City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

September 12, 2003

Diane Hoelzer, PE
Mark Goodwin & Associates
P.O. 90606
Albuquerque, NM 87199

Re: Desert Ridge @ La Cueva Subdivision Grading Plan Certification
Engineer's Stamp dated 7-26-02
Certification dated 9-8-03 (C19/D30)

Dear Ms. Hoelzer,

Based upon the information provided in your letter dated 9-9-03, the above referenced certification is approved for Release of SIA and Financial Guarantee.

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

Sincerely,

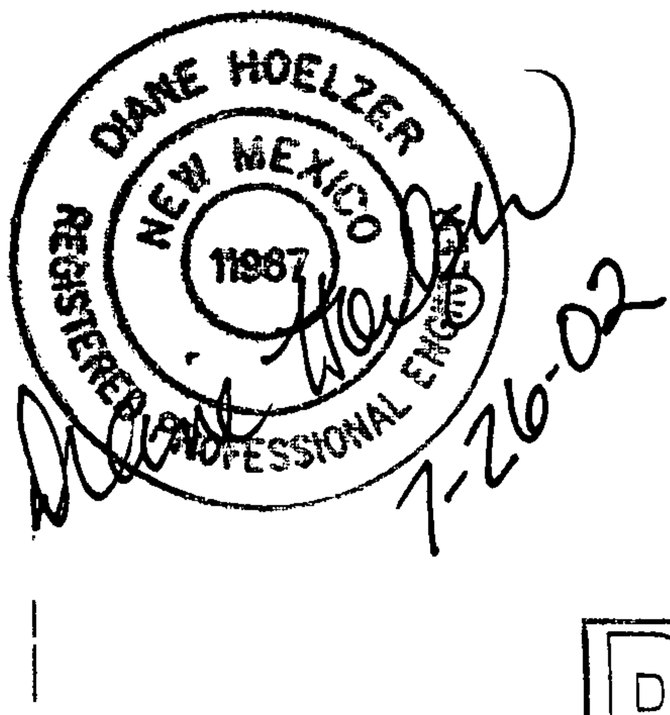
Bradley L. Bingham, PE
Sr. Engineer, Planning Dept.
Development and Building Services

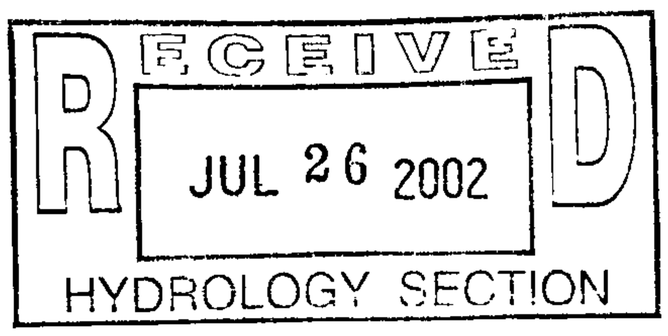
C: Arlene Portillo, CoA, CPN 697181
file

DRAINAGE REPORT

for

Desert Ridge @ La Cueva Subdivision





JULY 2002
DLH

I. PROJECT DESCRIPTION

The proposed Desert Ridge @ La Cueva Subdivision comprises approximately 3 gross acres and is located south of Signal Avenue and east of Eagle Springs Subdivision and north of Coppell Subdivision. The site is to be developed into 16 single family homes at 7 DU's per acre.

II. DRAINAGE DESIGN CRITERIA AND PREVIOUS REPORTS

The design criteria used in this report was in accordance with Section 22.2 Hydrology of the Development Process Manual, Volume 2, Design Criteria, January 1993 edition. The 100-year 6-hour storm event was analyzed to determine street capacities using P(1 hr) = 2.15", P(6 hr)=2.55". The onsite Land Treatment values used were Treatment D=56, Treatment C=22 and Treatment B=22 as determined using "Table A-5 Percent Treatment D" in the DPM. AHYMO printouts are provided in Appendix A.

III. EXISTING DRAINAGE CONDITIONS

Under existing drainage conditions runoff flows in a westerly direction. There is an approximate drop in grade of 18' from east to west across the property. No offsite flows enter the site from the north, west or south. There are offsite flows that enter the site from the east.

IV. DEVELOPED DRAINAGE CONDITIONS

The total 'developed conditions' flow from the two culdesacs is 11.10 cfs and 1.3 cfs from Signal Avenue for a total of 12.4 cfs from the project site. The Eagle Springs subdivision to the west was designed to convey and intercept the 'developed' flows from this project site as part of their Offsite Subasin DC5 (refer to pocket for Eagle Springs Ultimate Drainage Basin Master Plan).

