

POPES BLUFF  
DRAINAGE REPORT - 1976

PREPARED BY  
DEPARTMENT OF  
PUBLIC WORKS

CITY OF COLORADO SPRINGS

D.W.F.

## POPES BLUFF ADDENDUM NO. 1 - 1976

### Purpose

The purpose of this report is primarily to update the financial status of the Popes Bluff Drainage Basin according to its anticipated future usage.

### Revised Basin Description

The Popes Bluff Basin is bounded on the north by the Rockrimmon South Basin, on the south and west by the Douglas Creek Basin and on the east by Monument Creek. The basin lies in portions of Section 19, Township 13 South, Range 66 West and Sections 13, 14, 23 and 24 of T13S, R67W of the 6th P.M. containing approximately 403.55 acres. The basin averages 2000 ft. wide by 10,000 ft. long with a vertical rise of 450 ft. which indicates a short time of concentration and possible flash flooding.

The basin is limited on the easterly half, with regard to development, by exposed sandstone and steep cliffs. These "narrows" should be developed with caution due to possible "flash" floods and rock slides.

The flood flows are restricted at I-25 by a 7 ft. high X 6.5 ft. wide concrete box outflow structure. The box itself is capable of accommodating flows up to approximately 1000 cfs; however, Pioneer Subdivision No. 2 was approved which necked this box down to a 72" CMP on the downstream end which may accommodate up to 290 cfs. The 1966 Popes Bluff report indicates approximately 400 cfs at this point.

It is the opinion of the Department of Public Works that this 400 cfs is low and sufficient ponding will occur at the inlet of the box (up to approximately 18 ft. above the top of the opening under the 50 year criteria). This ponding may not be a significant problem if development is controlled in this area. The flow

will not overtop I-25 or run to the north or south. If this restriction should become a significant problem, the basin fund will not be charged with the cost for its improvement.

The 1966 report was performed according to the City's present 50 year criteria which tends to underestimate flows in areas with short "time of concentrations." This basin should be hydrologically restudied to more accurately determine these flow quantities. The facilities included in this report are based on future estimated flows only.

Cost Estimates of Proposed Improvements for Drainage Studies

<u>No.</u>	<u>Item</u>	<u>Unit</u>	<u>Unit Price</u>
1	24" RCP	LF	\$ 19.00
2	30" RCP	LF	21.00
3	36" RCP	LF	25.00
4	42" RCP	LF	31.00
5	48" RCP	LF	37.00
6	54" RCP	LF	54.00
7	60" RCP	LF	60.00
8	66" RCP	LF	66.00
9	72" RCP	LF	72.00
10	78" RCP	LF	78.00
11	84" RCP	LF	84.00
12	8' x 8' Reinf. Concr. Box	LF	340.00
13	10' x 10' Reinf. Concr. Box	LF	360.00
14	6 ft. Curb Inlet (D-10R)	Ea.	850.00
15	8 ft. Curb Inlet (D-10R)	Ea.	1,000.00
16	10 ft. Curb Inlet (D-10R)	Ea.	1,200.00
17	Storm Sewer Manholes	Ea.	1,000.00
18	Riprap	CY	15.00
19	Grouted Riprap	CY	30.00
20	4" Concrete Channel Lining (w/reinf.)	Sq. Yd.	15.00
21	Major Channel Hdwall Structure	LS	2,500.00

Present Basin Status

Pope's Bluff Basin presently exists in primarily an undeveloped state. The small subdivisions that have been platted are: Pinecliff Sub 1 & 2, Pinecliff Sub 3, Pioneer Sub 2, and Sunbird Sub, (total 76.94 acres). In addition to these areas the D & RG Railroad, Interstate Highway #25 and that area within the Monument Creek flood plain are not accessible for future drainage fees; this leaves 314.1 acres of the 403.55 acres (77.8%) subject to future drainage fees.

Fee Determination

Item Descr.	Quantity	Unit Cost (\$)	Cost (\$)
18" RCP	60'	17.00	1,020.00
24" RCP	60'	19.00	1,140.00
30" RCP	60'	21.00	1,260.00
36" RCP	80'	25.00	2,000.00
42" RCP	80'	31.00	2,480.00
48" RCP	140'	37.00	5,180.00
72" RCP	150'	72.00	10,800.00
10' curb outlet	3 Ea.	1,000.00	3,000.00
Velocity control structure	22 Installations	2,500.00	55,000.00
4" concrete channel lining	7,960 sq. yds	15.00	119,400.00
72" Inlet structure	1 Ea.	2,000.00	2,000.00
	Sub-total		203,180.00
	10% Engr. and const.		20,328.00
	Present Anticipated Obligations		17,812.00
	-Present Basin Balance		- 18,761.00
	TOTAL		222,659.00

