City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

November 13, 2003

Larry Read, P.E.
Larry Read & Associates, Inc.
4800 Juan Tabo NE, Suite C
Albuquerque, NM 87111

Re: Allrite Roofing Systems, 3040 Painted Rock Drive NW, Grading and Drainage Plan

Engineer's Stamp dated 9-26-03 (G10/D29G)

Dear Mr. Read,

Based upon the information provided in your submittal received 10-09-03, the above referenced plan cannot be approved for Building Permit until the following comments are addressed:

1. Address the downstream capacity of the northern swale between Painted Rock Dr. and Todos Santos St.
2. Label all easements.
3. Who is responsible for maintaining the northern and eastern swales? If the City is responsible for their maintenance, the swales must be brought up to City standards.
4. Prove quantitatively which sites are allowed free discharge.
5. Please address the size and capacity of the north and east swales if the properties upstream of the swale are allowed free discharge.

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

Sincerely,

Carlos A. Montoya, PE
City Floodplain Administrator

C: file

DRAINAGE INFORMATION SHEET
(REV. 11/01/2001)

PROJECT TITLE: ALLRITE ROOFING SYSTEMS ZONE MAP/DRG. FILE #: G-10 / D029G
DRB #: _____ EPC #: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: Lot 5A2-A1- 3 Volcano Business Park – Phase I
CITY ADDRESS: 3040 Painted Rock Drive, NW

ENGINEERING FIRM: LARRY READ & ASSOCIATES, INC. CONTACT: LARRY READ
ADDRESS: 4800 Juan Tabo NE, Suite C PHONE: 237-8421
CITY, STATE: Albuquerque, NM ZIP CODE: 87111

OWNER: CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

ARCHITECT: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:
- XX DRAINAGE REPORT
- _____ DRAINAGE PLAN
- _____ CONCEPTUAL GRADING & DRAINAGE PLAN
- XX GRADING PLAN
- _____ EROSION CONTROL PLAN
- _____ ENGINEER'S CERTIFICATION (HYDROLOGY)
- _____ CLOMR/LOMR
- _____ TRAFFIC CIRCULATION LAYOUT (TCL)
- _____ ENGINEER'S CERTIFICATION(TCL)
- _____ ENGINEER'S CERTIFICATION (DRB APPR. SITE PLAN)
- _____ OTHER

CHECK TYPE OF APPROVAL SOUGHT:
- _____ SIA/FINANCIAL 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
- XX BUILDING PERMIT APPROVAL
- _____ CERTIFICATE OF OCCUPANCY (PERM.)
- _____ CERTIFICATE OF OCCUPANCY (TEMP.)
- _____ GRADING PERMIT APPROVAL
- _____ PAVING PERMIT APPROVAL
- _____ WORK ORDER APPROVAL
- _____ OTHER (SPECIFY) – SO-19 Approval

WAS A PRE-DESIGN CONFERENCE ATTENDED:
- _____ YES
- XX NO
- _____ COPY PROVIDED

RECEIVED
OCT 09 2003
HYDROLOGY SECTION

DATE SUBMITTED: October 7, 2003 BY: _____

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

look up of AGIS Nw

REVISED MASTER DRAINAGE STUDY

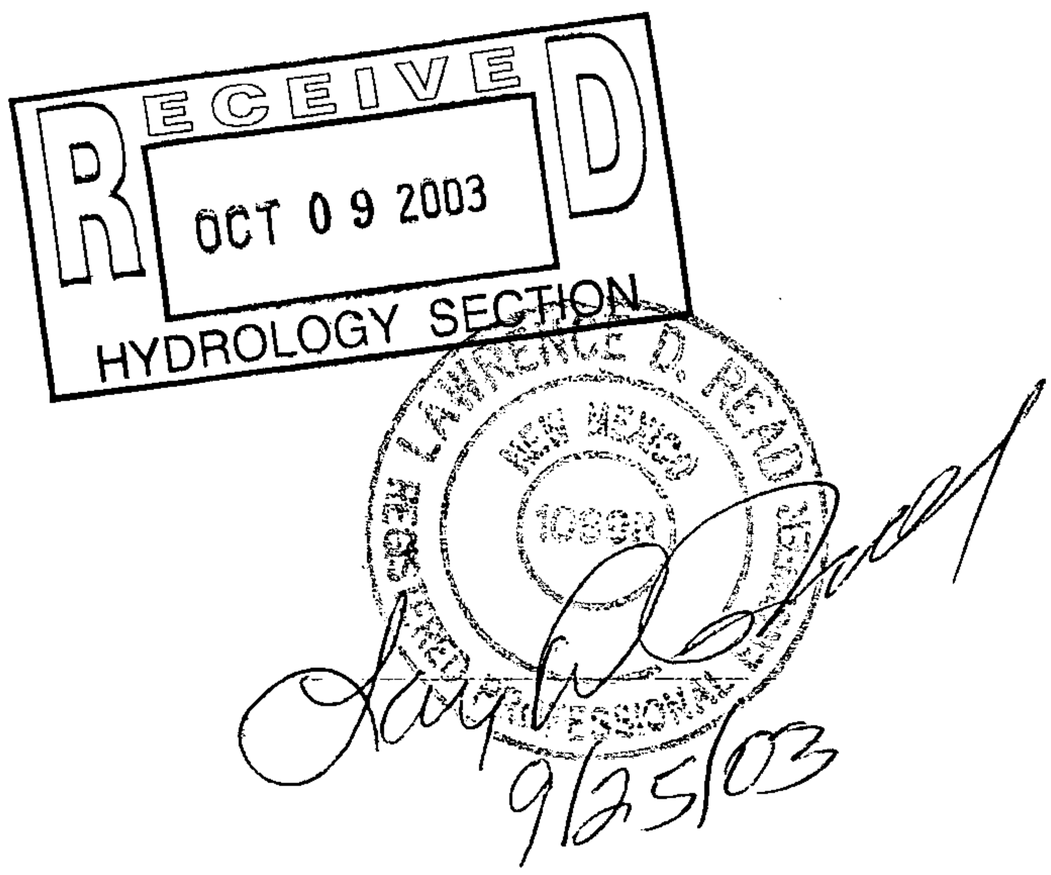
for

VOLCANO BUSINESS PARK PHASES I AND II
ALBUQUERQUE, NEW MEXICO

and

SITE SPECIFIC DRAINAGE FOR TRACT 5A2-A1-3

September 25, 2003



Prepared by
Larry D. Read, P.E.
4800-C Juan Tabo Blvd., N.E.
Albuquerque, New Mexico 87113
(505) 237-8421

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REVISED MASTER DRAINAGE STUDY

for

VOLCANO BUSINESS PARK PHASES I AND II
ALBUQUERQUE, NEW MEXICO

and

SITE SPECIFIC DRAINAGE FOR TRACT 5A2-A1-3

September 25, 2003

LOCATION & DESCRIPTION

The Volcano Business Park Phases I and II are located on the south side of Ouray Road just east of Unser Boulevard as shown on **Exhibit 1**. The area was master planned by Easterling and Associates in 1985. Then, the plan was updated by Brasher and Lorenz, Inc. as part of the GE Capital Modular development. Since then, the offsite drainage area to the west has been developed as the West Ridge Subdivision and drained away from the site. Therefore, the existing studies are outdated and need to be revised. This study goes back through the previous developments and establishes new criteria for the business park based on current conditions. It also addresses Tract 5A2-A1-3, which is being developed at this time. "Existing Drainage Conditions" below describe the development in more detail.

