326	0 275	8.05	0.434
OFFSITE	52272.00	1.200	80%	0.96	10%	0.120	10%	0.12	0%	0.000	0.518	0.052	1.83	0.052
Total	516321.04	14.340		0.00		5.96		1.23		7.14		1.61	48.69	2.61

Equations:

Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed*Ad / (Total Area)

Volume = Weighted D * Total Area

Flow = Qa * Aa + Qb * Ab + Qc * Ac + Qd * Ad

Where for 100-year, 6-hour storm

Ea= 0.44	Qa= 1.29
Eb= 0.67	Qb= 2.03
Ec= 0.99	Qc= 2.87
Ed= 1.97	Qd= 4 37

Developed Conditons

AP1	17.36	CFS
AP2	NOT USED	CFS
AP3	13.79	CFS
AP4	38.81	CFS
AP5	46.86	CFS

APPENDIX B

HYDRAULIC CALCULATIONS

AP1A

AP 1A

28' F-F Street Section with 8" curb

Slope= 0.0403

For water depths less than 0.125 feet

Y= Water depth

Area = 8*Y^2

P= SQRT(257*Y^2) + Y

n= 0.017

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.01	0.00	0.17	0.00	0.00	0.00	0.49	0.00	0.87	0.008246
0.02	0.00	0.34	0.01	0.00	0.01	0.78	0.02	0.97	0.019296
0 04	0.01	0.68	0.02	0.02	0.03	1.24	0.05	1.09	0.044972
0.06	0.03	1.02	0.03	0.05	0.09	1.63	0.10	1.17	0.0736452
0.08	0.05	1.36	0.04	0.10	0.20	1.97	0.16	1.23	0.1044245
0.1	0.08	1.70	0.05	0.18	0.37	2.28	0.23	1 27	0.1368553
0.12	0.12	2.04	0.06	0.30	0.59	2.58	0.31	1.31	0.170656
0.125	0.13	2.13	0.06	0.33	0.66	2.65	0.33	1.32	0.1792963

For water depths greater than 0.125 ft but less than 0.365 ft

Y1= Y-0.125

A2= A1 + 2*Y1 + 25*Y1^2

P2= P1 + SQRT(2501*Y1^2)+Y1

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.13	0.14	2.38	0.06	0.35	0.70	2.60	0.34	1.27	0.1771311
0.16	0.23	3.91	0.06	0.59	1.18	2.62	0.42	1.15	0.1930167
0.2	0.42	5.95	0.07	1.24	2.47	2.97	0.59	1.17	0.2463066
0.24	0.69	8.00	0.09	2.34	4.68	3.41	0.82	1.23	0.3135747
0.2846	1.08	10.27	0.11	4.23	8.46	3.91	1.11	1.29	0.3969253
0.32	1.47	12.08	0.12	6.30	12.61	4.30	1.38	1.34	0.4671917
0.3551	**1.91**	**13.87**	**0.14**	**8.93**	**17.86**	**4.68**	**1.66**	**1.38**	**0.5395756**
0.365	2.05	14.37	0.14	9.78	19.56	4.78	1.75	1.40	0.5604111

For water depths greater than 0.365 ft but less than 0.667 ft

Y2= Y - 0.365

A3= A2 + Y2*14

P3= P2 + Y2

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.37	2.12	14.38	0.15	10.34	20.69	4.89	1.81	1.42	0.5790774
0.4556	3.31	14.46	0.23	21.77	43.54	6.57	2.99	1.72	0.9006975
0.4848	3.72	14.49	0.26	26.39	52.79	7.09	3.44	1.79	1.0116779
0.5	3.94	14.51	0.27	28.94	57.87	7.35	3.68	1.83	1.0697405
0.54	4.50	14.55	0.31	36.05	72.11	8.02	4.33	1.92	1.2235045
0.5584	4.75	14.56	0.33	39.53	79.06	8.32	4.64	1.96	1.2947045
0.63	5.76	14.64	0.39	54.20	108.40	9.42	5.93	2.09	1.5744831
0.667	6.27	14.67	0.43	62.47	124.94	9.96	6.64	2.15	1.7206764

For water depths greater than 0.667 ft but less than 0.847 ft

Y3= Y - 0.667

A4= A3 + 14 * Y3 + 25 * Y3^2

P4= P3 + SQRT(2501 * Y3^2)

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.7	6.76	16.32	0.41	65.94	131.88	9.75	6.83	2.05	1.7132293
0.72	7.09	17.32	0.41	68.50	137.01	9.67	6.96	2.01	1.7160845
0.74	7.43	18.32	0.41	71.40	142.80	9.61	7.11	1.97	1.7235906
0.76	7.79	19.32	0.40	74.62	149.23	9.58	7.28	1.94	1.7351583
0.78	8.17	20.32	0.40	78.15	156.31	9.56	7.46	1.91	1.7502998
0.8	8.58	21.32	0.40	82.01	164.02	9.56	7.65	1.88	1.7686077
0.847	9.60	23.68	0.41	92.34	184.67	9.62	8.14	1.84	1.8222298

Street Capacity Calculations

AP 1

28' F-F Street Section with 8" curb

Slope= 0.01

For water depths less than 0.125 feet

Y= Water depth
Area = 8*Y^2
P= SQRT(257*Y^2) + Y
n= 0.017

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.01	0.00	0.17	0.00	0.00	0.00	0.25	0.00	0.43	0.0028952
0.02	0.00	0.34	0.01	0.00	0.00	0.39	0.01	0.48	0.006975
0.04	0.01	0.68	0.02	0.01	0.02	0.62	0.02	0.54	0.0167182
0.06	0.03	1.02	0.03	0.02	0.05	0.81	0.05	0.58	0.0278123
0.08	0.05	1.36	0.04	0.05	0.10	0.98	0.08	0.61	0.0398672
0.1	0.08	1.70	0.05	0.09	0.18	1 14	0.11	0.63	0.052681
0.12	0.12	2.04	0.06	0.15	0.30	1.29	0.15	0.65	0.0661279
0.125	0.13	2.13	0.06	0.17	0 33	1.32	0.17	0.66	0.0695777

