



CITY OF RAPID CITY

Engineering Division

300 Sixth Street

Telephone: (605) 394-4154

FAX: (605) 394-6636

MEMORANDUM

TO: Mayor, Council Members, and Planning Commission Members

FROM: Engineering Division

DATE: June 9, 2003

RE: Adoption of the Wonderland Drive Drainage Basin Design Plan

The Wonderland Drive Drainage Basin is located in west Rapid City. The basin encompasses about 738 acres. The basin is bounded on the west by the Red Rock Canyon Drainage Basin, on the north by Rapid Creek, on the east by the Arrowhead Drainage Basin. The drainage basin boundaries are outlined on a portion of the USGS Rapid City East quadrangle and included as Figure 1.

The basin is divided into three major basins, the Canyon Lake Heights basin, the Hidden Valley/ Evergreen Drive Basin, and the main Wonderland Dr. Basin: These are shown on Figure 1

Future land plan used for the study was provided by the Rapid City Planning Department.

The plan as shown on the Hydrologic Schematic includes storm sewer pipe, detention facilities and open channels. The estimated cost for all recommended improvements is \$1.859 million. Improvements will be completed as development occurs or as a specific project is paid for with City funds. After the Rapid City Council has approved the plan, the City will begin charging interim drainage basin fees of \$2520.00 per acre.

Staff has reviewed this plan and recommends approval.