FLOODPLAIN STATUS

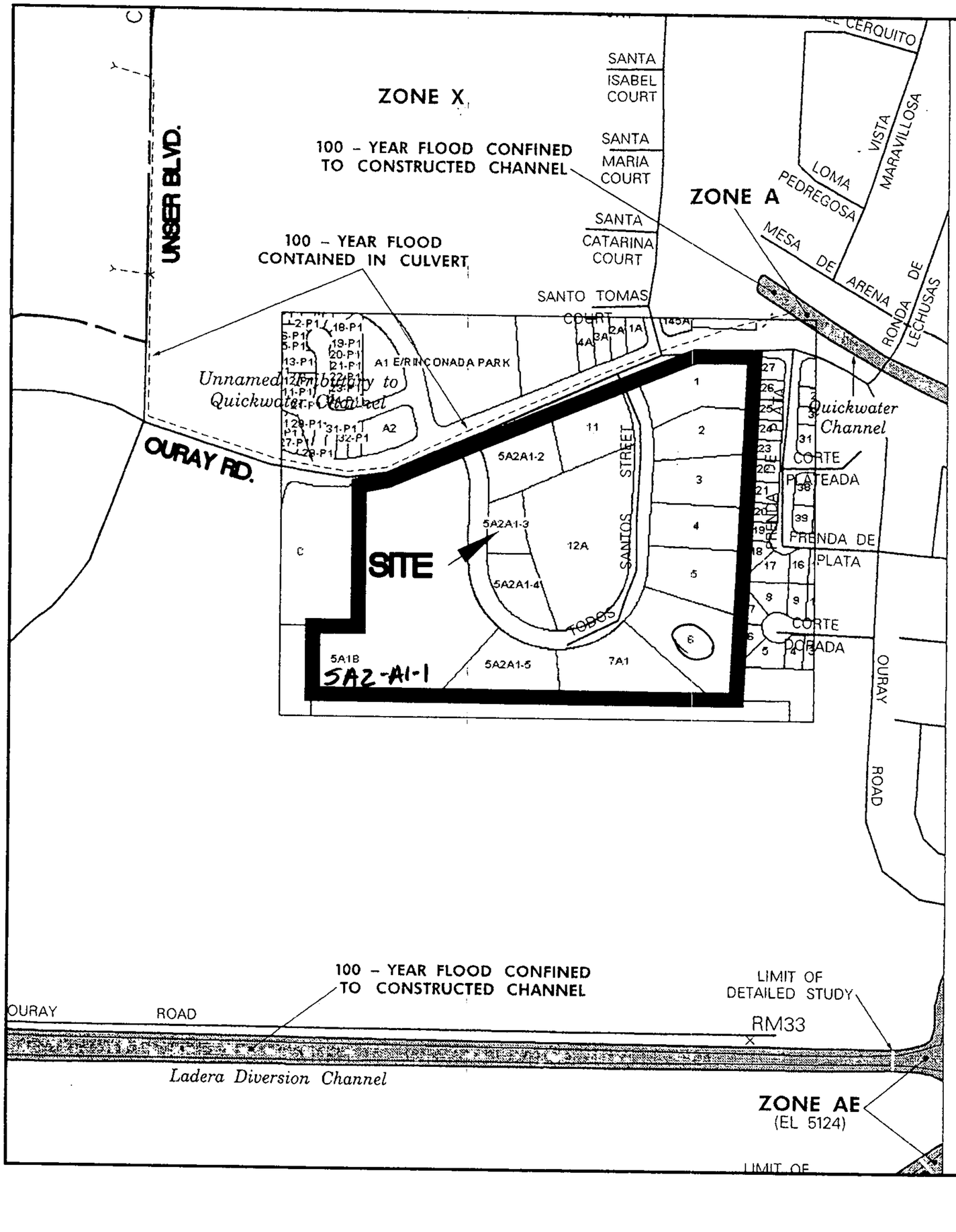
This property, as shown on FIRM Map Panel 35001C0326-D, effective September 20, 1996, is not within a designated floodplain. **Exhibit 1** shows a portion of this FIRM Panel with the Volcano Business Park superimposed on it.

METHODOLOGY

The hydrology for this project was analyzed using the Quick Calculation Method as documented in the June 1997 release of the City of Albuquerque Development Process Manual, Section 22.2.

PRECIPITATION

The 100-yr, 6-hour duration storm was used as the design storm for this analysis. This site is within Zone 1 as identified in the City of Albuquerque Development Process Manual, Section 22.2. Tables within this section were used to establish the 1-hour, 6-hour precipitation, and 24-hour precipitation.



APPROXIMATE SCALE IN FEET

500 0 500

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

BERNALILLO COUNTY, NEW MEXICO AND INCORPORATED AREAS

PANEL 326 OF 825

(SEE MAP INDEX FOR PANELS NOT PRINTED

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
ALBUQUERQUE, CITY OF	350002	0326	D
BERNALILLO COUNTY, UNINCORPORATED AREAS	350001	0326	D

MAP NUMBER
35001C0326 D

EFFECTIVE DATE:
SEPTEMBER 20, 1996

VICINITY MAP G-10

EXHIBIT 1

Federal Emergency Management Agency

EXISTING DRAINAGE CONDITIONS

Volcano Business Park has been partially developed under two different Master Drainage Plans. The first one was prepared by Easterling and Associates in 1985. This study Identified 112.7-acres west of Unser Boulevard which would be diverted to the north by Unser Boulevard and therefore, not allowed to enter the site. This area has since been developed and diverted to the Ouray Road Storm Drain according to this Master Plan. This study also identified 68.7 acres east of Unser Boulevard that would drain to a 42" rcp storm drain starting near the northeast corner of Volcano Business Park. This 68.7-acres was divided up into areas that had different allowable discharge rates depending on the type of development anticipated. A significant portion of the Volcano Business park even required onsite retention of the 100-year storm event. The overall criterion was an allowable discharge of 120-cfs to the 42" storm drain. This included 40 acres of offsite area west of the Volcano Business Park with an allowable discharge through the business park of 87.90-cfs. This runoff was split between two rundowns across Tract 5A2-A1-1.

