A Transmittal From

Isaacson & Arfman, P.A.

Consulting Engineering Associates

TO: Shahab Biazar, P.E.
City of Albuquerque
Senior Engineer, Planning Dept.

DATE: 15 May 2012
JOB NO: 1908

FROM: Åsa Weber

**REFERENCE**: H-12 / D001 Los Duranes Community Center

WE ARE SENDING YOU ATTACHED THE FOLLOWING ITEMS:
Revised Grading and Drainage Plan
Revised Supplemental Calculations

THIS INFORMATION IS TRANSMITTED:

☐ As per your request	☐ For your files	
☒ For your review and approval	☐ For your use	
☐ For your information	☐ Please review and return	
☐ For your attention	☐ For return to your files	RECEIVED
☐ For your signature	☐ Please advise	
☐	☐	MAY 16 2012
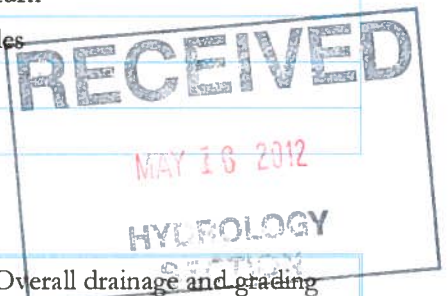
COMMENTS:

Revisions made based on revised architectural site plan and client revisions. Overall drainage and grading concept remain as originally submitted. Calculations, basin maps, etc. updated.

Please don't hesitate to call me or Bryan Bobrick at 268-8828 with any questions.

