November 26, 2019

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

Dear Ms. Bassi and Mr. Baessler,

High Country Conservation Advocates (HCCA) submits this instream flow recommendation for Spring 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 Bureau of Land Management 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. In 2018 we submitted an instream flow proposal to protect Gold Creek.

The headwaters of Spring Creek originate on United States Forest Service (USFS) lands in Gunnison County. The headwaters of the creek start in the mountains above the Spring Creek reservoir. Below the reservoir the creek continues through a range of diverse riparian zones, from a mixed pine forest near the headwaters, scree slopes and canyon in the central part, beaver ponds and willows and alders in the middle segment, and housing and campgrounds near the creek's confluence with the Taylor River. The Spring Creek system hosts a diverse fishery. Fish sampling conducted by Colorado Parks and Wildlife (CPW) has recorded populations of brown and rainbow trout. When conducting field work the team observed robust macroinvertebrate and fish communities at both R2Cross assessment locations.

Spring Creek has three existing instream flow rights. This proposal introduces proposed increases on the lowermost Spring Creek instream flow reach. This segment begins at the confluence of Spring Creek and Rocky Brook Creek and continues to the confluence with the Taylor River (approximately 11.3 miles). The existing instream flow on this segment is 7.5 cfs year-round, with an appropriation date of 5/4/1984.

This proposal seeks to improve instream flow protections while dividing the segment into two separate reaches to create different winter and summer instream flow rates on each segment. HCCA has arrived at flow recommendations that would reasonably protect the health of the Spring Creek natural environment. In considering this application, the Colorado Water Conservation Board (CWCB) has an opportunity to protect an important stream ecosystem.

Enclosed you will find copies of data sheets from Colorado Parks and Wildlife reflecting the Spring 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 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 SPRING CREEK

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

Location

Spring Creek is located within the Rocky Brook-Spring Creek and Bear Creek-Spring Creek watershed (HUCs: 140200010111 and 140200010113) in Gunnison County, Water Division 4. The headwaters of Spring Creek originate above the Spring Creek Reservoir, near Italian Mountain, American Flag Mountain, and Forest Hill. Below the reservoir the creek runs in a general south-southwest direction until it joins the Taylor River. The Spring Creek watershed is 68.7 square miles and can be located on the following United States Geologic Survey quad maps: USGS Cement Mountain, Almont, Italian Creek quad maps. These maps are attached as Attachment H.

Table 1. Land Status for the existing instream flow right and the proposed instream flow segments.

Instream Flow Reach	Upper Terminus	Lower Terminus	Total Length (miles)	Land Ownership	
				Private (%)	Public (%)
Spring Creek (Appropriation Date 5/4/1984)	Confluence of Rocky Brook and Spring Creek	Confluence of Taylor River and Spring Creek	11.3	Riparian Corridor 16%	Riparian Corridor 84% USFS
				Watershed Composition 7%	Watershed Composition 93% USFS
Upper Spring Creek (proposed)	Confluence of Rocky Brook and Spring Creek	Confluence of Bear Creek and Spring Creek	3.0	Riparian Corridor 1%	Riparian Corridor 99% USFS
				Watershed Composition 1%	Watershed Composition 99% USFS
Lower Spring Creek (proposed)	Confluence of Bear Creek and Spring Creek	Confluence of Taylor River and Spring Creek	8.3	Riparian Corridor 22%	Riparian Corridor 78% USFS
				Watershed Composition 7%	Watershed Composition 93% USFS

The Spring Creek watershed is 93% public land managed by the United States Forest Service (USFS). The riparian corridor of the proposed Upper Spring Creek segment is nearly all public land managed by the USFS. The riparian corridor of the proposed Lower Spring Creek segment is approximately 78% public land managed by the USFS.

Existing Instream Flow Right

Location	Appropriation Date	Segment	Flow (cfs)
Spring Creek (WDID 5901510)	5/4/1984	Confluence of Rocky Brook and Spring Creek to confluence with the Taylor River	7.5 cfs

Currently, the existing instream flow right for this reach of Spring Creek is a year-round rate of 7.5 cfs, with an appropriation date of 5/4/1984 (Case Number 4-84CW368, WDID 590510). This proposal seeks to add additional protections for Spring Creek from the confluence with Rocky Brook Creek to the confluence with the Taylor River as supported by modern minimum instream flow assessment methodology. It includes the following proposed changes:

- Define two segments on Spring Creek below the Spring Creek reservoir (based on watershed area and inflow). Proposed segments are as follows:
    - Upper Spring Creek: Spring Creek from the confluence with Rocky Brook to the confluence with Bear Creek.
    - Lower Spring Creek: Spring Creek from the confluence with Bear Creek to the confluence with the Taylor River.
- Create a summer ISF rate for Upper Spring Creek; where the existing ISF right would remain as the winter ISF rate.
- Create a summer ISF rate for Lower Spring Creek; where the existing ISF right would remain as the winter ISF rate.

HCCA intends to work with the Natural Streams and Lakes Protection Unit to determine whether there is sufficient water legally available on these segments to provide for these increases.

Water Availability

<u>Physical Availability</u>

There is no stream gage on Spring 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.

The R2Cross results from 2018 support a summer instream flow of 14 cfs on Upper Spring Creek. StreamStats reports a mean monthly flow of 158 cfs for June and a mean monthly flow of 15 cfs for September (See Attachment F).

The R2Cross results from 2018 support a summer instream flow of 21 cfs on Lower Spring Creek. StreamStats reports a mean monthly flow of 228 cfs for June and a mean monthly flow of 22.5 cfs for September (See Attachment F).

Legal Availability

Diversions on Spring Creek are shown on the attached maps (Attachments A, B, and C). Attachment E identifies major water rights on Spring Creek that may impact water availability and provides CDSS records of all water rights on Spring Creek.

HCCA will work with the Natural Streams and Lake Protection Unit to verify whether or not there is sufficient water legally available to create a new instream flow protection on Upper Spring Creek, from Rocky Brook to Bear Creek, and Lower Spring Creek, from Bear Creek to the confluence with the Taylor River. If there is not sufficient legally available water in the Lower Spring Creek segment, the terminus of the segment will be revised (e.g., to end at the Spring Creek Irrigation Ditch headgate).

Biological Summary

Spring Creek is a coldwater stream located in Gunnison County, Colorado. The stream substrate ranges from small gravels to large boulders; with ample woody debris in the canyon sections of the stream. There is a mixture of riffles, small pools, and beaver ponds that provide quality habitat for fish and other aquatic life. At certain points Spring Creek drops steeply in elevation and the creek cuts down to the bedrock.

The Spring Creek ecosystem supports a healthy aquatic community. Sampling conducted by Colorado Parks and Wildlife in 2017 identified a healthy brown trout and rainbow trout population above the reservoir. Results from the stream sampling from 1981-2017 are included as Attachment D. The proponent and Alpine Environmental Consultants observed an abundance of fish of multiple size classes during field reconnaissance and sampling in 2018. Field technicians found an abundance of macroinvertebrates during pebble counts at both locations.

In addition to supporting a healthy aquatic ecosystem, flows in Spring Creek support a robust riparian area. Below the reservoir is a braided wetland complex that funnels into Spring Creek. Numerous springs and seeps contribute to the creek at various locations below the reservoir. Spring Creek continues to travel south-southwest through meadows

before beginning to drop more steeply over scree and through a narrow canyon. It is primarily pine/spruce forest near this segment of the creek. This steep pool drop system continues for several miles. The canyon opens up near the confluence with the Taylor River. Along the banks of the lower segment are pines, willows and alders. On the lower segment there is a USFS campground and numerous residential buildings. The riparian zone is in good condition and provides shade and cover for the extant fish community.

R2Cross Analysis

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

Alpine Environmental Consultants completed two R2Cross field surveys on September 28, 2018 (see maps in Attachments A, B, and C). R2Cross analysis and interpretation were completed following fieldwork. These data were used to create the instream flow recommendations for Spring Creek that are included in Table 2. R2Cross outputs are attached for review (Attachment E).

Based the R2Cross results (Table 2; and Attachment E), 14 cfs is recommended to satisfy the protection of biotic resources during summer months on Upper Spring Creek. This flow satisfies all three of the required hydrologic criteria. There is no proposed change for the winter instream flow; the existing ISF rate of 7.5 cfs is sufficient.

Based the R2Cross results (Table 2; and Attachment E), 21 cfs is recommended to satisfy the protection of biotic resources during summer months, from April 1 to July 31 on Lower Spring Creek. This flow satisfies all three of the required hydrologic criteria. There is no proposed change for the winter instream flow; the existing ISF rate of 7.5 cfs is sufficient.

Table 2. R2Cross analysis summary and instream flow recommendations.

Cross Section (Date & Location)	Measured Discharge[1] (cfs)	Bankfull Top Width[2] (ft)	Winter Flow Recommendation (cfs)	Summer Flow Recommendation[3] (cfs)
Upper Spring Creek (9/28/18)	6.30	26.5	7.5 (no proposed change to existing ISF)	14[3,4]
Lower Spring Creek (9/28/18)	22.07	42.0	7.5 (no proposed change to existing ISF)	21[5,6]

1) Flow was measured in late September of 2018 near the end of an exceptionally dry water year.
2) The bankfull top width was used to determine the average depth criterion.
3) The proposed dates for the summer flow are April 1 to September 30 for Upper Spring Creek.
4) The R2Cross output was 13.54 cfs. The result was rounded to 14 cfs per ISF recommendation guidelines.
5) The proposed dates for the summer flow are April 1 to July 31 for Lower Spring Creek.
6) The R2Cross output was 20.81 cfs. The result was rounded to 21 cfs per ISF recommendation guidelines.

Rationale for Instream Flow Increase

HCCA supports an increase to the existing summer instream flow rate to protect the Spring Creek riparian area.