Then, in 1997, Brasher and Lorenz, Inc. revised the Easterling and Associates Master Plan along with the development of the GE Modular site (Tract 5A2-A1-1 also identified as Tract 5A1B). At this time, the same offsite discharge of 87.90-cfs was anticipated to enter the business park but the allowable discharge of 0.43-cfs per acre was established for the park itself. This eliminated the retention pond requirements in order to meet current drainage standards but continued to meet the 42" storm drain capacity of 120-cfs. Tract 5A2-A1-1 was divided and drained into two detention ponds according to Drainage File G10/29F. In accordance with this discharge rate of 0.43-cfs per acre, Tract 5A2-A1-5 (Drainage File G10/29), Lot 2 (Drainage File G10/29E), Lot 7-A1 Drainage File G10/29D), Lot 11 (Drainage file G10/29C), and Lot 12-A (Drainage File G10/29B) have been developed with detention ponds.

The West Ridge Subdivision, prepared by Mark Goodwin and Associates, PA (Drainage File H9/D16) was approved in January 2003 as a development within the 40-acre offsite basin. This subdivision proposed diverting all the offsite area to the Ouray Road Storm Drain. This frees up the 87.9-cfs discharge to the 42" storm drain. **Appendix A** contains the West Ridge Subdivision Drainage Basin Map and AHYMO 100-Year Summary Output.

Due to discrepancies in the lot areas from the multiple reports and replats, the sum of the individual lot areas and the West Ridge Development do not match the original Easterling and Associates Master Plan. Therefore, we used lot areas as listed on the Bernalillo County arcIMS system, individual lot surveys, and the basin areas defined by the West Ridge Subdivision Report to establish the areas listed in the **100-YEAR HYDROLOGIC CALCULATIONS TABLE**. We have included an "Unidentified Basin" of 2.5860-acres in the Hydrologic Calculations table to account for the discrepancies in area. This basin was analyzed as 90% impervious to reflect either commercial development or roads in order to account for the maximum discharge to the 42" storm drain.

The sum of the discharge from the Volcano Business Park with individual lot detention ponds would be 43.90-cfs plus the offsite allowable discharge of 87.90-cfs for a total of 131.80-cfs. This would exceed the 42" storm drain capacity of 120-cfs. However, when the 13.34-cfs generated by the "Duplicate Area" (see next paragraph) is redirected to the Ouray Road Storm Drain is removed, the discharge is reduced to 118.45-cfs, which is within the allowable discharge.

In July 2003, Brasher and Lorenz, Inc. submitted a new study (Drainage File G10/D29F) for the GE Modular Site. This included a 4.29-acre addition to the GE Modular Site. This additional area is "Basin 34" (3.1616-acres) of the West Ridge Subdivision The West Ridge Subdivision report anticipated that this area will drain to the Ouray road Storm Drain. However, the 2003 Brasher and Lorenz, Inc. Report continues to drain this area through the Volcano Business Park property. Therefore, we have created a "Duplicate Area" basin to account for this runoff going to either system when the property is actually developed. The 2003 revised submittal takes into account the diversion of offsite runoff due to the West Ridge Subdivision improvements. The letter in **Appendix B** states that previously required ponds and storm drains are no longer needed, but, also states that a portion of the site drains to the existing ponds. Therefore, we have split Tract 5A2-A1-1 into three (basins). The north one (4.50-acres) drains to an existing detention pond at the north end of the site according to the 1997 report. Similarly, a 2.50-acre portion drains to the south detention pond and drains according to the 1997 study. The remaining 4.34-acres was analyzed for ponding under "Existing Allowable Conditions" and free discharge for "Proposed Conditions." This letter states that the net result due to the offsite diversion and development of the additional 4.29-acres decreases the demands on the 42" storm drain by approximately 37.2-cfs. Since we have a limited understanding of how the GE Modular site has changed between the 1997 study and the 2003 study, we are considering this 37.2-cfs decrease as one option for this master plan amendment and our calculations as the other criteria.

FULLY DEVELOPED CONDITIONS

Due to the West Ridge Subdivision diversion, the demand on the 42" storm drain has been decreased by 87.90-cfs. The **100-YEAR HYDROLOGIC CALCULATIONS TABLE** takes into account the lots within Volcano Business Park that have already been developed with detention ponds and the undeveloped lots. The undeveloped lots (Tracts 5A2-A1-2 through 5A2-A1-4, Lot 1, and Lots 3 through 6) will be allowed to have free discharge at 90% impervious. When these parcels are developed and added to the existing discharge from the other lots and the free discharge from the 4.34-acre portion of Tract 5A2-A1-1, the total discharge to the 42" storm drain is only 96.60-cfs. This is below the allowable discharge of 120-cfs.

As a second check, the allowable discharge from the eight (8) undeveloped lots is 3.68-cfs according to the "Existing Allowable Conditions." The free discharge from these same eight lots, developed with 90% impervious area is 36.12-cfs. This is a net increase of 32.44-cfs, which is less than the Brasher and Lorenz, Inc. statement that the demand has been decreased by 37.2-cfs. Therefore, it is evident that the remaining lots can be developed with free discharge without exceeding the 120-cfs storm drain capacity.

TRACT 5A2-A1-3 DEVELOPED CONDITIONS

Tract 5A2-A1-3 will be developed at this time according to this revised master plan. There is an existing 7' private drainage easement along the east edge of the property that will be maintained to accept the 3.22-cfs runoff from Tract 5A2-A1-4. The site will be graded to drain to the northeast corner of the site where it will drain into the existing 10' concrete channel which ties to the 42" storm drain.

Painted Rock Drive intercepts all the runoff from the west. Runoff from Tract 5A2-A1-2 will be directed to the 10' rundown at the northeast corner of this site. Therefore, the only offsite runoff will be

from Tracts 5A2-A1-2 and 5A2-A1-4 which will drain along the north and east edges of this property. Street capacity calculations and channel calculations for the combined runoff from these three (3) lots is included in Appendix C.