For water depths greater than 0.125 ft but less than 0.365 ft

Y1= Y-0.125
A2= A1 + 2*Y1 + 25*Y1^2
P2= P1 + SQRT(2501*Y1^2)+Y1

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.13	0.14	2.38	0.06	0.18	0.35	1.29	0.17	0.63	0.0681329
0.16	0.23	3.91	0.06	0.29	0.59	1.30	0.21	0.57	0.0726687
0.2	0.42	5.95	0.07	0.62	1.23	1.48	0.30	0 58	0.0930738
0.24	0.69	8.00	0.09	1.17	2.33	1.70	0.41	0.61	0.1197367
0.2846	1.08	10.27	0.11	2.11	4.21	1.95	0.55	0.64	0.1532918
0.32	1.47	12.08	0.12	3.14	6.28	2.14	0.69	0.67	0.1818449
0.3551	1.91	13.87	0.14	4.45	8.90	2.33	0.83	0.69	0.2114383
0.365	2.05	14.37	0.14	4.87	9.74	2.38	0.87	0.69	0.2199845

For water depths greater than 0.365 ft but less than 0.667 ft

Y2= Y - 0.365
A3= A2 + Y2*14
P3= P2 + Y2

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.37	2.12	14.38	0.15	5.15	10.30	2.44	0.90	0.71	0.2280369
0.4556	**3.31**	**14.46**	**0.23**	**10.84**	**21.69**	**3.27**	**1.49**	**0.85**	**0.3680379**
0.4848	3.72	14.49	0.26	13.15	26.29	3.53	1.71	0.89	0.416712
0.5	3 94	14.51	0.27	14.41	28.83	3 66	1.83	0.91	0 4422273
0.54	4.50	14.55	0.31	17.96	35.92	4.00	2.16	0.96	0.5099349
0.5584	4.75	14.56	0.33	19.69	39.38	4.14	2.31	0.98	0.5413445
0.63	5.76	14.64	0.39	27.00	54.00	4.69	2.96	1.04	0.6650489
0.667	6.27	14.67	0.43	31.12	62.24	4.96	3.31	1.07	0.7298348

For water depths greater than 0.667 ft but less than 0.847 ft

Y3= Y - 0.667
A4= A3 + 14 * Y3 + 25 * Y3^2
P4= P3 + SQRT(2501 * Y3^2)

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.7	6.76	16.32	0.41	32.85	65.70	4.86	3.40	1.02	0.7216387
0.72	7.09	17.32	0.41	34.12	68.25	4.82	3.47	1.00	0.7202553
0.74	7.43	18.32	0.41	35.57	71.13	4.79	3.54	0.98	0.7211247
0.76	7.79	19.32	0.40	37.17	74.34	4.77	3.63	0.96	0.7239548
0.78	8.17	20.32	0.40	38.93	77.86	4.76	3.71	0.95	0.7285051
0.8	8.58	21.32	0.40	40.85	81.71	4.76	3.81	0.94	0.734575
0.847	9.60	23.68	0.41	46.00	91.99	4.79	4.06	0.92	0.7539072

Street Capacity Calculations

AP 3

28' F-F Street Section with 8" curb

Slope= 0.03

For water depths less than 0.125 feet

Y= Water depth

Area = 8*Y^2

P= SQRT(257*Y^2) + Y

n= 0.017

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.01	0.00	0.17	0.00	0.00	0.00	0.42	0.00	0.75	0.0067048
0.02	0.00	0.34	0.01	0.00	0.00	0.67	0.01	0.84	0.0157771
0.04	0.01	0.68	0.02	0.01	0.03	1.07	0.04	0.94	0.0369621
0.06	0.03	1.02	0.03	0.04	0.08	1.40	0.08	1.01	0.0607017
0.08	0.05	1.36	0.04	0.09	0.17	1.70	0.14	1.06	0.0862391
0.1	0.08	1.70	0.05	0.16	0.32	1.97	0.20	1.10	0.1131876
0.12	0.12	2.04	0.06	0.26	0 51	2.23	0.27	1.13	0.1413075
0.125	0.13	2.13	0.06	0.29	0.57	2.29	0.29	1.14	0 1485001

For water depths greater than 0.125 ft but less than 0.365 ft

Y1= Y-0.125

A2= A1 + 2*Y1 + 25*Y1^2

P2= P1 + SQRT(2501*Y1^2)+Y1

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.13	0.14	2.38	0.06	0.30	0.61	2.24	0.29	1.09	0.1464784
0.16	0.23	3.91	0.06	0.51	1.02	2.26	0.36	1.00	0.1590045
0.2	0.42	5.95	0.07	1.07	2.13	2.57	0.51	1.01	0.2030387
0.24	0.69	8.00	0.09	2.02	4.04	2.94	0.71	1.06	0.2589738
0.2846	1.08	10.27	0.11	3.65	7.30	3.38	0.96	1.11	0.3284706
0.32	1.47	12.08	0 12	5.44	10.88	3.71	1.19	1.16	0.3871506
0.3551	**1.91**	**13.87**	**0.14**	**7.71**	**15.41**	**4.04**	**1.43**	**1.19**	**0.44766**
0.365	2.05	14.37	0.14	8.44	16.88	4.13	1.51	1.20	0.4650869

