January 3, 2020

Ms. Linda Bassi
Colorado Water Conservation Board
1313 Sherman Street
Denver, CO 80203

Dear Ms. Bassi,

High Country Conservation Advocates (HCCA), with support from the Bureau of Land Management (BLM), submits this instream flow recommendation for Wildcat Creek, located in Gunnison County, Water Division 4.

HCCA's mission is to protect the health and natural beauty of the land, rivers, and wildlife in and around Gunnison County. Many of our members live and work here and enjoy recreational opportunities and a quality of life that is preserved by our valley's wildlife, habitat, and water resources. HCCA's 27 year-old water program has a long history of protecting waters in the Upper Gunnison Basin and in developing an environmental voice within key regional and state forums. In recent years, HCCA has partnered with the BLM to support instream flow proposals on the Slate River and Oh-Be-Joyful Creek. In 2016 HCCA submitted proposals to protect updated instream flows for Coal Creek and Brush Creek. HCCA partnered with Western Resource Advocates in 2017 to submit an instream flow proposal on Dutchman Creek. Most recently, HCCA submitted instream flow proposals for Gold Creek, Cement Creek and Spring Creek, all in Division 4.

The headwaters of Wildcat Creek originate on United States Forest Service (USFS) lands in Gunnison County. The Wildcat Creek riparian area consists primarily of mixed pine forest. Stream sampling conducted by Colorado Parks and Wildlife (CPW) in 2008 recorded a healthy population of cutthroat trout of unknown lineage. Wildcat Creek does not have an existing instream flow protection. From the headwaters of Wildcat Creek at Green Lake to its confluence with Coal Creek is approximately 2.6 miles.

HCCA has coordinated with local consultants and BLM staff to arrive at an instream flow recommendation that will protect the Wildcat Creek natural environment. This proposed instream flow would protect a reach that is currently unprotected. In considering this application, the Colorado Water Conservation Board (CWCB) has an opportunity to protect a headwaters cutthroat trout fishery and important stream ecosystem by moving forward with an instream flow that would preserve the natural environment to a reasonable degree.

Enclosed you will find copies of data sheets from CPW reflecting the Wildcat Creek aquatic environment. We have attached R2Cross modeling runs, stream photos, and maps of the relevant reach. If you have any further questions regarding this recommendation, please feel free to contact Julie Nania at (509) 999-0012.

HCCA thanks BLM, CPW and the CWCB for their support in developing this recommendation.

Sincerely,

Julie Nania
High Country Conservation Advocates
Water Director

Enclosure

ENCLOSURE - INSTREAM FLOW RECOMMENDATIONS FOR WILDCAT CREEK

Below is a description of the proposed instream flow. Additional details can be found in Attachments A-F.

Location

Wildcat Creek is located within the Coal Creek watershed (HUC-12: 140200010204) in Gunnison County, Water Division 4 (Attachment A). The headwaters originate on the flank of Mount Axtell, immediately above Green Lake. Wildcat Creek flows north to the confluence with Coal Creek approximately 1.4 miles west of the Town of Crested Butte. The Wildcat Creek watershed is about 3.3 square miles and is on the Mt. Axtell United States Geologic Survey (USGS) quad map (Attachment F).

The stream segment identified for the proposed instream flow appropriation is approximately 2.6 miles and starts at Green Lake and terminates at the confluence of Wildcat Creek and Coal Creek.

Table 1. Land Status in the Wildcat Creek Watershed.

Upper Terminus[1]	Lower Terminus	Total Length (miles)	Land Ownership	
			Private (%)	Public (%)[2]
Headwaters at Green Lake	Confluence with Coal Creek	2.6	Riparian Corridor[3] 59%	Riparian Corridor 41%
			Watershed Composition 13%	Watershed Composition 87%

1. The terminus for the proposed instream flow water right may need to be adjusted based upon physical and legal availability. HCCA will work with CWCB staff to identify the most suitable terminus for the reach.
2. The public land in the Wildcat Creek Watershed is managed by the USFS and BLM.
3. The riparian corridor ownership percentages were calculated using stream length.

The Wildcat Creek watershed is 87% public land managed by the United States Forest Service (USFS) and the Bureau of Land Management (BLM). The riparian corridor of the proposed segment is 41 percent public land managed by the USFS and BLM.

Existing Instream Flow Right

Wildcat Creek does not have an existing instream flow water right.

Water Availability

Physical Availability

There is no stream gage on Wildcat Creek. To assess physical availability HCCA relied on R2Cross assessments and StreamStats. StreamStats is an online program developed by the USGS in collaboration with the CWCB. StreamStats uses a regionally specific regression equation based on nearby active and historical stream gages to estimate stream flows at user-selected locations (Attachment D).

The R2Cross results support a four-tier instream flow water right. The proposed instream flow rates are consistent with the mean monthly flows estimated by StreamStats (Attachment D).

Legal Availability

There is one existing diversion on Wildcat Creek owned by the Town of Crested Butte. This diversion serves as a backup drinking water supply for the Town of Crested Butte. The diversion is included on the attached map (Attachment A). Attachment E identifies major water rights on Wildcat Creek that may impact water availability and provides CDSS records of all water rights on Wildcat Creek.

Has been working with the Natural Streams and Lake Protection Unit to verify whether there is sufficient water legally available to create a new instream flow protection on Wildcat Creek. CWCB staff have consulted with the Town of Crested Butte, a water rights holder on Wildcat Creek, to adequately address their water right in the legal availability analysis.

Biological Summary

Wildcat Creek is a cold-water, high gradient stream located in Gunnison County, Colorado. The stream substrate ranges from small gravels to large cobbles, along with boulders. There is substantial woody debris which forms a mixture of riffles and small pools. The stream is steep and has many pool-drop features.

Wildcat Creek supports a healthy aquatic ecosystem. In 2008, Colorado Parks and Wildlife conducted fish sampling and identified a substantial cutthroat fishery. Data entry notes explained that “Cutthroats are of unknown lineage. Fin clips from 16 cutthroats were collected for genetic purity assessment on 11-3-08. Possible that fish were established from Pikes Peak Natives or other cutthroats which were stocked in Green Lake at the headwaters of Wildcat Creek.” See Attachment B at row 3.

In addition to supporting a healthy aquatic ecosystem, flows in Wildcat Creek support a robust riparian area that is frequented by a range of wildlife. While conducting our R2Cross assessment, the proponent and Alpine Environmental Consultants noted an abundance of

wildlife tracks and sign in the riparian area. The riparian community is primarily a pine/spruce forest. The riparian zone is in good condition and provides shade and cover for the extant fish community.

Preliminary R2CROSS Analysis

HCCA has relied on the expertise of Alpine Environmental Consultants to interpret output from the R2Cross model and develop a preliminary instream flow recommendation that will protect Wildcat Creek's natural environment to a reasonable degree.

One R2Cross field survey was completed on October 9, 2019. Two additional R2Cross field surveys were completed on June 24, 2020. R2Cross data entry, analysis, and interpretation were completed following fieldwork. Table 2 summarizes the R2Cross output from all three cross-sections. The R2Cross output and field forms are attached for review (Attachment C).

Table 2. R2CROSS analysis summary.

Cross Section (Location & Date)	Measured Discharge (cfs)	Bankfull Top Width (ft)	Flow where 2 of 3 criteria met (cfs)	Flow where 3 of 3 criteria met (cfs)
Wildcat Creek #1 (10-9-19)	0.28	10.4	0.36	Out of range
Wildcat Creek #2 (6-24-20)	2.71	8.2	Out of range	2.44
Wildcat Creek #3 (6-24-20)	2.77	11.45	1.38	1.79

Based the R2Cross (Table 2; and Attachment C) and StreamStats (Attachment D), a four-tier instream flow water right is recommended. Table 3 presents the preliminary instream flow rates and seasons. If needed, the dates may be revised following a more detailed review of physical and legal water availability.

Table 2. Preliminary instream flow recommendations.

Date Range:	12/1 to 3/31	4/1 to 4/30	5/1 to 8/31	9/1 to 11/30
ISF Rate (cfs):	0.35	0.65	2.1	0.6

Photographs

Photo 1. Wildcat Creek cross-section #1 looking upstream.

Photo 2. Wildcat Creek cross-section #2 looking downstream.

Photo 3. Wildcat Creek cross-section #1 view from the river-left bank.

Photo 4. Wildcat Creek cross-section #2 view form the river-right bank.

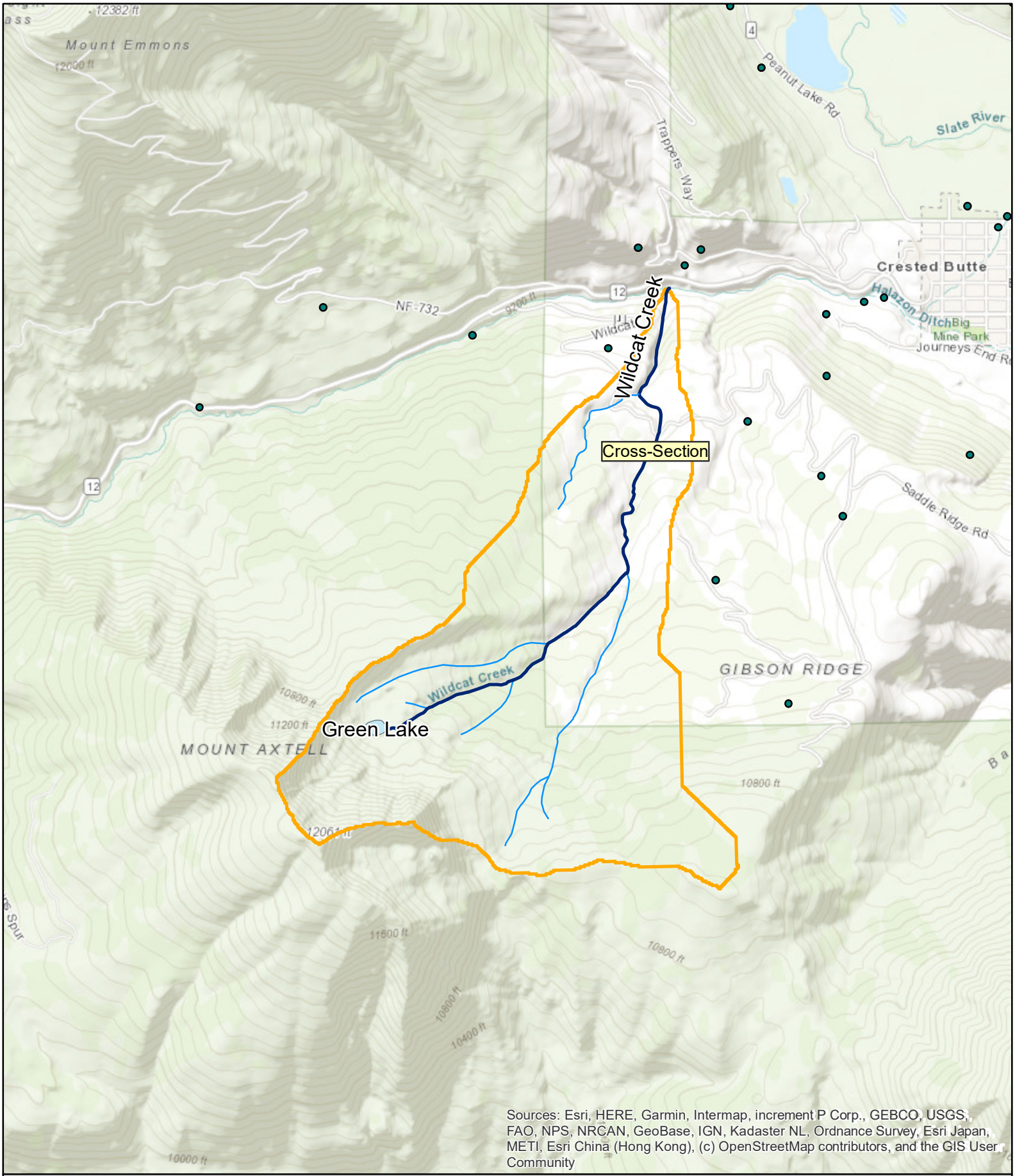
Relationship to Existing State Policy

HCCA is proposing this instream flow to the CWCB in furtherance of the State of Colorado's policy "that the wildlife and their environment are to be protected, preserved enhanced, and managed for the use, benefit, and enjoyment of the people of this state and its visitors… and that, to carry out such program and policy, there shall be a continuous operation of planning, acquisition, and development of wildlife habitats and facilities for wildlife-related opportunities." C.R.S. 33-1-101(1).