Thanks

COPIES TO: File

MAY 15, 2012

SUPPLEMENTAL INFORMATION

FOR

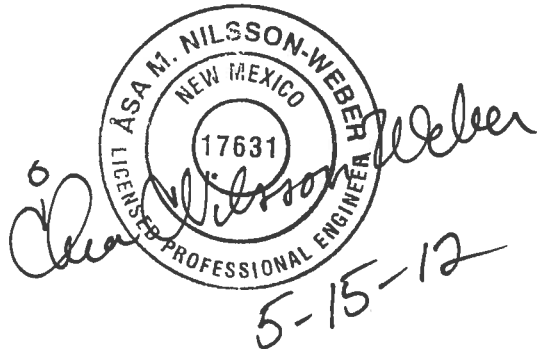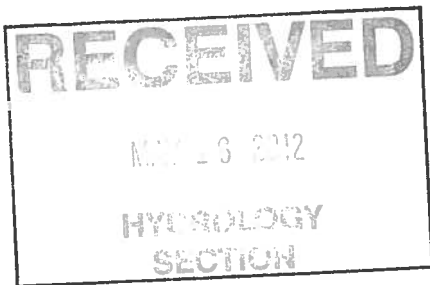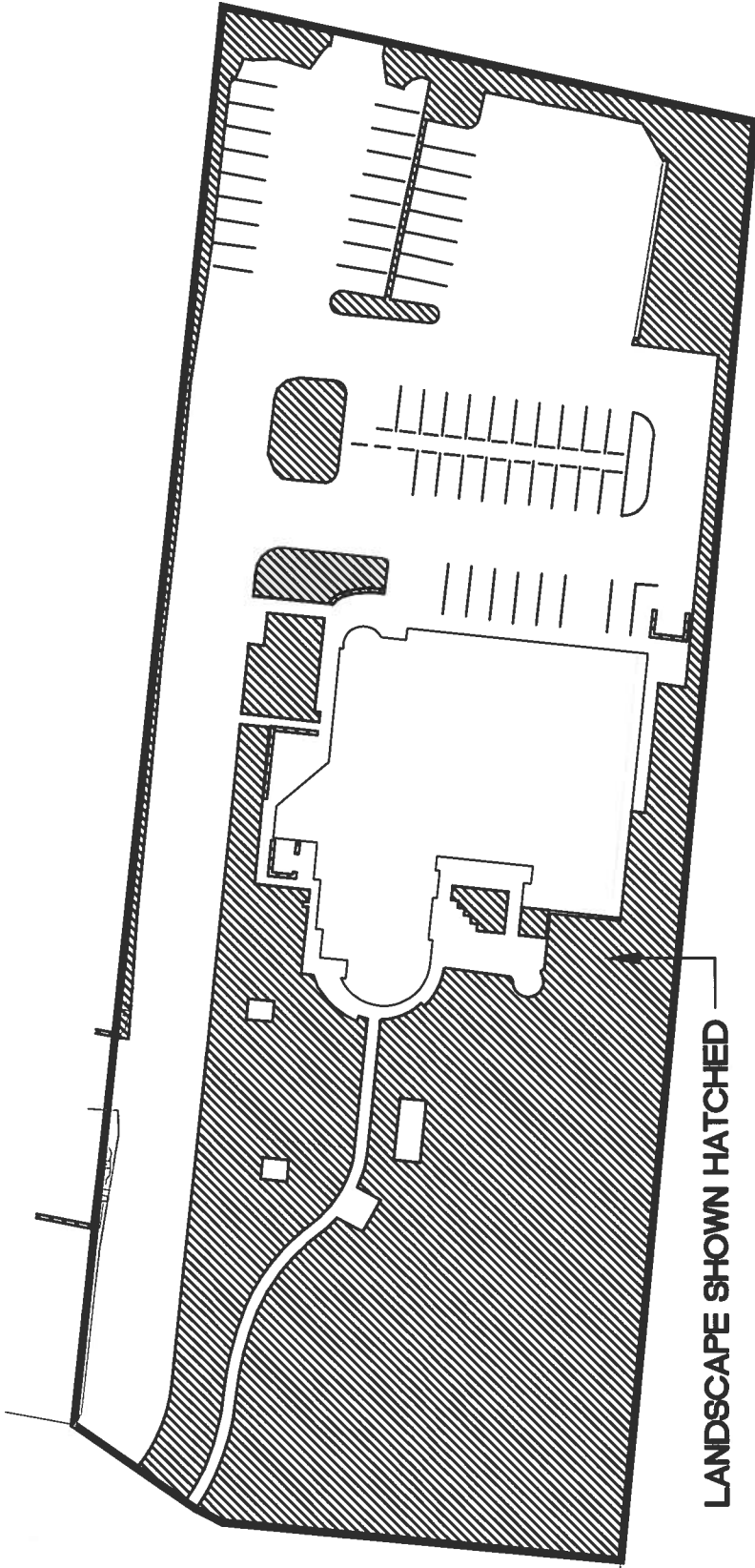# LOS DURANES COMMUNITY CENTER

BY

ISAACSON & ARFMAN, P.A.

