

CITY OF ALBUQUERQUE



August 28, 2012

Ronald R. Bohannon, P.E.
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, NM 87109

Re: First American Bank, 8110 Ventura St. NE
Grading and Drainage Plan
Engineer's Stamp dated 7/24/12 (C20/D028)

Dear Mr. Bohannon,

Based upon the information provided in your submittal received 7-24-12, the above referenced plan is approved for Building and Grading Permit.

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

This project will require a National Pollutant Discharge Elimination System (NPDES) permit for storm water discharge if disturbing one acre or more and a Topsoil Disturbance Permit if disturbing $\frac{3}{4}$ of an acre or more. 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.

Albuquerque's MS4 Permit became effective March 1st, 2012. Grading and Drainage Plans and Drainage Reports will have to comply with the requirements of the new permit (<http://www.cabq.gov/planning/landcoord/Hydrology.html>).

If you have any questions, you can contact me at 924-3695.

Sincerely,

Shahab Biazar, P.E.
Senior Engineer, Planning Dept.
Development and Building Services

C: e-mail

Cherne, Curtis

From: Trujillo, Timothy R, NMDOT [TimothyR.Trujillo@state.nm.us]
Sent: Monday, August 27, 2012 11:44 AM
To: Cherne, Curtis
Cc: Vince Carrica
Subject: RE: First American Bank Grading & Drainage

Curtis,

I have reviewed the Grading and Drainage plan for the First American Bank on Paseo Del Norte and Ventura. The proposed plan meets NDOT criteria for this area. If you have any questions or comments please get back to me.

Thanks,

Tim Trujillo, P.E.
NMDOT - District 3 Drainage
505-798-6690 Office
505-490-3752 Cell

From: Vince Carrica [mailto:VCarrica@tierrawestllc.com]
Sent: Monday, August 20, 2012 9:13 AM
To: Trujillo, Timothy R, NMDOT
Subject: RE: First American Bank Grading & Drainage

Great! Thank you!

From: Trujillo, Timothy R, NMDOT [mailto:TimothyR.Trujillo@state.nm.us]
Sent: Monday, August 20, 2012 9:01 AM
To: Vince Carrica
Subject: RE: First American Bank Grading & Drainage

Sorry, I've been slammed over here. I've looked at the plan but I'd like to take a quick look in the field. I'll get back to you later today.

Tim Trujillo, P.E.
NMDOT - District 3 Drainage
505-798-6690 Office
505-490-3752 Cell

From: Vince Carrica [mailto:VCarrica@tierrawestllc.com]
Sent: Tuesday, August 14, 2012 12:13 PM
To: Trujillo, Timothy R, NMDOT
Subject: RE: First American Bank Grading & Drainage

Tim,
Did you get a chance to review the G&D plan for this site?
Vince

From: Vince Carrica
Sent: Tuesday, August 07, 2012 2:09 PM

8/27/2012

To: 'timothy.trujillo@state.nm.us'

Subject: First American Bank Grading & Drainage

Tim,

Here is the grading plan for the First American Bank parking lot expansion that we talked about earlier. It is on the NE corner of PdN and Ventura. As I mentioned, the City wanted us to run the plan by you to make sure you were ok with it. Please give me a call if you have any questions.

Vincent Carrica, PE
vcarrica@tierrawestllc.com
Tierra West, LLC
5571 Midway Park PI NE
Albuquerque, NM 87109
(505) 858-3100 Ext 205
1-800-245-3102
fax (505) 858-1118
www.tierrawestllc.com

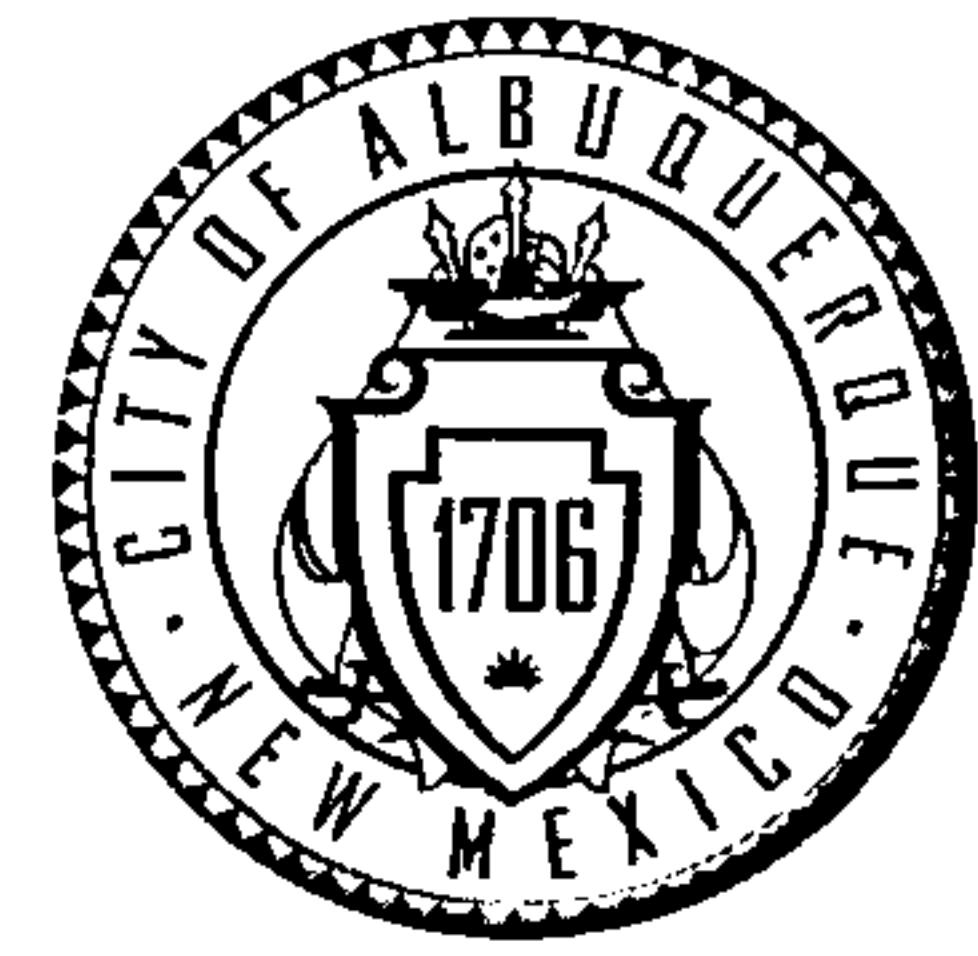
PRIVILEGED AND CONFIDENTIAL

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If this email is spam, report it to www.OnlyMyEmail.com