Attachments

A – Watershed Map
B- Biological Data
C – R2Cross Analysis
D – StreamStats
E – Water Availability Analysis
F – USGS Topographic Quadrangle Maps

Attachment A- Watershed Map



Wildcat Creek
Instream Flow Proposal
Gunnison County, Colorado

Map prepared for HCCA- Wildcat Creek ISF Proposal
January 15, 2020

Tributaries to Wildcat Creek
Diversion Structures
Wildcat Creek- Proposed ISF Reach
Wildcat Creek Watershed

0 0.275 0.55 1.1 Miles

N

Attachment B- Biological Data

Requestee: Julie Nania

Affiliation: High Country Conservation Advocates

Appoved By: John Alves

Conditions: Watercodes: 38166,38166,39962,39974,39328,38169,41323,48155,45135

Details: no sampling data for Deer Creek or Bear Creek; All location information removed from surveys associated with private property as per Colorado Statute

Date Extracted: Tuesday, September 10, 2019

Data Request Disclaimer

Colorado Parks and Wildlife ("CPW") collects aquatic data from both internal sources and a variety of external governmental and non-governmental agencies. CPW provides this data, upon request, solely as a public service. As a significant proportion of this data comes from an outside agency, over which CPW lacks the ability to verify the protocols and data collection procedures, CPW makes no warranty, representation, or guarantee as to the content, accuracy or completeness of any of the data provided. CPW makes this data available on an "as is" basis and explicitly disclaims any representations and warranties, including, without limitation, the implied warranties of merchantability and fitness for a particular purpose. The CPW shall assume no liability for: 1. any errors, omissions, or inaccuracies in the data provided, regardless how it was caused; or, 2. any decision made or action taken or not taken by anyone using or relying upon data provided.

Use of Data

CPW may require a user of this data to terminate any and all display, distribution or other use of any or all of the data for any reason including, without limitation, violation of these Terms of Use.

CalYear	SurveyID	Region	Drainage	WaterType	WaterId	WaterName	StationID	Station	SiteName	Location
1977	11050	Southwest	Gunnison River	Stream	38169	Wildcat Creek	3545	GU1401	Private Property	Private Property
2008	11051	Southwest	Gunnison River	Stream	38169	Wildcat Creek	3545	GU1401	Private Property	Private Property

Elevation	Lat	Lon	UTMX	UTMY	HUC12	County	AreaBio	SampleDate	Survey_Purpose
9591	NULL	NULL	NULL	NULL	140200010204	Gunnison	Dan Brauch	6/23/1977	Standard Survey or Population Estimate
9591	NULL	NULL	NULL	NULL	140200010204	Gunnison	Dan Brauch	9/11/2008	NULL

Protocol	Gear	NumNets	NumPasses	NumAnglers	StationLength	StationAsMiles	StationAsKilometers	AvgWidth
PRESENCE/ABSENCE	BPEF	NULL	NULL	NULL	300	0.056818	0.09144	4
TWO-PASS REMOVAL	NOT LISTED	NULL	2	NULL	328	0.062121	0.099974	7.9

StationAsAcres	StationAsHectares	TotalCatch	TotalWeight	ElecEffort	GillEffort	TrapEffort	SeinEffort	TotalEffort	EffortMetric
0.027548208	0.011148365	0	NULL	1	NULL	NULL	NULL	1	PASS
0.059485764	0.024073036	32	928	NULL	NULL	NULL	NULL	2	PASS

SpeciesID	SpeciesCode	CommonName	SpeciesMethod	SpeciesCatch	RelAbun	Threshold	NumBlwThreshold	PercentCatch
NULL	XXX	No Fish Caught	Counts	0	NULL	NULL	0	NULL
142	NAT	CUTTHROAT TROUT (S.S.U.)	Seber Lecren	32	1	150	16	100

FirstCatch	SecondCatch	ThirdCatch	AdditionalCatch	Marked	Recaptured	Captured	SpeciesWeight	Weighed	WeightCalcd	FirstWeight
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	0	0	NULL
30	2	NULL	NULL	NULL	NULL	NULL	1203	16	0	997

SecondWeight	ThirdWeight	MarkedWeight	RecapturedWeight	CapturedWeight	MeanWeight	WeightRange	AvgWr	Measured
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL
206	NULL	NULL	NULL	NULL	58	30 - 136	95.59	32

MeanLength	LengthRange	ProbabilityOfCapture	PopulationEstimate	POP_Variance	LOWER_POP_CI	UPPER_POP_CI
NULL	NULL	NULL	0	NULL	NULL	NULL
147.63	96 - 233	0.9333	32.1429	0.187421908	31.2944	32.9914

EstimatedSpeciesWeight	NumberPerAcre	PoundsPerAcre	NumberPerMile	PoundsPerMile	NumberPerHectare	kilogramsPerHectare
NULL	NULL	NULL	NULL	NULL	NULL	NULL
1774	540.3461	65.7468	517.4241	62.9578	1335.2242	73.6924

NumberPerkilometer	kilogramsPerkilometer	CPUE	CPUEMetric	WPUE	WPUEMetric	PSD	SRSD	QRSD	PRSD	MRSD	TRSD
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL
321.5126	17.7446	NULL	NULL	NULL	NULL	0	100	NULL	NULL	NULL	NULL

DataSource	SciColl	Surveyors
Stream and lake databank	NULL	WEILER, SMITH
Southwest Region Fisheries Management	NULL	CAPPS, HAUER, CAMEN, CALLAWAY

Comments

One trout seen swimming, one trout found dead- unable to identify

Cutthroats are of unknown lineage. Fin clips from 16 cutthroats collected for genetic purity assessment on 11-3-08. Possible that fish were established fr

CreatedBy	CreatedWhen	ModifiedBy	ModifiedWhen	timestamp	TableLastUpdated	SurveyFlag	SpeciesFlag
stauffera	00:00.0	RivermanC	30:54.3	0x000000000006DAF6	00:30.7	Private Property	NULL
brauchd	53:25.0	RivermanC	17:00.9	0x000000000006DAE8	00:30.7	Private Property	NULL

SPCNStatus

NULL

NULL

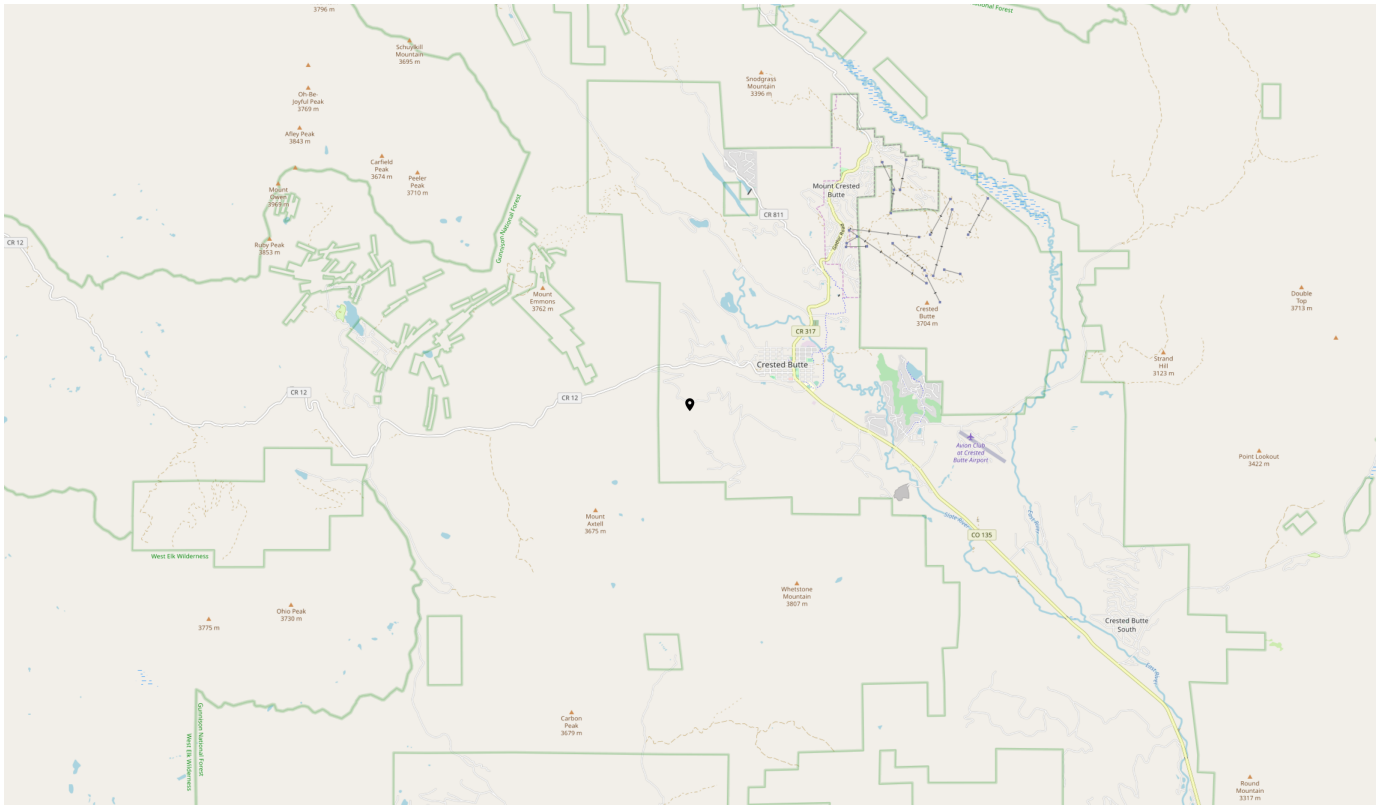
THERE ARE NO CREEL DATA FOR THE SPECIFIED WATERCODES

Attachment C- R2CROSS Analysis and Field Forms

R2Cross RESULTS

Stream Name: Wildcat Creek
Stream Locations: Wildcat Creek upstream of Wildcat Trail Road.
Fieldwork Date: 10/09/2019
Cross-section: 1
Observers: JN, AJB
Coordinate System: UTM Zone 13
X (easting): 325585
Y (northing): 4303232
Date Processed: 11/29/2019
Slope: 0.0333
Computation method: Manning's n
R2Cross data filename: R2Cross Wildcat 10-9-19.xlsx
R2Cross version: 1.0.10