100-YEAR HYDROLOGIC CALCULATIONS

BASIN #	AREA (acre)	LAND TREATMENT A (%)	B (%)	C (%)	D (%)	WEIGHTED E (in)	V (6-hr) (acre-ft)	V (6-hr) (cu-ft)	Q (cfs)
EXISTING ALLOWABLE CONDITIONS									
5A2-A1-1 (NORTH)	4.5000	PONDED AND DISCHRGED TO PAINTD ROCK DR. PER DRAINAGE PLAN G10/29F							1.95
5A2-A1-1 (SOUTH)	2.5000	PONDED AND DISCHRGED TO TODAS SANTOS ST. PER DRAINAGE PLAN G10/29F							1.08
5A2-A1-1 (FREE)	4.3400	PONDED AND DISCHRGED AT A RATE OF 0.43CFS/ACRE							1.87
5A2-A1-2	1.0178	PONDED AND DISCHRGED AT A RATE OF 0.43CFS/ACRE							0.44
5A2-A1-3	0.5099	PONDED AND DISCHRGED AT A RATE OF 0.43CFS/ACRE							0.22
5A2-A1-4	0.7624	PONDED AND DISCHRGED AT A RATE OF 0.43CFS/ACRE							0.33
5A2-A1-5	1.2721	PONDED AND DISCHRGED TO TODAS SANTOS ST. PER DRAINAGE PLAN G10/29							0.55
LOT 1	1.2952	PONDED AND DISCHRGED AT A RATE OF 0.43CFS/ACRE							0.56
LOT 2	0.9909	PONDED AND DISCHRGED TO 42" STORM DRAIN PER DRAINAGE PLAN G10/29E							1.41
LOT 3	1.0319	PONDED AND DISCHRGED AT A RATE OF 0.43CFS/ACRE							0.44
LOT 4	0.9900	PONDED AND DISCHRGED AT A RATE OF 0.43CFS/ACRE							0.43
LOT 5	1.1849	PONDED AND DISCHRGED AT A RATE OF 0.43CFS/ACRE							0.51
LOT 6	1.7675	PONDED AND DISCHRGED AT A RATE OF 0.43CFS/ACRE							0.76
LOT 7-A1	1.3784	PONDED AND DISCHRGED TO TODAS SANTOS ST. PER DRAINAGE PLAN G10/29D							5.70
LOT 11	1.0411	PONDED AND DISCHRGED TO TODAS SANTOS ST. PER DRAINAGE PLAN G10/29C							2.48
LOT 12-A	3.4213	PONDED AND DISCHRGED TO TODAS SANTOS ST. PER DRAINAGE PLAN G10/29B							4.90
PAINTED ROCK	0.7731	0.00	0.00	10.00	90.00	1.87	0.12	5,253	3.26
TODOS SANTOS	1.4463	0.00	0.00	10.00	90.00	1.87	0.23	9,828	6.10
UNIDENTIFIED	2.5860	0.00	0.00	10.00	90.00	1.87	0.40	17,573	10.91
SUBTOTAL	**32.8088**								**43.90**
DUPLICATE AREA	-3.1616	0.00	0.00	10.00	90.00	1.87	-0.49	-21,484	-13.34
WEST RIDGE	39.0528	CHANNEL DRAINAGE THROUGH 5A2-A1-1 VIA NORTH AND SOUTH CHANNELS							87.90
TOTAL	**68.7000**								**118.45**
PROPOSED CONDITIONS									
5A2-A1-1 (NORTH)	4.5000	PONDED AND DISCHRGED TO PAINTD ROCK DR. PER DRAINAGE PLAN G10/29F							1.95
5A2-A1-1 (SOUTH)	2.5000	PONDED AND DISCHRGED TO TODAS SANTOS ST. PER DRAINAGE PLAN G10/29F							1.08
5A2-A1-1 (FREE)	4.3400	FREE DISCHARGE TO TODAS SANTOS ST. PER DRAINAGE PLAN G10/29F							22.13
5A2-A1-2	1.0178	0.00	0.00	10.00	90.00	1.87	0.16	6,916	4.30
5A2-A1-3	0.5099	0.00	0.00	10.00	90.00	1.87	0.08	3,465	2.15
5A2-A1-4	0.7624	0.00	0.00	10.00	90.00	1.87	0.12	5,181	3.22
5A2-A1-5	1.2721	PONDED AND DISCHRGED TO TODAS SANTOS ST. PER DRAINAGE PLAN G10/29							0.55
LOT 1	1.2952	0.00	0.00	10.00	90.00	1.87	0.20	8,801	5.47
LOT 2	0.9909	PONDED AND DISCHRGED TO 42" STORM DRAIN PER DRAINAGE PLAN G10/29E							1.41
LOT 3	1.0319	0.00	0.00	10.00	90.00	1.87	0.16	7,012	4.35
LOT 4	0.9900	0.00	0.00	10.00	90.00	1.87	0.15	6,727	4.18
LOT 5	1.1849	0.00	0.00	10.00	90.00	1.87	0.18	8,052	5.00
LOT 6	1.7675	0.00	0.00	10.00	90.00	1.87	0.28	12,011	7.46
LOT 7-A1	1.3784	PONDED AND DISCHRGED TO TODAS SANTOS ST. PER DRAINAGE PLAN G10/29D							5.70
LOT 11	1.0411	PONDED AND DISCHRGED TO TODAS SANTOS ST. PER DRAINAGE PLAN G10/29C							2.48
LOT 12-A	3.4213	PONDED AND DISCHRGED TO TODAS SANTOS ST. PER DRAINAGE PLAN G10/29B							4.90
PAINTED ROCK	0.7731	0.00	0.00	10.00	90.00	1.87	0.12	5,253	3.26
TODOS SANTOS	1.4463	0.00	0.00	10.00	90.00	1.87	0.23	9,828	6.10
UNIDENTIFIED	2.5860	0.00	0.00	10.00	90.00	1.87	0.40	17,573	10.91
SUBTOTAL	**32.8088**						**2.08**	**90819.71**	**96.60**
DUPLICATE AREA	-3.1616	0.00	0.00	10.00	90.00	1.87	-0.49	-21,484	13.34
WEST RIDGE	39.0528	PONDED AND DISCHRGED TO OURAY STORM DRAIN							0.00
TOTAL	**68.7000**								

40' DRAINAGE EASEMENT

EXCESS PRECIP.	0.44	0.67	0.99	1.97	E_i (in)
PEAK DISCHARGE	1.29	2.03	2.87	4.37	Q_{Pi} (cfs)

WEIGHTED E (in) = $(E_A)(\%A) + (E_B)(\%B) + (E_C)(\%C) + (E_D)(\%D)$

$V_{6\text{-HR}}$ (acre-ft) = (WEIGHTED E)(AREA)/12

V_{10DAY} (acre-ft) = $V_{6\text{-HR}} + (A_D)(P_{10DAY} - P_{6\text{-HR}})/12$

Q (cfs) = $(Q_{PA})(A_A) + (Q_{PB})(A_B) + (Q_{PC})(A_C) + (Q_{PD})(A_D)$

ZONE =	1
$P_{6\text{-HR}}$ (in.) =	2.20
$P_{24\text{-HR}}$ (in.) =	2.66
P_{10DAY} (in.) =	3.67