Consulting Engineering Associates

Thomas O. Isaacson, PE(RET.) & LS(RET.)
Fred C. Arfman, PE
Åsa Nilsson-Weber, PE

IA Project No. 1908

5-15-12

LANDSCAPE SHOWN HATCHED

AREA ANALYZED: 117,483 SF = 2.7 ACRES

IMPERVIOUS (LAND TREATMENT 'D'): = 65,596 SF

LANDSCAPE (LAND TREATMENT 'B'): = 38,387 SF

LANDSCAPE (LAND TREATMENT 'C'): = 13,500 SF

EXISTING LAND TREATMENT EXHIBIT

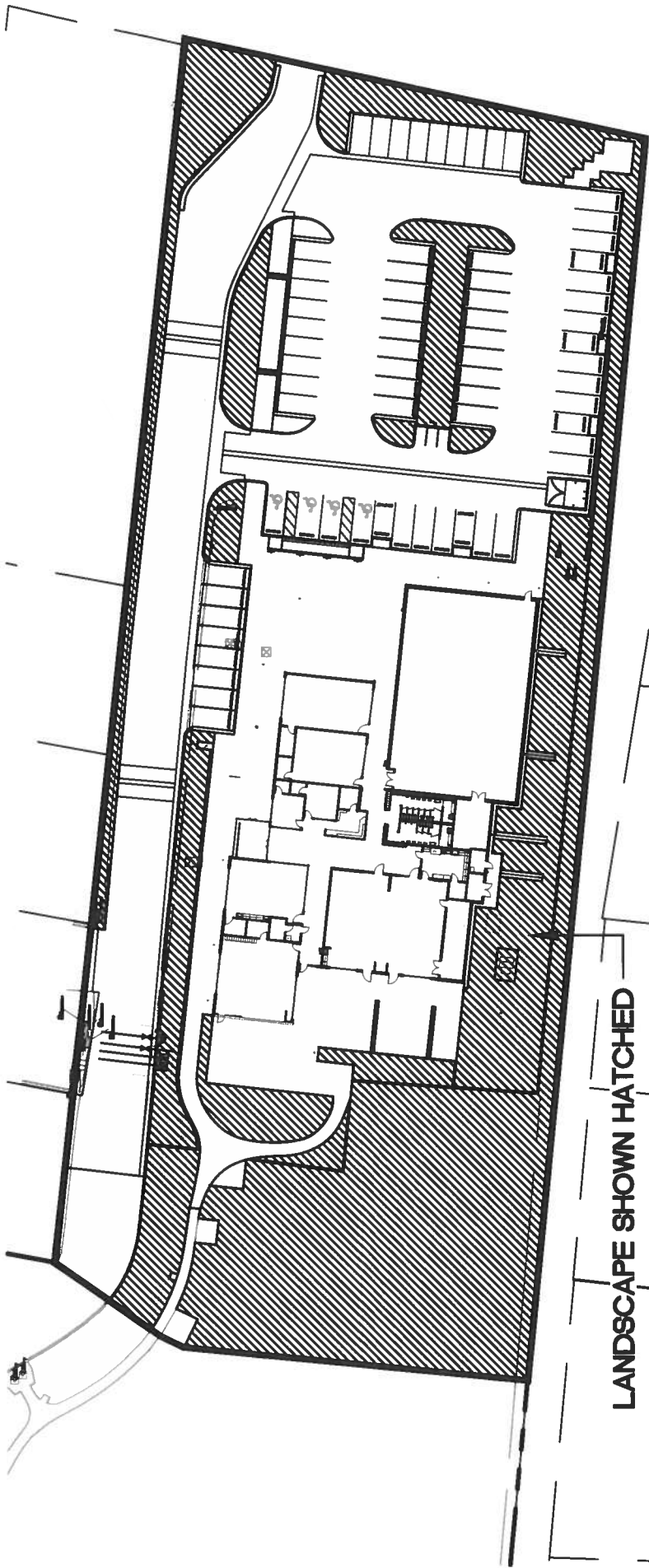LOS DURANES COMMUNITY CENTER

MAY 14, 2012

EXISTING CONDITION:

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
128 Monroe Street N.E.
Albuquerque, New Mexico 87108
Ph. 505-268-8828   www.inchvil.com

RECEIVED
MAY 16 2012
HYDROLOGY SECTION

LANDSCAPE SHOWN HATCHED

AREA ANALYZED: 117,483 SF = 2.7 ACRES

IMPERVIOUS (LAND TREATMENT 'D'):   = 76,198 SF
LANDSCAPE (LAND TREATMENT 'B'):   = 27,275 SF
LANDSCAPE (LAND TREATMENT 'C'):   = 14,010 SF

PROPOSED LAND TREATMENT EXHIBIT

LOS DURANES COMMUNITY CENTER
MAY 14, 2012

PROPOSED CONDITION:

CALCULATIONS: 1908 Los Duranes Community Center : March 19, 2012

Based on Drainage Design Criteria for City of Albuquerque Section 22.2, DPM, Vol 2, dated Jan., 1993