The proposed increases to the existing instream flow will improve the quality of the aquatic habitat during the summer, a critical time for fish growth, survival, and reproduction. On the Upper Spring Creek segment, the proposed increase will increase the average water depth by approximately 0.21 feet to an average depth of 0.7 feet. The percent wetted perimeter will also increase. Together, these conditions will improve habitat connectivity including access to pools and other areas that provide critical refuge to fish during the summer months.

On the Lower Spring Creek segment, the proposed increase will increase the average water depth by approximately 0.3 feet to an average depth of 0.54 feet. The average velocity will increase from approximately 0.7 feet per second to 1.0 foot per second. The proposed increase will assure the average velocity criteria is met on Lower Spring Creek.

Photographs

Photo 1. Spring Creek downstream of the Upper Spring Creek R2Cross location; this area is near the upper termini of the Upper Spring Creek segment.

Photo 2. Spring Creek between the two R2Cross locations; this area is near the upper portion of the Lower Spring Creek segment.

Photo 3. Spring Creek near the USFS Campground near the end of the Lower Spring Creek segment.

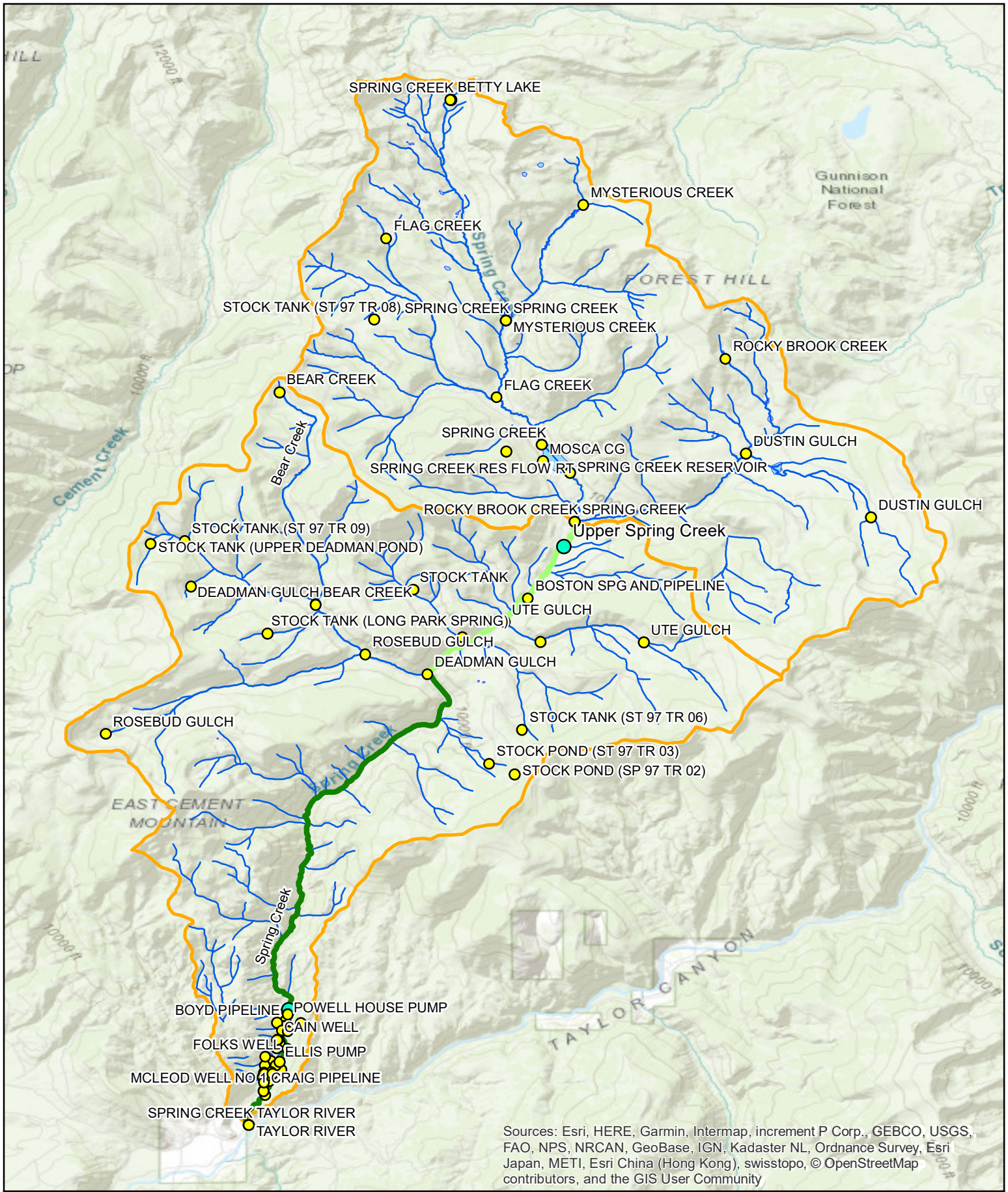
Relationship to Existing State Policy

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 – Spring Creek Watershed Map
B – Upper Spring Creek Map
C – Lower Spring Creek Map
D- Biological Data
E – R2Cross Analysis
F –StreamStats and Water Availability Analysis
G – USGS Topographic Quadrangle Maps

Attachment A- Spring Creek Watershed Map



Spring Creek Instream Flow Proposal
Gunnison County, Colorado

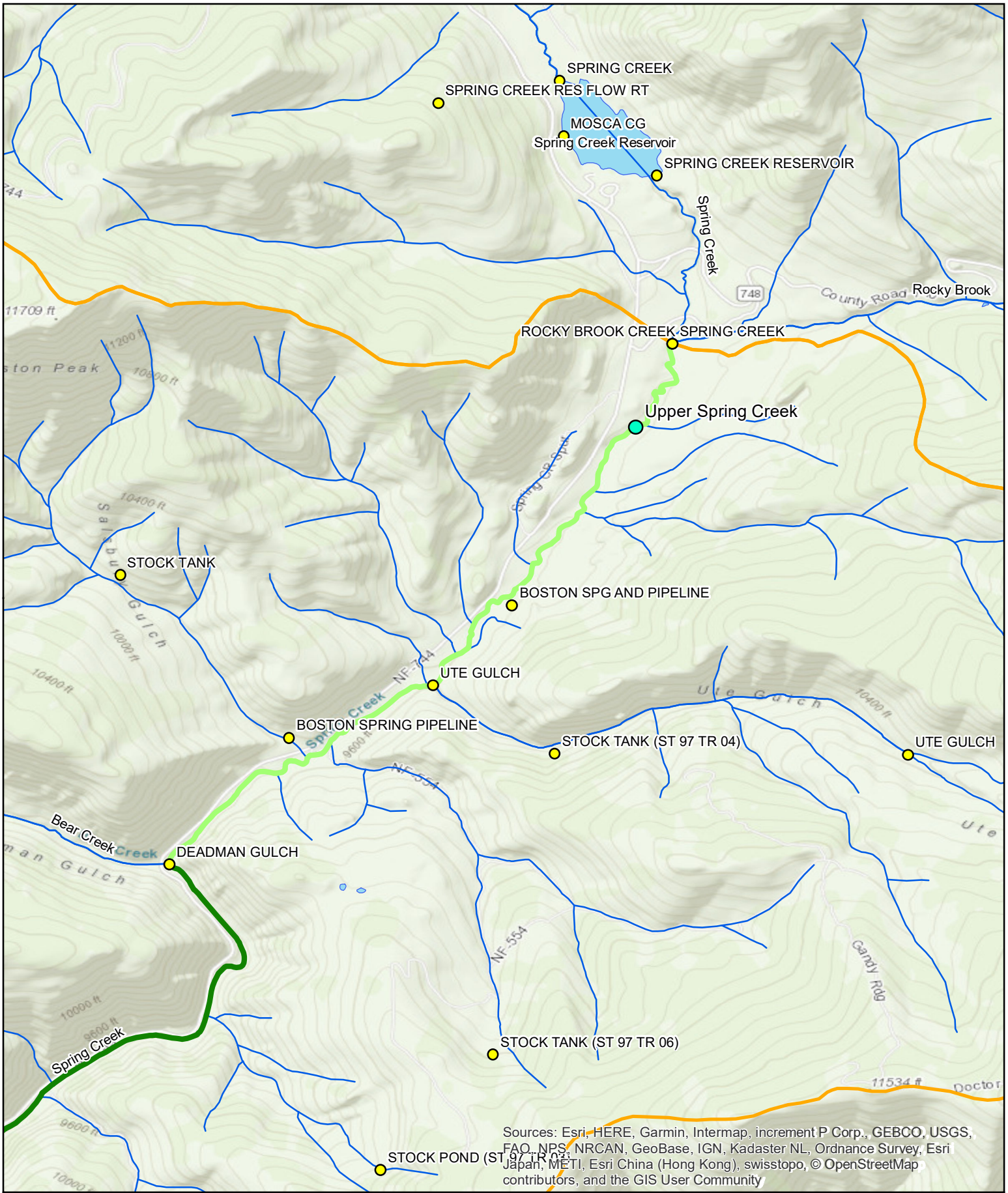
Map prepared for HCCA- Spring Creek ISF Proposal
Prepared by: Alpine Environmental Consultants LLC

Cross Sections
Diversion Structures
Lower Spring Creek ISF Reach
Upper Spring Creek ISF Reach
Spring Creek Watershed