LOCATION

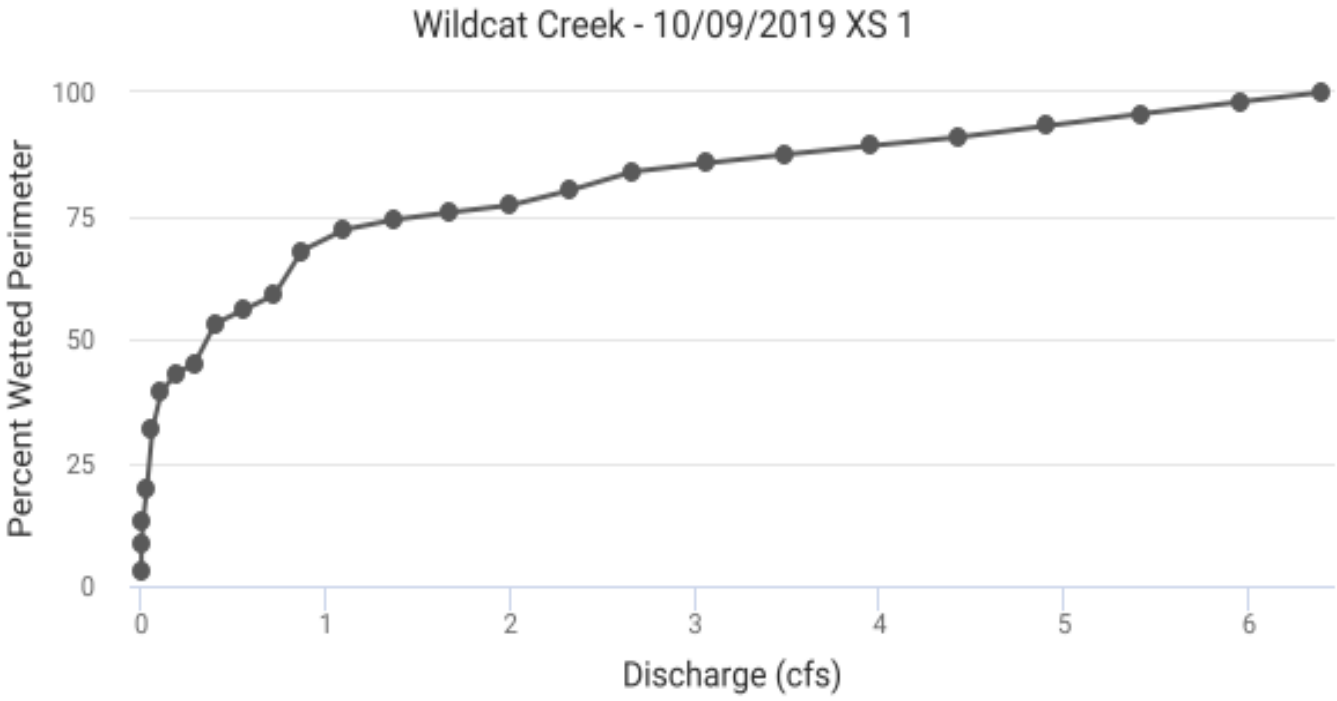


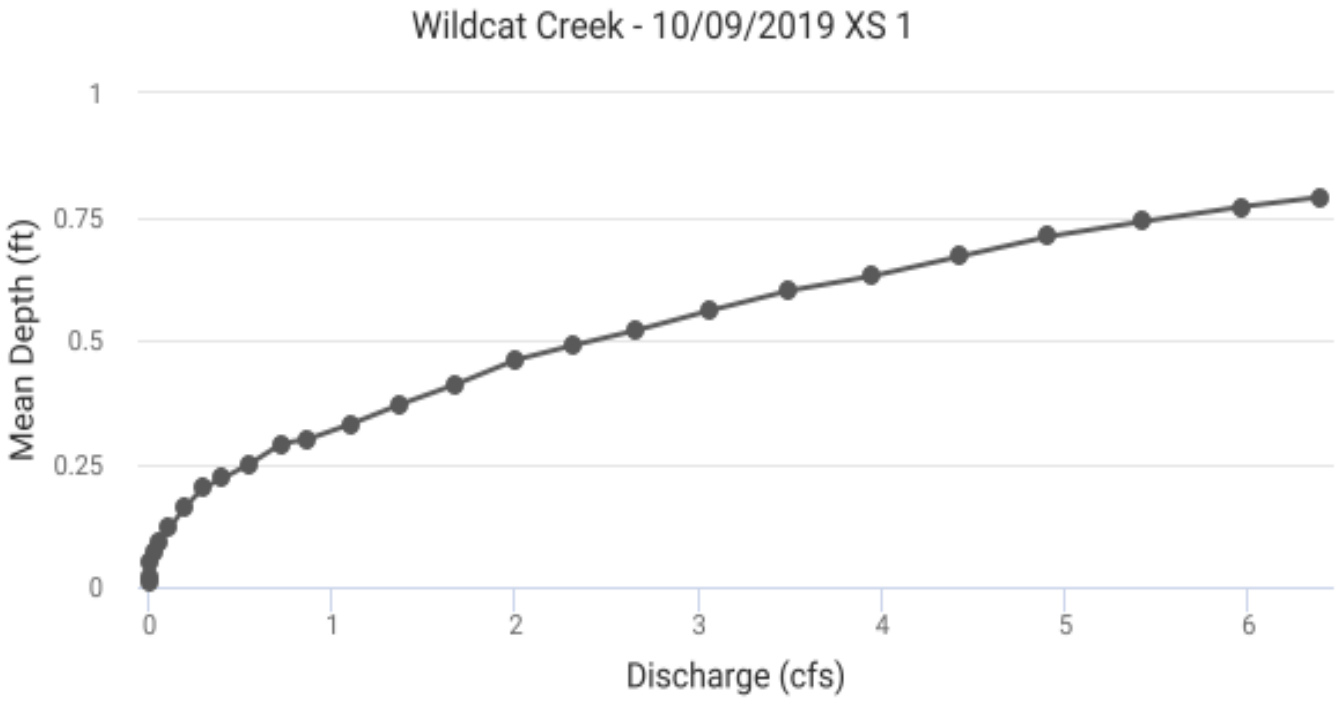
ANALYSIS RESULTS

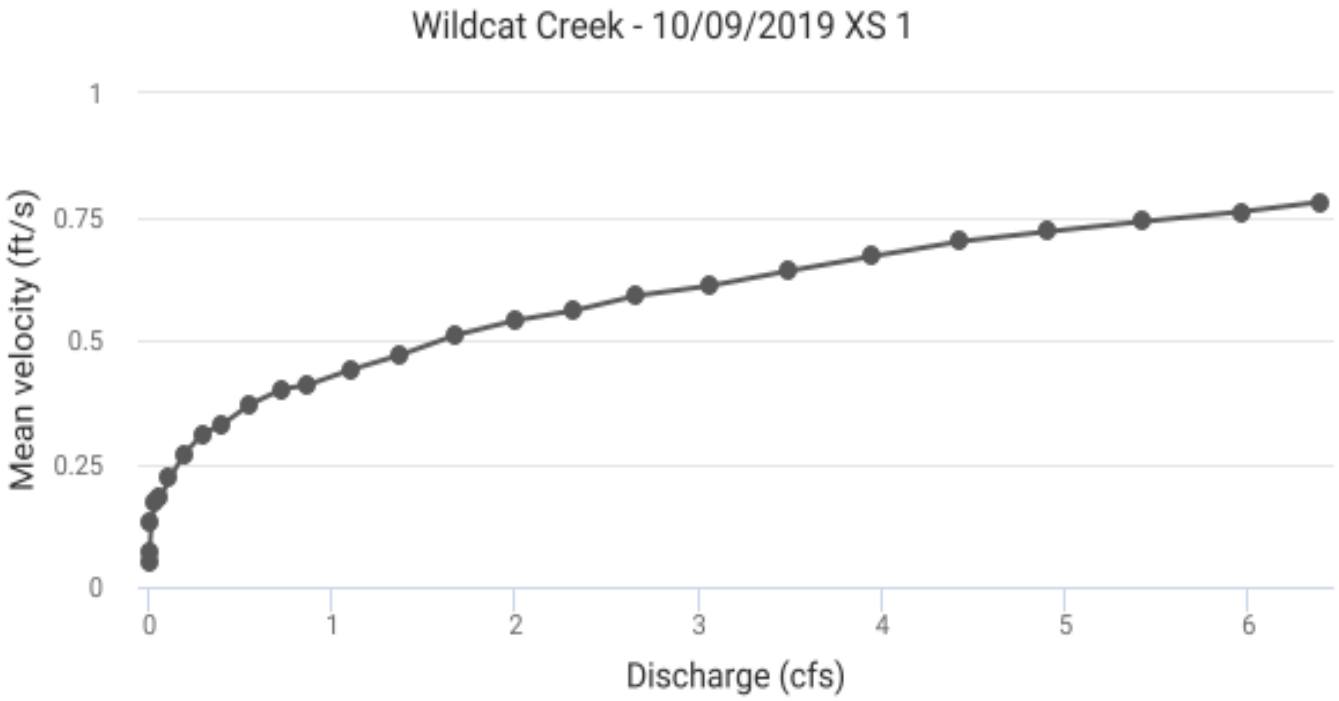
Habitat Criteria Results

Bankfull top width (ft) = 10.4

	Habitat Criteria	Discharge (cfs) Meeting Criteria
Mean Depth (ft)	0.2	0.3
Percent Wetted Perimeter (%)	50.0	0.36
Mean Velocity (ft/s)	NA	NA




Wildcat Creek - 10/09/2019 XS 1
Mean Depth (ft)
1
0.75
0.5
0.25
0
0
1
2
3
4
5
6
Discharge (cfs)


Wildcat Creek - 10/09/2019 XS 1
Mean velocity (ft/s)
1
0.75
0.5
0.25
0
0
1
2
3
4
5
6
Discharge (cfs)