			ON-SITE			

AREA OF SITE: 117483   SF   =   2.7

100-year, 6-hour

HISTORIC FLOWS: **DEVELOPED FLOWS:**   **EXCESS PRECIP:**

		Treatment SF	%			Treatment SF	%	Precip. Zone	2
Area A	=	0	0%	Area A	=	0	0%	$E_A = 0.53$	
Area B	=	38387	33%	Area B	=	27275	23%	$E_B = 0.78$	
Area C	=	13500	11%	Area C	=	14010	12%	$E_C = 1.13$	
Area D	=	65596	56%	Area D	=	76198	65%	$E_D = 2.12$	
Total Area	=	117483	100%	Total Area	=	117483	100%		

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)

$$\text{Weighted } E = \frac{E_A A_A + E_B A_B + E_C A_C + E_D A_D}{A_A + A_B + A_C + A_D}$$

Historic E	=	1.57 in.	Developed E	=	1.69 in.

On-Site Volume of Runoff: V360 =   E*A / 12

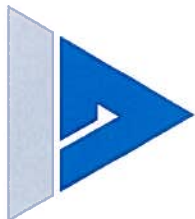| Historic V_{360}	=	15355 CF	Developed V_{360}	=	16554 CF

On-Site Peak Discharge Rate: $Q_p = Q_{pA}A_A + Q_{pB}A_B + Q_{pC}A_C + Q_{pD}A_D / 43,560$

For Precipitation Zone   2

Q_{pA}	=	1.56		Q_{pC}	=	3.14
Q_{pB}	=	2.28		Q_{pD}	=	4.70

Historic Q_p	=	10.1 CFS	Developed Q_p	=	10.7 CFS

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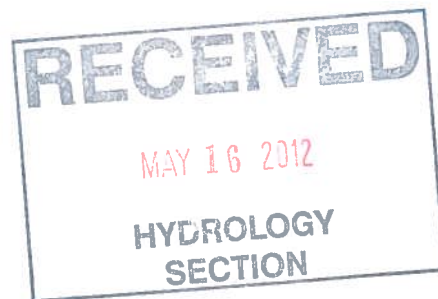Consulting Engineering Associates
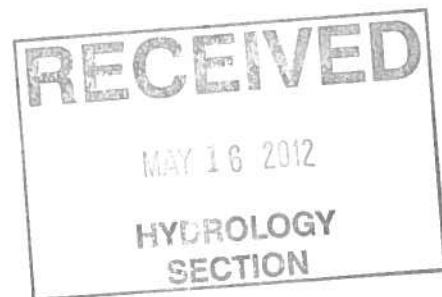
Los Duranes Community Center

May 15, 2012

Drainage Summary:

Historic discharge patterns will be preserved. The proposed development will discharge stormwater to three separate basins, B1, B2 and B3 (see attached basin map).

Basin B1: Consisting of Leopoldo Rd., approximately 50% of the new parking lot and the majority of the new building. Stormwater from the gym will discharge to the south landscaped area. Excess will pass to the parking area and then combine with flow in Leopoldo Rd. to continue west to a public storm drain system at the west end of the park. 100-year 6-hour discharge = 6.7 cfs.