Miles
0 0.5 1 2

N

Attachment B- Upper Spring Creek Map



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

Upper Spring Creek Segment Instream Flow Proposal Gunnison County, Colorado

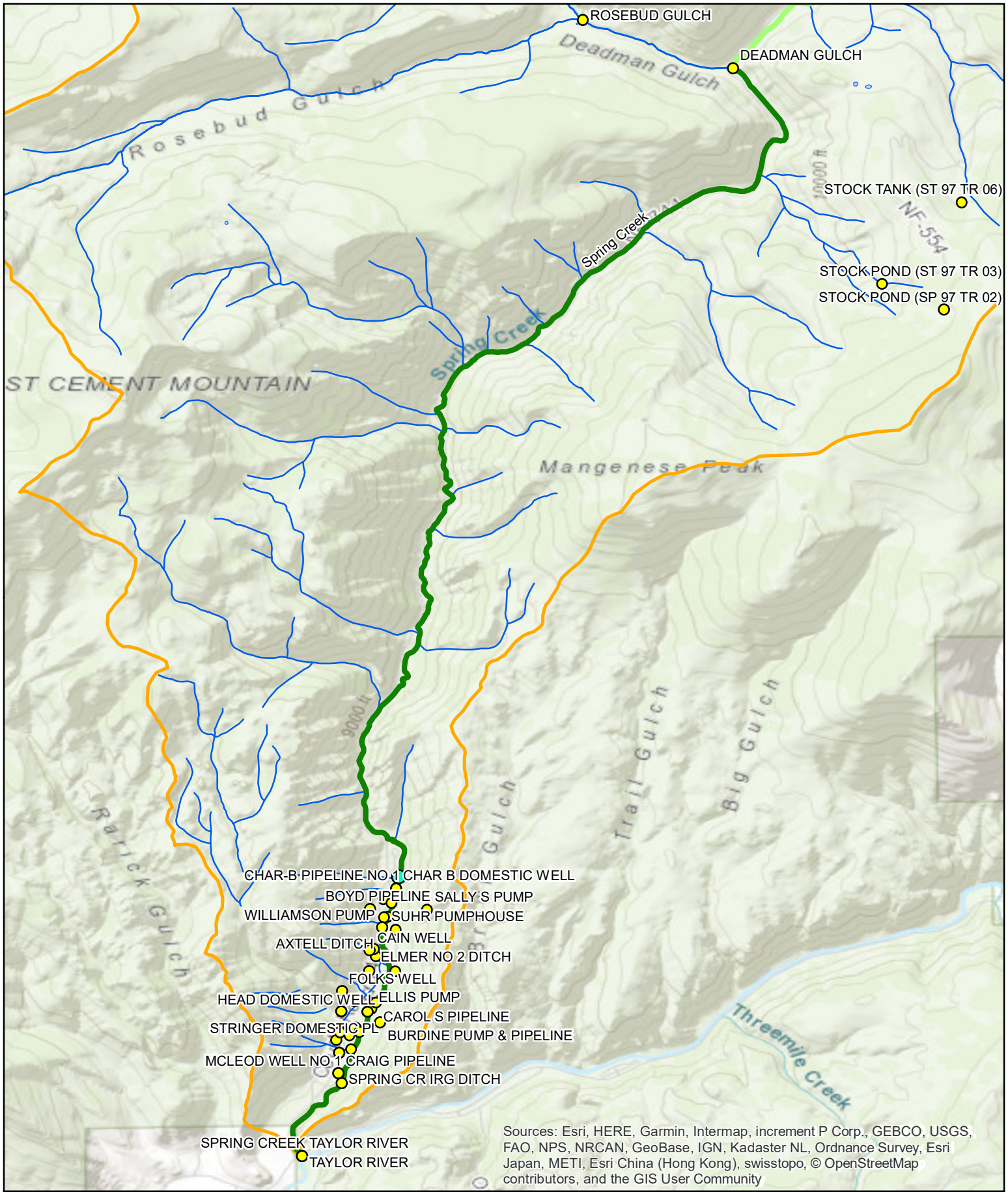
Map prepared for HCCA- Spring Creek ISF Proposal
Prepared by: Alpine Environmental Consultants LLC

Cross Sections
Diversion Structures
Lower Spring Creek ISF Reach
Upper Spring Creek ISF Reach
Spring Creek Watershed

Miles
0 0.15 0.3 0.6

N

Attachment C- Lower Spring Creek Map



Lower Spring Creek Segment Instream Flow Proposal Gunnison County, Colorado

Map prepared for HCCA- Spring Creek ISF Proposal
Prepared by: Alpine Environmental Consultants LLC

Cross Sections
Diversion Structures
Lower Spring Creek ISF Reach
Upper Spring Creek ISF Reach
Spring Creek Watershed

Miles
0 0.25 0.5 1

N

Attachment D- Biological Data

Requestee:	Julie Nania
Affiliation:	High Country Conservation Advocates
Appoved By:	
Conditions:	where County='Gunnison' and WaterName like '%Spring Cr%' and WaterType='Stream'; 3 records from private property were removed from dataset
Details:	all data in the database (except for 3 surveys on private property).
Date Extracted:	Thursday, September 13, 2018

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
2001	7543	Southwest	Gunnison River	Stream	43264	Spring Creek #2	5387	GU1361
2001	7543	Southwest	Gunnison River	Stream	43264	Spring Creek #2	5387	GU1361
1980	8591	Southwest	Gunnison River	Stream	43264	Spring Creek #2	5306	GU2015
2011	27468	Southwest	Gunnison River	Stream	43264	Spring Creek #2	33983	GU4143
2006	31499	Southwest	Gunnison River	Stream	43252	Spring Creek #1	11194	GU3136
2006	31499	Southwest	Gunnison River	Stream	43252	Spring Creek #1	11194	GU3136
2006	31631	Southwest	Gunnison River	Stream	43252	Spring Creek #1	11193	GU3135
2006	31631	Southwest	Gunnison River	Stream	43252	Spring Creek #1	11193	GU3135
2006	32388	Southwest	Gunnison River	Stream	43252	Spring Creek #1	11195	GU3137
2006	32388	Southwest	Gunnison River	Stream	43252	Spring Creek #1	11195	GU3137
1973	48244	Southwest	Gunnison River	Stream	43252	Spring Creek #1	11194	GU3136
1973	48244	Southwest	Gunnison River	Stream	43252	Spring Creek #1	11194	GU3136
1973	48244	Southwest	Gunnison River	Stream	43252	Spring Creek #1	11194	GU3136
1981	48245	Southwest	Gunnison River	Stream	43252	Spring Creek #1	11195	GU3137
1981	48245	Southwest	Gunnison River	Stream	43252	Spring Creek #1	11195	GU3137
1986	48246	Southwest	Gunnison River	Stream	43252	Spring Creek #1	11195	GU3137
1986	48246	Southwest	Gunnison River	Stream	43252	Spring Creek #1	11195	GU3137
2017	56707	Southwest	Gunnison River	Stream	43264	Spring Creek #2	33983	GU4143
2017	56707	Southwest	Gunnison River	Stream	43264	Spring Creek #2	33983	GU4143
2017	56707	Southwest	Gunnison River	Stream	43264	Spring Creek #2	33983	GU4143
1976	48842	Southwest	Gunnison River	Stream	37988	Spring Creek	32280	GU3653
1978	49036	Southwest	Gunnison River	Stream	38513	Spring Creek	32462	GU3741
1979	49867	Southwest	Gunnison River	Stream	38724	Spring Creek	32737	GU3869
1976	48297	Southwest	Gunnison River	Stream	41739	Mountain Spring Creek	31821	GU3464
1976	48427	Southwest	Gunnison River	Stream	48923	Spring Creek (Upper)	31922	GU3543

SiteName	Location	Elevation	Lat	Lon	UTMX	UTMY
@ CNFL W/ MYSTERIOUS CRK	ABV Mysterious Creek	10253	38.8935	-106.7210	350765	4306371
@ CNFL W/ MYSTERIOUS CRK	ABV Mysterious Creek	10253	38.8935	-106.7210	350765	4306371
@ SPRING CRK RESERVOIR	ABV Spring Creek Reservoir	9924	38.8673	-106.7130	351365	4303446
	600 M above conf. with Flag Creek	10076	38.8821	-106.7210	350746	4305105
At Spring Creek Campground	At Spring Creek Campground	8545	38.7505	-106.7670	346486	4290570
At Spring Creek Campground	At Spring Creek Campground	8545	38.7505	-106.7670	346486	4290570
200 M BLW Salsbury Gulch, BLW Reservoir	120 m BLW Spring Creek Reservoir	9876	38.8598	-106.7060	351985	4302601
200 M BLW Salsbury Gulch, BLW Reservoir	120 m BLW Spring Creek Reservoir	9876	38.8598	-106.7060	351985	4302601
200 M BLW Salsbury Gulch	200 M BLW Salsbury Gulch	9516	38.8244	-106.7300	349812	4298708
200 M BLW Salsbury Gulch	200 M BLW Salsbury Gulch	9516	38.8244	-106.7300	349812	4298708
At Spring Creek Campground	At Spring Creek Campground	8545	38.7505	-106.7670	346486	4290570
At Spring Creek Campground	At Spring Creek Campground	8545	38.7505	-106.7670	346486	4290570
At Spring Creek Campground	At Spring Creek Campground	8545	38.7505	-106.7670	346486	4290570
200 M BLW Salsbury Gulch	200 M BLW Salsbury Gulch	9516	38.8244	-106.7300	349812	4298708
200 M BLW Salsbury Gulch	200 M BLW Salsbury Gulch	9516	38.8244	-106.7300	349812	4298708
200 M BLW Salsbury Gulch	200 M BLW Salsbury Gulch	9516	38.8244	-106.7300	349812	4298708
200 M BLW Salsbury Gulch	200 M BLW Salsbury Gulch	9516	38.8244	-106.7300	349812	4298708
	600 M above conf. with Flag Creek	10076	38.8821	-106.7210	350746	4305105
	600 M above conf. with Flag Creek	10076	38.8821	-106.7210	350746	4305105
	600 M above conf. with Flag Creek	10076	38.8821	-106.7210	350746	4305105
---	JUST ABV CONFLUENCE W/ TOMICHI CK #3	9533	38.5328	-106.4010	377901	4265861
---	JUST ABV CONFLUENCE W/ N BAINARD CK	7881	39.1466	-107.4760	285992	4335967
---	JUST ABV CONFLUENCE W/ HOT SPRINGS CK	8947	38.5131	-106.5080	368568	4263823
---	JUST ABV CONFLUENCE W/ TOMICHI CK #3	8839	38.4824	-106.4190	376260	4260292
---	JUST ABV CONFLUENCE W/ EAST MUDDY CK	7155	39.1099	-107.4140	291300	4331742