For water depths greater than 0.365 ft but less than 0.667 ft

Y2= Y - 0.365

A3= A2 + Y2*14

P3= P2 + Y2

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.37	2.12	14.38	0.15	8.92	17.85	4.22	1.56	1.22	0.4808442
0.4556	3.31	14.46	0.23	18.78	37.57	5.67	2.58	1.48	0.7526503
0.4848	3.72	14.49	0.26	22.77	45.54	6.12	2.97	1.55	0.8465309
0.5	3.94	14.51	0.27	24.97	49.93	6.34	3.17	1.58	0.8956596
0.54	4.50	14.55	0.31	31.11	62.21	6.92	3.74	1.66	1.0257991
0.5584	4.75	14.56	0.33	34.10	68.21	7.18	4.01	1.69	1.0860745
0.63	5.76	14.64	0.39	46.76	93.53	8.13	5.12	1.80	1 322998
0.667	6.27	14.67	0.43	53.90	107.80	8.59	5.73	1.85	1.4468366

For water depths greater than 0.667 ft but less than 0.847 ft

Y3= Y - 0.667

A4= A3 + 14 * Y3 + 25 * Y3^2

P4= P3 + SQRT(2501 * Y3^2)

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.7	6.76	16.32	0.41	56.89	113.79	8.41	5.89	1.77	1.4389182
0.72	7.09	17.32	0.41	59.10	118.21	8.34	6.01	1.73	1.4404596
0.74	7.43	18.32	0.41	61.60	123.20	8.29	6.14	1.70	1.4460009
0.76	7.79	19.32	0.40	64.38	128.76	8.26	6.28	1.67	1.4550338
0.78	8.17	20.32	0.40	67.43	134.86	8.25	6.43	1.65	1.4671379
0.8	8.58	21.32	0.40	70.76	141.52	8.25	6.60	1.63	1.481962
0.847	9.60	23.68	0.41	79.67	159.33	8.30	7.03	1.59	1.5258996

Street Capacity Calculations

AP 4

28' F-F Street Section with 8" curb

Slope= 0.01

For water depths less than 0.125 feet

Y= Water depth

Area = 8*Y^2

P= SQRT(257*Y^2) + Y

n= 0.017

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.01	0.00	0.17	0.00	0.00	0.00	0.25	0.00	0.43	0.0028952
0.02	0.00	0.34	0.01	0.00	0.00	0.39	0.01	0 48	0.006975
0.04	0.01	0.68	0.02	0.01	0.02	0.62	0.02	0.54	0.0167182
0.06	0.03	1.02	0.03	0.02	0.05	0.81	0.05	0.58	0.0278123
0.08	0.05	1.36	0.04	0.05	0.10	0.98	0.08	0.61	0.0398672
0.1	0.08	1.70	0.05	0.09	0.18	1.14	0.11	0.63	0.052681
0.12	0.12	2.04	0.06	0.15	0.30	1.29	0.15	0.65	0.0661279
0.125	0.13	2.13	0.06	0.17	0.33	1.32	0.17	0.66	0.0695777

For water depths greater than 0.125 ft but less than 0.365 ft

Y1= Y-0.125

A2= A1 + 2*Y1 + 25*Y1^2

P2= P1 + SQRT(2501*Y1^2)+Y1

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.13	0.14	2.38	0.06	0.18	0.35	1.29	0.17	0.63	0.0681329
0.16	0.23	3.91	0.06	0.29	0.59	1.30	0.21	0.57	0.0726687
0.2	0.42	5.95	0.07	0.62	1.23	1.48	0.30	0.58	0.0930738
0.24	0.69	8.00	0.09	1.17	2.33	1.70	0.41	0.61	0.1197367
0.2846	1.08	10.27	0.11	2.11	4.21	1.95	0.55	0.64	0.1532918
0.32	1.47	12.08	0.12	3.14	6.28	2.14	0.69	0.67	0.1818449
0.3551	1.91	13.87	0.14	4.45	8.90	2.33	0.83	0.69	0.2114383
0.365	2.05	14.37	0.14	4.87	9.74	2.38	0.87	0.69	0.2199845

For water depths greater than 0.365 ft but less than 0.667 ft

Y2= Y - 0.365

A3= A2 + Y2*14

P3= P2 + Y2

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.37	2.12	14.38	0.15	5.15	10.30	2.44	0.90	0.71	0.2280369
0.4556	3.31	14.46	0.23	10.84	21.69	3.27	1.49	0.85	0.3680379
0.4848	3.72	14.49	0.26	13.15	26.29	3.53	1.71	0.89	0.416712
0.5	3.94	14.51	0.27	14.41	28.83	3.66	1.83	0.91	0.4422273
0.54	4.50	14.55	0.31	17.96	35.92	4.00	2.16	0.96	0.5099349
0.5584	**4.75**	**14.56**	**0.33**	**19.69**	**39.38**	**4.14**	**2.31**	**0.98**	**0.5413445**
0.63	5.76	14.64	0.39	27.00	54.00	4.69	2.96	1.04	0.6650489
0.667	6.27	14.67	0.43	31.12	62.24	4.96	3.31	1.07	0.7298348

For water depths greater than 0.667 ft but less than 0.847 ft

Y3= Y - 0.667

A4= A3 + 14 * Y3 + 25 * Y3^2

P4= P3 + SQRT(2501 * Y3^2)

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.7	6.76	16.32	0.41	32.85	65.70	4.86	3.40	1.02	0.7216387
0.72	7.09	17.32	0.41	34.12	68.25	4.82	3.47	1.00	0.7202553
0.74	7.43	18.32	0.41	35.57	71.13	4.79	3.54	0.98	0.7211247
0.76	7.79	19.32	0.40	37.17	74.34	4.77	3.63	0.96	0.7239548
0.78	8.17	20.32	0.40	38.93	77.86	4.76	3.71	0.95	0.7285051
0.8	8.58	21.32	0.40	40.85	81.71	4.76	3.81	0.94	0.734575
0.847	9.60	23.68	0.41	46.00	91.99	4.79	4.06	0.92	0.7539072