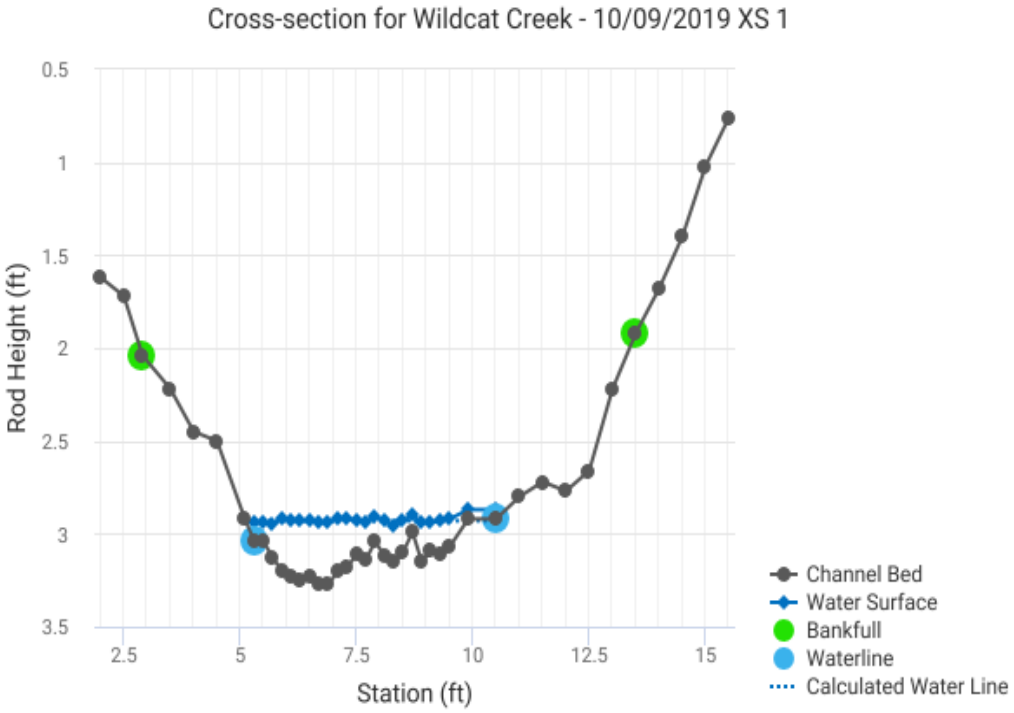
STAGING TABLE

Feature	Distance to Water (ft)	Top Width (ft)	Mean Depth (ft)	Maximum Depth (ft)	Area (SQ ft)	Wetted Perimeter (ft)	Percent Wetted Perimeter	Hydraulic Radius (ft)	Mean Velocity (ft/s)	Discharge (cfs)
Bankfull	2.04	10.4	0.79	1.23	8.25	11.13	100.00%	0.74	0.78	6.4
	2.08	10.2	0.77	1.19	7.84	10.92	98.08%	0.72	0.76	5.96
	2.13	9.95	0.74	1.14	7.34	10.65	95.64%	0.69	0.74	5.42
	2.18	9.7	0.71	1.09	6.85	10.38	93.21%	0.66	0.72	4.91
	2.23	9.47	0.67	1.04	6.37	10.12	90.90%	0.63	0.7	4.43
	2.28	9.3	0.63	0.99	5.9	9.93	89.15%	0.59	0.67	3.95
	2.33	9.14	0.6	0.94	5.44	9.73	87.39%	0.56	0.64	3.49
	2.38	8.97	0.56	0.89	4.99	9.54	85.64%	0.52	0.61	3.06
	2.43	8.81	0.52	0.84	4.54	9.34	83.89%	0.49	0.59	2.66
	2.48	8.41	0.49	0.79	4.11	8.92	80.11%	0.46	0.56	2.32
	2.53	8.11	0.46	0.74	3.7	8.59	77.11%	0.43	0.54	2.0
	2.58	7.98	0.41	0.69	3.3	8.42	75.65%	0.39	0.51	1.67
	2.63	7.85	0.37	0.64	2.9	8.26	74.18%	0.35	0.47	1.37
	2.68	7.66	0.33	0.59	2.51	8.04	72.17%	0.31	0.44	1.1
	2.73	7.2	0.3	0.54	2.14	7.56	67.92%	0.28	0.41	0.87
	2.78	6.23	0.29	0.49	1.8	6.56	58.93%	0.27	0.4	0.72
	2.83	5.91	0.25	0.44	1.5	6.22	55.85%	0.24	0.37	0.55
	2.88	5.63	0.22	0.39	1.21	5.92	53.14%	0.2	0.33	0.4
Waterline	2.93	4.76	0.2	0.34	0.94	5.03	45.15%	0.19	0.31	0.29
	2.98	4.54	0.16	0.29	0.71	4.79	43.00%	0.15	0.27	0.19
	3.03	4.2	0.12	0.24	0.49	4.4	39.54%	0.11	0.22	0.11
	3.08	3.41	0.09	0.19	0.3	3.55	31.84%	0.09	0.18	0.06
	3.13	2.15	0.07	0.14	0.16	2.21	19.86%	0.07	0.17	0.03
	3.18	1.46	0.05	0.09	0.08	1.49	13.37%	0.05	0.13	0.01
	3.23	0.93	0.02	0.04	0.02	0.94	8.47%	0.02	0.07	0.0

	3.25	0.32	0.01	0.02	0.0	0.32	2.89%	0.01	0.05	0.0

MODEL SUMMARY

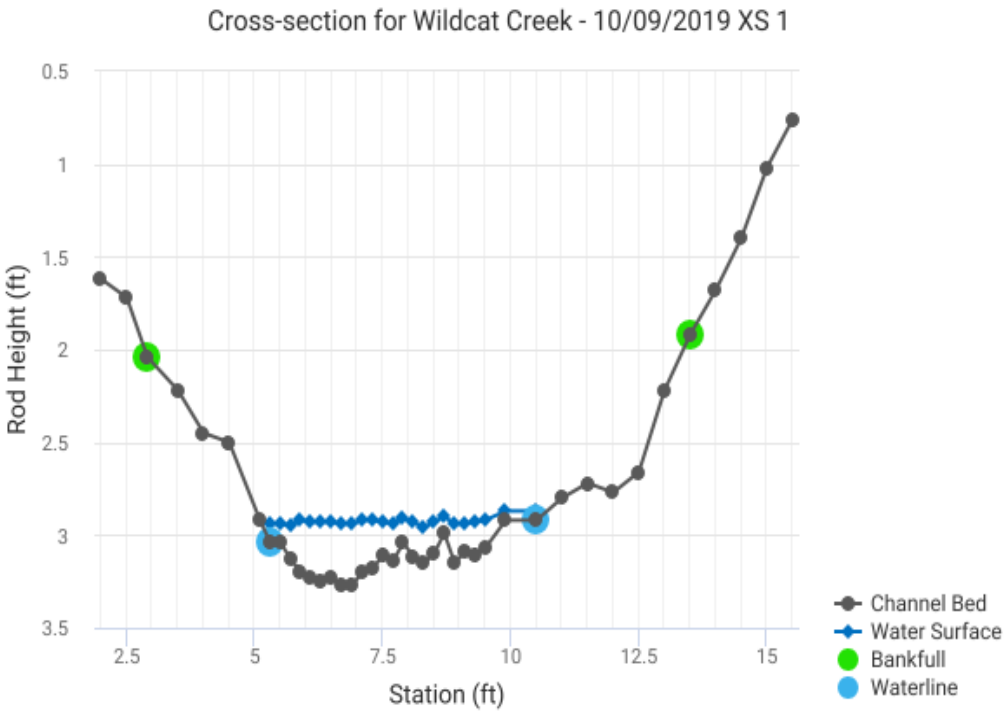
Measured Flow (Qm) =	0.28
Calculated Flow (Qc) =	0.29
(Qm-Qc)/Qm * 100 =	-5.39%
Measured Waterline (WLm) =	2.98
Calculated Waterline (WLc) =	2.93
(WLm-WLc)/WLm * 100 =	1.70%
Max Measured Depth (Dm) =	0.33
Max Calculated Depth (Dc) =	0.34
(Dm-Dc)/Dm * 100 =	-3.21%
Mean Velocity =	0.31
Manning's n =	0.286
0.4 * Qm =	0.11
2.5 * Qm =	0.7



FIELD DATA

Feature	Station (ft)	Rod Height (ft)	Water depth (ft)	Velocity (ft/s)
	2	1.62		
	2.5	1.72		
Bankfull	2.9	2.04		
	3.5	2.22		
	4	2.45		
	4.5	2.5		
	5.1	2.92		
Waterline	5.3	3.04	0.1	0
	5.5	3.04	0.1	-0.04
	5.7	3.13	0.18	0
	5.9	3.2	0.28	0.02
	6.1	3.23	0.3	0.14
	6.3	3.25	0.32	0.38
	6.5	3.23	0.3	0.23
	6.7	3.27	0.33	0.29
	6.9	3.27	0.33	0.8
	7.1	3.2	0.28	0.98
	7.3	3.18	0.26	0.45
	7.5	3.11	0.18	0.4
	7.7	3.14	0.2	0.26
	7.9	3.04	0.13	0.28
	8.1	3.12	0.19	0.21
	8.3	3.15	0.19	0.24
	8.5	3.1	0.17	0.18
	8.7	2.99	0.09	0.23
	8.9	3.15	0.21	0.26
	9.1	3.09	0.15	0.19
	9.3	3.11	0.18	0.14
	9.5	3.07	0.15	0
	9.9	2.92	0.05	0

Waterline	10.5	2.92	0.05	0
	11	2.8		
	11.5	2.72		
	12	2.77		
	12.5	2.66		
	13	2.22		
Bankfull	13.5	1.92		
	14	1.68		
	14.5	1.4		
	15	1.02		
	15.5	0.76		



COMPUTED FROM MEASURED FIELD DATA

Wetted Perimeter (ft)	Water Depth (ft)	Area (SQ ft)	Discharge (cfs)	Percent Discharge
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0.2	0.1	0.02	0	-0.29
0.22	0.18	0.04	0	0
0.21	0.28	0.06	0	0.4
0.2	0.3	0.06	0.01	3.02
0.2	0.32	0.06	0.02	8.74
0.2	0.3	0.06	0.01	4.96
0.2	0.33	0.07	0.02	6.88
0.2	0.33	0.07	0.05	18.98
0.21	0.28	0.06	0.05	19.73
0.2	0.26	0.05	0.02	8.41
0.21	0.18	0.04	0.01	5.18
0.2	0.2	0.04	0.01	3.74
0.22	0.13	0.03	0.01	2.62
0.22	0.19	0.04	0.01	2.87
0.2	0.19	0.04	0.01	3.28
0.21	0.17	0.03	0.01	2.2
0.23	0.09	0.02	0	1.49
0.26	0.21	0.04	0.01	3.93
0.21	0.15	0.03	0.01	2.05
0.2	0.18	0.04	0.01	1.81
0.2	0.15	0.04	0	0
0.43	0.05	0.03	0	0

0.6	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

DISCLAIMER

"The Colorado Water Conservation Board makes no representations about the use of the software contained in the R2Cross platform for any purpose besides that for which it was designed. To the maximum extent permitted by applicable law, all information, modeling results, and software are provided “as is” without warranty or condition of any kind, including all implied warranties or conditions of merchantability, or fitness for a particular purpose. The user assumes all responsibility for the accuracy and suitability of this program for a specific application. In no event shall the Colorado Water Conservation Board or any state agency, official or employee be liable for any direct, indirect, punitive, incidental, special, consequential damages or any damages whatsoever including, without limitation, damages for loss of use, data, profits, or savings arising from the implementation, reliance on, or use of or inability to use the R2Cross platform.

COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

COLORADO DIVISION OF WILDLIFE

LOCATION INFORMATION

STREAM NAME: Wildcat Creek					CROSS-SECTION NO.: 1
CROSS-SECTION LOCATION: Upstream of Wildct Rd. WCAT1 GPS					
DATE: 10/9/19	OBSERVERS: Ashley Bembenek (flow) Julie Nania (Scribe)				
LEGAL DESCRIPTION	¼ SECTION:	SECTION:	TOWNSHIP: N/S	RANGE: E/W	PM:
COUNTY: Gunnison	WATERSHED: Coal Creek		WATER DIVISION: 4		DOW WATER CODE:
MAP(S):	USGS:				
	USFS:				

SUPPLEMENTAL DATA

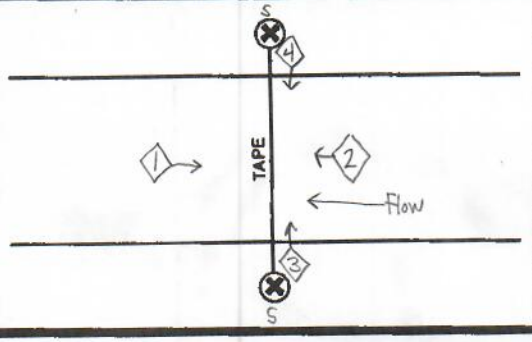
SAG TAPE SECTION SAME AS DISCHARGE SECTION: YES / NO	METER TYPE: HACH 950 AEC				
METER NUMBER: NA	DATE RATED: NA	CALIB/SPIN NA sec	TAPE WEIGHT NA lbs/foot	TAPE TENSION: NA lbs	
CHANNEL BED MATERIAL SIZE RANGE:		PHOTOGRAPHS TAKEN YES/NO	NUMBER OF PHOTOGRAPHS: 4 of cross-section. Plus, others.		

CHANNEL PROFILE DATA

Add additional notes on photos on back

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
Tape @ Stake LB	0.0 / 2.0'	18.75"
Tape @ Stake RB	0.0 / 15.5'	9.5"
(1) WS @ Tape LB/RB	0.0	LEW 35.25" / REW 35.25"
(2) WS Upstream	9.5'	4.66'
(3) WS Downstream	13'	5.41'
SLOPE	0.75 / 22.5' = 0.03$\bar{3}$	

SKETCH



LEGEND

Stake ⊗

Station (1)

Photo (1)→

Direction of Flow ← →

AQUATIC SAMPLING SUMMARY

STREAM ELECTROFISHED: YES/NO	DISTANCE ELECTROFISHED _____ ft	FISH CAUGHT YES/NO	WATER CHEMISTRY SAMPLED: YES/NO

LENGTH - FREQUENCY DISTRIBUTION BY ONE-INCH SIZE GROUPS (1.0-1.9, 2.0-2.9, ETC.)

SPECIES (FILL IN)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	>15	TOTAL

AQUATIC INSECTS IN STREAM SECTION BY COMMON OR SCIENTIFIC ORDER NAME: Did not observe macroinvertebrates, likely due to cold temperatures and late in season

COMMENTS

*Confirmed water velocities at multiple stations. Noted w/ 2x or 3x for 2 or 3 measurements.

* Ample evidence of wild ungulates. No cattle grazing in the area.

Landscape photos on Julie's phone.

Photos on cross-section (AJB's phone)

#1: upstream toward X-section
#2: downstream toward X-section
#3: Left stake, across X-section
#4: Right stake, across X-section.

3 x landscape Julie phone

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Wildcat Creek | CROSS-SECTION NO.: 1 | DATE: 10-9-19 | SHEET 1 OF 1

BEGINNING OF MEASUREMENT | EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT / RIGHT | Gage Reading: ____ ft | TIME 10:45

Features: Stake (S) Grassline (G) Waterline (W) Rock (R)	Distance From Initial Point (ft)	Width (ft)	Total Vertical Depth From Tape/Inst (ft)	Water Depth (ft)	Depth of Observation (ft)	Revolutions	Time (sec)	Velocity (ft/sec) At Point	Velocity (ft/sec) Mean in Vertical	Area (ft^2)	Discharge (cfs)
L (S)		2	1.62								
		2.5	1.72								
(B)		2.9	2.04								
		3.5	2.22								
		4.0	2.45								
		4.5	2.50								
		5.1	2.92								
(W)		5.3	3.04	.1				TSTM			
		5.5	3.04	.1				0.04	(3X)		
		5.7	3.13	.18				0 (3X)			
		5.9	3.20	.28				0.02	(2X)		
		6.1	3.23	.3				0.14			
		6.3	3.25	.32				0.38			
		6.5	3.23	.3				0.23			
		6.7	3.27	.33				0.29			
		6.9	3.27	.33				0.8	(2x)		
		7.1	3.2	.28				0.98	(2x)		
		7.3	3.18	.26				0.45	(2x)		
		7.5	3.11	.18				0.40			
		7.7	3.14	.2				0.26			
		7.9	3.04	.13				0.28			
		8.1	3.12	.19				0.21			
		8.3	3.15	.19				0.24			
		8.5	3.10	.17				0.18			
		8.7	2.99	.09				0.23			
		8.9	3.15	.21				0.26			
		9.1	3.09	.15				0.19			
		9.3	3.11	.18				0.14			
rocky and		9.5	3.07	.15				TSTM			
		9.9	2.92	0.05				TSTM			
(W)		10.5	2.92	0.05				TSTM			
		11	2.8								
		11.5	2.72								
		12	2.77								
		12.5	2.66								
		13	2.22								
(B)		13.5	1.92								
		14	1.68								
		14.5	1.4								
		15	1.02								
(S)		15.5	0.76								
TOTALS											

End of Measurement | Time 11:40 | Gage Reading ____ ft | CALCULATIONS PERFORMED BY: AJB | CALCULATIONS CHECKED BY: AJB

Cross-section: Wild Cat Creek #1
Date: 10/9/19
Name: Julie Nania

Riffle Pebble Count Actual Measurements ~~(mm)~~ (cm)

1	6.3	26	5.9	51	9.1	76	3.2				
2	4.8	27	7.5	52	Sand/fine	77	9.7				
3	11.3	28	4.4	53	sand/fine	78	6.6				
4	4.7	29	3.4	54	12.4 E	79	3.8				
5	2.9	30	8.1	55	3.9	80	13.4	101	2.1		
6	10.4	31	3.2	56	12.6 E	81	7.6	102	5.4		
7	12.6	32	5.9	57	1.9	82	4.9	103	1.5		
8	13.1 E	33	6.8	58	14.1 E	83	2.3	104	4.4		
9	3.6	34	9.7	59	9.5	84	4.9	105			
10	4.5	35	13.4	60	4.1	85	5.9	106			
11	3.7	36	14	61	4.8	86	17.2	107			
12	7.4	37	Sand	62	sand/fine	87	3.1	108			
13	3.9	38	12.4	63	6 E	88	6.7	109			
14	6.8	39	10.4	64	sand/fine	89	6.1	110			
15	6.1	40	8.3	65	4.5	90	7.3	111			
16	3.2	41	3.4	66	sand/fine	91	12.2	112			
17	9.9	42	4.5	67	7.2	92	12.9	113			
18	13.7	43	6.9	68	1	93	3.5	114			
19	5.6	44	8.9	69	sand/fine	94	3.2	115			
20	7.8	45	6.8	70	18.5	95	4.6				
21	9.8	46	7.7	71	12.5 E	96	11.3				
22	9.9	47	6.7	72	12.7	97	3.7				
23	16.5	48	3.3	73	fine/sand	98	10.9				
24	5.3	49	2.7	74	3.8	99	10				
25	8	50	9.6	75	3.6	100	18				

****Please be sure to measure at least 100 pebbles (10 in 10 transects or 5 in 20 transects- depending on stream size, for accurate distributional representation.****

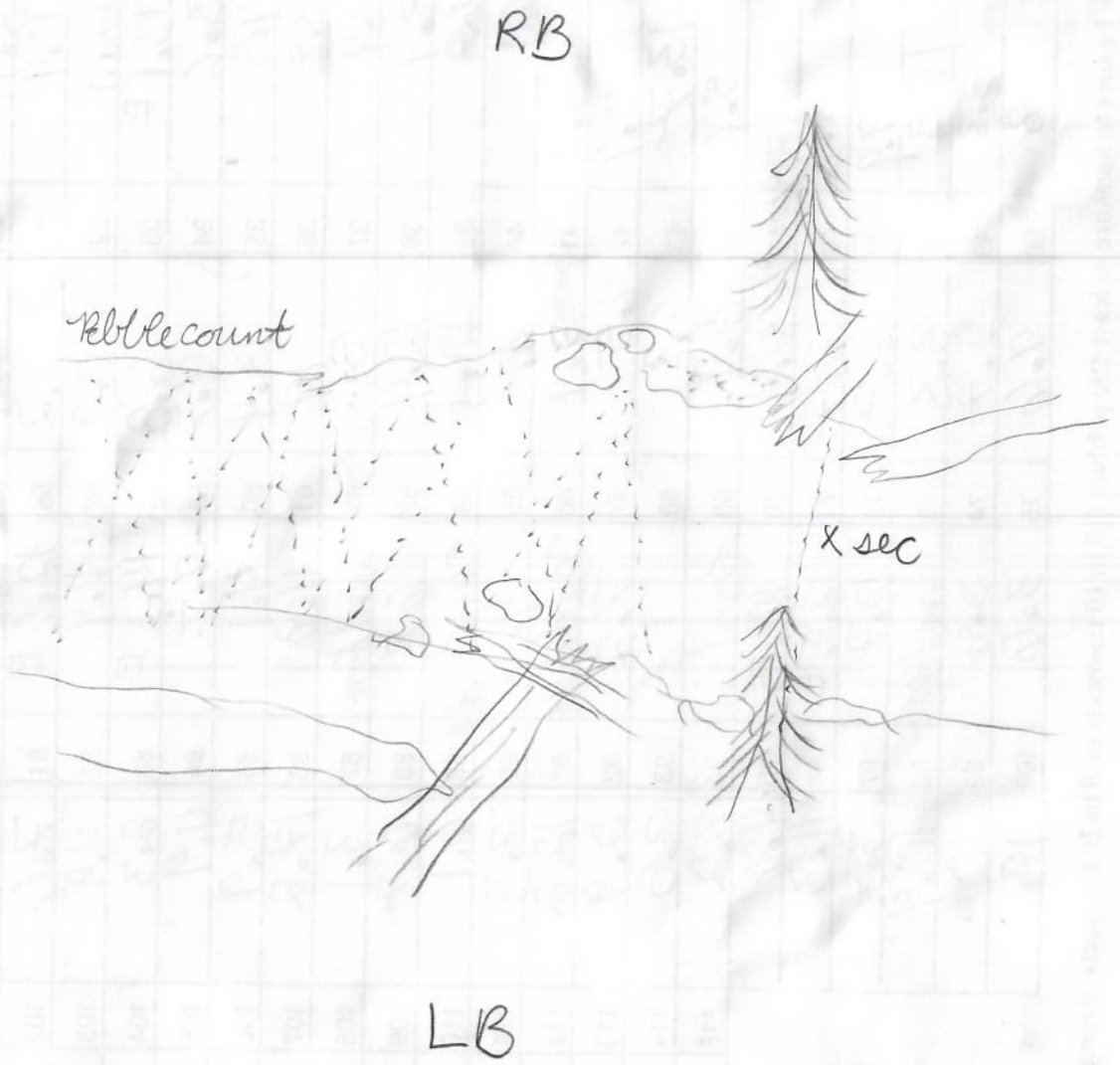
EMBEDDEDNESS:

If intermediate particle axis is less than 32 mm chose the nearest cobble for embeddedness.
If no cobble >32 mm is present without taking a step, record 100% embedded.

	Random pebble for **Percent Embeddedness** (one per transect)									
5	7	10	9	3	8	5	2	1	7	#
										D(e)/ D(t)

D(e) = embedded depth; D(t) = total depth

ample evidence of elk/deer grazing. No cattle grazing.



Attachment D- StreamStats

StreamStats Report

Region ID: CO
Workspace ID: CO20191130220726363000
Clicked Point (Latitude, Longitude): 38.86942, -107.00939
Time: 2019-11-30 15:07:40 -0700

Prepared for instream flow proposal on November 30, 2019.

