Urban Drainage and Flood Control District

E-19 Surveys

Cub Creek Below Blue Gage
ALERT ID: 2273
LID: CBBC2

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Introduction

HDR Engineering Inc. was contracted by the Urban Drainage and Flood Control District to survey various flood warning stage gages to provide information to be included as part of the National Weather Service's E-19 program. On March 9, 2000, five sites were surveyed by HDR personnel in the Bear Creek vicinity. This report is a summary of the work done and information gathered for the Cub Creek Below Blue gage. Cub Creek is a tributary to Bear Creek. Included in this report are elevations of critical points in the vicinity of the site, and estimates of stages causing flood damage in vicinity of the gage.

Site

The stream gage is located 3.3 miles south from Evergreen on County Road 78 on Cub Creek. The ALERT ID number for this Gage is 2273 while the National Weather Service LID is CBBC2 and is referred to as Cub Creek Below Blue. The gage is located behind a 72" culvert crossing below a driveway leading to houses on the east side of the creek. Potential flooding at the gage site itself would consist of a residence to the east of the creek. Also the driveway crossing the creek could be overtopped. At high flood stages, the potential for flooding will be in the city of Evergreen. Figure 1 shows a general location map of the site.

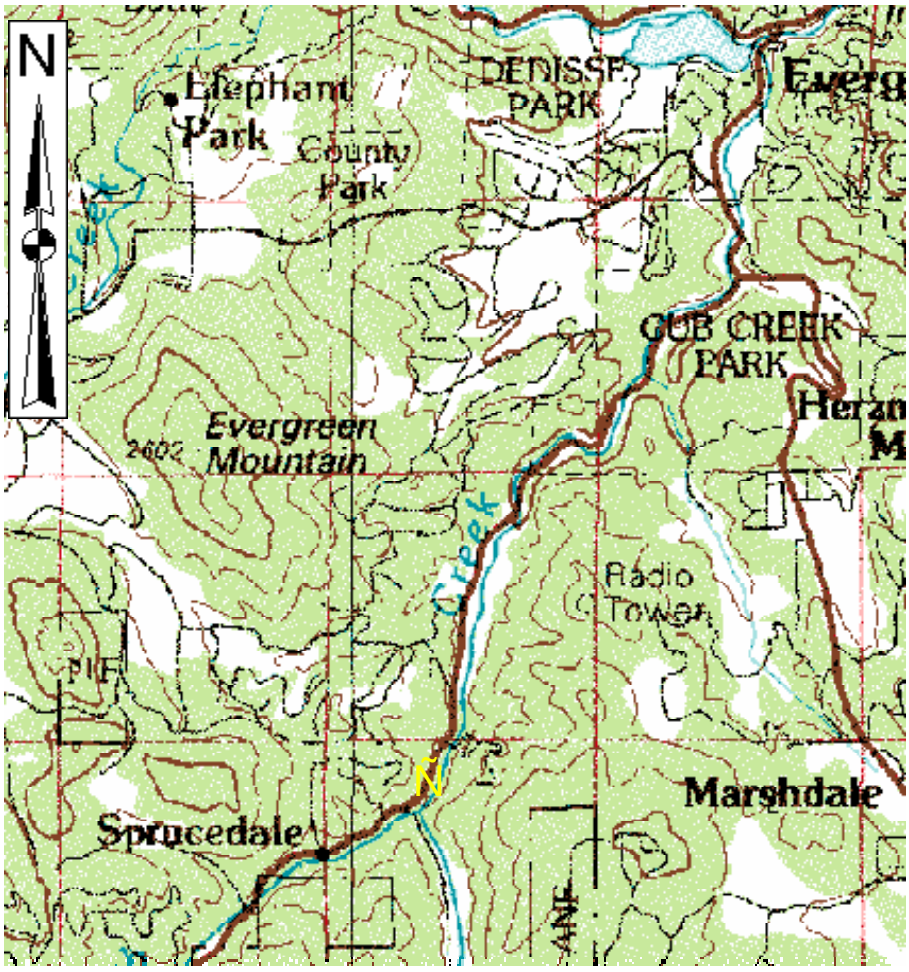

Figure – 1 Location Map

Surveyed locations

Ground elevations were surveyed along a cross section for a possible future rating curve for the site. In addition, the elevations and locations of any buildings near the gage site were surveyed, along with water surface elevations up and down stream from the gage. Figure 2 shows locations of the surveyed points in the vicinity of the gage. The base of the ALERT transmitter was surveyed at an elevation of 100.00 for a temporary benchmark. The flow line elevation is at 91.6 feet. The bankfull stage will be at 7.9 feet above the flow line. At 7.5 feet above the flow line the road to the east residences will be overtopped. The house on the east side of the creek will be flooded at 8.3 feet above the flow line. Based on the topography of the area, the estimated channel energy slope is 2.9 percent.