8/27/2012

CITY OF ALBUQUERQUE



August 6, 2012

Ronald R. Bohannon, P.E.
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, NM 87109

Re: First American Bank, 8110 Ventura St. NE
Grading and Drainage Plan
Engineer's Stamp dated 7/24/12 (C20/D028)

Dear Mr. Bohannon,

Based upon the information provided in your submittal received 7-24-12, the above referenced plan can not be approved for Grading Permit until the following comments are addressed.

- An approval letter from the DOT is required.

If you have any questions you can contact me at 924-3695 or Rudy Rael at 924-3977.

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

Sincerely,

Shahab Biazar, P.E.
Senior Engineer, Planning Dept.
Development and Building Services

C: RR/SB
file

gaw

TIERRA WEST, LLC

VPC

72312.docx

Z:\2010\2010058\Correspondence\shahab 72312.docxshahab

July 23, 2012

Mr. Shahab Biazar
City of Albuquerque
Planning Department
600 2nd Street NW
Albuquerque, NM 87103

**RE: FIRST AMERICAN BANK
PASEO DEL NORTE / VENTURA
ADMINISTRATIVE AMENDMENT
REVISION TO APPROVED GRADING PLAN (C20-D024)**

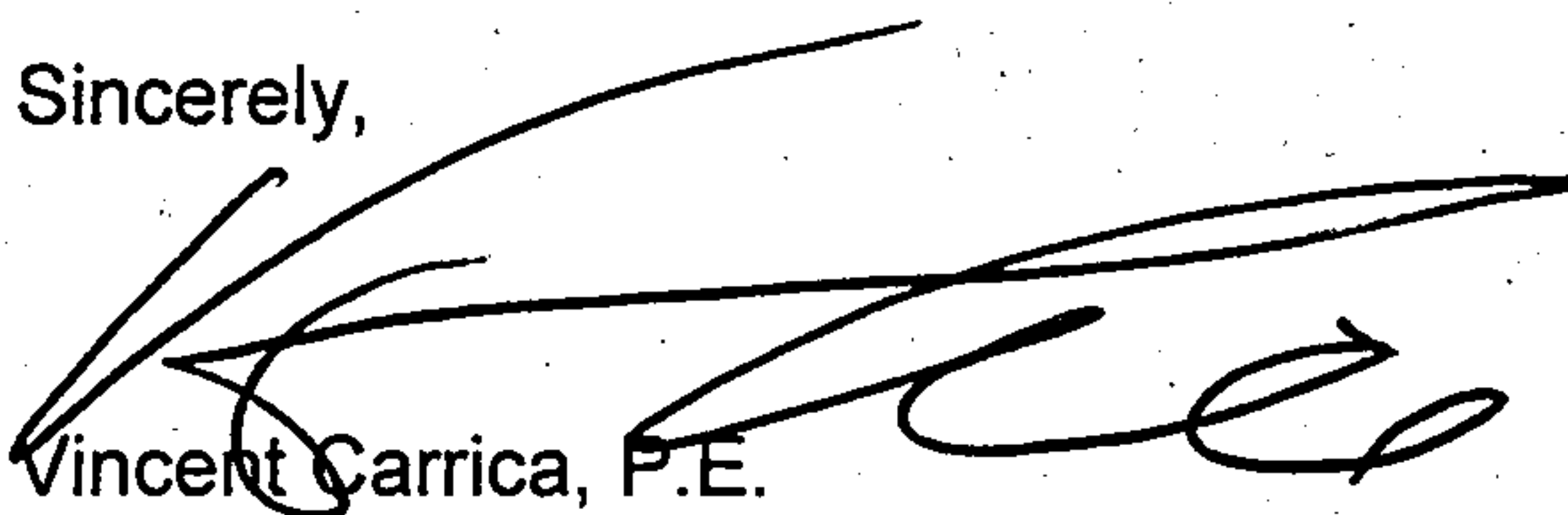
Dear Mr. Biazar:

Thank you for meeting with me today. Per our discussion, the requested administrative amendment (AA) for this site is to allow for the modification to the site plan to conform to the ultimate parking layout and to allow for the relocation of the on-site ATM. The resulting grading plan still meets the intent of the previously approved plan (see attached approval letter Dated 8/15/07). The runoff calculations are essentially the same with the minor site plan change, with a slight reduction in runoff from the site as a result of decreasing the proposed paved area and replacing it with landscaping.

A concrete pond similar to the pond approved with the previous grading plan has added to the plan and replaces the concrete rundown shown earlier. The larger landscape areas have been depressed toward their centers to allow for some passive water harvesting. This along with the added pond will serve to maintain the proposed runoff from the site at or below previously approved values.

If you have any questions or need additional information regarding this matter, please do not hesitate to contact me.

Sincerely,



Vincent Carrica, P.E.

Enclosure/s

cc: Wade Warthen
JN: 2010058

VPC

Z:\2010\2010058\Correspondence\shahab 72312.docx

5571 Midway Park Place NE
Albuquerque, NM 87109
(505) 858-3100
Fax (505) 858-1118
1-800-245-3102
tierrawestllc.com

CITY OF ALBUQUERQUE



August 15, 2007

Ronald R. Bohannon, P.E.
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, NM 87109

Re: High Desert State Bank, 8110 Ventura St. NE
Grading and Drainage Plan
Engineer's Stamp dated 8-08-07 (C20-D024)

Dear Mr. Bohannon,

Based upon the information provided in your submittal received 8-08-07, the above referenced plan is approved for Preliminary Plat Action by DRB. Once the Board has approved the plan, please submit a mylar copy of the grading plan for my signature in order to obtain a Grading Permit.

