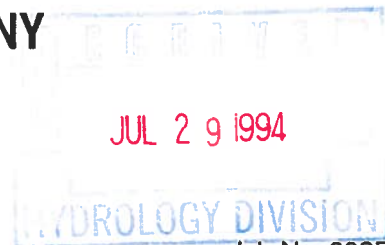




**DRAINAGE REPORT
CACTUS POINTE
(FORMERLY EAGLE RANCH TRACT 6)**

Prepared for:

**SANDIA PROPERTIES LTD COMPANY
10 TRAMWAY LOOP NE
ALBUQUERQUE, NM 87122**



Job No. 93257.01

Prepared by:



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DRAINAGE REPORT FOR
CACTUS POINTE
(FORMERLY EAGLE RANCH TRACT 6-A)

PREPARED FOR:

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PREPARED BY:

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I certify that I am a registered professional engineer
in the State of New Mexico and that this report was
prepared by me or under my supervision.

 7/29/94
Tamara K. Morgan, P.E. Date



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I. PURPOSE

The purpose of this report is to present the drainage management plan for preliminary plat and rough grading approval for the proposed Cactus Pointe Subdivision, formerly Tract 6-A, Eagle Ranch Subdivision. The Drainage Ordinance and the Development Process Manual (DPM) are utilized to develop the plan.

II. SITE LOCATION AND EXISTING CONDITIONS

The project site is located southwest of Irving Boulevard, approximately midway between Golf Course Road and Eagle Ranch Road. The site slopes generally from southwest to northeast, and runoff is directed into an existing desiltation basin adjacent to Irving Boulevard. The existing desiltation basin discharges into an existing 42" storm sewer in Irving Boulevard which conveys runoff to AMAFCA's Calabacillas Arroyo. Offsite flows enter the project site in three locations: Basin U-1, from the existing developed lots within the Knolls at Paradise Hills flowing along Bryan Avenue from the west; Basin U-2, from existing undeveloped lots within the Knolls at Paradise Hills across Bryan Avenue from the south, and Basin U-4 which is being developed by Jeff Mortenson & Associates to the southeast of Cactus Pointe.

Two previously approved drainage reports identify and address flows from this site. These reports include the Master Drainage Plan for Eagle Ranch and Portions of Paradise Hills, prepared by Community Sciences in 1983, and the Design Report for the Eagle Ranch Storm Drain, prepared by Easterling and Associates in 1985.

III. HYDROLOGIC ANALYSIS

Chapter 22, Section 22.2 of the DPM dated January, 1993, was utilized to determine peak flow rates for design of the storm drainage system within the project. The 100-year, 6-hour storm has been used as the design event. The computerized hydrologic model HYMO was then used to route flows from a model of the hydrology of this development to identify routed flow rates at various points in the basins.

IV. OFFSITE RUNOFF

The existing 42" storm sewer which drains the desiltation pond will be replaced by a 60" line, along with the necessary fittings and connections. The major portion of offsite flows originates from Basin U-1, which lies to the west and contains 112.5 cfs, which will be directed toward Bryan Avenue in the project site. This flow will be absorbed by a battery of storm drain inlets along Bryan Avenue. The other portion of offsite flow comes from Basin U-2, which contains approximately 42.4 cfs that will be carried by a 24" storm drain line. This line will run between lots 58 and 59 to intercept the main 30" line in Bryan Avenue. The low point in Bryan Avenue will occur at the bottom of the vertical curve near the intersection of Bryan Avenue and Sandalwood Place. Street flows will be directed to this point and will then be routed down Sandalwood Place to its intersection with Prairie Hill Court. From this point the flow will be carried down to the edge of the cul-de-sac in Prairie Hill Court, where it will be drained out of the subdivision.

Storm drain flow will follow the same routing direction as the street flow. Storm drain lines will be placed ten feet to left of centerline. A 6" PVC waterline will be connected to the existing 6" line entering Bryan Avenue from Basin U-1 and will run ten feet to the right of centerline. 8" PVC water lines will be used for the remainder of the streets in the subdivision.

The computerized hydrologic model HYMO was used to route flows from a model of the hydrology of this development to identify routed flow rates at various points in the basins.

*112.5
42.4

144.9 cfs → in a 30" S.D.?*

V. DRAINAGE MANAGEMENT PLAN

The storm drain flow from Cactus Pointe which runs down to the end of the cul-de-sac in Prairie Hill Court contains approximately 144.5 cfs, conveyed in a 42" storm drain line. Of this number, 42.4 cfs comes from the Knolls development to the south. Total street flow at the end of the cul-de-sac in Prairie Hill Court is 30.2 cfs. This street flow will be collected in a group of inlets at the edge of the cul-de-sac. Tract A will be dedicated as an emergency overflow. There will be an swale section, 25' wide, which will be used to drain any excess water ponding in the cul-de-sac. A total storm drain flow of 175.4 cfs will be outletted from the cul-de-sac in a 60" line at a 1% slope. Water runoff from the adjacent property to the east is 79.1 cfs. The connection and alignment for this flow will be designed by Jeff Mortenson & Associates. Total flow to be carried after the connection by the 60" storm drain line will be approximately 249.5 cfs. The 60" storm drain will discharge into the Calabacillas Arroyo. The 60" soil cement structure will be designed and constructed per AMAFCA requirements.

Under developed conditions, the site will be graded to deliver runoff from most of the developed lots into the street sections which will convey runoff into the respective storm drain inlets. Flow from the backyards of lots 9 through 15 will drain out to Irving Boulevard.

VI. CONCLUSIONS

Based on our study and analysis, there will be no negative impact from a drainage standpoint to the surrounding properties and streets. The drainage infrastructure in this report utilizing AHYMO analysis and DPM requirements are adequate to convey developed discharges within the proposed storm drain layout without damage to downstream properties.

HYMO SUMMARY TABLE

Pg. 1

DESCRIPTION	HYDROGRAPH LABEL	FROM ID NO	TO ID NO	AREA SQ MI	DISCHARGE CFS	CURVE NO	TIME TO PEAK HR	CFS PER ACRE
HYDROGRAPH AT ROUTED	U1	1	-	0.0481	120.0	NA	1.50	3.90
		1	11					
HYDROGRAPH AT COMBINED FLOW AT ROUTED	U1ROUTE U2 UPTOT	11		0.0481	118.6		1.53	
		2	-	0.0216	23.2	NA	1.53	1.68
		11& 2	12	0.0697	141.8		1.53	
		12	13					
HYDROGRAPH AT COMBINED FLOW AT RESERVOIR HYD	UPTOT UTROUTE ONSITE PONDIN POND	12		0.0697	141.8		1.53	
		13		0.0697	142.6		1.53	
		3	-	0.0161	33.2	NA	1.50	3.22
		13& 3	14	0.0858	175.1		1.53	
		14	15	0.0858	73.2		1.73	