HUC12	County	AreaBio	SampleDate	Survey_Purpose	Protocol	Gear
140200010110	GUNNISON	Dan Brauch	4-Sep-2001	---	TWO-PASS REMOVAL	NOT LISTED
140200010110	GUNNISON	Dan Brauch	4-Sep-2001	---	TWO-PASS REMOVAL	NOT LISTED
140200010110	GUNNISON	Dan Brauch	7-Aug-1980	Standard Survey or Population Estimate	PRESENCE/ABSENCE	BPEF
140200010110	GUNNISON	Dan Brauch	20-Oct-2011	---	TWO-PASS REMOVAL	NOT LISTED
140200010111	GUNNISON	Dan Brauch	6-Sep-2006	---	TWO-PASS REMOVAL	BKEF
140200010111	GUNNISON	Dan Brauch	6-Sep-2006	---	TWO-PASS REMOVAL	BKEF
140200010110	GUNNISON	Dan Brauch	6-Sep-2006	---	TWO-PASS REMOVAL	BKEF
140200010110	GUNNISON	Dan Brauch	6-Sep-2006	---	TWO-PASS REMOVAL	BKEF
140200010111	GUNNISON	Dan Brauch	6-Sep-2006	---	TWO-PASS REMOVAL	BKEF
140200010111	GUNNISON	Dan Brauch	6-Sep-2006	---	TWO-PASS REMOVAL	BKEF
140200010111	GUNNISON	Dan Brauch	24-Oct-1973	Standard Survey or Population Estimate	PRESENCE/ABSENCE	EF
140200010111	GUNNISON	Dan Brauch	24-Oct-1973	Standard Survey or Population Estimate	PRESENCE/ABSENCE	EF
140200010111	GUNNISON	Dan Brauch	24-Oct-1973	Standard Survey or Population Estimate	PRESENCE/ABSENCE	EF
140200010111	GUNNISON	Dan Brauch	16-Dec-1981	Standard Survey or Population Estimate	TWO-PASS REMOVAL	BKEF
140200010111	GUNNISON	Dan Brauch	16-Dec-1981	Standard Survey or Population Estimate	TWO-PASS REMOVAL	BKEF
140200010111	GUNNISON	Dan Brauch	16-Oct-1986	Standard Survey or Population Estimate	PRESENCE/ABSENCE	BKEF
140200010111	GUNNISON	Dan Brauch	16-Oct-1986	Standard Survey or Population Estimate	PRESENCE/ABSENCE	BKEF
140200010110	GUNNISON	Dan Brauch	30-Aug-2017	Standard Survey or Population Estimate	TWO-PASS REMOVAL	BPEF
140200010110	GUNNISON	Dan Brauch	30-Aug-2017	Standard Survey or Population Estimate	TWO-PASS REMOVAL	BPEF
140200010110	GUNNISON	Dan Brauch	30-Aug-2017	Standard Survey or Population Estimate	TWO-PASS REMOVAL	BPEF
140200030101	GUNNISON	Dan Brauch	12-Aug-1976	Standard Survey or Population Estimate	PRESENCE/ABSENCE	VISUAL
140200040201	GUNNISON	Eric Gardunio	31-Aug-1978	Standard Survey or Population Estimate	PRESENCE/ABSENCE	VISUAL
140200030404	GUNNISON	Dan Brauch	23-Aug-1979	Standard Survey or Population Estimate	PRESENCE/ABSENCE	VISUAL
140200030105	GUNNISON	Dan Brauch	12-Aug-1976	Standard Survey or Population Estimate	PRESENCE/ABSENCE	VISUAL
140200040204	GUNNISON	Eric Gardunio	13-Jul-1976	Standard Survey or Population Estimate	PRESENCE/ABSENCE	VISUAL

NumNets	NumPasses	NumAnglers	StationLength	StationAsMiles	StationAsKilometers	AvgWidth	StationAsAcres	StationAsHectares
---	2	---	500	0.094697	0.1524	8	0.091827	0.037161
---	2	---	500	0.094697	0.1524	8	0.091827	0.037161
---	---	---	250	0.047348	0.0762	6.5	0.037305	0.015097
---	2	---	308	0.058333	0.093878	12.2	0.086263	0.034909
---	2	---	340	0.064394	0.103632	30	0.23416	0.094761
---	2	---	340	0.064394	0.103632	30	0.23416	0.094761
---	2	---	380	0.07197	0.115824	10	0.087236	0.035303
---	2	---	380	0.07197	0.115824	10	0.087236	0.035303
---	2	---	540	0.102273	0.164592	22	0.272727	0.110369
---	2	---	540	0.102273	0.164592	22	0.272727	0.110369
---	---	---	1000	0.189394	0.3048	---	---	---
---	---	---	1000	0.189394	0.3048	---	---	---
---	---	---	1000	0.189394	0.3048	---	---	---
---	2	---	525	0.099432	0.16002	15	0.180785	0.073161
---	2	---	525	0.099432	0.16002	15	0.180785	0.073161
---	---	---	489	0.092614	0.149047	21.69	0.24349	0.098537
---	---	---	489	0.092614	0.149047	21.69	0.24349	0.098537
---	2	---	311	0.058902	0.094793	13.72	0.097955	0.039641
---	2	---	311	0.058902	0.094793	13.72	0.097955	0.039641
---	2	---	311	0.058902	0.094793	13.72	0.097955	0.039641
---	---	---	---	---	---	1	---	---
---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	1	---	---
---	---	---	---	---	---	3	---	---

TotalCatch	TotalWeight	ElecEffort	GillEffort	TrapEffort	SeinEffort	TotalEffort	EffortMetric	SpeciesID	SpeciesCode
42	1674	---	---	---	---	2	PASS	52	CRN
42	1674	---	---	---	---	2	PASS	123	LOC
2	---	0	0	0	---	0	Nets	123	LOC
75	5286	---	---	---	---	2	PASS	123	LOC
563	22152.96316	2	---	---	---	2	PASS	123	LOC
563	22152.96316	2	---	---	---	2	PASS	181	RBT
669	24998.31277	2	---	---	---	2	PASS	123	LOC
669	24998.31277	2	---	---	---	2	PASS	181	RBT
444	46295	2	---	---	---	2	PASS	123	LOC
444	46295	2	---	---	---	2	PASS	181	RBT
282	15588	---	---	---	---	1	PASS	123	LOC
282	15588	---	---	---	---	1	PASS	181	RBT
282	15588	---	---	---	---	1	PASS	312	QQQ
257	7271	2	---	---	---	2	PASS	123	LOC
257	7271	2	---	---	---	2	PASS	232	SRN
102	9507	---	---	---	---	1	PASS	123	LOC
102	9507	---	---	---	---	1	PASS	181	RBT
100	5577	---	---	---	---	2	PASS	52	CRN
100	5577	---	---	---	---	2	PASS	123	LOC
100	5577	---	---	---	---	2	PASS	181	RBT
0	---	---	---	---	---	1	PASS	---	XXX
0	---	---	---	---	---	1	PASS	---	XXX
0	---	---	---	---	---	1	PASS	---	XXX
0	---	---	---	---	---	1	PASS	---	XXX
0	---	---	---	---	---	1	PASS	---	XXX

CommonName	SpeciesMethod	SpeciesCatch	Threshold	NumBlwThreshold	PercentCatch	FirstCatch	SecondCatch
COLORADO RIVER CUTTHROAT	Seber Lecren	22	100	7	52.38	18	4
BROWN TROUT	Seber Lecren	20	120	13	47.62	18	2
BROWN TROUT	Counts	2	120	2	100	2	---
BROWN TROUT	Seber Lecren	75	120	17	100	66	9
BROWN TROUT	Seber Lecren	542	120	262	96.27	393	149
RAINBOW TROUT	Seber Lecren	21	200	2	3.73	19	2
BROWN TROUT	Seber Lecren	662	120	324	98.95	581	81
RAINBOW TROUT	Seber Lecren	7	200	2	1.05	6	1
BROWN TROUT	Seber Lecren	379	120	76	85.36	299	80
RAINBOW TROUT	Seber Lecren	65	200	2	14.64	63	2
BROWN TROUT	Counts	186	120	0	65.96	186	---
RAINBOW TROUT	Counts	2	200	0	0.71	2	---
Unidentified Fish/Generalized Grou	Counts	94	---	0	33.33	94	---
BROWN TROUT	Seber Lecren	255	120	136	99.22	141	114
SNAKE RIVER CUTTHROAT	Counts	2	150	0	0.78	1	1
BROWN TROUT	Counts	95	120	12	93.14	95	---
RAINBOW TROUT	Counts	7	200	1	6.86	7	---
COLORADO RIVER CUTTHROAT	Seber Lecren	6	100	0	6	5	1
BROWN TROUT	Seber Lecren	93	120	25	93	76	17
RAINBOW TROUT	Counts	1	200	1	1	1	---
No Fish Caught	Counts	0	---	0	---	---	---
No Fish Caught	Counts	0	---	0	---	---	---
No Fish Caught	Counts	0	---	0	---	---	---
No Fish Caught	Counts	0	---	0	---	---	---
No Fish Caught	Counts	0	---	0	---	---	---