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	2	square
BSLDEM10M	Mean basin slope computed from 10 m DEM	28	percent
PRECIP	Mean Annual Precipitation	31.12	inches
ELEV	Mean Basin Elevation	10370	feet

Parameter Code	Parameter Description	Value	Unit
CSL1085LFP	Change in elevation divided by length between points 10 and 85 percent of distance along the longest flow path to the basin divide, LFP from 2D grid	569.8	feet pe
EL7500	Percent of area above 7500 ft	100	percent
ELEVMAX	Maximum basin elevation	12100	feet
I24H100Y	Maximum 24-hour precipitation that occurs on average once in 100 years	3.61	inches
I24H2Y	Maximum 24-hour precipitation that occurs on average once in 2 years - Equivalent to precipitation intensity index	1.69	inches
I6H100Y	6-hour precipitation that is expected to occur on average once in 100 years	1	inches
I6H2Y	Maximum 6-hour precipitation that occurs on average once in 2 years	0.91	inches
LAT_OUT	Latitude of Basin Outlet	38.869421	degree
LC11BARE	Percentage of barren from NLCD 2011 class 31	9.4	percent
LC11CRPHAY	Percentage of cultivated crops and hay, classes 81 and 82, from NLCD 2011	0	percent
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	0	percent
LC11FOREST	Percentage of forest from NLCD 2011 classes 41-43	80.4	percent
LC11GRASS	Percent of area covered by grassland/herbaceous using 2011 NLCD	8.8	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	0	percent
LC11SHRUB	Percent of area covered by shrubland using 2011 NLCD	0	percent
LC11SNOIC	Percent snow and ice from NLCD 2011 class 12	0	percent
LC11WATER	Percent of open water, class 11, from NLCD 2011	0.2	percent
LC11WETLND	Percentage of wetlands, classes 90 and 95, from NLCD 2011	1.2	percent
LFPLENGTH	Length of longest flow path	3.21	miles
LONG_OUT	Longitude of Basin Outlet	-107.009406	degree
MINBELEV	Minimum basin elevation	9080	feet

Parameter Code	Parameter Description	Value	Unit
OUTLETELEV	Elevation of the stream outlet in thousands of feet above NAVD88.	9083	feet
RCN	Runoff-curve number as defined by NRCS (http://policy.nrcs.usda.gov/OpenNonWebContent.aspx?content=17758.wba)	72.57	dimens
RUNCO_CO	Soil runoff coefficient as defined by Verdin and Gross (2017)	0.44	dimens
SSURGOA	Percentage of area of Hydrologic Soil Type A from SSURGO	0.00386	percent
SSURGOB	Percentage of area of Hydrologic Soil Type B from SSURGO	5.16	percent
SSURGOC	Percentage of area of Hydrologic Soil Type C from SSURGO	63.6	percent
SSURGOD	Percentage of area of Hydrologic Soil Type D from SSURGO	26.3	percent
STATSCLAY	Percentage of clay soils from STATSGO	31.11	percent
STORNHD	Percent storage (wetlands and waterbodies) determined from 1:24K NHD	0.2	percent
TOC	Time of concentration in hours	1.2	hours

Peak-Flow Statistics Parameters[Mountain Region Peak Flow]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	2	square miles	1	1060
BSLDEM10M	Mean Basin Slope from 10m DEM	28	percent	7.6	60.2
PRECIP	Mean Annual Precipitation	31.12	inches	18	47

Peak-Flow Statistics Flow Report[Mountain Region Peak Flow]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SEp

Statistic	Value	Unit	SEp
2 Year Peak Flood	36.8	ft^3/s	49
5 Year Peak Flood	51.9	ft^3/s	44
10 Year Peak Flood	61.3	ft^3/s	41
25 Year Peak Flood	74.4	ft^3/s	40
50 Year Peak Flood	87.5	ft^3/s	39
100 Year Peak Flood	96.4	ft^3/s	36
200 Year Peak Flood	104	ft^3/s	36
500 Year Peak Flood	121	ft^3/s	33

Peak-Flow Statistics Citations

Capesius, J.P., and Stephens, V. C.,2009, Regional Regression Equations for Estimation of Natural Streamflow Statistics in Colorado: U. S. Geological Survey Scientific Investigations Report 2009-5136, 32 p. (http://pubs.usgs.gov/sir/2009/5136/http://pubs.usgs.gov/sir/2009/5136/)

Monthly Flow Statistics Parameters[Mountain Region Mean Flow]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	2	square miles	1	1060
PRECIP	Mean Annual Precipitation	31.12	inches	18	47

Monthly Flow Statistics Flow Report[Mountain Region Mean Flow]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SEp
January Mean Flow	0.399	ft^3/s	50
February Mean Flow	0.369	ft^3/s	51
March Mean Flow	0.371	ft^3/s	49
April Mean Flow	0.695	ft^3/s	44
May Mean Flow	6.81	ft^3/s	46
June Mean Flow	16.8	ft^3/s	46
July Mean Flow	6.06	ft^3/s	76
August Mean Flow	2.39	ft^3/s	80

Statistic	Value	Unit	SEp
September Mean Flow	1.24	ft^3/s	59
October Mean Flow	0.908	ft^3/s	45
November Mean Flow	0.65	ft^3/s	46
December Mean Flow	0.468	ft^3/s	47

Monthly Flow Statistics Citations

Capesius, J.P., and Stephens, V. C.,2009, Regional Regression Equations for Estimation of Natural Streamflow Statistics in Colorado: U. S. Geological Survey Scientific Investigations Report 2009-5136, 32 p. (http://pubs.usgs.gov/sir/2009/5136/http://pubs.usgs.gov/sir/2009/5136/)

Annual Flow Statistics Parameters[Mountain Region Mean Flow]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	2	square miles	1	1060
PRECIP	Mean Annual Precipitation	31.12	inches	18	47

Annual Flow Statistics Flow Report[Mountain Region Mean Flow]

PIl: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SEp
Mean Annual Flow	3.22	ft^3/s	33

Annual Flow Statistics Citations

Capesius, J.P., and Stephens, V. C.,2009, Regional Regression Equations for Estimation of Natural Streamflow Statistics in Colorado: U. S. Geological Survey Scientific Investigations Report 2009-5136, 32 p. (http://pubs.usgs.gov/sir/2009/5136/http://pubs.usgs.gov/sir/2009/5136/)

Low-Flow Statistics Parameters[Mountain Region Min Flow]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	2	square miles	1	1060
PRECIP	Mean Annual Precipitation	31.12	inches	18	47

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
ELEV	Mean Basin Elevation	10370	feet	8600	12000

Low-Flow Statistics Flow Report[Mountain Region Min Flow]

PIl: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SEp
7 Day 2 Year Low Flow	0.142	ft^3/s	89
7 Day 10 Year Low Flow	0.0748	ft^3/s	153
7 Day 50 Year Low Flow	0.0734	ft^3/s	126

Low-Flow Statistics Citations

Capesius, J.P., and Stephens, V. C.,2009, Regional Regression Equations for Estimation of Natural Streamflow Statistics in Colorado: U. S. Geological Survey Scientific Investigations Report 2009-5136, 32 p. (http://pubs.usgs.gov/sir/2009/5136/http://pubs.usgs.gov/sir/2009/5136/)

Flood-Volume Statistics Parameters[Mountain Region Max Flow]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	2	square miles	1	1060
PRECIP	Mean Annual Precipitation	31.12	inches	18	47

Flood-Volume Statistics Flow Report[Mountain Region Max Flow]

PIl: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SEp
7 Day 2 Year Maximum	23	ft^3/s	46
7 Day 10 Year Maximum	34.2	ft^3/s	35
7 Day 50 Year Maximum	45.7	ft^3/s	31

Flood-Volume Statistics Citations

Capesius, J.P., and Stephens, V. C.,2009, Regional Regression Equations for Estimation of Natural Streamflow Statistics in Colorado: U. S. Geological Survey Scientific Investigations Report 2009-5136, 32 p. (http://pubs.usgs.gov/sir/2009/5136/http://pubs.usgs.gov/sir/2009/5136/)

Flow-Duration Statistics Parameters[Mountain Region Flow Duration]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	2	square miles	1	1060
PRECIP	Mean Annual Precipitation	31.12	inches	18	47

Flow-Duration Statistics Flow Report[Mountain Region Flow Duration]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SEp
10 Percent Duration	8.76	ft^3/s	45
25 Percent Duration	1.98	ft^3/s	55
50 Percent Duration	0.676	ft^3/s	55
75 Percent Duration	0.35	ft^3/s	64
90 Percent Duration	0.176	ft^3/s	85

Flow-Duration Statistics Citations

Capesius, J.P., and Stephens, V. C.,2009, Regional Regression Equations for Estimation of Natural Streamflow Statistics in Colorado: U. S. Geological Survey Scientific Investigations Report 2009-5136, 32 p. (http://pubs.usgs.gov/sir/2009/5136/http://pubs.usgs.gov/sir/2009/5136/)

Application Version: 4.3.11

Attachment E- Water Availability Analysis

WATER DISTRICT NO. 59

CRESTED BUTTE WATER DITCH AND WILD CAT PIPE LINE

PIPE LINE AND/OR DITCH NO. 6 PRIORITY NO. 5

That said pipe line and/or ditch is entitled to priority No. 5.

That said pipe line and/or ditch is claimed by the Town of Crested Butte, Gunnison County, Colorado, which town is a municipal corporation organized and existing under and by virtue of the laws of the State of Colorado.

That the Crested Butte Water Ditch and the Wild Cat Pipe Line constitute one system of direct water diversion, that the Crested Butte Water Ditch takes its supply of water from Coal Creek, a tributary of Slate River, which is a tributary of East River, which is, in turn, a tributary of the Gunnison River, and the Wild Cat Pipe Line takes its supply of water from Wild Cat Creek, which is a tributary of Coal Creek, a tributary of Slate River, a tributary of East River, which latter river is a tributary of the Gunnison River; that the Wild Cat Pipe Line delivers its supply of water into the pipe line of the Crested Butte Water Ditch at a point where the Wild Cat Creek enters Coal Creek, and that the pipe line from said latter point to the Crested Butte town reservoir is a common pipe line; and the supply of water from Wild Cat Creek and the pipe line out of Coal Creek supplement each other and are used for the purpose of supplying a constant flow of water so far as possible through the portion of pipe line used in common from said two sources of water to the Crested Butte town reservoir which is located on a high point immediately above the Town of Crested Butte, and from said

9-1-1893

reservoir the water is immediately taken for use as hereinafter stated.

That the headgate of the Crested Butte Water Ditch, being the intake of the pipe line known as the Crested Butte Water Ditch, is located at a point on the south bank of Coal Creek, whence the Northeast Corner of Section 5, Township 14 South, Range 86 West, bears North 39°38' East, 2,998 feet, from which said point said pipe line runs in a general easterly direction. The length of said pipe line is 8,585 feet, its diameter is 14 inches, and its grade is 8.50 feet per one hundred feet, and its carrying capacity is 6.0 cubic feet of water per second of time. Sec 5

That the headgate of the Wild Cat Pipe Line is located on the right bank of Wild Cat Creek, a tributary of Coal Creek, etc., whence the Northeast Corner of Section 4, Township 14 South, Range 86 West, 6th P. M., bears North 55°10' East 3,260 feet, from which point said pipe line runs in a general northerly direction to a point where it joins and becomes a part of the pipe line of the Crested Butte Water Ditch. That the water of Wild Cat Creek through the Wild Cat Pipe Line is conveyed through an 8 inch pipe and discharges into the Crested Butte Water Ditch pipe line; it has a grade of 20 feet per 100 feet, a carrying capacity of 5.76 cubic feet of water per second of time. Sec 4

That the Crested Butte Water Ditch and the Wild Cat Pipe Line are used as one system for the diversion of water at Two points, taking their supplies of water from the streams above named, for domestic and power purposes for the inhabitants of the Town of Crested Butte, Colorado.