This project will also require a National Pollutant Discharge Elimination System (NPDES) permit. Inquiries regarding this permit should be directed to Sertil Kandar at 768-3645. In addition to submitting an NOI to the EPA and preparing a SWPPP, please send a copy of their SWPPP on a CD in .pdf format to Kathy Verhage with the Department of Municipal Development Storm Drainage Division at the following address.

Department of Municipal Development
Storm Drainage Division
P.O. Box 1293, One Civic Plaza, Rm. 301
Attn: Kathy Verhage
Albuquerque, NM 87103

If you have any questions, you can contact me at 924-3977.

Sincerely,

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

C: Edward Elwell, DMD Street/ Storm Maintenance
Antoinette Baldonado, Construction Services
Dwayne Schmitz, DMD Street / Storm Maintenance
CC: File

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 01/28/2003rd)

PROJECT TITLE: First American Bank
DRB #: 1000678 EPC #: _____

ZONE MAP/DRG. FILE #: C-20 / 10028
WORK ORDER #: _____

LEGAL DESCRIPTION: Tract E and Tract 3, Block 19, Unit 3 of North Albuquerque Acres
CITY ADDRESS: 8110 Ventura St. NE

ENGINEERING FIRM: TIERRA WEST, LLC
ADDRESS: 5571 Midway Park Place NE
CITY, STATE: ALBUQUERQUE, NM

CONTACT: RONALD R. BOHANNAN, P.E.
PHONE: (505) 858-3100
ZIP CODE: 87109

OWNER: First American Bank
ADDRESS: PO Box 2380
CITY, STATE: Las Cruces, NM

CONTACT: Wade Warthen
PHONE: 575-524-8000
ZIP CODE: 88004

ARCHITECT: _____
ADDRESS: _____
CITY, STATE: _____

CONTACT: _____
PHONE: _____
ZIP CODE: _____

SURVEYOR: _____
ADDRESS: _____
CITY, STATE: _____

CONTACT: _____
PHONE: _____
ZIP CODE: _____

CONTRACTOR: _____
ADDRESS: _____
CITY, STATE: _____

CONTACT: _____
PHONE: _____
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
☐ ENGINEER'S CERTIFICATION (HYDROLOGY)
☐ CLOMR/LOMR
☐ TRAFFIC CIRCULATION LAYOUT (TCL)
☐ ENGINEERS CERTIFICATION (TCL)
☐ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
☐ OTHER

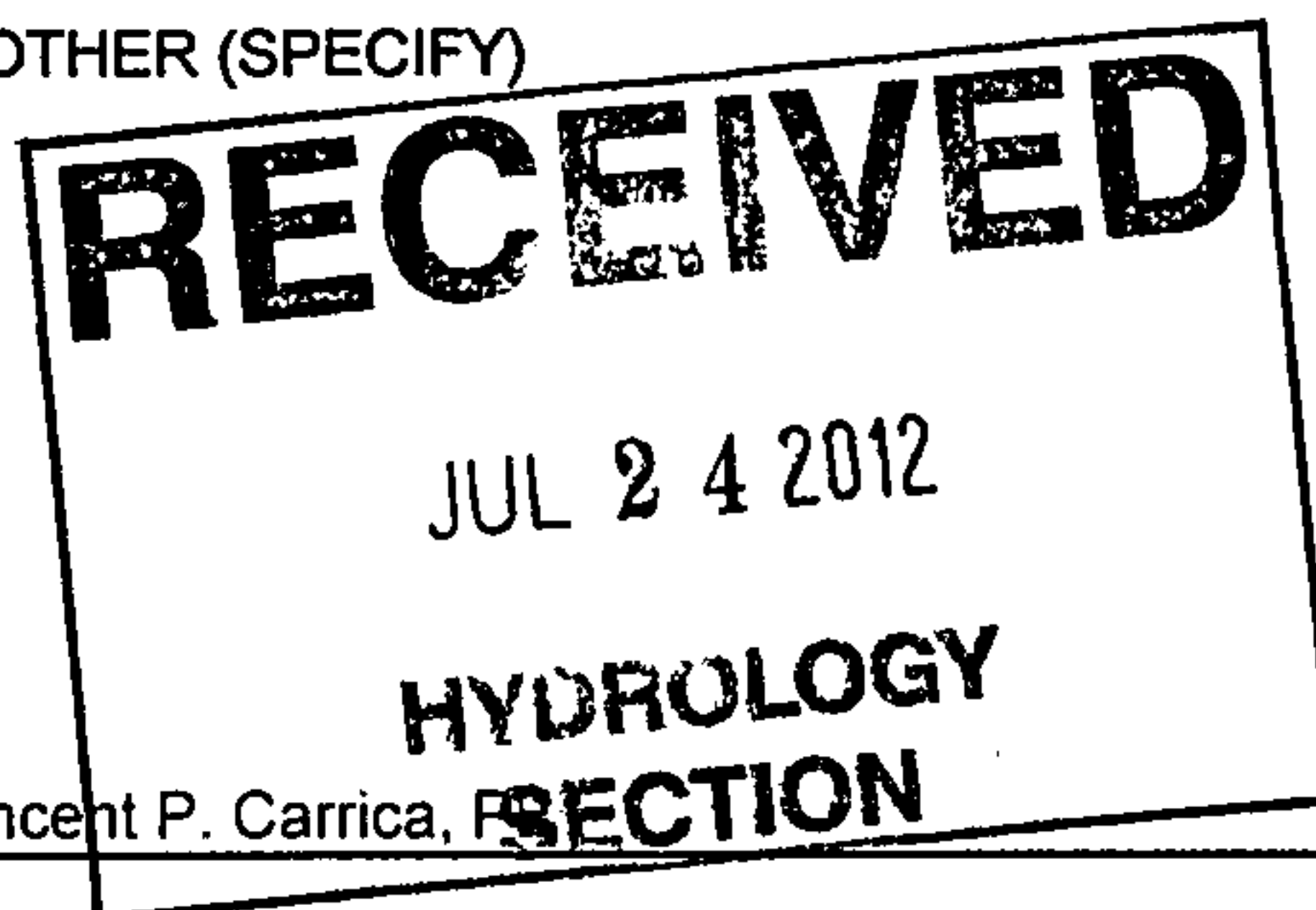
CHECK TYPE OF APPROVAL SOUGHT:

- ☐ 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)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☐ YES
☐ NO
☐ COPY PROVIDED

DATE SUBMITTED: 7/23/2012 BY: Vincent P. Carrica, P.E.



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

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 30, 2001

Gregory J. Krenik, P.E.
Mark Goodwin & Associates
P.O. Box 90606
Albuquerque, New Mexico 87199

RE: HIGH DESERT STATE BANK (Paseo Del Norte & Ventura NE) ²⁸ (C-20/D~~24~~)
ENGINEERS CERTIFICATION FOR CERTIFICATE OF OCCUPANCY
ENGINEERS STAMP DATED 10/24/2000
ENGINEERS CERTIFICATION DATED 3/20/2001

Dear Mr. Krenik:

Based upon the information provided in your Engineers Certification submittal dated 4/30/2001, the above referenced site is approved for Permanent Certificate of Occupancy.

If I can be of further assistance, please contact me at 924-3986.

Sincerely,

Bradley L. Bingham, PE
Senior Civil Engineer
Hydrology Section, PWD

C: Vickie Chavez, COA
Teresa Martin, COA
file



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

January 5, 2001

Gregory J. Krenik, PE
Mark Goodwin & Associates
P.O. 90606
Albuquerque, NM 87199

Re: High Desert State Bank Grading and Drainage Plan

Engineer's Stamp dated 10 24 00 (C20/D24)

24

Dear Mr. Krenik,

Based upon the information provided in your submittal dated 10-24-00, the above referenced site is approved for Building Permit and Site Development Plan for Building Permit.

Please attach a copy of the DRB approved plan to the construction sets prior to sign-off by Hydrology.