ThirdCatch	AdditionalCatch	Marked	Recaptured	Captured	SpeciesWeight	Weighed	WeightCalcd	FirstWeight	SecondWeight
---	---	---	---	---	1180	15	0	1105	75
---	---	---	---	---	768	7	0	726	42
---	---	---	---	---	---	0	0	---	---
---	---	---	---	---	5314	58	0	5189	125
---	---	---	---	---	18875.96316	280	0	16117.9632	2758
---	---	---	---	---	3720	19	0	3425	295
---	---	---	---	---	24232.45995	338	0	23160.544	1071.915945
---	---	---	---	---	1452	5	0	1208	244
---	---	---	---	---	34165	303	0	29687	4478
---	---	---	---	---	12582	63	0	12244	338
---	---	---	---	---	15189	0	185	---	---
---	---	---	---	---	481	0	2	---	---
---	---	---	---	---	---	0	0	---	---
---	---	---	---	---	---	0	119	---	---
---	---	---	---	---	124	0	2	---	---
---	---	---	---	---	8798	0	83	---	---
---	---	---	---	---	709	0	6	---	---
---	---	---	---	---	531	6	0	449	82
---	---	---	---	---	5287	68	0	4530	757
---	---	---	---	---	6	0	0	6	---
---	---	---	---	---	---	0	0	---	---
---	---	---	---	---	---	0	0	---	---
---	---	---	---	---	---	0	0	---	---
---	---	---	---	---	---	0	0	---	---
---	---	---	---	---	---	0	0	---	---

ThirdWeight	MarkedWeight	RecapturedWeight	CapturedWeight	MeanWeight	WeightRange	AvgWr	Measured	MeanLength
---	---	---	---	75.67	20 - 225	121.5	22	147.09
---	---	---	---	77	43 - 183	111.86	20	125.6
---	---	---	---	---	---	---	2	90
---	---	---	---	91.14	20 - 250	96.34	75	175.36
---	---	---	---	66.38	15 - 392	90.96	542	124.13
---	---	---	---	187.74	96 - 320	82.57	21	258
---	---	---	---	69.88	14 - 1162	97.97	662	126.13
---	---	---	---	275.8	194 - 383	85.49	7	256.86
---	---	---	---	111.77	18 - 603	99.83	379	181.56
---	---	---	---	197.3	88 - 340	87.19	65	262.29
---	---	---	---	81.66	22 - 714	---	185	185.21
---	---	---	---	240.5	143 - 338	---	2	267
---	---	---	---	---	---	---	---	---
---	---	---	---	60.06	22 - 178	---	255	118.27
---	---	---	---	62	49 - 75	---	2	190.5
---	---	---	---	106	19 - 321	---	95	188.32
---	---	---	---	118.17	95 - 186	---	7	210
---	---	---	---	88.5	26 - 198	100.37	6	198.17
---	---	---	---	74.21	16 - 258	93.26	93	161.06
---	---	---	---	---	---	---	1	95
---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---

LengthRange	ProbabilityOfCapture	PopulationEstimate	POP_Variance	LOWER_POP_CI	UPPER_POP_CI	EstimatedSpeciesWeight
43 - 275	0.7778	23.1429	2.968763015	19.7658	26.52	2023
80 - 257	0.8889	20.25	0.395507813	19.0174	21.4826	1723
80 - 100	---	2	---	---	---	---
58 - 292	0.8636	76.4211	2.506886841	73.3178	79.5244	6585
45 - 347	0.6209	632.9877	524.3214424	588.1075	677.8679	32726
192 - 308	0.8947	21.2353	0.363070366	20.0543	22.4163	3255
50 - 453	0.8606	675.122	23.45850194	665.6289	684.6151	45321
132 - 335	0.8333	7.2	0.4032	5.9554	8.4446	1650
49 - 366	0.7324	408.2237	94.27251672	389.1933	427.2541	42289
193 - 312	0.9683	65.0656	0.074530684	64.5305	65.6007	11182
127 - 406	---	186	---	---	---	---
229 - 305	---	2	---	---	---	---
---	---	94	---	---	---	---
51 - 254	0.1915	736.3333	123974.6959	46.2165	1426.4501	---
178 - 203	0	2	---	---	---	---
50 - 310	---	95	---	---	---	---
190 - 250	---	7	---	---	---	---
138 - 274	0.8	6.25	0.5859375	4.7497	7.7503	533
85 - 297	0.7763	97.8983	12.81149848	90.8828	104.9138	6436
95 - 95	0	1	---	---	---	---
---	---	0	---	---	---	---
---	---	0	---	---	---	---
---	---	0	---	---	---	---
---	---	0	---	---	---	---
---	---	0	---	---	---	---

NumberPerAcre	PoundsPerAcre	NumberPerMile	PoundsPerMile	NumberPerHectare	kilogramsPerHectare	NumberPerkilometer
252.0272	48.5691	244.3889	47.0971	622.7739	54.4388	151.8563
220.5234	41.3665	213.8399	40.1128	544.9261	46.3658	132.874
53.6121	---	42.2404	---	132.4767	---	26.2467
885.9082	168.2928	1310.0835	248.8718	2189.1518	188.6333	814.047
2703.2273	308.1162	9829.9174	1120.4224	6679.8335	345.353	6108.0332
90.6871	30.6459	329.7714	111.4397	224.0932	34.3496	204.9106
7739.0298	1145.3494	9380.603	1388.2965	19123.6439	1283.7719	5828.861
82.5347	41.6987	100.0417	50.5437	203.9487	46.7382	62.1633
1496.8217	341.8484	3991.51	911.5924	3698.717	383.1601	2480.2159
238.5741	90.3911	636.1953	241.042	589.5279	101.3147	395.3145
---	---	982.0797	176.8033	---	---	610.2362
---	---	10.56	---	---	---	6.5617
---	---	496.3198	---	---	---	308.399
4072.9778	---	7405.3956	---	10064.5604	---	4601.5079
11.0629	---	20.1142	---	27.337	---	12.4984
390.1598	---	1025.7628	---	964.1049	---	637.3828
28.7486	---	75.5825	---	71.0393	---	46.9651
63.8048	11.996	106.1085	19.9495	157.665	13.4457	65.9331
999.4212	144.8517	1662.0539	240.8908	2469.6224	162.3572	1032.7587
10.2088	---	16.9774	---	25.2264	---	10.5493
---	---	---	---	---	---	---
---	---	---	---	---	---	---
---	---	---	---	---	---	---
---	---	---	---	---	---	---
---	---	---	---	---	---	---

kilogramsPerkilometer	CPUE	WPUE	PSD	SRSD	QRSD	PRSD	MRSD	TRSD	DataSource	SciColl
13.2743	---	---	00:00.0	100	---	---	---	---	Species Conservation	---
11.3058	---	---	04:48.0	83.33	16.67	---	---	---	Species Conservation	---
---	---	---	---	---	---	---	---	---	Species Conservation	---
70.1442	---	---	43:12.0	74.47	25.53	---	---	---	Species Conservation	11AQ0950
315.7905	---	---	28:48.0	70.73	25.61	3-Jan-00	---	---	Species Conservation	---
31.4092	---	---	00:00.0	100	---	---	---	---	Species Conservation	---
391.292	---	---	09:36.0	73.16	25.26	1-Jan-00	0.53	---	Species Conservation	---
14.2458	---	---	00:00.0	100	---	---	---	---	Species Conservation	---
256.9323	---	---	16:48.0	62.03	35.34	2-Jan-00	---	---	Species Conservation	---
67.9377	---	---	00:00.0	100	---	---	---	---	Species Conservation	---
49.8319	---	---	50:24.0	88.34	9.82	1-Jan-00	0.61	---	Species Conservation	---
---	---	---	00:00.0	100	---	---	---	---	Species Conservation	---
---	---	---	---	---	---	---	---	---	Species Conservation	---
---	---	---	57:36.0	92.21	7.79	---	---	---	Species Conservation	---
---	---	---	00:00.0	100	---	---	---	---	Species Conservation	---
---	---	---	02:24.0	65.79	#####	1-Jan-00	---	---	Species Conservation	---
---	---	---	00:00.0	100	---	---	---	---	Species Conservation	---
5.6228	---	---	00:00.0	100	---	---	---	---	Southwest Region Fisheries Mar	brauchd
67.8953	---	---	50:24.0	79.59	20.41	---	---	---	Southwest Region Fisheries Mar	brauchd
---	---	---	---	---	---	---	---	---	Southwest Region Fisheries Mar	brauchd
---	---	---	---	---	---	---	---	---	Species Conservation	---
---	---	---	---	---	---	---	---	---	Species Conservation	---
---	---	---	---	---	---	---	---	---	Species Conservation	---
---	---	---	---	---	---	---	---	---	Species Conservation	---
---	---	---	---	---	---	---	---	---	Species Conservation	---

Surveyors

BRAUCH, HEDEAN
BRAUCH, HEDEAN
COHEN, ALLEN
M Dare, M Carrillo, M Tracy, D Swift
Thompson, Brauch et al.
Thompson, Brauch et al.
Thompson, Brauch, et. al.
Thompson, Brauch, et. al.
Thompson, Brauch, et. al.
Thompson, Brauch, et. al.
SHERMAN
SHERMAN
SHERMAN
HENRY, WEILER, TRAINEES, USFS EMPLOYEES
HENRY, WEILER, TRAINEES, USFS EMPLOYEES
KEHMEIER, HENRY, SHIRLEY, McCLELLAND, BERRY
KEHMEIER, HENRY, SHIRLEY, McCLELLAND, BERRY
Brauch, Samuelson, Foster
Brauch, Samuelson, Foster
Brauch, Samuelson, Foster
SMITH, WEILER
SMITH, WEILER
WEILER
SMITH, WEILER
SMITH, WEILER

Comments

CRN have spots on head; CRN; 20 CRN caudal fin clips taken for genetic analysis
CRN have spots on head; CRN; 20 CRN caudal fin clips taken for genetic analysis
SAW SEVERAL FISH THAT WERE NOT NETTED.
No notes recorded
4 electrodes
4 electrodes
SR GPP 2.5, 3 electrodes
SR GPP 2.5, 3 electrodes
SR GPP 2.5, 4 electrodes
SR GPP 2.5, 4 electrodes
QQQ = FISH TAKEN BUT NOT MEASURED. ONLY LISTED AS "FISH" NO MORE SPECIFIC SPECIES INFO.
QQQ = FISH TAKEN BUT NOT MEASURED. ONLY LISTED AS "FISH" NO MORE SPECIFIC SPECIES INFO.
QQQ = FISH TAKEN BUT NOT MEASURED. ONLY LISTED AS "FISH" NO MORE SPECIFIC SPECIES INFO.