#8

IT IS, THEREFORE, HEREBY ORDERED, ADJUDGED AND DECREED That there be allowed to flow into the Crested Butte Water Ditch from Coal Creek, a tributary of Slate River, which is a tributary of East River, which is, in turn, a tributary of the Gunnison River, and into the Wild Cat Pipe Line, from Wild Cat Creek, a tributary of Coal Creek, a tributary of Slate River, a tributary of East River, which is a tributary of the Gunnison River, for the uses aforesaid, for the benefit of the party lawfully entitled thereto under and by virtue of said construction and appropriation, under priority No. 5 not to exceed 6. cubic feet of water per second of time, subject, however, to any other priorities, if any, heretofore fixed, determined and decreed.

Attachment F- USGS Topographic Quadrangle Map

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

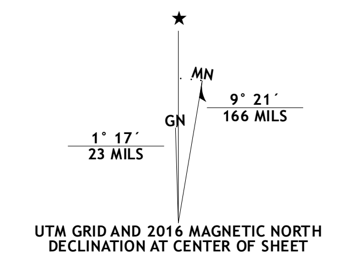
The National Map
US Topo

MOUNT AXTELL QUADRANGLE
COLORADO-GUNNISON CO.
7.5-MINUTE SERIES

Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid: Universal Transverse Mercator, Zone 13S
10 000-foot ticks: Colorado Coordinate System of 1983 (central zone)

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

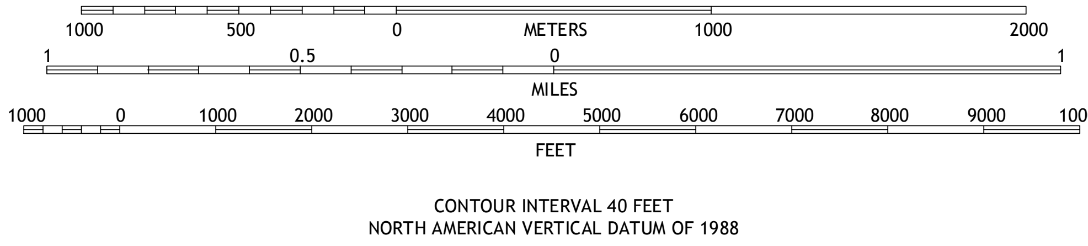
Imagery....................................NAIP, September 2013
Roads............................. U.S. Census Bureau, 2015 - 2016
Roads within US Forest Service Lands............FSTopo Data with limited Forest Service updates, 2012 - 2016
Names..GNIS, 2016
Hydrography..................National Hydrography Dataset, 2013
Contours.........................National Elevation Dataset, 2003
Boundaries...........Multiple sources; see metadata file 1972 - 2016
Public Land Survey System...............................BLM, 2011
Wetlands........FWS National Wetlands Inventory 1977 - 2014



UTM GRID AND 2016 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

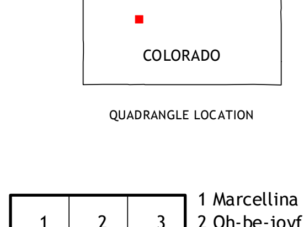
U.S. National Grid
100,000-m Square ID CD CC 4300
Grid Zone Designation 13S

SCALE 1:24 000

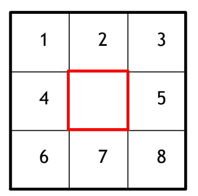


CONTOUR INTERVAL 40 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the
National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.19



QUADRANGLE LOCATION



ADJOINING QUADRANGLES

1 Marcellina Mountain
2 Oh-be-joyful
3 Gothic
4 Anthracite Range
5 Crested Butte
6 West Elk Peak
7 Squirrel Creek
8 Flat Top

ROAD CLASSIFICATION

Expressway	Local Connector
Secondary Hwy	Local Road
Ramp	4WD
Interstate Route	US Route
State Route	FS Primary Route
FS Passenger Route	FS High Clearance Route

Check with local Forest Service unit
for current travel conditions and restrictions.

MOUNT AXTELL, CO
2016

NSN. 7643016559397
NGA REF NO. USGSX24K30473

Location	CollDate	Organism	Individuals	Stage	Comments	Comments
WILDCAT CREEK	########	Chloroperlidae	4	L	171704:Su	Targeted R
WILDCAT CREEK	########	Drunella doddsi	7	L	171704:Su	Targeted R
WILDCAT CREEK	########	Meringodixa	1	L	171704:Su	Targeted R
WILDCAT CREEK	########	Simuliidae	1	L	171704:Su	Targeted R
WILDCAT CREEK	########	Ameletus	3	L	171704:Su	Targeted R
WILDCAT CREEK	########	Baetis	4	L	171704:Su	Targeted R
WILDCAT CREEK	########	Capniidae	2	L	171704:Su	Targeted R
WILDCAT CREEK	########	Chironomidae	3	P	171704:Su	Targeted R
WILDCAT CREEK	########	Cinygmula	14	L	171704:Su	Targeted R
WILDCAT CREEK	########	Collembola	3	A	171704:Su	Targeted R
WILDCAT CREEK	########	Hesperoperla pacifica	31	L	171704:Su	Targeted R
WILDCAT CREEK	########	Heterlimnius corpulentus	38	L	171704:Su	Targeted R
WILDCAT CREEK	########	Lebertia	10	A	171704:Su	Targeted R
WILDCAT CREEK	########	Leuctridae	4	L	171704:Su	Targeted R
WILDCAT CREEK	########	Neothremma	20	L	171704:Su	Targeted R
WILDCAT CREEK	########	Oligochaeta	16	A	171704:Su	Targeted R
WILDCAT CREEK	########	Paraleptophlebia	4	L	171704:Su	Targeted R
WILDCAT CREEK	########	Parapsyche elsis	1	L	171704:Su	Targeted R
WILDCAT CREEK	########	Pericoma	1	L	171704:Su	Targeted R
WILDCAT CREEK	########	Pisidium	1	A	171704:Su	Targeted R
WILDCAT CREEK	########	Psychoglypha	3	L	171704:Su	Targeted R
WILDCAT CREEK	########	Rhithrogena	2	L	171704:Su	Targeted R
WILDCAT CREEK	########	Rhyacophila brunnea/vemna group	1	L	171704:Su	Targeted R
WILDCAT CREEK	########	Simulium	1	L	171704:Su	Targeted R
WILDCAT CREEK	########	Sperchon	4	A	171704:Su	Targeted R
WILDCAT CREEK	########	Sweltsa	7	L	171704:Su	Targeted R
WILDCAT CREEK	########	Trombidiformes	2	A	171704:Su	Targeted R
WILDCAT CREEK	########	Wiedemannia	1	L	171704:Su	Targeted R
WILDCAT CREEK	########	Zapada	2	L	171704:Su	Targeted R
WILDCAT CREEK	########	Zapada cinctipes	1	L	171704:Su	Targeted R
WILDCAT CREEK	########	Zapada oregonensis group	1	L	171704:Su	Targeted R

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MIDLAT	MIDLONG	BTMLAT	BTMLONG	TRLAT	TRLONG
38.85143	-107.014	38.8517	-107.013	38.85105	-107.015

Discharge Measurment Field Visit Data Report *(Filters: Name begins with Wildcat Creek; Division = 4;)*

Div	Name	CWCB Case Number	Segment ID	Meas. Date	UTM	Location	Flow Amount (cfs)	Meas #	Rating	Station ID
4	Wildcat Creek		21/4/A-013	09/30/2020	UTMx: 325365 UTMy: 4302410	Near blm boundary	0.0529	93020	P	

Discharge Measurement Summary

Site name	Wildcat cr
Site number	93020
Operator(s)	Ks
File name	Wildcat cr_20200930-150914.ft
Comment	

Start time	9/30/2020 2:52 PM
End time	9/30/2020 3:08 PM
Start location latitude	38.864
Start location longitude	-107.017
Calculations engine	FlowTracker2

Sensor type	Top Setting
Handheld serial number	FT2H1747037
Probe serial number	FT2P1747048
Probe firmware	1.30
Handheld software	1.7

# Stations	Avg interval (s)	Total discharge (ft³/s)
10	40	0.053

Total width (ft)	Total area (m²)	Wetted Perimeter (ft)
2.700	0.050	2.854

Mean SNR (dB)	Mean depth (ft)	Mean velocity (m/s)
36.303	0.200	0.030

Mean temp (°C)	Max depth (ft)	Max velocity (m/s)
4.887	0.300	0.085

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.8%	26.3%
Velocity	15.5%	48.3%
Width	0.3%	0.3%
Method	4.2%	
# Stations	5.1%	
Overall	**16.9%**	**55.0%**

Discharge equation	Mid Section
Discharge uncertainty	IVE
Discharge reference	Rated

Data Collection Settings	
Salinity	0.000 PSS-78
Temperature	-
Sound speed	-
Mounting correction	0.000 %

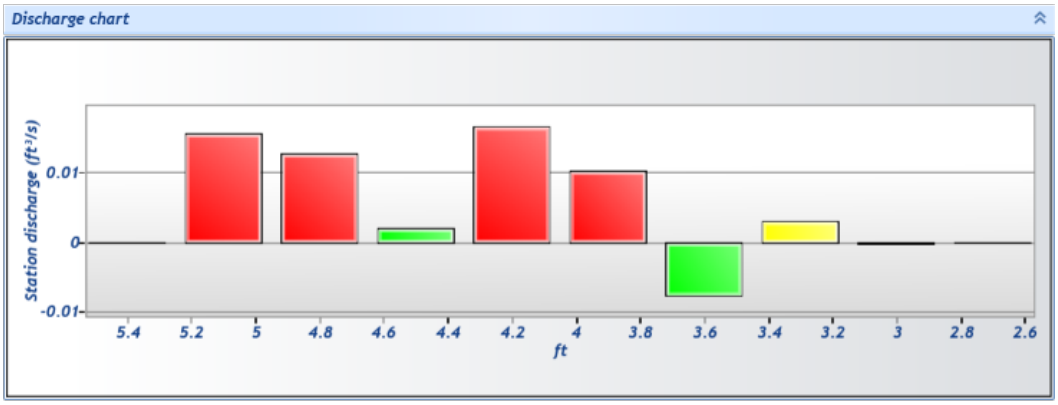
Summary overview

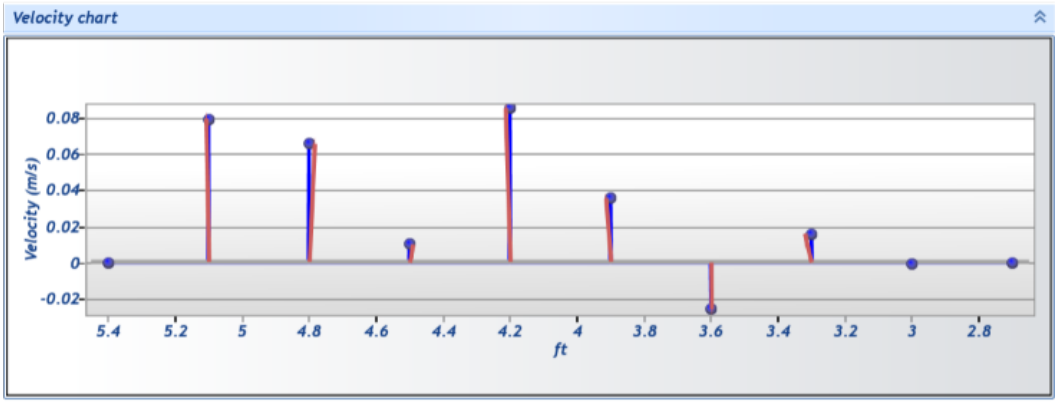
No changes were made to this file
Quality control warnings