Also, 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

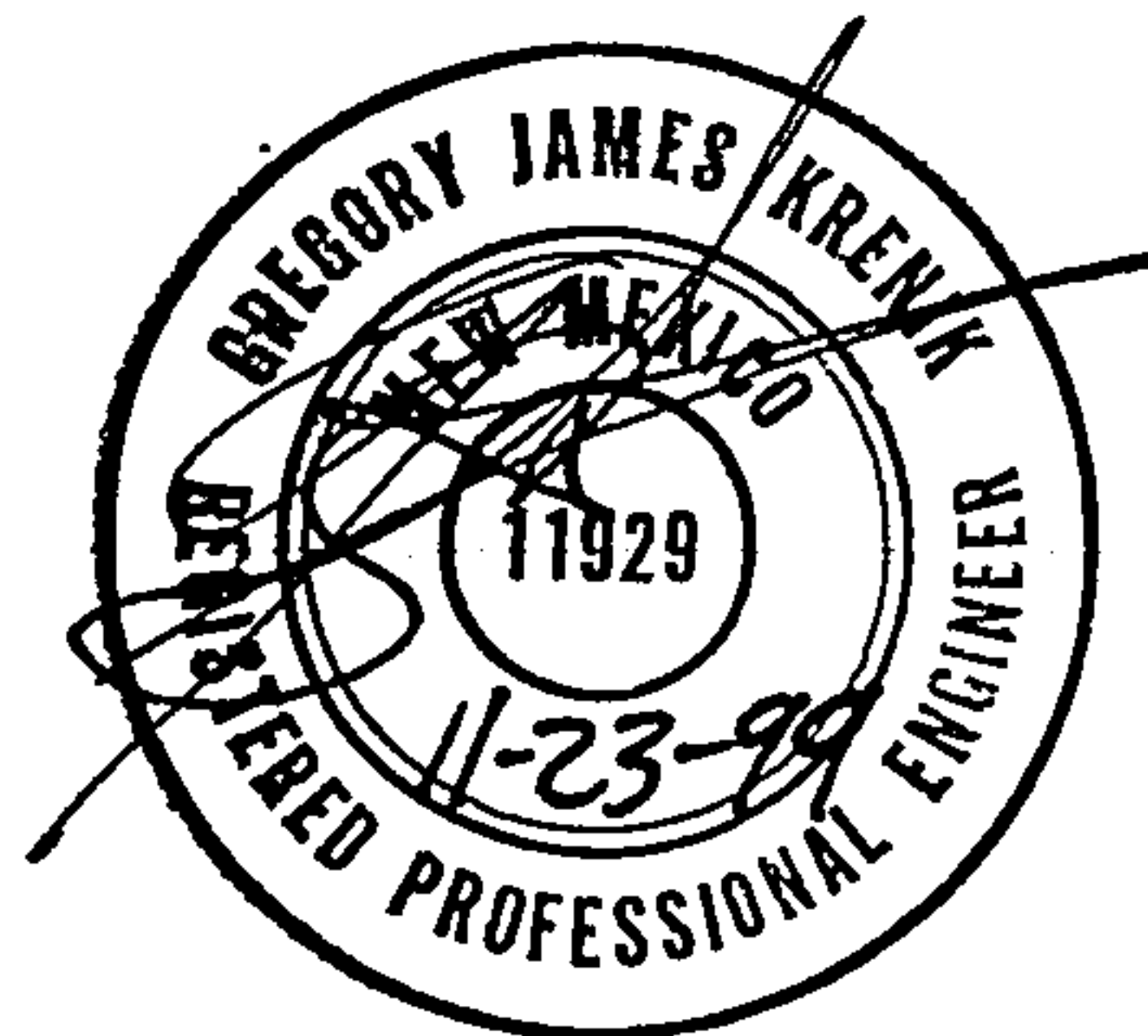
Sincerely,

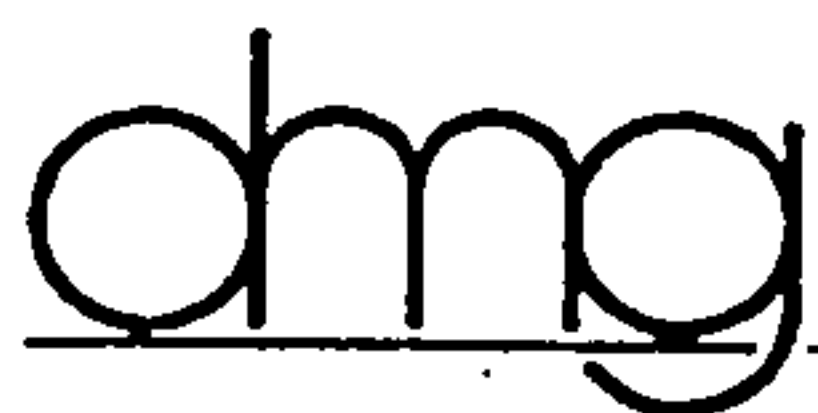
Bradley L. Bingham

Bradley L. Bingham, PE
Sr. Engineer, Hydrology

C: file

DRAINAGE CALCULATIONS
FOR
HIGH DESERT STATE BANK





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

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

PROJECT HIGH DESERT STATE BANK
SUBJECT DRAINAGE CALCS
BY GSK DATE 11-22-99
CHECKED _____ DATE _____
SHEET 1 OF _____

- THIS SITE IS PART OF THE FURR'S - ENT PASEO DEL NORTE DRAINAGE REPORT PREPARED BY MARK GOODWIN & ASSOCIATES. (APPENDIX "A")
- THIS IS PAD 4 OF THAT REPORT.
- SITE IS NOT IN A 100 YR FLOOD ZONE.
- OFFSITE FLOWS DO NOT IMPACT THE SITE.
- TOTAL AREA = 0.5541 AC

AMOUNT OF SITE ALLOWED DIRECT DISCHARGE
= 0.0606 AC (ACCESS ROAD)

- AREA OF SITE TO DETERMINE DETENTION POND.
 $A = 0.5541 - 0.0606$
 $= 0.4935 \text{ AC.}$

17.15% (B) 82.85% (D)

FROM AHYMO OUTPUT SHEETS 2-4

$$Q = 2.33 \text{ CFS}$$

- FROM FURR'S REPORT

ALLOWABLE $Q = 1.02 \text{ CFS}$

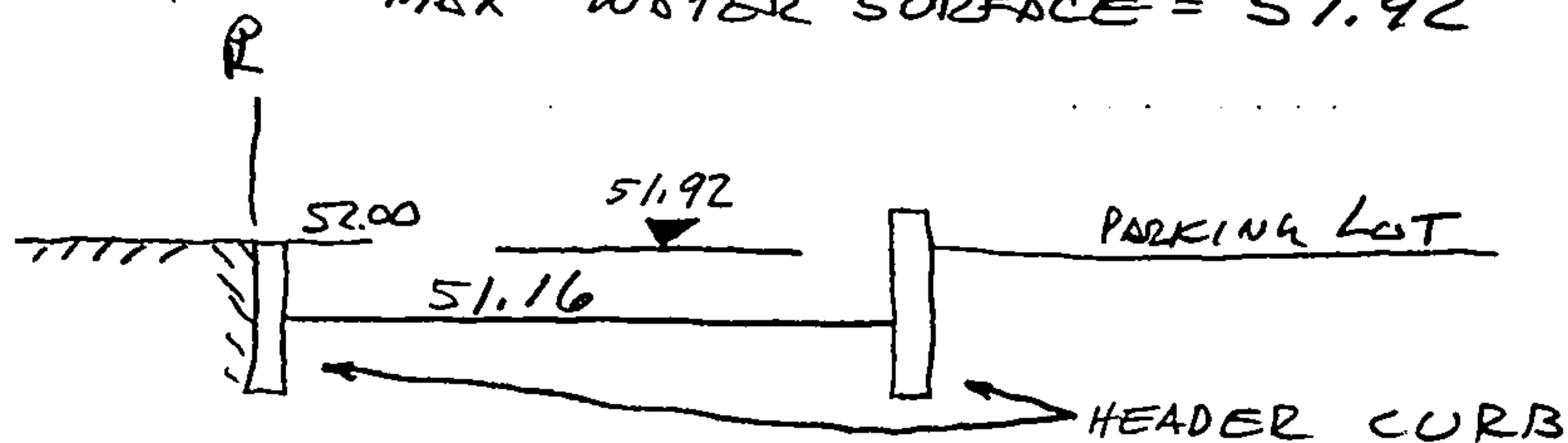
USE A 6" WEIR 10" TALL $Q = 2.95 L H^{1.5} =$

ELEV	OUTFLOW	VOLUME
51.16	0	0
52.00	1.1356	0.0364

POND TO BE $210' \times 9' \times 0.84' = 0.0364 \text{ AC-FT}$

FROM AHYMO OUTPUT SHEETS 5-7

PEAK DISCHARGE = 1.02 CFS $\approx 1.02 \text{ CFS}$ OK
MAX WATER SURFACE = 57.92