Street Capacity Calculations

AP 5-A

28' F-F Street Section with 8" curb

Slope= 0.01

For water depths less than 0.125 feet

Y= Water depth

Area = 8*Y^2

P= SQRT(257*Y^2) + Y

n= 0.017

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.01	0.00	0.17	0.00	0.00	0.00	0.25	0.00	0.43	0.0028952
0.02	0.00	0.34	0.01	0.00	0.00	0.39	0.01	0.48	0.006975
0.04	0.01	0.68	0.02	0.01	0.02	0.62	0.02	0.54	0.0167182
0.06	0.03	1.02	0.03	0.02	0.05	0.81	0.05	0.58	0.0278123
0.08	0.05	1.36	0.04	0.05	0.10	0.98	0.08	0.61	0.0398672
0.1	0.08	1.70	0.05	0.09	0.18	1.14	0.11	0.63	0.052681
0.12	0.12	2.04	0.06	0.15	0.30	1.29	0.15	0.65	0.0661279
0.125	0.13	2.13	0.06	0.17	0.33	1.32	0.17	0.66	0.0695777

For water depths greater than 0.125 ft but less than 0.365 ft

Y1= Y-0.125

A2= A1 + 2*Y1 + 25*Y1^2

P2= P1 + SQRT(2501*Y1^2)+Y1

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.13	0.14	2.38	0.06	0.18	0.35	1.29	0.17	0.63	0.0681329
0.16	0.23	3.91	0.06	0.29	0.59	1.30	0.21	0.57	0.0726687
0.2	0.42	5.95	0.07	0.62	1.23	1.48	0.30	0.58	0.0930738
0.24	0.69	8.00	0.09	1.17	2.33	1.70	0.41	0.61	0.1197367
0.2846	1.08	10.27	0.11	2.11	4.21	1.95	0.55	0.64	0.1532918
0.32	1.47	12.08	0.12	3.14	6.28	2.14	0.69	0.67	0.1818449
0.3551	1.91	13.87	0.14	4.45	8.90	2.33	0.83	0.69	0.2114383
0.365	2.05	14.37	0.14	4.87	9.74	2.38	0.87	0.69	0.2199845

For water depths greater than 0.365 ft but less than 0.667 ft

Y2= Y - 0.365

A3= A2 + Y2*14

P3= P2 + Y2

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.37	2.12	14.38	0.15	5.15	10.30	2.44	0.90	0.71	0.2280369
0.4556	3.31	14.46	0.23	10.84	21.69	3.27	1.49	0.85	0.3680379
0.4848	3.72	14.49	0.26	13.15	26.29	3.53	1.71	0.89	0.416712
0.5	3.94	14.51	0.27	14.41	28.83	3.66	1.83	0.91	0.4422273
0.54	4.50	14.55	0.31	17.96	35.92	4.00	2.16	0.96	0.5099349
0.5584	4.75	14.56	0.33	19.69	39.38	4.14	2.31	0.98	0.5413445
0.63	**5.76**	**14.64**	**0.39**	**27.00**	**54.00**	**4.69**	**2.96**	**1.04**	**0.6650489**
0.667	6.27	14.67	0.43	31.12	62.24	4.96	3.31	1.07	0.7298348

For water depths greater than 0.667 ft but less than 0.847 ft

Y3= Y - 0.667

A4= A3 + 14 * Y3 + 25 * Y3^2

P4= P3 + SQRT(2501 * Y3^2)

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.7	6.76	16.32	0.41	32.85	65.70	4.86	3.40	1.02	0.7216387
0.72	7.09	17.32	0.41	34.12	68.25	4.82	3.47	1.00	0.7202553
0.74	7.43	18.32	0.41	35.57	71.13	4.79	3.54	0.98	0.7211247
0.76	7.79	19.32	0.40	37.17	74.34	4.77	3.63	0.96	0.7239548
0.78	8.17	20.32	0.40	38.93	77.86	4.76	3.71	0.95	0.7285051
0.8	8.58	21.32	0.40	40.85	81.71	4.76	3.81	0.94	0.734575
0.847	9.60	23.68	0.41	46.00	91.99	4.79	4.06	0.92	0.7539072

Street Capacity Calculations

AP 5

28' F-F Street Section with 8" curb

Slope= 0.0274

For water depths less than 0.125 feet

Y= Water depth
Area = 8*Y^2
P= SQRT(257*Y^2) + Y
n= 0.017

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.01	0.00	0.17	0.00	0.00	0.00	0.41	0.00	0.72	0.0062825
0.02	0.00	0.34	0.01	0.00	0.00	0.64	0.01	0.80	0.01481
0.04	0.01	0.68	0.02	0.01	0.03	1.02	0.04	0.90	0.0347553
0.06	0.03	1.02	0.03	0.04	0.08	1.34	0.08	0.96	0.0571309
0.08	0.05	1.36	0.04	0.08	0.17	1.62	0.13	1.01	0.0812181
0.1	0.08	1.70	0.05	0.15	0.30	1.88	0.19	1.05	0.106649
0.12	0.12	2.04	0.06	0.25	0.49	2.13	0.26	1.08	0.1331957
0.125	0.13	2.13	0.06	0.27	0.55	2.19	0.27	1.09	0.1399873

For water depths greater than 0.125 ft but less than 0.365 ft

Y1= Y-0.125
A2= A1 + 2*Y1 + 25*Y1^2
P2= P1 + SQRT(2501*Y1^2)+Y1

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.13	0.14	2.38	0.06	0.29	0.58	2.14	0.28	1.05	0.1380105
0.16	0.23	3.91	0.06	0.49	0.97	2.16	0.35	0.95	0.1496239
0.2	0.42	5.95	0.07	1.02	2.04	2.45	0.49	0.97	0.1911019
0.24	0.69	8.00	0.09	1.93	3.86	2.81	0.68	1.01	0.2438983
0.2846	1.08	10.27	0.11	3.49	6.97	3.23	0.92	1.07	0.3095544
0.32	1.47	12.08	0.12	5.20	10.40	3.55	1.14	1.10	0.3650207
0.3551	1.91	13.87	0.14	7.36	14.73	3.86	1.37	1.14	0.4222356
0.365	2.05	14.37	0.14	8.06	16.13	3.94	1.44	1.15	0.4387165