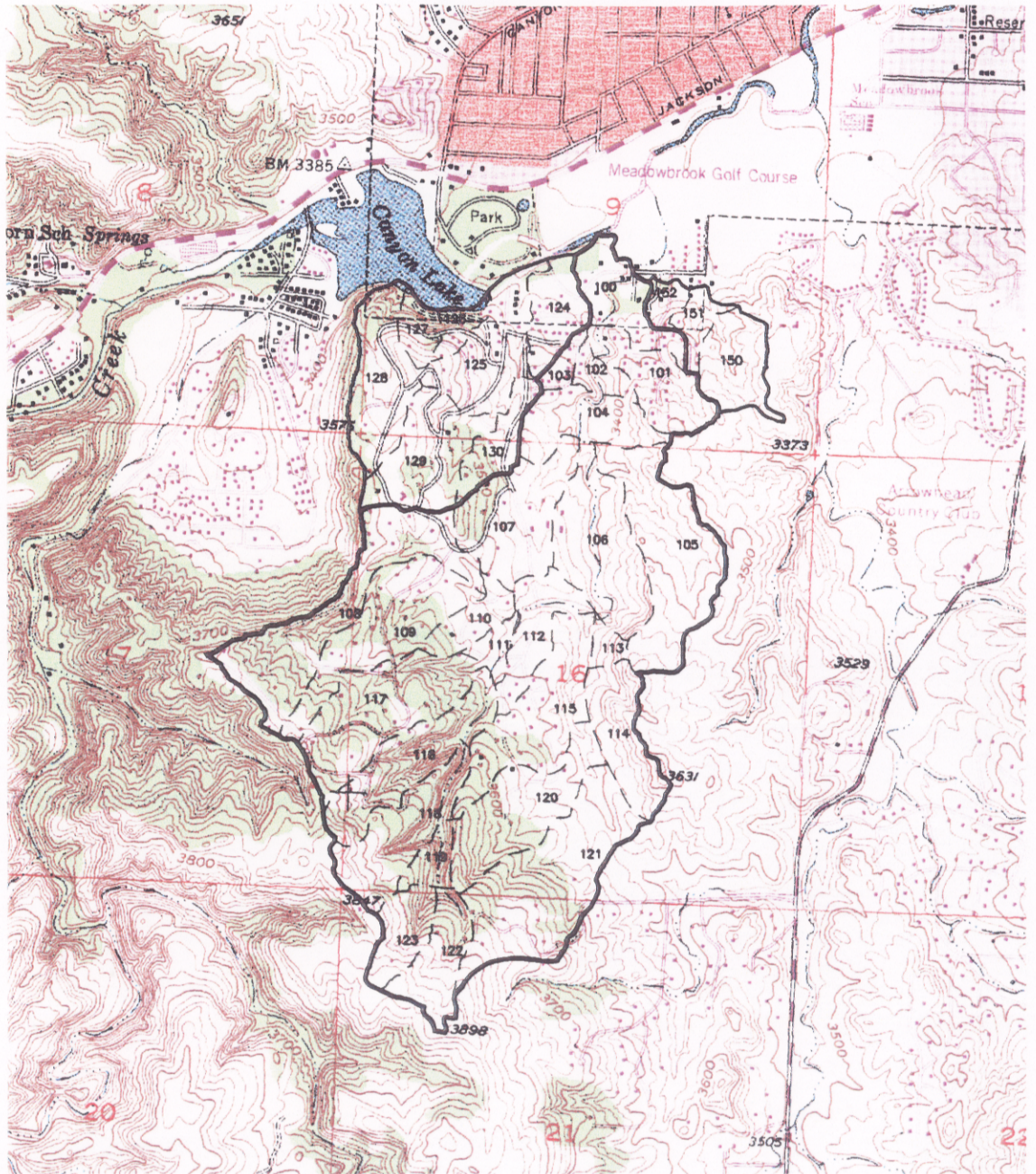
EQUAL OPPORTUNITY EMPLOYER

BASINS PREVIOUSLY APPROVED





<u>Basin Name</u>	<u>Size</u>	<u>Cost Estimate</u>	<u>Basin Fee</u>
Arrowhead Basin	4250 Acres	\$ 2,500,000	\$ 588/acre
Deadwood Avenue Basin	1870 Acres	\$ 675,000	\$ 360/acre
Downtown Basin	1300 Acres	\$ 4,600,000	\$ 3,540/acre
Haines Avenue Basin	1180 Acres	\$ 4,900,000	\$ 4,150/acre
Knollwood Basin	1152 Acres	\$ 6,679,000	\$ 5,750/acre
Meade-Hawthorne Basin	2637 Acres	\$ 8,753,000	\$ 3,320/acre
Morningside Basin	1078 Acres	\$ 2,013,506	\$ 1,870/acre
Red Rock Canyon Basin	3200 Acres	\$ 1,082,370	\$ 338/acre
Red Dale Basin	800 Acres	\$ 1,400,000	\$ 1,750/acre
South Canyon/Lime Creek	6140 Acres	\$ 2,006,000	\$ 325/acre
South Robbinsdale Basin	1635 Acres	\$ 2,365,000	\$ 1,450/acre
Perrine	1220 Acres	\$ 2,443,000	\$ 2,005/acre

Basin to be Approved By the Rapid City Council:

<i>Wonderland Dr</i>	<i>585 Acres</i>	<i>\$ 1,859,000</i>	<i>\$ 3,178/acre</i>
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LEGEND

- | | | | |
|---|---|---|-----------------|
|  | WONDERLAND DRIVE
BASIN BOUNDARY |  | SUBBASIN |
|  | CANYON LAKE HEIGHTS
BASIN BOUNDARY | 105 | SUBBASIN NUMBER |
|  | HIDDEN VALLEY/
EVERGREEN DRIVE
BASIN BOUNDARY | | |

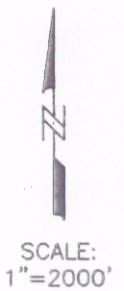


Figure 2 WONDERLAND DRIVE SUBBASIN BOUNDARY MAP








Table 6

**WONDERLAND AND CANYON LAKE HEIGHTS DRAINAGE BASINS
DESIGN PLAN IMPROVEMENT DETAILED COST ESTIMATE**

CONVEYANCE		
<u>ELEMENT</u>	<u>IMPROVEMENT DESCRIPTION</u>	<u>COST</u>
3	Existing Channel	N.C.
5	Modify Embankments of Existing Channel	\$14,224.00
20	Repair Headcutting in Existing Channel	\$30,555.00
25	Modifications to Existing Channel	\$31,305.00
27	Existing 84-inch RCP	N.C.
29	Existing 30-inch CMP	N.C.
30	Existing, Natural Channel	N.C.
35	Existing 30-inch CMP	N.C.
40	Existing, Natural Channel	N.C.
45	Existing, Natural Channel	N.C.
50	Existing Channel w/ Modifications per Det. Cell 302	\$21,458.00
55	Existing, Natural Channel	N.C.
57	Existing Channel w/ Modifications per Det. Cell 307	\$6,130.00
60	Maintenance of Existing Channel	\$10,487.00
65	Existing Channel w/ Modifications per Det. Cell 306	\$8,240.00
67	Existing, Natural Channel	N.C.
70	Existing, Natural Channel	N.C.
75	Existing, Natural Channel	N.C.
80	Reconstruct Channel w/ Texas crossing for driveway	\$15,012.00
85	Construct 2 48-inch RCP crossing and repair channel	\$33,186.00
86	Pave Alley, Install Curb and Gutter	\$7,449.00
87	Reconstruct Street w/ Curb and Gutter; Storm Inlets	\$19,705.00
90	Maintenance of Existing Channel	\$3,886.00
95	Construct 48-inch RCP	\$49,900.00
97	Construct 48-inch RCP w/ Inlet Riser	\$38,480.00
200	Construct Side-Tapered Inlet, Storm Inlets, Etc	\$14,534.00
205	Existing Detention Cell	N.C.
215	Existing Detention Cell	N.C.
301	Construct Proposed Detention Cell	\$169,066.00
302	Construct Proposed Detention Cell	\$144,723.00
303	Construct Proposed Detention Cell	\$123,209.00
304	Construct Proposed Detention Cell	\$69,762.00
305	Construct Proposed Detention Cell	\$87,450.00
306	Construct Proposed Detention Cell	\$97,570.00
307	Construct Proposed Detention Cell	\$63,186.00
320	Construct 2 48-inch RCP Crossing and Repair Street	\$27,818.00
	Miscellaneous Ditch Grading and Driveway Improvements in Both Basins	\$200,000.00
	IMPROVEMENTS SUBTOTAL	\$1,287,335.00
	5% MOBILIZATION	\$64,367.00
	10% CONTINGENCY	\$135,170.00
	25% ENGINEERING, ADMINISTRATION AND LEGAL	\$371,718.00
	TOTAL ESTIMATED PROJECT COST	\$1,858,590.00

Wonderland Drive Drainage Basin Design Plan
Ferber Engineering Company
 May 2003

LEGEND

-  EXCLUDED FROM RED ROCK CANYON DBDP
-  WONDERLAND BASIN BOUNDARY
-  SUB-BASIN BOUNDARIES
-  SUB-BASIN NUMBER/ACRES
-  DIRECT FLOW ELEMENT
-  CONVEYANCE ELEMENT
-  DETENTION CELL


 N.T.S.
 MARCH 2003



FERBER ENGINEERING COMPANY

Figure 11 WONDERLAND DRAINAGE BASIN DESIGN PLAN HYDROLOGIC SCHEMATIC