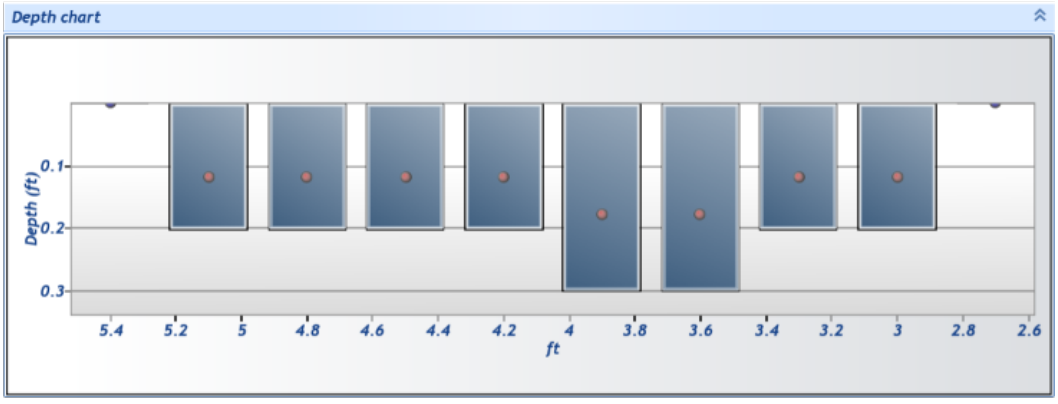
Discharge Measurement Summary

Site name	Wildcat cr
Site number	93020
Operator(s)	Ks
File name	Wildcat cr_20200930-150914.ft
Comment	

Station Warning Settings		
Station discharge OK	Station discharge < 5.000%	
Station discharge caution	5.000% >= Station discharge < 10.000%	
Station discharge warning	Station discharge >= 10.000%	







Discharge Measurement Summary

Site name	Wildcat cr
Site number	93020
Operator(s)	Ks
File name	Wildcat cr_20200930-150914.ft
Comment	

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (m/s)	Correction	Mean Velocity (m/s)	Area (m²)	Flow (ft³/s)	%Q	
0	2:52 PM	2.700	None	0.000	0.000	0.000	0	0.000	1.000	-0.001	0.000	0.000	0.000	✓
1	2:57 PM	3.000	0.6	0.200	0.600	0.120	80	-0.001	1.000	-0.001	0.006	0.000	-0.290	✓
2	2:59 PM	3.300	0.6	0.200	0.600	0.120	80	0.016	1.000	0.016	0.006	0.003	5.923	✓
3	3:00 PM	3.600	0.6	0.300	0.600	0.180	80	-0.026	1.000	-0.026	0.008	-0.008	-14.254	✓
4	3:02 PM	3.900	0.6	0.300	0.600	0.180	80	0.035	1.000	0.035	0.008	0.010	19.561	✓
5	3:03 PM	4.200	0.6	0.200	0.600	0.120	80	0.085	1.000	0.085	0.006	0.017	31.615	✓
6	3:04 PM	4.500	0.6	0.200	0.600	0.120	80	0.010	1.000	0.010	0.006	0.002	3.729	✓
7	3:05 PM	4.800	0.6	0.200	0.600	0.120	80	0.065	1.000	0.065	0.006	0.013	24.265	✓
8	3:07 PM	5.100	0.6	0.200	0.600	0.120	80	0.079	1.000	0.079	0.006	0.016	29.452	✓
9	3:08 PM	5.400	None	0.000	0.000	0.000	0	0.000	1.000	0.079	0.000	0.000	0.000	✓

Discharge Measurement Summary

Site name	Wildcat cr
Site number	93020
Operator(s)	Ks
File name	Wildcat cr_20200930-150914.ft
Comment	

Quality Control Settings	
Maximum depth change	50.000%
Maximum spacing change	100.000%
SNR threshold	10.000 dB
Standard error threshold	0.010 m/s
Spike threshold	10.000%
Maximum velocity angle	20.000 deg
Maximum tilt angle	5.000 deg

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
1	2:57 PM	3.000	0.6	0.200	0.600	0.120	Boundary Interference,SNR Threshold Variation
2	2:59 PM	3.300	0.6	0.200	0.600	0.120	Boundary Interference,Large SNR Variation
3	3:00 PM	3.600	0.6	0.300	0.600	0.180	Beam SNRs Not Similar,Standard Error > QC,Velocity Angle > QC
4	3:02 PM	3.900	0.6	0.300	0.600	0.180	Velocity Angle > QC,High Stn % Discharge
5	3:03 PM	4.200	0.6	0.200	0.600	0.120	High Stn % Discharge
7	3:05 PM	4.800	0.6	0.200	0.600	0.120	High Stn % Discharge
8	3:07 PM	5.100	0.6	0.200	0.600	0.120	High Stn % Discharge

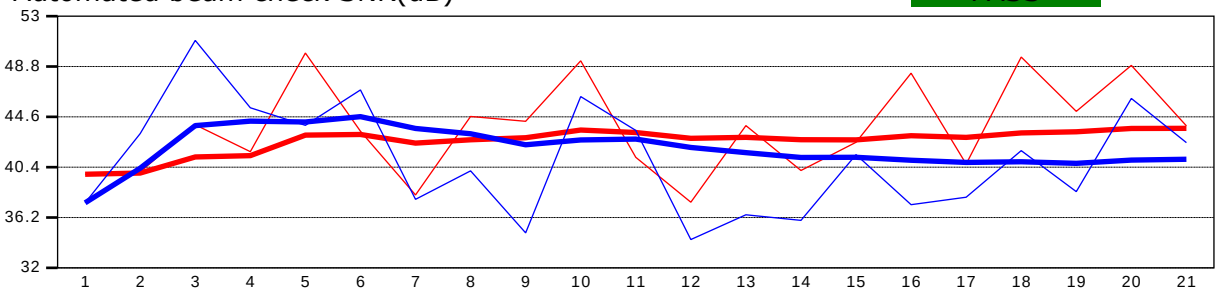
Discharge Measurement Summary

Site name	Wildcat cr
Site number	93020
Operator(s)	Ks
File name	Wildcat cr_20200930-150914.ft
Comment	

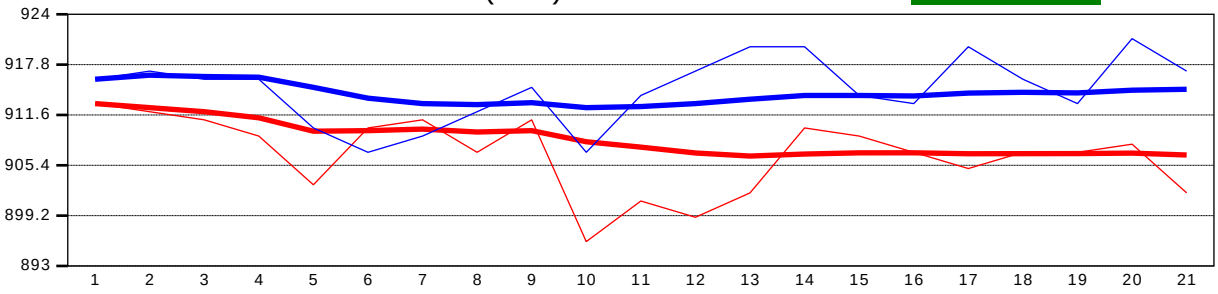
Beam 1	
Beam 2	

Automated beam check Start time 9/30/2020 2:51:48 PM

Automated beam check SNR(dB) PASS



Automated beam check Noise level(cnts) PASS



Automated beam check Quality control warnings

No quality control warnings

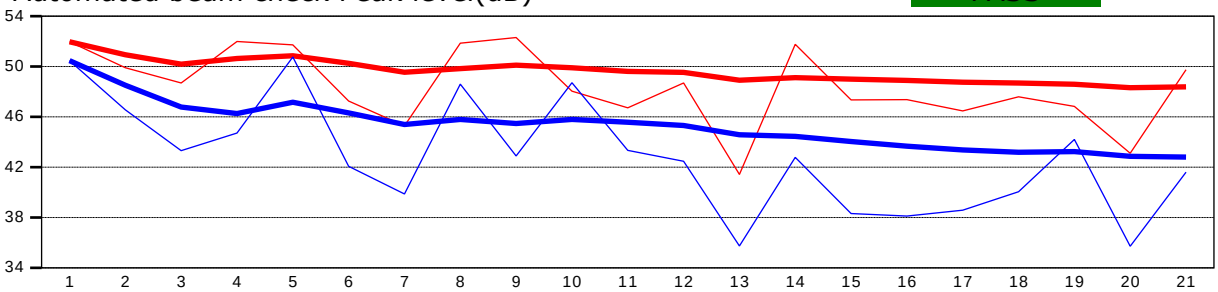
Discharge Measurement Summary

Site name	Wildcat cr
Site number	93020
Operator(s)	Ks
File name	Wildcat cr_20200930-150914.ft
Comment	

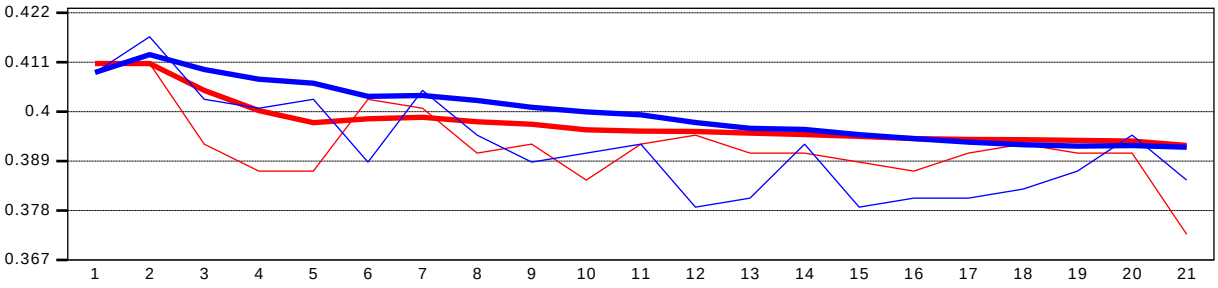
Beam 1	
Beam 2	

Automated beam check Start time 9/30/2020 2:51:48 PM

Automated beam check Peak level(dB) PASS



Automated beam check Peak position(ft) PASS



Automated beam check Quality control warnings

No quality control warnings