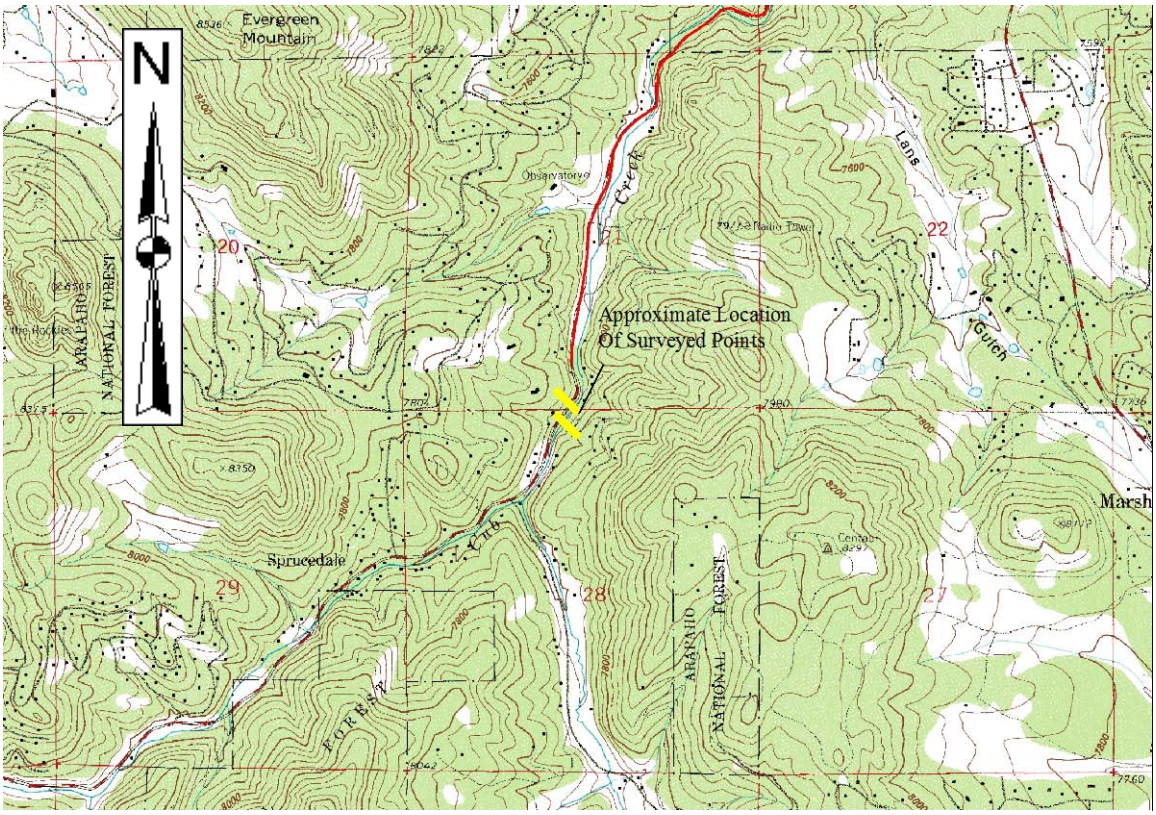

Figure – 2 Surveyed Points

Site photographs

Several photographs were taken of the site. Figure 3 shows Cub Creek at the gage location looking downstream on the left side of channel. Figure 4 shows Cub Creek at the gage location looking downstream from the right side of the channel.

Figure – 3 Looking Downstream

Figure – 4 Looking Downstream w/ Transmitter and House

Historic records

There is limited information available for this gage. The location has been recently converted to a pressure transducer with an ALERT transmitter. Since the gauge installation date in May, 1992, a peak stage of 2.3 feet (corresponding to 180 cfs) was recorded on June 7, 1997.

Flood warning template

The graphics template was created based on the surveyed information, historic records, another information supplied by the Urban Drainage and Flood Control District and the National Weather Service. The graphics template is compatible with the flood warning system and has been created and installed on the District's WebServer. This template is named 2273e19.tpt and is located in the appropriate directory in the District's WebServer. Figure 5 shows the graphics template online from the WebServer.