Part of statewide BKD sampling
Part of statewide BKD sampling
Part of statewide BKD sampling
NO FISH SAMPLING, WATER QUALITY ONLY. FLOW < 0.1 cfs.
DRY AT TIME OF SURVEY.
DRY AT TIME OF SURVEY.
NO FISH SAMPLING, WATER QUALITY ONLY. FLOW < 0.1 cfs.
NO FISH SAMPLING, WATER QUALITY ONLY. WATER DIVERTED 1.6 MILES FROM CONFLUENCE WITH EAST MUDDY CREEK. WCO REPORTS BRK IN BEAVER

TableLastUpdated
4-Sep-2018
4-Sep-2018
4-Sep-2018
4-Sep-2018
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4-Sep-2018

Attachment E- R2CROSS Analysis

R2Cross RESULTS

Stream Name: Spring Creek
Stream Locations: Spring Creek downstream of reservoir
Fieldwork Date: 09/28/2018
Cross-section: upper
Observers: JN, AJB
Coordinate System: UTM Zone 13
X (easting): 351755
Y (northing): 4301038
Date Processed: 11/26/2019
Slope: 0.0094
Computation method: Manning's n
R2Cross data filename: Upper Spring Creek 9-28-18 R2CROSS Standard erams input.xlsx
R2Cross version: 1.0.10