Pond SECTION

DRAINAGE REPORT

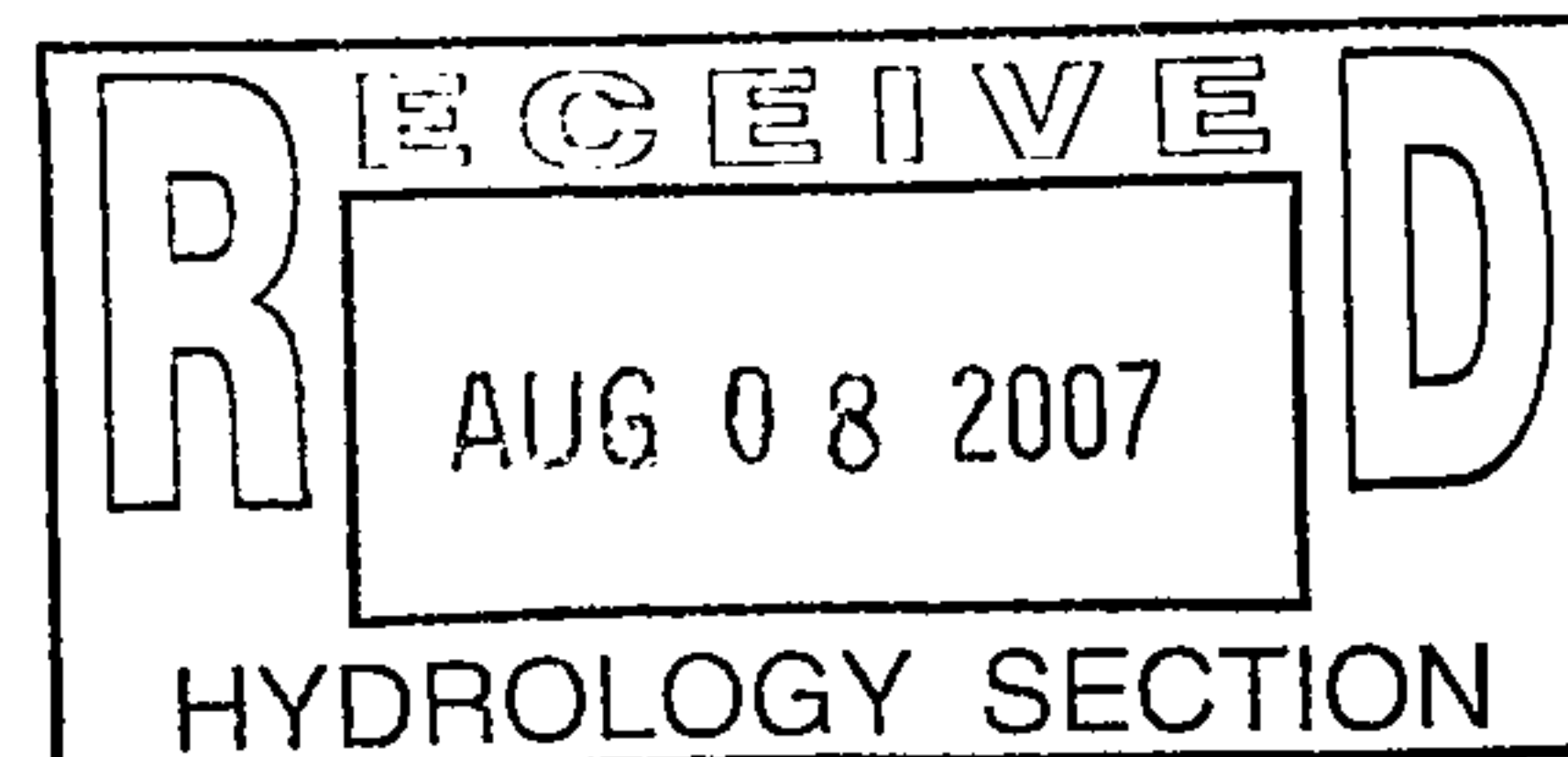
for

**High Desert State Bank
@ Northeast Corner of Paseo Del Norte and Ventura**

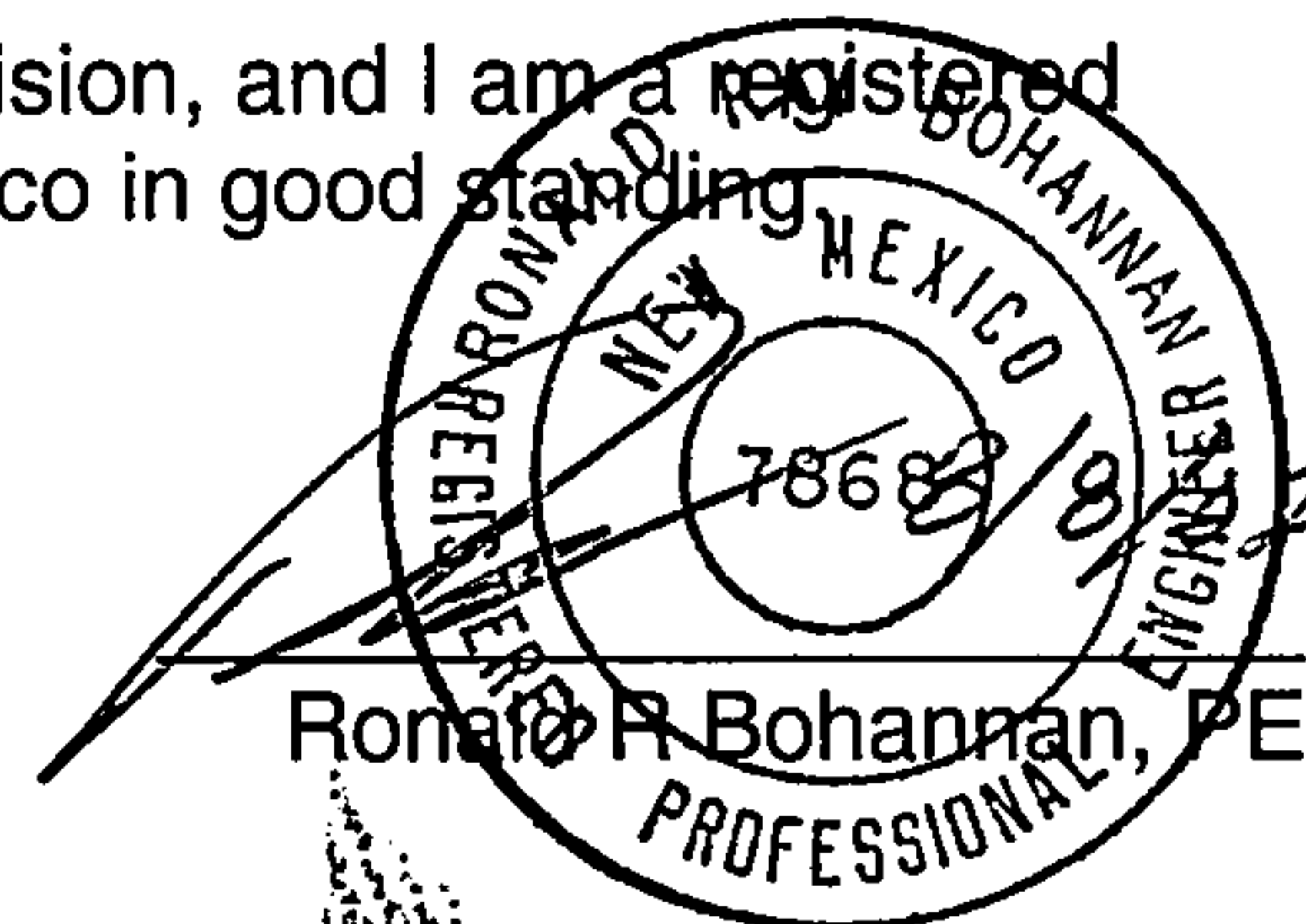
Prepared by:

Tierra West, LLC
8509 Jefferson NE
Albuquerque, New Mexico 87113

July 16, 2007



I certify that this report was prepared under my supervision, and I am a registered professional engineer in the State of New Mexico in good standing.



Job No 27011

PURPOSE

The purpose of this report is to provide the drainage management plan for the redevelopment of the High Desert State Bank parking lot on the northeast corner of Paseo Del Norte and Ventura Street. This plan will be utilized for the development of the subject 1.067 acre property. This plan is in accordance with the DPM, Chapter 22, Hydrology Section. The purpose of this report is to provide the drainage analysis and management plan for the new site.

INTRODUCTION

The subject of this report, as shown on the Exhibit A vicinity map, is a 1.067 acre parcel of land located at the northeast corner of Paseo Del Norte and Ventura Street, zone atlas page C-20-Z. The site is in the City of Albuquerque, New Mexico and is currently under the platting process to combine the lot with a vacated portion of Paseo Del Norte right-of-way. The existing bank lot is on a 0.5513 acre lot near the northeast corner of the proposed combined lot, bordered on the north by Holly Avenue. The area of right-of-way to be added has an area of ^{0.6724}0.5153 acres. The current legal description of the property is Tract 3, Block 19, Tract 3, Unit 3, North Albuquerque Acres and the additional property is described as Paseo Del Norte Right-of-Way N.M. Project Number TPU-4054(2). The site is shown on FIRM map 35001C0141F and is not within a floodplain.

The site lies within the North and South Domingo Baca Arroyos and Paseo Del Norte Corridor Drainage Management Plan (hereinafter called Paseo Del Norte Drainage Management Plan), dated December 1991. The current bank lot is included in the drainage plan for Furr's Paseo Del Norte, dated November 1996, and for High Desert State Bank, dated November 1999, with the right-of-way being controlled by the Paseo Del Norte Drainage Management Plan.

EXISTING CONDITIONS

Currently, the existing bank building and parking lot are located on the north and east portion of the proposed site. The land generally slopes to the southwest corner where there is a depression which is drained by a 30" RCP pipe. This pipe extends west along the north side of Paseo Del Norte. The 1.066 acre site is bounded on the north by Holly Ave, on the east by a Raley's supermarket parking lot, on the south by Paseo Del Norte, and on the west by Ventura Street. No offsite flows enter the site. The existing runoff is calculated using the Weighted E method to be 1.79 cfs with a land treatment of 44% D and 56% A.

Since the portion of the lot that is part of the Paseo Del Norte right-of-way is covered under the Paseo Del Norte Drainage Management Plan, the anticipated runoff from the proposed conditions is used as the allowable discharge. The site lies within sub-basin 408.7, which has an area of 16.64 acres. The runoff from future conditions is calculated to be 66 cfs with a land treatment of 30% B and 70% D. A ratio of areas is used to calculate the 2.01 cfs of allowable discharge for the 0.52 acre right-of-way area.

The drainage plan for the Furr's Paseo Del Norte allows a surface discharge of 1.02 cfs from the property onto the access road north of the site. This was also used in the original drainage plan for the bank. Currently, the bank detains the runoff using a landscaping area that serves as a pond and a 6" wide concrete channel bleeds the discharge onto the access road at ~~1.02~~ cfs.

$$1.10 \text{ Fs} \approx 1.02 \text{ cfs}$$

PROPOSED CONDITIONS

The proposed development will be to add to the existing bank's parking lot, with no additional structures. The increase in area is approximately 0.52 acre. The proposed drainage plan is to conform to the Paseo Del Norte Drainage Management Plan and the Furr's Paseo Del Norte Drainage Plan. No offsite flows enter the site. Allowable

discharge into the 30" RCP, near the southwest corner of the site is 2.0 cfs and onto the access road north of the site is 1.02 cfs. The site is divided into three basins.

Basin 1 consists of a north portion of the parking lot with an area of 0.225 acres. The storm runoff from this basin will surface flow to the north edge of the parking lot onto a proposed 8"H x 8"W concrete channel that drains onto the access road. The total runoff from this area is 1.02 cfs and has a land treatment of 80% D and 20% B.