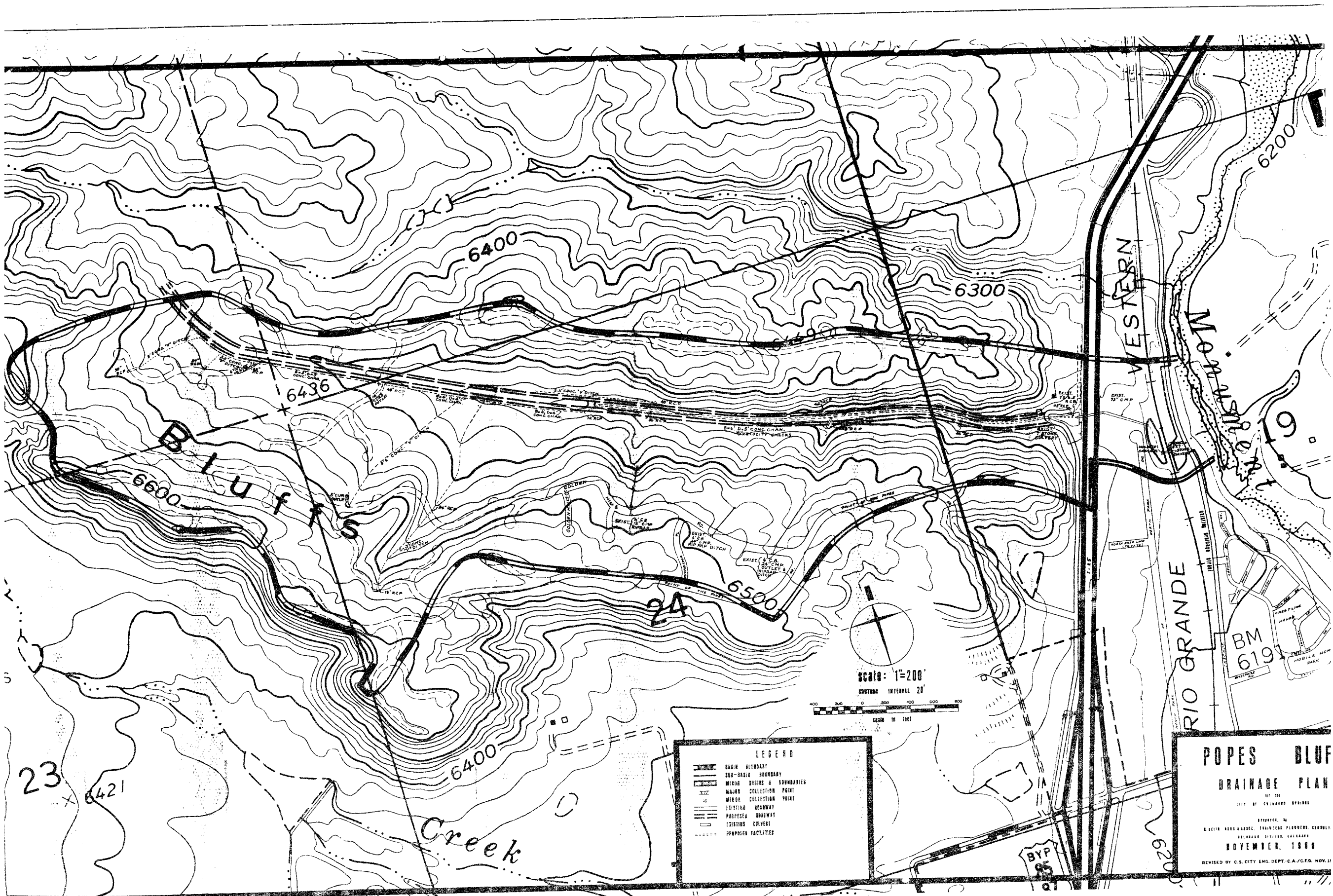
Basin Fee:  $\$222,659/314.1$  Acres = \$709 per acre.

Bridge Fee:  $\$50,000/403.6$  Acres = \$124 per acre bridge fee (10' X 10' RCBC w/headwalls at Cascade Avenue)

Concrete lining has been proposed for most channels; however, riprap or grouted riprap lining may be utilized in some areas with prior approval from the City Engineer on the individually submitted subdivision drainage plans.

The Colorado Springs Drainage Board has ruled that primary access to the basin would probably be from Golden Hills Road, this substantially reduces drainage improvement requirements and the basin fees. If this situation should change, then a revised drainage plane and a new fee structure would be required.

The current basin fee for 1976 is \$724.00/acre.



**LEGEND**

	BASIN BOUNDARY
	SUB-BASIN BOUNDARY
	WATER DIVIDE & BOUNDARIES
	WATER COLLECTION POINT
	EXISTING ROADWAY
	PROPOSED ROADWAY
	EXISTING CONDUIT
	PROPOSED FACILITIES

**POPES BLUFF  
DRAINAGE PLAN**

CITY OF COLORADO SPRINGS

HYDRAULIC ENGINEERING

BY  
R. L. HARRIS, REGISTERED PROFESSIONAL ENGINEER  
COLORADO LICENSE NO. 10000  
NOVEMBER, 1966

REVISED BY C.S. CITY ENG. DEPT. C.A./C.F.O. NOV. 66