Basin B2: Consisting of approximately 50% of the new parking lot. Flows from this basin will be directed to one of two water harvesting / infiltration ponding areas. 100-year 6-hour discharge = 1.4 cfs (V100 = 2255 cf). The total ponding provided = 2266 cf with additional storage available within the rock voids. Two 7' long x 2' wide x 7' deep infiltration pits will be constructed within each of the landscaped areas to break through the existing clay lens (approx. depth = 5.5') to provide additional volume and to facilitate infiltration.
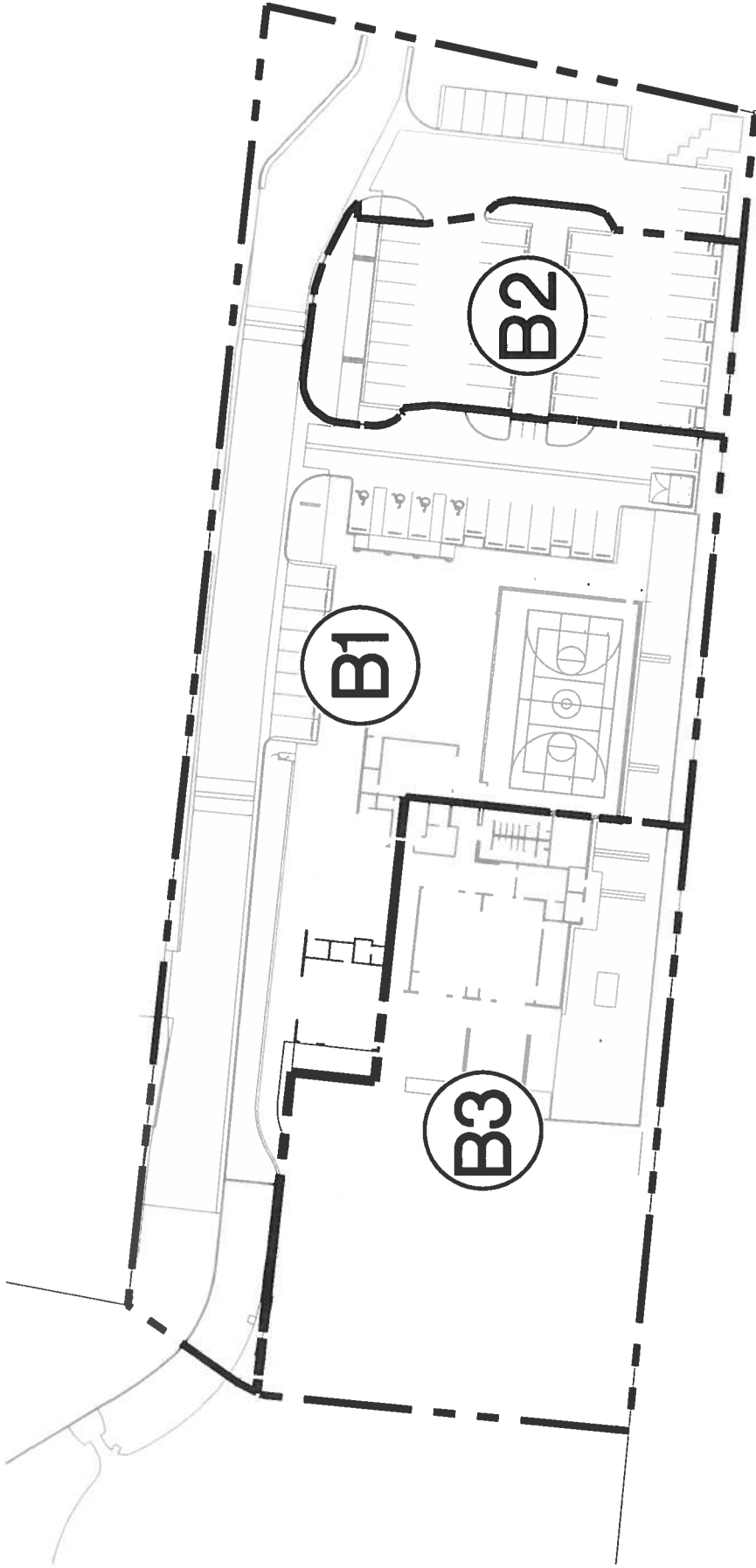
POND - NORTH ISLAND		
Contour	Area	Volume
4964.50	883	
4964.00	490	343 CF
4963.50	138	157 CF
TOTAL VOL.		**500** CF

POND - CENTER ISLAND		
Contour	Area	Volume
4965.00	4000	
4964.70	1200	780 CF
4964.00	735	677 CF
4963.50	500	309 CF
TOTAL VOL.		**1766** CF

Basin B3: Consisting of the western portion of the proposed building and the existing grass park area. Flows from this basin will discharge all stormwater to the landscaping / park for infiltration. Excess stormwater may continue west through the park as it does historically. 100-year 6-hour discharge = 2.6 cfs.