For water depths greater than 0.365 ft but less than 0.667 ft

Y2= Y - 0.365
A3= A2 + Y2*14
P3= P2 + Y2

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.37	2.12	14.38	0.15	8.53	17.06	4.03	1.49	1.17	0.4536636
0.4556	3.31	14.46	0.23	17.95	35.90	5.42	2.47	1.41	0.7115982
0.4848	3.72	14.49	0.26	21.76	43.53	5.85	2.83	1.48	0.8007184
0.5	3.94	14.51	0.27	23.86	47.72	6.06	3.03	1.51	0.8473603
0.54	**4.50**	**14.55**	**0.31**	**29.73**	**59.46**	**6.61**	**3.57**	**1.59**	**0.9709238**
0.5584	4.75	14.56	0.33	32.59	65.19	6.86	3.83	1.62	1.0281584
0.63	5.76	14.64	0.39	44.69	89.38	7.77	4.89	1.72	1.253154
0.667	6.27	14.67	0.43	51.51	103.02	8.21	5.48	1.77	1.3707708

For water depths greater than 0.667 ft but less than 0.847 ft

Y3= Y - 0.667
A4= A3 + 14 * Y3 + 25 * Y3^2
P4= P3 + SQRT(2501 * Y3^2)

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.7	6.76	16.32	0.41	54.37	108.75	8.04	5.63	1.69	1.362744
0.72	7.09	17.32	0.41	56.49	112.97	7.97	5.74	1.66	1.3639325
0.74	7.43	18.32	0.41	58.87	117.74	7.93	5.86	1.62	1.3689391
0.76	7.79	19.32	0.40	61.53	123.05	7.90	6.00	1.60	1.3772782
0.78	8.17	20.32	0.40	64.44	128.89	7.88	6.15	1.57	1.388548
0.8	8.58	21.32	0.40	67.62	135.25	7.88	6.31	1.55	1.4024132
0.847	9.60	23.68	0.41	76.14	152.27	7.93	6.72	1.52	1.4436785

Channel Capacity

	Top Width	Bottom Width	Depth	Area	WP	R	Slope	Q Provided	Q Required	Velocity
	(ft)	(ft)	(ft)	(ft^2)	(ft)		(%)	(cfs)	(cfs)	(ft/s)
Beginning	4	4	0.67	2.68	5.34	0.5018727	4	29.67	5.16	1.93

Manning's Equation:

Q = 1.49/n * A * R^(2/3) * S^(1/2)

A = Area

R = D/4

S = Slope

n = 0.017

Concrete Channel

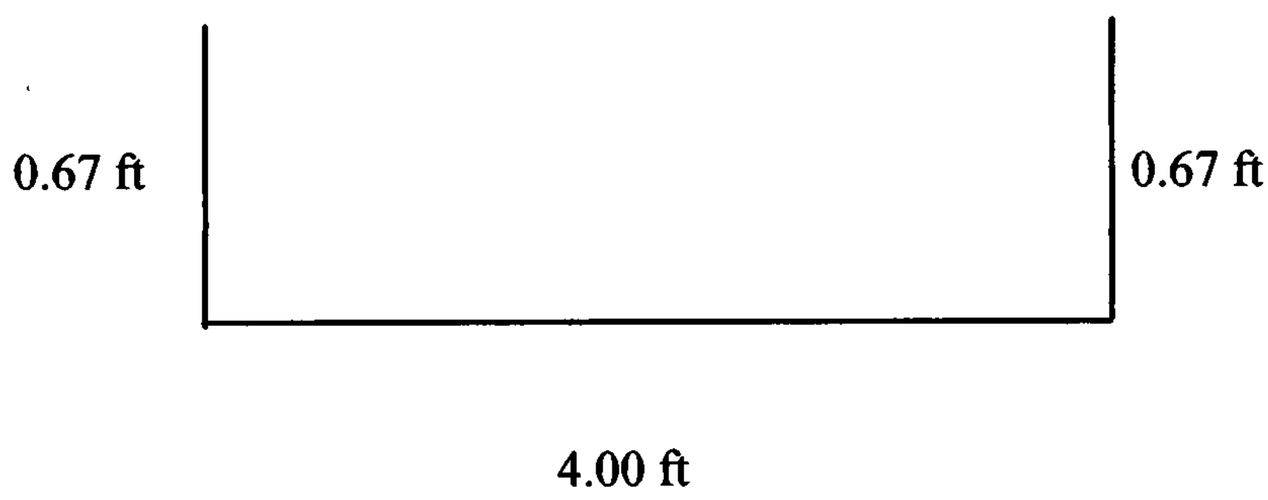
Weir Equation:

$$Q = CLH^{3/2}$$

Q= 5.16 cfs
C = 2.95
H = 0.67 ft
L = Length of weir

$$L = \frac{5.16}{2.95(0.67)^{3/2}}$$

L = 3.19 ft
Use 4.00 feet for length of weir



DROP INLET
HEAD CAPACITY

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

Orifice Equation:
Q = Flow (cfs)=48.69/2*2=48.69- 50% CLOGGING FACTOR
C = 0.60
A = Area of drop inlet (ft^2)
g = 32.2
H = Height of water above drop inlet (ft)

$$H = \frac{\left(\frac{Q}{C * A}\right)^2}{2g}$$

$$H = \frac{\left(\frac{48.69}{0.6 * 11.24}\right)^2}{2 * 32.2}$$

H = 0.48 feet

Allowable depth = 0.847 feet
Required depth = 0.809 feet

0.809 feet < 0.847 feet

Pipe Capacity

Pipe	D	Slope	Area	R	Q Provided	Q Required	Velocity
	(in)	(%)	(ft^2)		(cfs)	(cfs)	(ft/s)
A	30	2.5	4.91	0.625	65.03	48.69	9.92
B	24	2.06	3.14	0.5	32.56	24.35	7.75