Since this site has approximately 18 feet of fall from east to west, retaining walls are necessary along the east and west property lines. The height of these walls has been minimized as much as possible. Two private concrete drainage swales along the west property lines in conjunction with two tiers of retaining walls will account for the 18' east-west drop in topography while still allowing free discharge north in the culdesac streets to Signal Avenue. Please refer to the grading and drainage plan for details on the retaining walls /concrete swale interface. This 'interface' design has been approved by the developer's of the adjacent Eagle Springs subdivision. The back yards on Lots 5-8 and 13-16 will drain to the adjacent concrete swale. The maximum discharge in each swale was calculated to be 0.9 cfs. Please refer to Appendix A hydrology for calculation assumptions. The back yards with the concrete swale will drop two feet towards the swale. In order to keep the retaining walls below 10 feet in height along the western most property boundary, Signal Avenue adjacent to our property must be lowered up to 2.5 feet. Please refer to the preliminary road profile for Signal Avenue (Figure 3).

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

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

PROJECT Desert Ridge @ La Cueva
SUBJECT Hydrology
BY DLH DATE 7-24-02
CHECKED _____ DATE _____
SHEET ____ OF ____

Gross Acreage = 3.0041 ac.

Signal Road = 495.73'(25)' = 0.2845 ac. = 0.000444 sq.mi

Onsite Acreage = 2.7196 ac. @ 16 lots = .004249 sq.mi

N = 5.88 DU/ACRE

$D = 7 * \sqrt{(5.88)^2 + (5)(5.88)} = 56$ Land Treatment

B/C = 22/22 Land Treatment

Signal 32'FF/50'ROW D = 80
C = 20

Estimate of Back yard drainage to channel(s)

40' x 240' = 9600 SF = 0.22 acres ⇒ Q(max) = 0.9 cfs

```
START               TIME=0.0
*****    DESERT RIDGE @ LA CUEVA SUBDIVISION
*****    100-YEAR 6-HOUR STORM EVENT
*****    FILE: DSRT_LC.DAT  JUL 2002 BY:DLH
RAINFALL            TYPE=1 RAIN QUARTER=0.0 IN
                    RAIN ONE=2.15 IN RAIN SIX=2.55 IN
                    RAIN DAY=2.90 IN DT=0.05 HR
*****
***** ********* DEVELOPED CONDITIONS ************************
*****
***** SUBASIN 100 ONSITE
***** 2.7196 ACRES
*****
COMPUTE NM HYD      ID=1 HYD NO=100.0 AREA=0.004249 SQ MI
                    PER A=0 PER B=22 PER C=22 PER D=56
                    TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=1 CODE=1
*****
***** SUBASIN 101 SIGNAL ROAD OFFSITE
***** ASSUME (HALF SECTION) @ 16'PVMT + 4'SDWK @ 495.73 LF
***** 0.2845 ACRES
*****
COMPUTE NM HYD      ID=1 HYD NO=101.0 AREA=0.000444 SQ MI
                    PER A=0 PER B=0 PER C=20 PER D=80
                    TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=1 CODE=1
FINISH
```

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =07/24/2002

INPUT FILE = DSRT_LC.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= 2.550
COMPUTE NM HYD	100.00	-	1	.00425	11.10	.401	1.76930	1.500	4.083	PER IMP= 56.00
COMPUTE NM HYD	101.00	-	1	.00044	1.34	.050	2.10668	1.500	4.708	PER IMP= 80.00
FINISH										

2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

1.00	.28	.28	.00	.00	.32	.05	.00	.00	.51
6.	0.	6.	0.	0.	3.	0.	0.	0.	.51
.00	.00	1.72	.00	.000	.017	.000	.000	.00	9.25
.006083	0.	0.	0.	0	0	6	.00	25.51	34.75

THIS RUN EXECUTED 7/25/ 2 10:30: 0

****

HEC2 RELEASE DATED SEP 88 UPDATED APR 1989

ERROR CORR - 01,02

MODIFICATION -

****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Desert Dawn Ct and Desert Dusk Ct. Street Summary of Street Capacity for each culdesac.

SUMMARY PRINTOUT

SECNO	Q	CWSEL	CRIWS	VCH	TOPWID	FRCH	EG
1.000	5.55	.28	.00	1.72	25.51	.85	.32

SUMMARY OF ERRORS AND SPECIAL NOTES