APPENDIX A

Excerpts from West Ridge Subdivision Drainage Report

DRAINAGE REPORT
for
WEST RIDGE SUBDIVISION

Prepared For

KB HOME New Mexico Inc.
4921 Alexander NE, Suite B
Albuquerque, NM 87107

Prepared By

Mark Goodwin & Associates, PA
PO Box 90606
Albuquerque, NM 87199

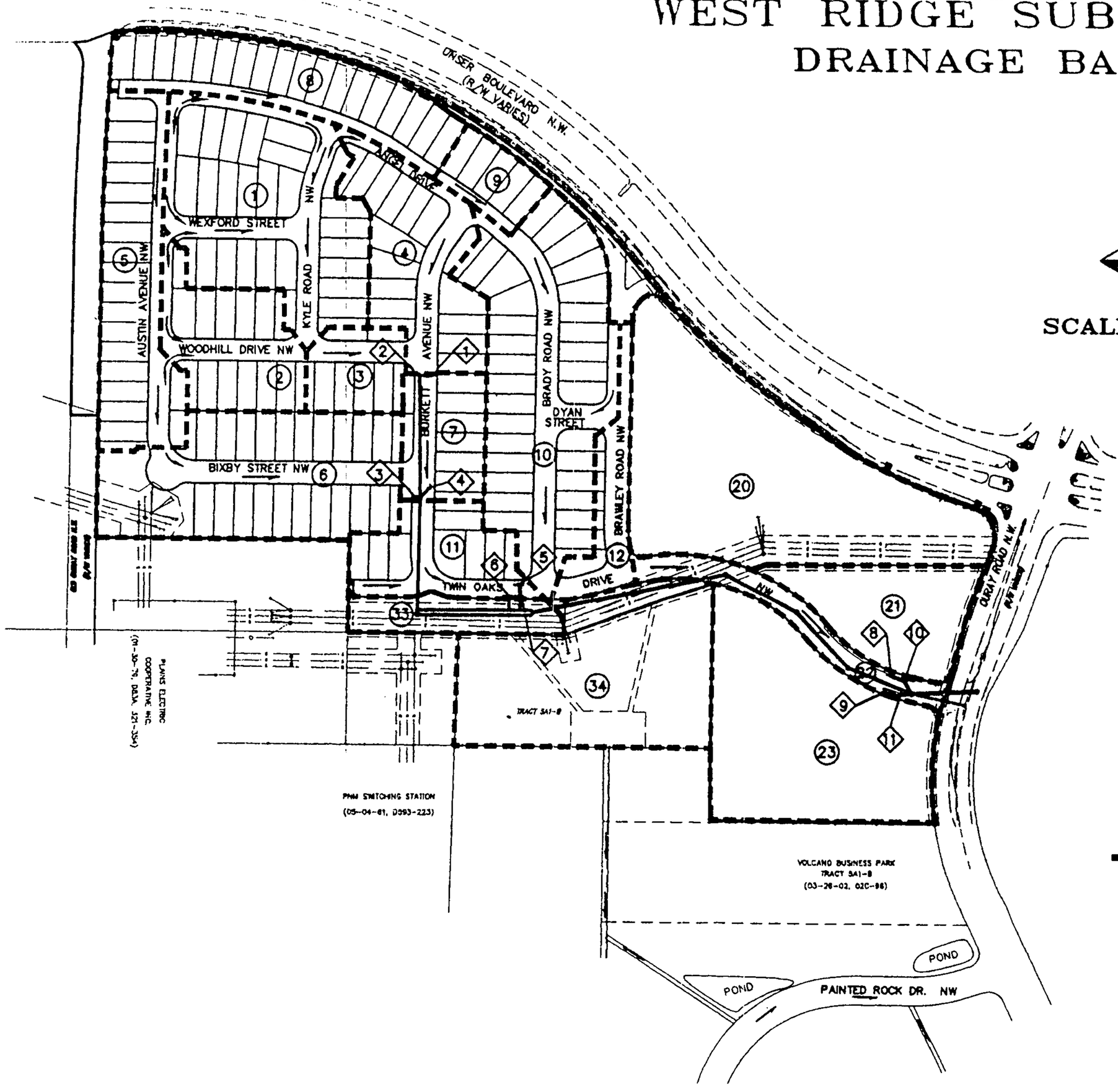
JAMES D. HUGHES
11674
NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER

1-02-03

September 2002

Revision January 2003

WEST RIDGE SUBDIVISION
DRAINAGE BASIN MAP



SCALE: 1" = 300'

LEGEND

- (23) DRAINAGE BASIN ID
- ◇11 INLET NO.
- ▪▪▪▪ BASIN BOUNDARY
- —→ FLOW ARROW

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =09/13/2002
INPUT FILE = WR100.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										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	2.220
COMPUTE NM HYD	1-12	-	1	.03750	87.06	3.024	1.51223	1.499	3.627	PER IMP=	57.00
COMPUTE NM HYD	33.00	-	2	.00113	1.79	.050	.82707	1.499	2.472	PER IMP=	.00
ADD HYD	1-33	1& 2	3	.03863	88.85	3.074	1.49218	1.499	3.594		
ROUTE RESERVOIR	33POND	3	2	.03863	9.43	3.070	1.48986	2.164	.381	AC-FT=	2.319
COMPUTE NM HYD	34.00	-	1	.00494	13.44	.497	1.88719	1.499	4.251	PER IMP=	90.00
ADD HYD	1-34	1& 2	4	.04357	17.14	3.567	1.53490	1.532	.615		
COMPUTE NM HYD	20.00	-	1	.00800	21.76	.805	1.88719	1.499	4.249	PER IMP=	90.00
COMPUTE NM HYD	21.00	-	2	.00245	6.67	.247	1.88719	1.499	4.257	PER IMP=	90.00
ADD HYD	20-21	1& 2	3	.01045	28.43	1.052	1.88714	1.499	4.251		
COMPUTE NM HYD	22.00	-	1	.00130	3.55	.131	1.88719	1.499	4.266	PER IMP=	90.00
ADD HYD	20-22	1& 3	2	.01175	31.98	1.183	1.88712	1.499	4.252		
COMPUTE NM HYD	23.00	-	4	.00570	15.50	.574	1.88719	1.499	4.250	PER IMP=	90.00
ADD HYD	523.00	2& 4	1	.01745	47.48	1.756	1.88712	1.499	4.252		
FINISH											

AHYMO 100-YR SUMMARY

APPENDIX B

Brasher and Lorenz, Inc. Letter Dated July 10, 2003

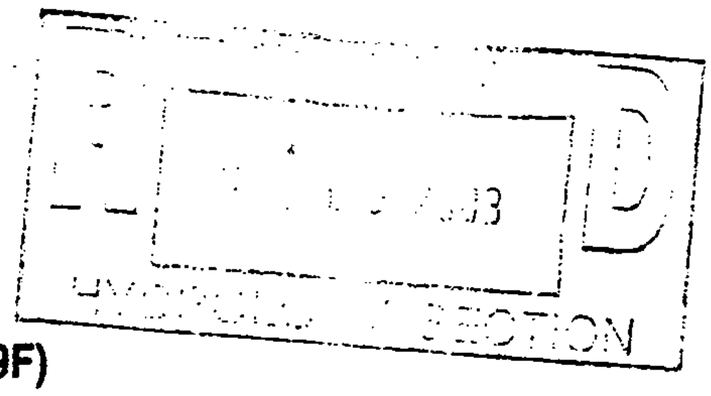
BRASHER & LORENZ, INC.