Manning's Equation:

Q = 1.49/n * A * R^(2/3) * S^(1/2)

A = Area
R = D/4
S = Slope
n = 0.013

APPENDIX C

DRAINAGE BASIN MAP

MAP POCKET

GRADING PLAN

1003523

- South end of 94th St

J9/020

have to get easement or to allow

30" pipe to continue to channel
Richard & Blake

- add to find plat prior to prior entrada

- 1003523
SD from parent to channel
not on IL

- See if AMFCA has recive agreement
for the pipe into the channel
w/ Lynn

CITY OF ALBUQUERQUE
PLANNING DEPARTMENT

HYDROLOGY DEVELOPMENT SECTION
DEVELOPMENT REVIEW BOARD MEMO

DRB PROJECT NO: 1006007

AGENDA ITEM NO: 6

SUBJECT:

Plat Approval

ENGINEERING COMMENTS:

A revised grading plan is required, since lot size, lot configurations and size of open space tracts have changed. It may be necessary to amend the Preliminary Plat.
Note the change in flow and volume from previously approved drainage report for basins A, F and G.

An updated drainage report will be required if there are significant changes from the previously approved drainage report.

RESOLUTION/COMMENTS:

SIGNED:
Curtis Cherne
Hydrology Section
City Engineer Designee
AMAFCA Designee
924-3986

DATE: 12-19-12

12-14-4

1. 8597-8599 3:20 pm

TEL Grant

Drainage pond

old washed property / Sunset

Arroyo visit / Lacerra

pond south of gate st

pond Entrada Solution

is pond temp or permanent?

along Sunset

August 30, 2011

David Soule, P.E.
Rio Grande Engineering
P.O. Box 67305
Albuquerque, NM 87193

Re: Backer Works, 5809 Jefferson NE
Grading and Drainage Plan
Engineer's Stamp date 8-22-11 (E17/D018)

Dear Mr. Soule,

Based upon the information provided in your submittal received 8-24-11, the above referenced plan is approved for Administrative Amendment to the Site Plan and for Building Permit.

Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology. Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

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

Sincerely,

Curtis A. Cherne, P.E.
Principal Engineer, Planning Dept.
Development and Building Services

C: File

21

784481

12-7-2006

AGREEMENT AND COVENANT

This Agreement and Covenant, between the City of Albuquerque, New Mexico ("City") and Monterey Land Group II, LLC, ("User") is made in Albuquerque, New Mexico and is entered into as of the date of recording this Agreement with the Bernalillo County Clerk.

1. Recital. The User is the owner of certain real property ("User's Property") located at Prima Entrada Subdivision, in Albuquerque, New Mexico, and more particularly described as: (give legal description and filing information)

Tract A- Prima Entrada Subdivision
filed 10/30/06
Bk 2006-C, Pg 332

The City is the owner of certain real property, easement or public right-of-way ("City's Property") in the vicinity of, contiguous to, abutting or within User's Property, and more particularly described as:

Temporary Retention Pond

The User wishes to construct upon, improve or repair and to maintain the following "Improvement" on the City's Property (or already has done so):

A sketch of the proposed or existing Improvement is attached as Exhibit A and made a part of this Agreement.

The City agrees to permit the Improvement to exist on the City's Property provided the User complies with the terms of this Agreement.

2. City Use of City's Property and City Liability. The City has the right to enter upon the City's Property at any time and perform whatever inspection, installation, maintenance, repair, modification or removal ("Work") it deems appropriate without liability to the User. If the Work affects the Improvement the City will not be financially or otherwise responsible for rebuilding or repairing the Improvement. The User promptly will repair the Improvement to the City's satisfaction. The cost of repairing the Improvement will be paid by User.

Mary Herrera Bern. Co. AGRE R 21.00
2006188227
6575791
Page: 1 of 7
12/14/2006 04:01P
Bk-A128 Pg-7715

3. User's Responsibility for Improvement. The User will be solely responsible for constructing, maintaining, repairing and, if required, removing the Improvement, all in accordance with standards required by the City as per the approved Grading and Drainage Plan 31-D20 on file at the City Engineer's office. The User will be solely responsible for paying all related costs. The User will be solely responsible for paying all related costs. The User will not permit the Improvement to constitute a hazard to the health or safety of the general public or to interfere with the City's use of the City's Property. The User will conform with all applicable laws, ordinances and regulations.

4. Use of the Improvement. If the City's Property is a public right-of-way, it shall be open to the use of the general public at all times, subject to reasonable curtailment during periods of construction, maintenance or repair.

5. Demand for Repair, Modification or Removal. The City may send written notice ("Notice") to the User requiring the User to repair, modify or remove the Improvement within 30 days ("Deadline") and the User will comply promptly with the requirements of the Notice. If removal is demanded, the City also may require the User to return the City's Property to its original condition by the Deadline. The User will perform all required work by the Deadline, at User's sole expense.

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

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

8. Condemnation. If any part of the User's Property is ever condemned by the City, the User will forego all claims to compensation for any portion of User's structure which encroaches on City Property and for severance damage to the remaining portion of User's structure on User's Property.

9. Assessment. Nothing in this Agreement shall be construed to relieve the User, his heirs, assigns and successors from an assessment against User's Property for improvements to the City Property under a duly authorized and approved Special Assessment District. The parties specifically agree that the value of the Improvement will not reduce the amount assessed by the City.