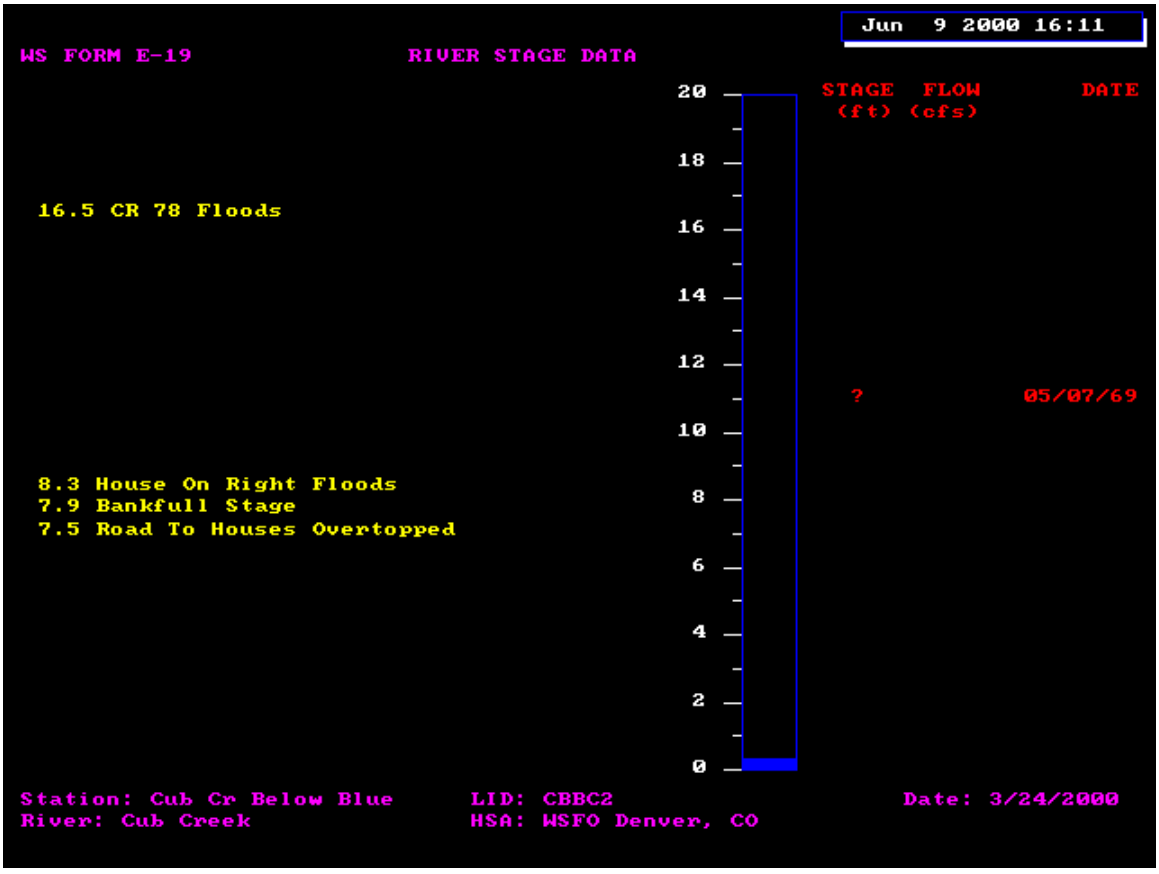

Figure – 5 Graphic Template

APPENDIX
Surveyed Data Points

Cub Below Blue Gage

ID	X (ft)	Y (ft)	Distance (ft)	Station (ft)	Z (ft)	Label
900	10000.00	10000.00			98.56	CP1
901	10019.14	10000.00			95.27	CP2
1000	9966.33	10003.16			103.99	EOR
1001	9982.78	10005.71			101.32	TOR
1002	9995.16	10008.22			99.14	TOR
1003	10017.16	10013.72			96.93	TOR
1004	10016.74	10019.46			95.45	TOPPIPE
1005	10016.75	10020.01			89.51	INVPIPE
1006	10016.65	10020.08			90.12	H2OSURF
1007	10019.33	9999.40			88.93	INVPIPE
1008	10019.29	9999.58			89.99	H2OSURF
1009	10038.35	10021.19			97.23	TOR
1010	10063.10	10028.91			98.30	TOR
1011	10087.36	10036.43			99.63	TOR
1012	10123.51	9940.92			96.50	TBMNECORNERDWAY
1013	10052.54	10079.18			100.00	BASETRANSMITTER
1014	10045.18	10077.58			99.48	XSECGR
1015	10034.90	10075.33			94.00	TOESLOPE
1016	10036.05	10073.26			96.07	TOPPTPIPE
1017	10026.17	10070.24			91.55	FL
1018	10027.74	10070.92			92.49	H2OSURF
1019	10019.78	10067.55			93.10	XSECGR
1020	10001.17	10066.51			93.91	XSECGR
1021	9980.76	10069.30			98.93	XSECGR
1022	9934.05	10068.99			108.08	EOR
1023	10007.91	10147.98			95.24	FL
1024	10024.28	9952.32		**Slope %**	89.22	FL
1025	10035.48	9909.06	240.51	2.93	88.19	FL

Cross-Section Points

ID	X (ft)	Y (ft)	Distance (ft)	Station (ft)	Z (ft)	Label
1022	9934.05	10068.99		0.00	108.08	EOR
1021	9980.76	10069.30	46.71	46.71	98.93	XSECGR
1020	10001.17	10066.51	20.60	67.31	93.91	XSECGR
1019	10019.78	10067.55	18.64	85.96	93.10	XSECGR
1017	10026.17	10070.24	6.93	92.89	91.55	FL
1015	10034.90	10075.33	10.11	102.99	94.00	TOESLOPE
1014	10045.18	10077.58	10.53	113.52	99.48	XSECGR
1013	10052.54	10079.18	7.53	121.05	100.00	BASETRANSMITTER