LOCATION

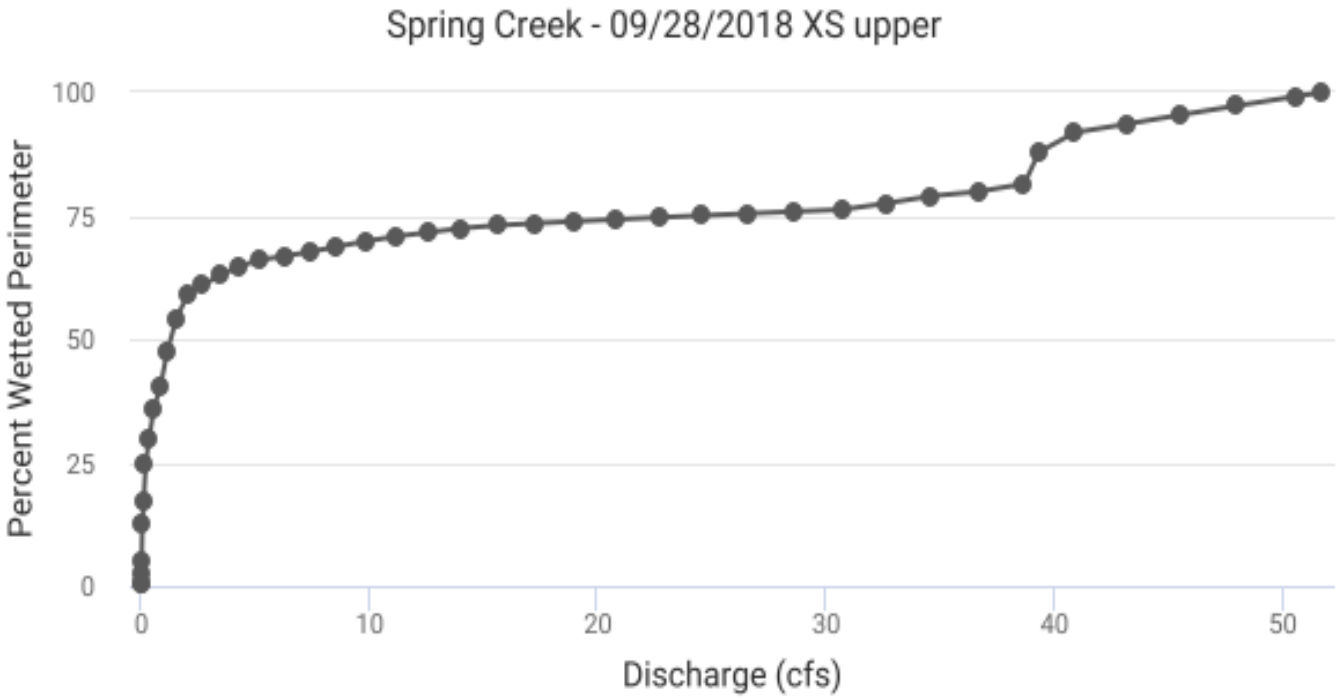
ANALYSIS RESULTS

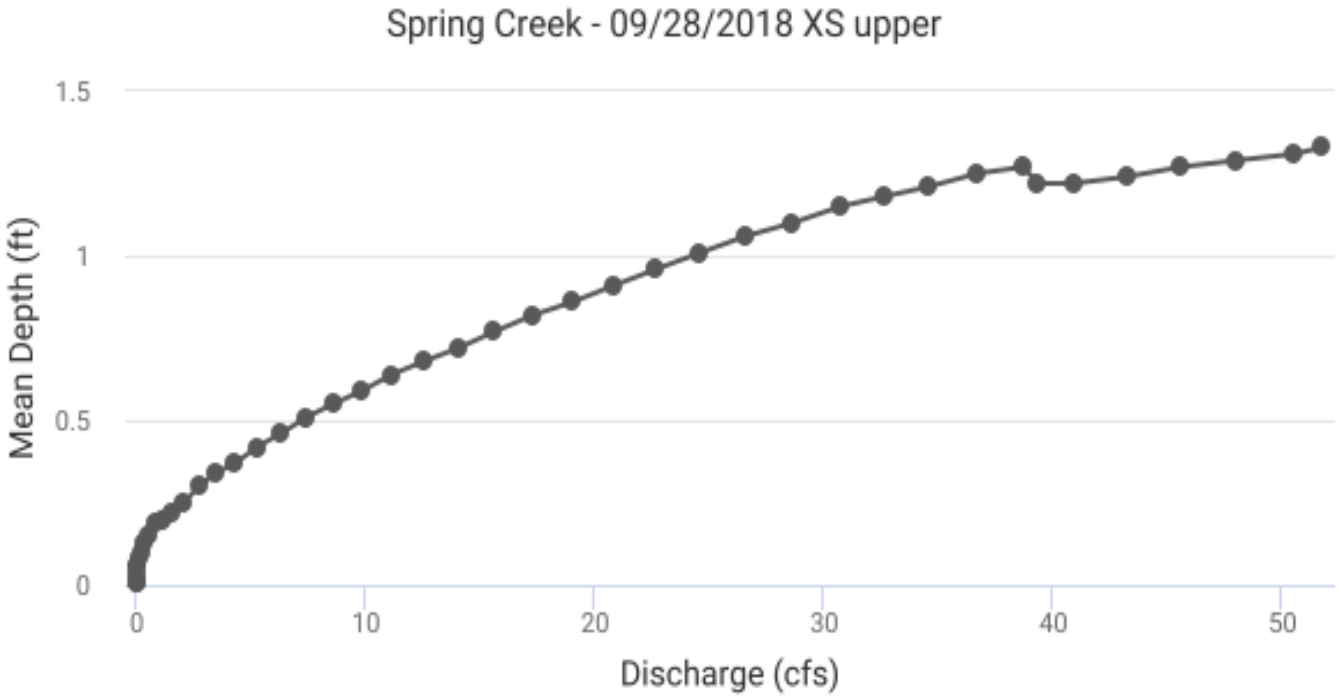
Habitat Criteria Results

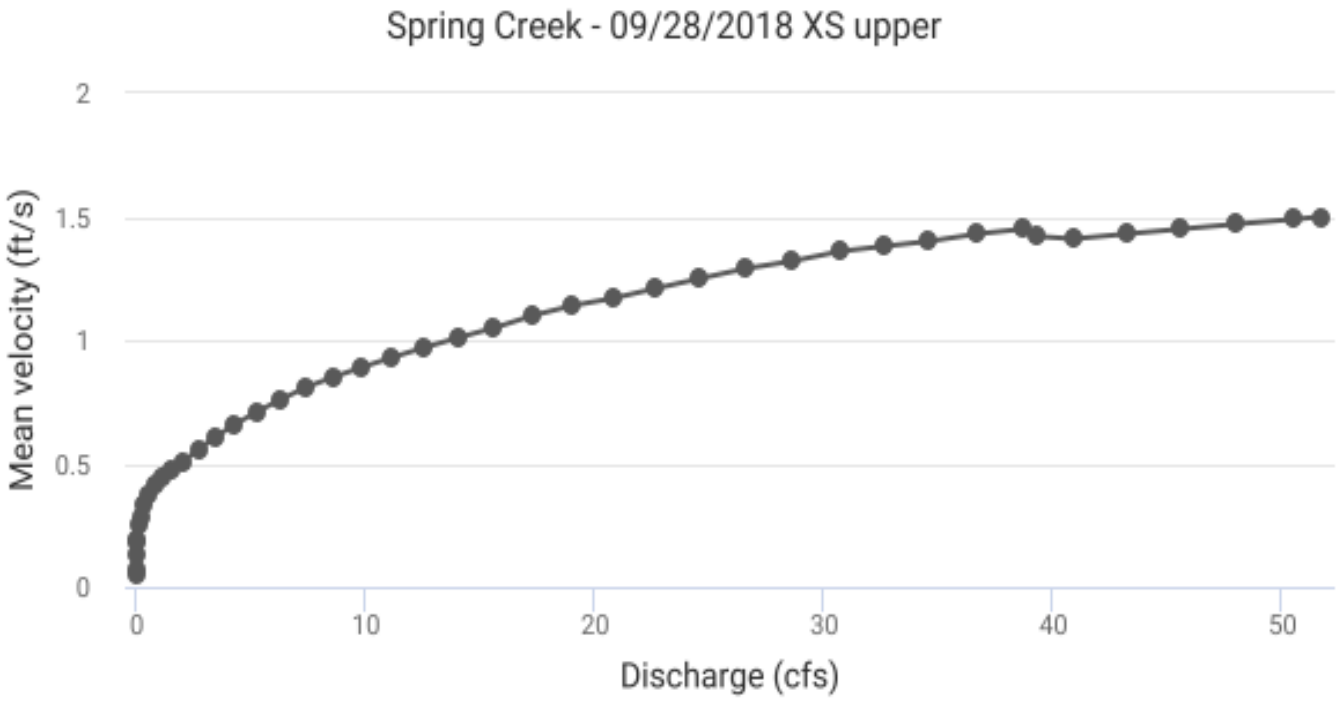
Bankfull top width (ft) = 26.0

	Habitat Criteria	Discharge (cfs) Meeting Criteria
Mean Depth (ft) **	0.26	2.15
Percent Wetted Perimeter (%) **	50.0	1.28
Mean Velocity (ft/s)	1.0	13.54

**Values highlighted in yellow indicate that the discharge is less than 40% of measured Q or greater than 250% of measured Q.




Spring Creek - 09/28/2018 XS upper
Mean Depth (ft)
1.5
1
0.5
0
0
10
20
30
40
50
Discharge (cfs)


Spring Creek - 09/28/2018 XS upper
Mean velocity (ft/s)
2
1.5
1
0.5
0
0
10
20
30
40
50
Discharge (cfs)

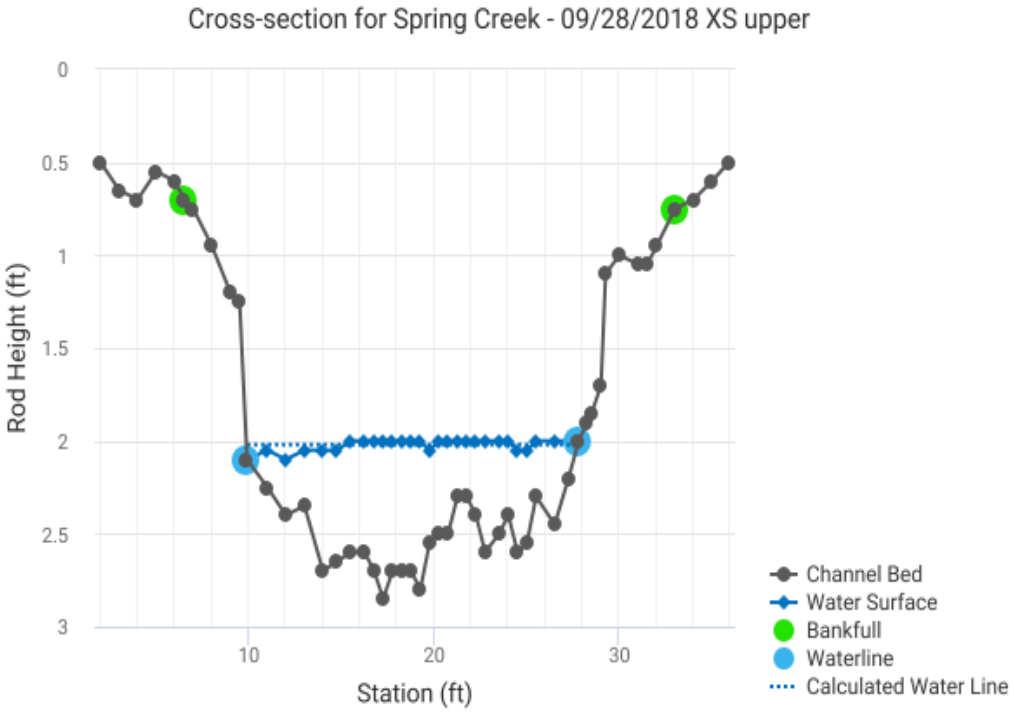
STAGING TABLE

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	0.75	26.0	1.33	2.1	34.48	27.57	100.00%	1.25	1.5	51.76
	0.77	25.77	1.31	2.08	33.88	27.33	99.14%	1.24	1.49	50.56
	0.82	25.27	1.29	2.03	32.61	26.82	97.29%	1.22	1.47	48.02
	0.87	24.77	1.27	1.98	31.35	26.31	95.44%	1.19	1.45	45.57
	0.92	24.27	1.24	1.93	30.13	25.8	93.59%	1.17	1.43	43.2
	0.97	23.79	1.22	1.88	28.93	25.32	91.83%	1.14	1.41	40.88
	1.02	22.7	1.22	1.83	27.76	24.21	87.83%	1.15	1.42	39.31
	1.07	20.96	1.27	1.78	26.67	22.46	81.45%	1.19	1.45	38.68
	1.12	20.55	1.25	1.73	25.64	22.02	79.88%	1.16	1.43	36.68
	1.17	20.33	1.21	1.68	24.61	21.76	78.94%	1.13	1.4	34.55
	1.22	19.97	1.18	1.63	23.61	21.36	77.49%	1.1	1.38	32.62
	1.27	19.67	1.15	1.58	22.62	21.02	76.23%	1.08	1.36	30.72
	1.32	19.62	1.1	1.53	21.64	20.91	75.83%	1.03	1.32	28.62
	1.37	19.58	1.06	1.48	20.66	20.8	75.43%	0.99	1.29	26.59
	1.42	19.53	1.01	1.43	19.68	20.69	75.04%	0.95	1.25	24.61
	1.47	19.49	0.96	1.38	18.7	20.58	74.64%	0.91	1.21	22.69
	1.52	19.45	0.91	1.33	17.73	20.47	74.24%	0.87	1.17	20.83
	1.57	19.4	0.86	1.28	16.76	20.36	73.85%	0.82	1.14	19.03
	1.62	19.36	0.82	1.23	15.79	20.25	73.45%	0.78	1.1	17.3
	1.67	19.31	0.77	1.18	14.82	20.14	73.05%	0.74	1.05	15.62
	1.72	19.2	0.72	1.13	13.86	19.97	72.45%	0.69	1.01	14.04
	1.77	19.01	0.68	1.08	12.9	19.75	71.62%	0.65	0.97	12.56
	1.82	18.82	0.64	1.03	11.96	19.52	70.79%	0.61	0.93	11.15
	1.87	18.59	0.59	0.98	11.02	19.25	69.82%	0.57	0.89	9.83
	1.92	18.33	0.55	0.93	10.1	18.95	68.74%	0.53	0.85	8.58

	1.97	18.08	0.51	0.88	9.19	18.66	67.70%	0.49	0.81	7.41
Waterline	2.02	17.87	0.46	0.83	8.29	18.42	66.81%	0.45	0.76	6.3
	2.07	17.71	0.42	0.78	7.4	18.22	66.08%	0.41	0.71	5.25
	2.12	17.39	0.37	0.73	6.52	17.87	64.81%	0.36	0.66	4.31
	2.17	16.89	0.34	0.68	5.66	17.35	62.94%	0.33	0.61	3.47
	2.22	16.38	0.3	0.63	4.83	16.83	61.05%	0.29	0.56	2.72
	2.27	15.88	0.25	0.58	4.03	16.32	59.19%	0.25	0.51	2.05
	2.32	14.52	0.22	0.53	3.26	14.93	54.17%	0.22	0.47	1.53
	2.37	12.69	0.2	0.48	2.57	13.06	47.39%	0.2	0.44	1.13
	2.42	10.76	0.19	0.43	1.99	11.07	40.17%	0.18	0.41	0.82
	2.47	9.64	0.15	0.38	1.49	9.89	35.86%	0.15	0.37	0.54
	2.52	8.04	0.13	0.33	1.04	8.24	29.88%	0.13	0.33	0.34
	2.57	6.67	0.1	0.28	0.67	6.82	24.75%	0.1	0.28	0.19
	2.62	4.61	0.08	0.23	0.39	4.73	17.15%	0.08	0.25	0.1
	2.67	3.37	0.06	0.18	0.19	3.46	12.54%	0.06	0.19	0.04
	2.72	1.38	0.05	0.13	0.07	1.45	5.24%	0.05	0.18	0.01
	2.77	0.7	0.03	0.08	0.02	0.73	2.65%	0.03	0.13	0.0
	2.82	0.18	0.01	0.03	0.0	0.19	0.68%	0.01	0.07	0.0
	2.83	0.1	0.01	0.02	0.0	0.1	0.38%	0.01	0.05	0.0