In conclusion, 100% of developed flow (1.4 cfs) from Basin B2 are captured in water harvesting / infiltration areas. Depressed landscaped areas are provided throughout the site to further reduce site runoff. Surface mulch (gravel) and rock within these depressions will provide additional storage.

The total discharge from the site is not expected to exceed 9.3 cfs which is less than the historic discharge of 10.1 cfs.

Basin B1 - 67,987 SF
Basin B2 - 14,571 SF
Basin B3 - 34,925 SF

LOS DURANES COMMUNITY CENTER
MAY 14, 2012

PROPOSED BASINS

BASIN NO.	1		DESCRIPTION			

Area of basin flows = 67987 SF   = 1.6 Ac.

The following calculations are based on Treatment areas as shown in table to the right

LAND TREATMENT

Sub-basin Weighted Excess Precipitation (see formula above)

A =	0%

Weighted E = 1.88 in.   B = 10%

Sub-basin Volume of Runoff (see formula above)   C = 11%

V_{360} = 10635 CF   D = 79%

Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 6.7 cfs

BASIN NO.	2		DESCRIPTION			

Area of basin flows = 14571 SF   = 0.3 Ac.

The following calculations are based on Treatment areas as shown in table to the right

LAND TREATMENT

Sub-basin Weighted Excess Precipitation (see formula above)

A =	0%

Weighted E = 1.86 in.   B = 10%

Sub-basin Volume of Runoff (see formula above)   C = 13%

V_{360} = 2255 CF   D = 77%

Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 1.4 cfs

BASIN NO.	3		DESCRIPTION			

Area of basin flows = 34925 SF   = 0.8 Ac.

The following calculations are based on Treatment areas as shown in table to the right

LAND TREATMENT

Sub-basin Weighted Excess Precipitation (see formula above)

A =	0%

Weighted E = 1.27 in.   B = 54%

Sub-basin Volume of Runoff (see formula above)   C = 13%

V_{360} = 3690 CF   D = 33%

Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 2.6 cfs

MAP SCALE 1" = 500'

0   500   1000   FEET

PANEL 0331G

FIRM

FLOOD INSURANCE RATE MAP

BERNALILLO COUNTY,
NEW MEXICO
AND INCORPORATED AREAS

PANEL 331 OF 825

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
ALBUQUERQUE, CITY OF	350002	0331	G
BERNALILLO COUNTY UNINCORPORATED AREAS	350001	0331	G

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
35001C0331G

MAP REVISED
SEPTEMBER 26, 2008

Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM

NFIP

City of Albuquerque
350002

RIO GRANDE BLVD

CHERRY LN

ZICKERT RD

ZICKERT PL

GABALDON CT

GARLOTA RD

CARLOTA RD

DURANES RD

SERNA RD

AMADOR RD

MONTOYA ST

FLORAL RD

FLORAL PL

FLOR PL

MARTIN RD

SAN ANTONIO ST

ZONE AH
(EL 4960)

WARNING! THIS AREA IS SHOWN AS BEING PROTECTED FROM THE 1-PERCENT-ANNUAL-CHANCE FLOOD HAZARD BY A LEVEE, DIKE, OR OTHER STRUCTURE. OVERTOPPING OR FAILURE OF THIS STRUCTURE IS POSSIBLE WHICH COULD RESULT IN DESTRUCTIVE FLOOD ELEVATIONS AND WATER VELOCITIES. PROPER PROTECTION FLOOD INSURANCE AND ADHERENCE TO EVACUATION PROCEDURES ARE STRONGLY RECOMMENDED. FOR ADDITIONAL INFORMATION, SEE THE NOTES TO USERS.

SEE

LN

811