Basin 2 consists of the southern portion of the site along with the existing building with an area of 0.67 acres. Storm runoff from this basin will surface flow to the south end of the parking lot where it will pass through 12" curb openings spaced 12" apart where a twenty by six-foot concrete catch basin will detain flows. There will be a 9-inch wide by 6-inch high opening in the middle of the lower end. Using a 100-year, 24-hour storm the total volume of water discharged is approximately .135 acre feet. Routing the flows using AHYMO results in a high water elevation of 5550.90; this gives a maximum of about four inches above the lowest parking lot elevation. Peak discharge onto the Paseo Del Norte right-of-way is 1.63 cfs. This basin is drained by a 30" reinforced concrete pipe in the right-of-way which runs west along Paseo Del Norte.

Basin 3 consists of the western and southern edge of the property that is not part of the parking lot, with an area of 0.16 acres. Runoff from this basin will drain to the 30" storm drain pipe near the southwest corner. A total of 0.31 cfs is calculated using a land treatment of 100% A. The total runoff from Basins 2 and 3 is 1.94 cfs which is below the limit of 2 cfs into the 30" storm drain pipe.

SUMMARY AND RECOMMENDATIONS

The existing ± 0.55 acre bank property will be added to a ± 0.52 acre adjacent property that is currently part of the Paseo Del Norte right-of-way, increasing the area to approximately 1.067 acres. Existing runoff from the right-of-way drains to a 30" storm drain pipe. The proposed plan calls for three basins. Basin 1 surface discharges 1.02 cfs onto the access road through a proposed 8 x 8 inch concrete channel. Basin 2 uses a 20 x 6 foot concrete basin for ponding and uses an orifice to discharge 1.63 cfs onto the Paseo del Norte right-of-way. Basin 3 surface drains 0.31 cfs onto the same area as Basin 2. Basins 2 and 3 are drained by a 30" pipe that goes west along Paseo Del Norte. Total proposed runoff is calculated using the weighted E method to be 4.05 cfs. Existing runoff is calculated to be 1.79 cfs, which will increase by 2.26 cfs after development. This report proposes a discharge that complies with both approved reports.

Job Title: High Desert State Bank
TW Job #27011

After Development - Zone 3

Weighted E Method

On-Site Basins

											100-Year (6 hour)			10-Year (6-hour)			2-Year (6-hour)			100-Year (24-hour)	
Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		Weighted E Inches	Volume ac-ft	Flow cfs	Weighted E Inches	Volume ac-ft	Flow cfs	Weighted E Inches	Volume ac-ft	Flow cfs	Volume ac-ft	Volume cf
			%	(acres)	%	(acres)	%	(acres)	%	(acres)											
1	9,789	0.225	0%	0.00	20%	0.04	0%	0.00	80%	0.18	2.072	0.039	1.02	1.272	0.024	0.66	0.724	0.014	0.38	0.046	2017
2	26,429	0.607	0%	0.00	22%	0.13	0%	0.00	78%	0.47	2.043	0.103	2.72	1.249	0.063	1.76	0.707	0.036	0.99	0.123	5359
3	7,115	0.163	100%	0.16	0%	0.00	0%	0.00	0%	0.00	0.660	0.009	0.31	0.190	0.003	0.09	0.000	0.000	0.00	0.009	391
Total		0.99		0.16		0.18		0.00		0.65			4.05			2.52				1.37	

Equations:

Weighted E = (E_a*A_a + E_b*A_b + E_c*A_c + E_d*A_d) / Total Area

Volume = Weighted E * Total Area

Flow = Q_a * A_a + Q_b * A_b + Q_c * A_c + Q_d * A_d

V_{24 hours} = V₃₆₀ + A_D * (P_{24-hours} - P₃₆₀) / 12 in/ft

P₃₆₀ = 2.6 inches

P_{24-hours} = 3.10 inches

Before Development On-Site Basins - Zone 3

Weighted E Method

On-Site Basins

											100-Year (6 hour)			10-Year (6-hour)			2-Year (6-hour)				
Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E Inches	Volume ac-ft	Flow cfs		
			%	(acres)	%	(acres)	%	(acres)	%	(acres)											
1 - Bank	24,013	0.55	56%	0.31	0%	0.00	0%	0	44%	0.24	1.408	0.065	1.79	0.766	0.035	1.00	0.392	0.018	0.49		
2 - PDN ROW	22,444	0.52	100%	0.52	0%	0.00	0%	0	0%	0.00	0.660	0.028	0.96	0.190	0.008	0.30	0.000	0.000	0.00		
Total		1.07		0.82		0.00		0.00		0.24			2.76			1.30				0.49	

Equations:

Weighted E = (E_a*A_a + E_b*A_b + E_c*A_c + E_d*A_d) / Total Area

Volume = Weighted E * Total Area

Flow = Q_a * A_a + Q_b * A_b + Q_c * A_c + Q_d * A_d

Paseo Del Norte Drainage Management Plan

											100-Year (24 hour)		
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)			
408.7	724,800	16.64	0%	0.00	30%	4.99	0%	0	70%	11.65			66.00
Total													66.00

$$Q_{\text{sub-basin}} = (\text{Area of sub-basin} / \text{area of basin}) * Q$$

$$Q_{\text{sub-basin}} = (22444 / 724800) * 66 = 2.01 \text{ cfs}$$

$$Q_{\text{sub-basin}} = 2.01 \text{ cfs}$$

Channel Channel Capacity

Weir Equation

$$Q = C \cdot L \cdot H^{3/2}$$

$$C = 2.95$$

Basin	Q (cfs)	Height (H) (in)	Width (L) (in)
1	1.02	8.00	7.62

VOLUME CALCULATIONS

PARKING LOT POND

Orifice Equation

$$Q = CA \text{ SQRT}(2gH)$$

C = 0.6
 Length (in) 9
 Height (in) 6
 Area (ft²)= 0.375
 g = 32.2
 H (Ft) = Depth of water above center of orifice
 Q (CFS)= Flow

ELEVATION	H	Q =
5549.75	0	0.0000
5550	0	0.0000
5550.25	0.18	0.7661
5550.5	0.43	1.1840
5550.75	0.68	1.4889
5551	0.93	1.7413
5551.25	1.18	1.9614

Center of Orifice = 5550.07