CONSULTING ENGINEERS

2201 San Pedro NE Bldg 1 Suite 1200 • Albuquerque, NM 87110 • Phone (505) 888-6088 • Fax (505) 888-6188 • ww.brasherlorenz.com

July 10, 2003

Bradley L. Bingham PE
Hydrology Review Engineer
City of Albuquerque
PO Box 1293
Albuquerque, New Mexico 87102



SUBJECT: GE CAPITAL MODULAR SPACE (G10/D29F)

Dear Brad:

Submitted herewith for review and approval is one copy of the updated Drainage Report for the subject project. The Plan is updated to reflect the revised impacts due to the recent development of West Ridge Subdivision, located adjacent to the subject site on the west. The GE site had previously anticipated accepting developed off-site flows from the properties located west of the site. The previous Drainage Plan and Site Plan recommended the storm drainage improvements required to manage these flows, and as a result, public drainage easements were granted. The development of West Ridge changed the off-site conditions by constructing a public detention pond, and draining all developed flows north to the existing 60-inch storm drain located in Ouray Road. Tract 5A1-A, which was originally within the GE site plan area, was re-platted as Tracts B & C, West Ridge Subdivision with the dedication of public right-of-way for Twin Oaks Drive. Per the report for West Ridge, Tracts B & C are to drain to public storm drains in Twin Oaks or Ouray.

As a result, the infrastructure demand on the GE site has been reduced. The updated Plan recommends improvements to expand the GE site by 4.29-acres. The on-site detention pond and storm drains previously required to manage developed off-site flows have been eliminated from the Plan. The expanded area will now drain through existing improvements constructed by GE with the initial development of the site. A portion of the expanded area drains to an existing detention pond located along Painted Rock Drive. The remainder of the expanded site drains to the existing 11-foot channel located along the south side of the existing GE site. The resulting discharge from the GE site is approximately 37.2 cfs less that was previously anticipated, due to the upstream diversions.

Please review the plan update at your earliest opportunity. If you need additional information, or if I can be of any assistance, please feel free to call.

Sincerely,

BRASHER & LORENZ, INC.

Dennis A. Lorenz, PE
Principal

/dl/02542
encl

APPENDIX C

Street and Channel Capacity Calculations

FLOW IN PAINTED ROCK DRIVE
ADJACENT TO TRACT 5A2-A1-3

MANNING'S EQUATION FOR UNIFORM FLOW
IN TRAPEZOIDAL CHANNELS

INPUT

DEPTH (FT):	0.32
MANNING'S "n" VALUE:	0.017
BED SLOPE (FT/FT):	0.0150
BOTTOM WIDTH (FT):	0.00
SIDE SLOPE #1 (HORZ:VERT):	0.00
SIDE SLOPE #2 (HORZ:VERT):	20.60
CROWN--NEG. FOR INVERTED (FT):	0.00

OUTPUT

FLOW RATE (CFS):	3.26
CROSS SECT. AREA (SF):	1.06
TOP WIDTH (FT):	6.61
WETTED PERIMETER (FT):	6.94
HYDRAULIC RADIUS (FT):	0.15
VELOCITY (FPS):	3.07
FROUDE NUMBER:	1.35
ENERGY GRADE:	0.47

MAXIMUM FLOW IN ROCK SWALE

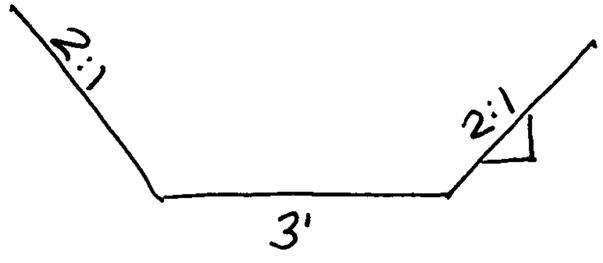
MANNING'S EQUATION FOR UNIFORM FLOW
IN TRAPEZOIDAL CHANNELS

INPUT

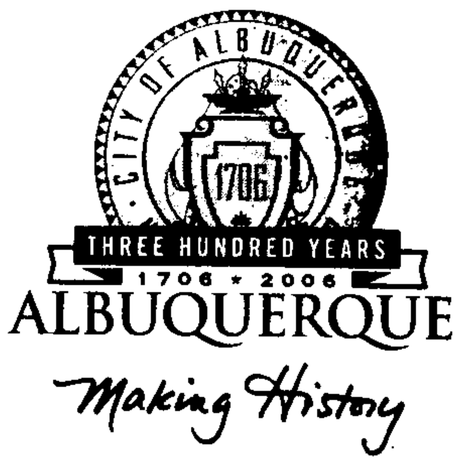
DEPTH (FT):	0.77
MANNING'S "n" VALUE:	0.045
BED SLOPE (FT/FT):	0.0160
BOTTOM WIDTH (FT):	3.00
SIDE SLOPE #1 (HORZ:VERT):	2.00
SIDE SLOPE #2 (HORZ:VERT):	2.00
CROWN--NEG. FOR INVERTED (FT):	0.00

OUTPUT

FLOW RATE (CFS):	9.67
CROSS SECT. AREA (SF):	3.48
TOP WIDTH (FT):	6.07
WETTED PERIMETER (FT):	6.43
HYDRAULIC RADIUS (FT):	0.54
VELOCITY (FPS):	2.78
FROUDE NUMBER:	0.65
ENERGY GRADE:	0.89



CITY OF ALBUQUERQUE



Planning Department
Transportation Development Services Section

March 18, 2005

Mark Baczek, Registered Architect
10305 Timan Place NW
Albuquerque, NM 87114

Re: Certification Submittal for Final Building Certificate of Occupancy for
Allrite Roofing Co, [G-10 / D29G]
3040 Painted Rock Drive NW
Architect's Stamp Dated 03/17/05

Dear Mr. Baczek:

The TCL / Letter of Certification submitted on March 17, 2005 is sufficient for acceptance by this office for final Certificate of Occupancy (C.O.). Notification has been made to the Building and Safety Section.