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

Monterey Land Grop II, LLC
5111 San Mateo BLVD NE Suite A1
Alb. NM 87110

Notice may be given to the User either in person or by mailing the notice by regular U.S. mail, postage paid. Notice will be considered to have been received by the User within 3 days after the notice is mailed if there is no actual evidence of receipt. The User may change User's address by giving written notice of the change by certified mail, return receipt requested, to the City Engineer at P.O. Box 1293, Albuquerque, New Mexico 87103.

11. Indemnification. The User agrees to defend, indemnify and hold harmless the City, its officials, agents and employees from and against any and all claims, actions, suits or proceedings of any kind brought against said parties as a result of User's use of the City's Property. To the extent, if at all, Section 56-7-1 NMSA 1978 is applicable to this Agreement, this Agreement to indemnify will not extend to liability, claims, damages, losses or expenses, including attorney's fees, arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications by the indemnitee, or the agents or employees of the indemnitee; or (2) the giving of or the failure to give direction or instructions by the indemnitee, where such giving or failure to give directions or instructions is the primary cause of bodily injury to persons or damage to property.

12. Term. This Agreement shall continue until revoked by the City pursuant to Section 7 above.

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

14. Entire Agreement. This Agreement contains the entire agreement of the parties and supersedes any and all other agreements or understandings, oral

or written, whether previous to the execution hereof or contemporaneous herewith.

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

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

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

CITY OF ALBUQUERQUE:

By: [signature]
Title: CITY ENGINEER

Dated: 12-13-06

12/13/06

USER:

By: [signature]
Title: Managing Member

Dated: Dec. 4 2006

12-12-06

CITY'S ACKNOWLEDGMENT

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on December 13, 2006 by Wilfred Gallegos for City Engineer, Planning Department, for the City of Albuquerque, a New Mexico municipal corporation, on behalf of the corporation.

[signature]
Notary Public

My Commission Expires:

11-25-2007

USER'S ACKNOWLEDGMENT

300.04' SET 5/8" REBAR WITH CAP "8911"

N 83°23'22" E

143.89'

N 01°54'48" W 109.33'

TRACT A (TEMP DRAINAGE EASEMENT) GRANTED TO THE CITY OF ALBUQUERQUE
BY THIS PLAT
30,715 sq.ft.
0.7051 acres

10-30-06
Bk 2006C Pg332

N 14°59'23" W 66.15'

17.00

23.50 28.50 47.0' ROW

S 14°59'23" E 66.15'

RIGHT OF WAY VACATION
05DRB-00107
(CROSS HATCHED AREA)

TRACT 5

C101

SONTERRO AVE NW

C91

C98

SET 5/8" REBAR WITH CAP "8911"

S 11°23'49" W 3002.31

QUITCLAIM DEED
BOOK A111, PAGE 7878
FILED 02/07/2006

NOTE:
Ⓐ 10' PUBLIC UTILITYEASEMENT
GRATED BY THIS PLAY (TYP)

ACS MONUMENT
"8-K9"
X=352217.80
Y=1484931.98
Z=5247.434
NAD 1927, NAVD 1929
G/G=0.99967415
DELTA/ALPHA= -00°17'02"
CENTRAL ZONE

2006188227
6575781
Page: 6 of 7
12/14/2006 04:01P
Bk-A128 Pg-7715
Mary Herrera Bern. Co. AGRE R 21.00

9°47'58"

Exhibit A

2006165288
6552852
Page: 4 of 5
10/30/2006 03:16P
Bk-2006C Pg-332
Mary Herrera Bern. Co. PLAT R 27.00

GEO-SURVCO, INC
PO BOX 65717
ALBUQUERQUE, NEW MEXICO 87193
505-975-4567
FAX 505-898-0616

STATE OF NEW MEXICO)
) **ss.**
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on 12/4, 2006 by Tim McNaney, Managing Member, on behalf of Monterey Land Group II, LLC.