Sincerely,

Nilo E. Salgado-Fernandez, P.E.
Senior Traffic Engineer
Development and Building Services
Planning Department

c: Engineer
Hydrology file
CO Clerk

P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

DORMAN and BREEN
ARCHITECTS

3/17/05

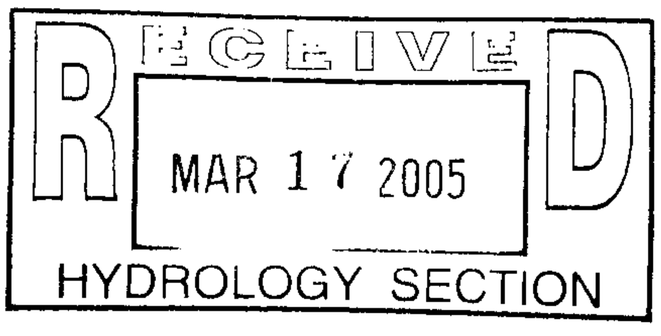
Traffic Circulation Layout Substantial Compliance Certificate

Regarding:
3040 Painted Rock Drive NW, Albuquerque, NM 87120_____
Legal Description: **Tract 5A2-A1-3, Volcano Business Park, Phase 1**, Bernallilo County, New Mexico
Location: Located on Painted Rock Drive near Ouray Road, NW.

This letter is to note for the record that I have inspected the construction improvements to the site noted above & have found the construction improvements to be "Substantially Compliant" with the approved DRB Site Plan, as approved by the traffic department for the building permit.

Mark Baczek, AIA

Dorman & Breen Architects



Richard Dorman, F.A.I.A./Laurence Breen, A.I.A.
Architecture, Planning, Interiors & Landscape Design

13604 Rebonito Court, NE • Albuquerque, NM 87112 • (505) 299-5940
1524 Paseo de Peralta • Santa Fe, NM 87501 • (505) 982-9196

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

PROJECT TITLE: **Allrite Roofing Co..** ZONE MAP: **G-10-Z** D29 G
DRB#: **1003243** EPC#: **NA** WORK ORDER#: _____

LEGAL DESCRIPTION: **Tract 5A2-A1-3, Volcano Business Park, Phase 1**

CITY ADDRESS: **3040 Painted Rock Drive NW, Albuquerque, NM 87120**

ENGINEERING FIRM: **Larry Reed& Assoc.** CONTACT: **Larry Reed**
ADDRESS: **4800-C Juan Tabo, NE** PHONE: **237-8421**
CITY, STATE: **Albuquerque, NM** ZIP CODE: **87111**

OWNER: **Allrite Roofing Systems Inc.** CONTACT: **Meshach Alvarado**
ADDRESS: **3040 Painted Rock Drive NW** PHONE: **344-7663**
CITY, STATE: **Albuquerque, NM** ZIP CODE: **87120**

ARCHITECT: **Dorman/Breen Architects** CONTACT: **Mark Baczek**
ADDRESS: **10305 Timan Pl NW** PHONE: **792-8160**
CITY, STATE: **Albuquerque, NM** ZIP CODE: **87114**

SURVEYOR: **HARRIS SURVEYING, INC.** CONTACT: **Anthony L. Harris**
ADDRESS: **2412-D Monroe Street, NE** PHONE: **889-8056**
CITY, STATE: **Albuquerque, NM** ZIP CODE: **87110**

CONTRACTOR: **Allrite Roofing Systems Inc.** CONTACT: **Meshach Alvarado**
ADDRESS: **3040 Painted Rock Drive NW** PHONE: **344-7663**
CITY, STATE: **Albuquerque, NM** ZIP CODE: **87120**

TYPE OF SUBMITTAL:
_____ DRAINAGE REPORT
_____ DRAINAGE PLAN 1st SUBMITTAL
_____ DRAINAGE PLAN RESUBMITTAL
_____ CONCEPTUAL G & D PLAN
_____ GRADING PLAN
_____ EROSION CONTROL PLAN
_____ ENGINEER'S CERT (HYDROLOGY)
_____ CLOMR/LOMR
X_____ TRAFFIC CIRCULATION LAYOUT
_____ ENGINEER'S CERT (TCL)
_____ ENGINEER'S CERT (DRB SITE PLAN)
_____ OTHER

CHECK TYPE OF APPROVAL SOUGHT:
_____ SIA/FINANCIAL GUARANTEE RELEASE
_____ PRELIMINARY PLAT APPROVAL
_____ S. DEV. PLAN FOR SUB'D APPROVAL
_____ S. DEV. FOR BLDG. PERMIT APPROVAL
_____ SECTOR PLAN APPROVAL
_____ FINAL PLAT APPROVAL
_____ FOUNDATION PERMIT APPROVAL
_____ BUILDING PERMIT APPROVAL
X_____ CERTIFICATE OF OCCUPANCY- Perm
_____ GRADING PERMIT APPROVAL
_____ PAVING PERMIT APPROVAL
_____ WORK ORDER APPROVAL
_____ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:
_____ YES
_____ NO
X_____ COPY PROVIDED

RECEIVED
MAR 17 2005
HYDROLOGY SECTION

DATE SUBMITTED: 3/17/05 BY: MARK BACZEK, AIA

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope to 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 Plan**: 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 subdivision containing more than ten (10) lots or constituting five (5) acres or more.

CITY OF ALBUQUERQUE

March 8, 2005

Mr. Larry Read, P.E.
LARRY READ & ASSOCIATES
4800 Juan Tabo Blvd. NE
Albuquerque, NM 87111

Re: ALLRITE ROOFING SYSTEMS
3040 Painted Rock Drive NW
Approval of Permanent Certificate of Occupancy (C.O.)
Engineer's Stamp dated 10/21/2003 (G-10/D29G)
Certification dated 03/03/2005

P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

Dear Larry,

Based upon the information provided in your submittal received 03/04/2005, the above referenced certification is approved for release of Permanent Certificate of Occupancy by Hydrology.

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

Sincerely,

Arlene V. Portillo
Plan Checker, Planning Dept. - Hydrology
Development and Building Services

C: Phyllis Villanueva
File

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: Allrite Roofing Systems
DRB #: _____ EPC#: _____

ZONE MAP/DRG. FILE #:G-10/D-29G
WORK ORDER#: _____

LEGAL DESCRIPTION: Lot 5A2-A1-3 Volcalo Business Park Phase I
CITY ADDRESS:3040 Painted Rock Drive NW

ENGINEERING FIRM: Larry Read & Associates, Ins
ADDRESS: 4800 Juan Tabo Blvd. NE Suite C
CITY, STATE: Albuqueruqe, New Mexico

CONTACT: Larry Read
PHONE: 237-8421
ZIP CODE: 87111

OWNER: _____
ADDRESS: _____
CITY, STATE: _____

CONTACT: _____
PHONE: _____
ZIP CODE: _____

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 / FINANCIAL 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
MAR 0 4 2005
HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☒ YES
- ☐ NO
- ☐ COPY PROVIDED

DATE SUBMITTED:March 2, 2005

BY:Larry Read

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature , location and scope ot 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 Plan**: 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

December 19, 2003

Larry Read, P.E.
Larry Read & Associates, Inc.
4800 Juan Tabo NE, Suite C
Albuquerque, NM 87111

Re: Allrite Roofing Systems, 3040 Painted Rock Drive NW, Grading and Drainage Plan

Engineer's Stamp dated 10-21-03 (G10/D29G)

Dear Mr. Read,

Based upon the information provided in your submittal received 11-25-03, the above referenced plan is approved for Building Permit. Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

If you have any questions, you can contact me at 924-3981.

Sincerely,

Kristal D. Metro
Engineering Associate, Planning Dept.
Development and Building Services

SLB

C: file

Resubmittal

DRAINAGE INFORMATION SHEET
(REV. 11/01/2001)

PROJECT TITLE: ALLRITE ROOFING SYSTEMS ZONE MAP/DRG. FILE #: G-10/D-29G
DRB #: _____ EPC #: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: Lot 5A2-A1- 3 Volcano Business Park – Phase I
CITY ADDRESS: 3040 Painted Rock Drive, NW

ENGINEERING FIRM: LARRY READ & ASSOCIATES, INC. CONTACT: LARRY READ
ADDRESS: 4800 Juan Tabo NE, Suite C PHONE: 237-8421
CITY, STATE: Albuquerque, NM ZIP CODE: 87111

OWNER: CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

ARCHITECT: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:
- XX DRAINAGE REPORT
- _____ DRAINAGE PLAN
- _____ CONCEPTUAL GRADING & DRAINAGE PLAN
- XX GRADING PLAN
- _____ EROSION CONTROL PLAN
- _____ ENGINEER'S CERTIFICATION (HYDROLOGY)
- _____ CLOMR/LOMR
- _____ TRAFFIC CIRCULATION LAYOUT (TCL)
- _____ ENGINEER'S CERTIFICATION(TCL)
- _____ ENGINEER'S CERTIFICATION (DRB APPR. SITE PLAN)
- _____ OTHER

CHECK TYPE OF APPROVAL SOUGHT:
- _____ SIA/FINANCIAL 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
- XX BUILDING PERMIT APPROVAL
- _____ CERTIFICATE OF OCCUPANCY (PERM.)
- _____ CERTIFICATE OF OCCUPANCY (TEMP.)
- _____ GRADING PERMIT APPROVAL
- _____ PAVING PERMIT APPROVAL
- _____ WORK ORDER APPROVAL
- _____ OTHER (SPECIFY) – SO-19 Approval

WAS A PRE-DESIGN CONFERENCE ATTENDED:
- _____ YES
- XX NO
- _____ COPY PROVIDED

RECEIVED
NOV 25 2003
HYDROLOGY SECTION

DATE SUBMITTED: November 21, 2003 BY: _____

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

* Check at bottom right hand corner – subdiv. or BP

LARRY READ & ASSOCIATES

Civil Engineers

Site ● Drainage ● Utility Design

November 19, 2003

Mr. Carlos A. Montoya, PE
City of Albuquerque, Hydrology Dept.
P.O. Box 1293
Albuquerque, NM 87103

Re: Allrite Roofing Systems, 3040 Painted Rock Dr. NW, Grading and Drainage Plan (G10/D29G)

Dear Mr. Montoya:

Thank you for your review of the above referenced job and update to the Volcano Business Park Master Drainage Plan. The comments from your letter dated November 13, 2003 are addressed sequentially below.

1. Appendix C contains the Manning's Equation calculations for the "Maximum Flow in Rock Swale." This section is for a trapezoidal channel with a 3' bottom width and 2:1 sides. The maximum developed flow in this rock swale occurs at the northeast corner of Tract 5A2-A1-3, At this point the combined free discharge from Tract 5A2-A1-2, Tract 5A2-A1-3, and Tract 5A2-A-4 generates a runoff of 9.67-cfs (see "100-Year Hydrologic Calculations *Proposed Conditions*"). This runoff will have a flow depth of 0.77' in the rock swale. This rock swale transitions into a 10' wide (1' deep) concrete channel at 2.95%. Since the flow is contained within a 3' trapezoidal rock swale at 1.60%, it will easily be contained in the steeper 10' wide concrete channel.

2. Easement labels have been added to the Grading and Drainage Sheet.

3. These are private easements. Therefore, the individual property owners are responsible for the maintenance.

4. The "100-Year Hydrologic Calculations" provide a quantitative analysis for each tract of land. The "Fully Developed Conditions" section of the report (Revised Master Drainage Study for Volcano Business Park Phases I and II, Albuquerque, NM and Site Specific Drainage for Tract 5A2-A1-3) page 4, identifies all the undeveloped lots (Tracts 5A2-A1-2 through 5A2-A1-4, Lot 1, and Lots 3 through 6). All of these sites are allowed free discharge.

5. A single channel section has been designed for all of the swales for ease of construction. As described above (Comment 1), the swales have been designed to carry the combined developed flow from all three tracts of land.

Please complete your review of this revised master drainage plan and grading plan for Tract 5A2-A1-3. We will be glad to assist you further in this review if you have additional comments.

Sincerely,
LARRY READ & ASSOCIATES, Inc.

Larry D. Read, P.E.

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NOV 25 2003
HYDROLOGY SECTION

4800 Juan Tabo Blvd., NE Suite C Albuquerque, New Mexico 87111 (505) 237-8421 FAX (505) 237-8422

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

November 13, 2003

Larry Read, P.E.
Larry Read & Associates, Inc.
4800 Juan Tabo NE, Suite C
Albuquerque, NM 87111

Re: Allrite Roofing Systems, 3040 Painted Rock Drive NW, Grading and Drainage Plan

Engineer's Stamp dated 9-26-03 (G10/D29G)

Dear Mr. Read,

Based upon the information provided in your submittal received 10-09-03, the above referenced plan cannot be approved for Building Permit until the following comments are addressed:

1. Address the downstream capacity of the northern swale between Painted Rock Dr. and Todos Santos St.
2. Label all easements.
3. Who is responsible for maintaining the northern and eastern swales? If the City is responsible for their maintenance, the swales must be brought up to City standards.
4. Prove quantitatively which sites are allowed free discharge.
5. Please address the size and capacity of the north and east swales if the properties upstream of the swale are allowed free discharge.

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

Sincerely,

Carlos A. Montoya, PE
City Floodplain Administrator

C: file

RECEIVED
NOV 25 2003
HYDROLOGY SECTION