Notary Public

My Commission Expires:
10/29/2007

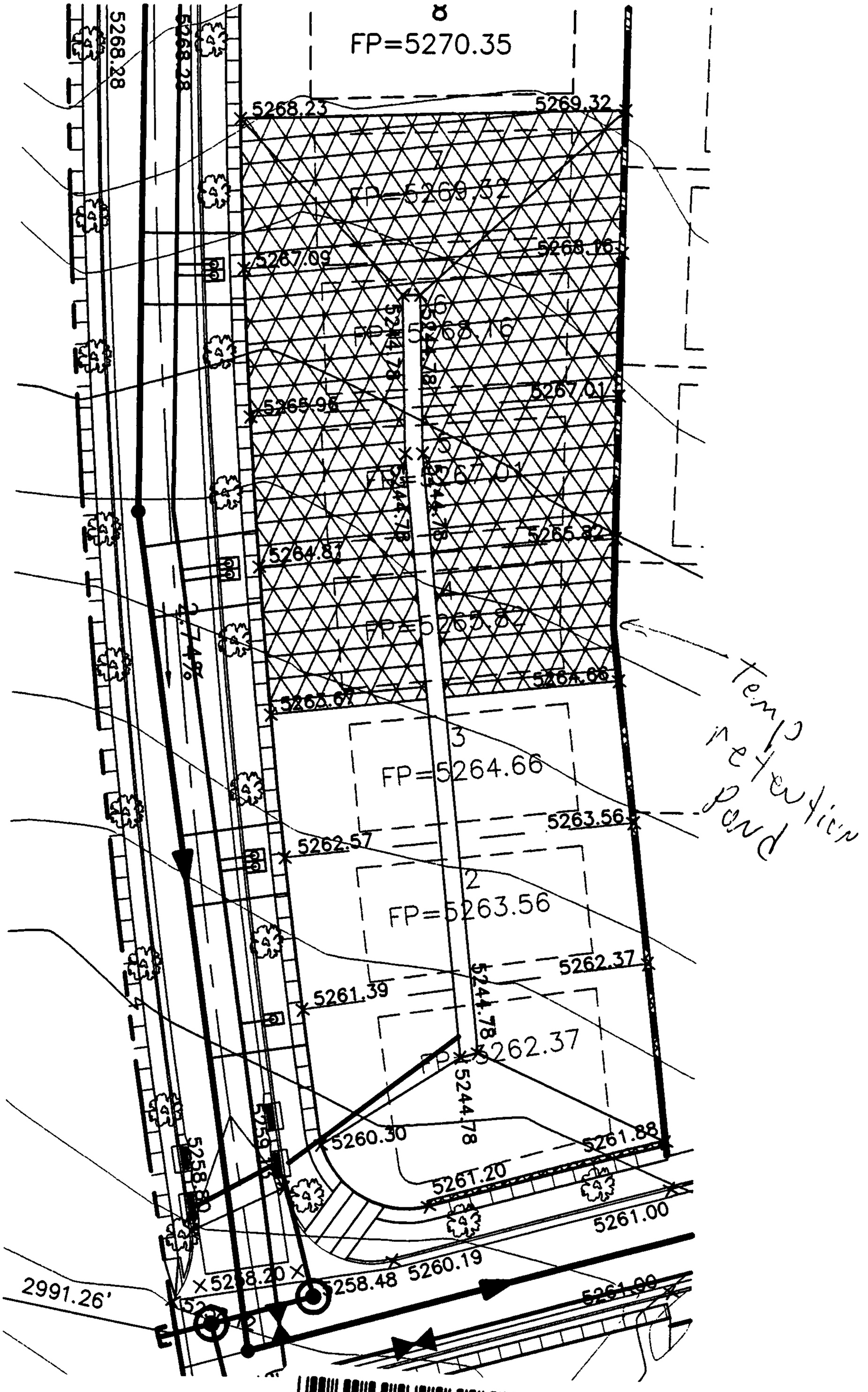


Exhibit A

CITY OF ALBUQUERQUE

September 6, 2005

David Soule, P.E.
Rio Grande Engineering
1606 Central Ave SE Suite 201
Albuquerque, NM 87106

Re: Prima Entrada Subdivision, Drainage Report
Engineer's Stamp dated 8-25-05 (J9-D20)

Dear Mr. Soule

Based upon the information provided in your submittal received 8-25-05, the above referenced plan cannot be approved for Preliminary Plat, Site Development or Final Plat Approval until the following comments are addressed:

P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

Please provide the following:

1. An AMAFCA approval along with the preliminary plan of the design and profile of the west I-40 channel. This should tie to the portion further east (Designed by Mark Goodwin & Associates).
2. A profile of 94th St. to Endee Rd.
3. A profile of Endee Rd. Show the existing storm drain from the Master Plan.
4. Analyze and quantify runoff for the Tract east of Entrada Vista as a contributing offsite basin. Include this on the basin map.
5. Water surface elevation of pond on sheet 1 of 2.

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

Sincerely,

Bradley L. Bingham, PE
Principal Engineer, Planning Dept.
Development and Building Services

C: file
CC: Lynn Mazur AMAFCA

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 01/28/2003rd)

J9/D20

PROJECT TITLE: *Prima Entrada* ZONE MAP/DRG. FILE #: J-8/9

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: **Tracts 355 & 356, Lands of Atrisco Grant unit 3, and Tracts A & B, Lands of Hector Rojo**

CITY ADDRESS: _____

ENGINEERING FIRM:	Rio Grande Engineering	CONTACT:	David Soule, PE
ADDRESS:	1606 Central NW Suite 201	PHONE:	(505)321-9099
CITY, STATE:	ALBUQUERQUE, NM	ZIP CODE:	87106
OWNER:	*Fuller homes*	CONTACT:	Jody Pauza
ADDRESS:	*PO Box 13900*	PHONE:	888-4740
CITY, STATE:	*Albuquerque, NM*	ZIP CODE:	87192
ARCHITECT:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
SURVEYOR:	JGI	CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
CONTRACTOR:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	

CHECK TYPE OF SUBMITTAL:

- x DRAINAGE REPORT
- _____ DRAINAGE PLAN 1st SUBMITTAL, *REQUIRES TCL or equal*
- _____ DRAINAGE PLAN RESUBMITTAL
- _____ CONCEPTUAL GRADING & DRAINAGE PLAN
- x GRADING PLAN
- _____ EROSION CONTROL PLAN
- _____ ENGINEER'S CERTIFICATION (HYDROLOGY)
- _____ CLOMR/LOMR
- _____ TRAFFIC CIRCULATION LAYOUT (TCL)
- _____ ENGINEERS CERTIFICATION (TCL)
- _____ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- _____ OTHER

Pd $50 Base fee; Still need
$10 X 80 lots = $800.00

CHECK TYPE OF APPROVAL SOUGHT:

- _____ SIA / FINANACIAL GUARANTEE RELEASE
- x PRELIMINARY PLAT APPROVAL
- x 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
- _____ CERTIFICATE OF OCCUPANCY (PERM.)
- _____ CERTIFICATE OF OCCUPANCY (TEMP.)
- _____ GRADING PERMIT APPROVAL
- _____ PAVING PERMIT APPROVAL
- _____ WORK ORDER APPROVAL
- _____ OTHER (SPECIFY) Concurance for Bern. Co

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- _____ YES
- _____ NO
- _____ COPY PROVIDED

RECEIVED
AUG 26 2005
HYDROLOGY SECTION

DATE SUBMITTED: 8/25/2005 BY: David Soule

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a dranage submittal.

The particular nature, location and scope of the proposed development defines the degree of drainage detail.

One or more of the following levels of sumbittal may be required based on the following:

1. **Conceptual Grading and Drainage Plans**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report**: Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.