MODEL SUMMARY

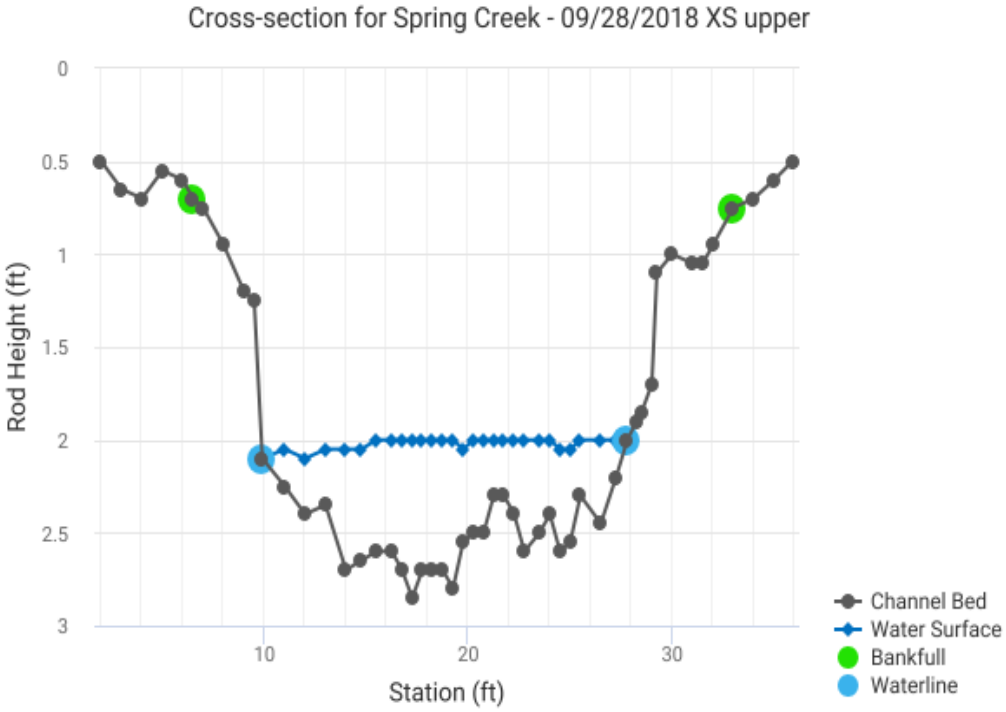
Measured Flow (Qm) =	6.3
Calculated Flow (Qc) =	6.3
(Qm-Qc)/Qm * 100 =	0.06%
Measured Waterline (WLm) =	2.05
Calculated Waterline (WLc) =	2.02
(WLm-WLc)/WLm * 100 =	1.31%
Max Measured Depth (Dm) =	0.85
Max Calculated Depth (Dc) =	0.83
(Dm-Dc)/Dm * 100 =	2.73%
Mean Velocity =	0.76
Manning's n =	0.111
0.4 * Qm =	2.52
2.5 * Qm =	15.75



FIELD DATA

Feature	Station (ft)	Rod Height (ft)	Water depth (ft)	Velocity (ft/s)
	2	0.5	0	0
	3	0.65	0	0
	4	0.7	0	0
	5	0.55	0	0
	6	0.6	0	0
Bankfull	6.5	0.7	0	0
	7	0.75	0	0
	8	0.95	0	0
	9	1.2	0	0
	9.5	1.25	0	0
Waterline	9.9	2.1	0	0
	11	2.25	0.2	0.13
	12	2.4	0.3	0.09
	13	2.35	0.3	0.28
	14	2.7	0.65	0.49
	14.75	2.65	0.6	0.63
	15.5	2.6	0.6	0.47
	16.25	2.6	0.6	1.05
	16.75	2.7	0.7	0.67
	17.25	2.85	0.85	1.18
	17.75	2.7	0.7	1.37
	18.25	2.7	0.7	1.15
	18.75	2.7	0.7	1.24
	19.25	2.8	0.8	0.71
	19.75	2.55	0.5	1
	20.25	2.5	0.5	1.18
	20.75	2.5	0.5	1.04
	21.25	2.3	0.3	0.98
	21.75	2.3	0.3	0.84
	22.25	2.4	0.4	0.76

	22.75	2.6	0.6	0.61
	23.5	2.5	0.5	1.13
	24	2.4	0.4	1.52
	24.5	2.6	0.55	0.56
	25	2.55	0.5	0.95
	25.5	2.3	0.3	0.49
	26.5	2.45	0.45	0.01
	27.25	2.2	0.2	0.28
Waterline	27.8	2	0	0
	28.25	1.9	0	0
	28.5	1.85	0	0
	29	1.7	0	0
	29.25	1.1	0	0
	30	1	0	0
	31	1.05	0	0
	31.5	1.05	0	0
	32	0.95	0	0
Bankfull	33	0.75	0	0
	34	0.7	0	0
	35	0.6	0	0
	35.9	0.5	0	0


Cross-section for Spring Creek - 09/28/2018 XS upper
Rod Height (ft)
0
0.5
1
1.5
2
2.5
3
10
20
30
Station (ft)
Channel Bed
Water Surface
Bankfull
Waterline

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	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1.11	0.2	0.21	0.03	0.43
1.01	0.3	0.3	0.03	0.43
1	0.3	0.3	0.08	1.33
1.06	0.65	0.57	0.28	4.42
0.75	0.6	0.45	0.28	4.5
0.75	0.6	0.45	0.21	3.36
0.75	0.6	0.38	0.39	6.25
0.51	0.7	0.35	0.23	3.72
0.52	0.85	0.42	0.5	7.96
0.52	0.7	0.35	0.48	7.61
0.5	0.7	0.35	0.4	6.39
0.5	0.7	0.35	0.43	6.89
0.51	0.8	0.4	0.28	4.51
0.56	0.5	0.25	0.25	3.97
0.5	0.5	0.25	0.29	4.68
0.5	0.5	0.25	0.26	4.13
0.54	0.3	0.15	0.15	2.33
0.5	0.3	0.15	0.13	2
0.51	0.4	0.2	0.15	2.41

0.54	0.6	0.38	0.23	3.63
0.76	0.5	0.31	0.35	5.61
0.51	0.4	0.2	0.3	4.83
0.54	0.55	0.28	0.15	2.44
0.5	0.5	0.25	0.24	3.77
0.56	0.3	0.23	0.11	1.75
1.01	0.45	0.39	0	0.06
0.79	0.2	0.13	0.04	0.58
0.59	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
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.

R2Cross RESULTS

Stream Name: Lower Spring Creek
Stream Locations: Spring Creek at Campground
Fieldwork Date: 09/28/2018
Cross-section: Lower
Observers: AJB, JN
Coordinate System: UTM Zone 13
X (easting): 346489
Y (northing): 4290199
Date Processed: 11/26/2019
Slope: 0.0156
Computation method: Manning's n
R2Cross data filename: Lower Spring Creek 9-28-18 Standard R2CROSS erams input.xlsx
R2Cross version: 1.0.10

LOCATION

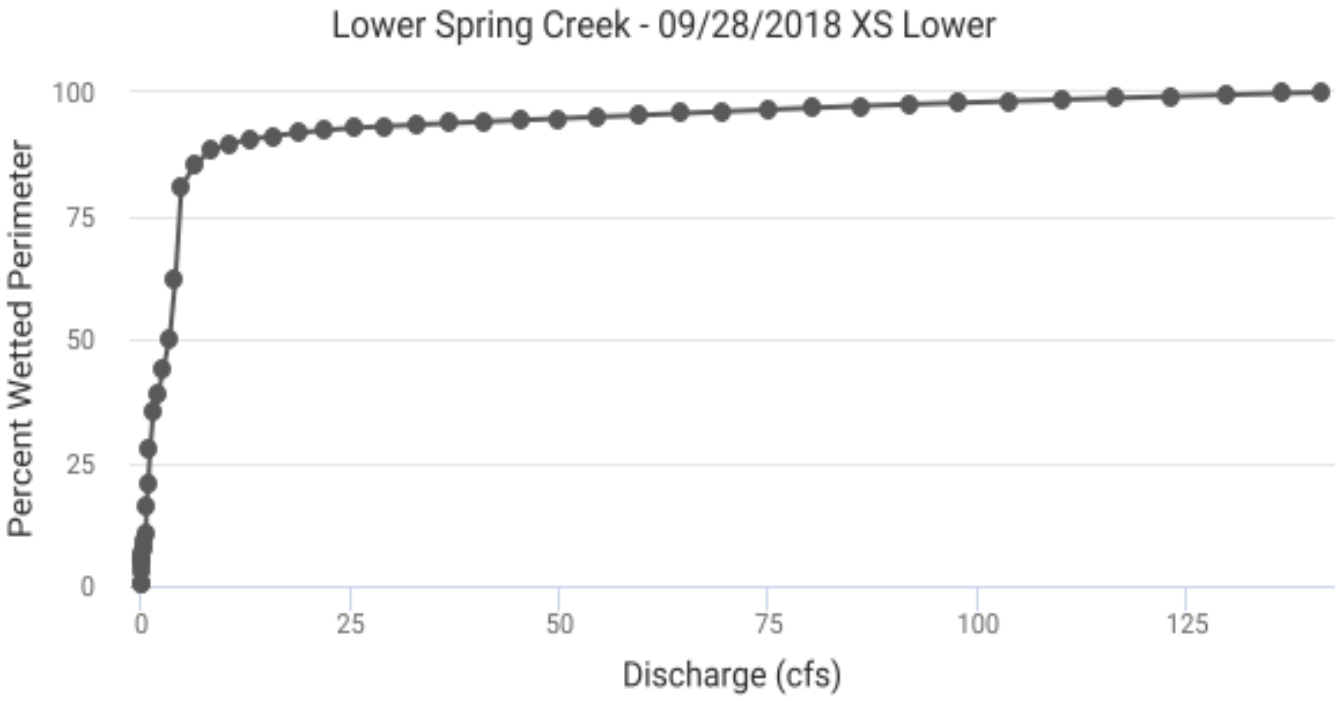
ANALYSIS RESULTS

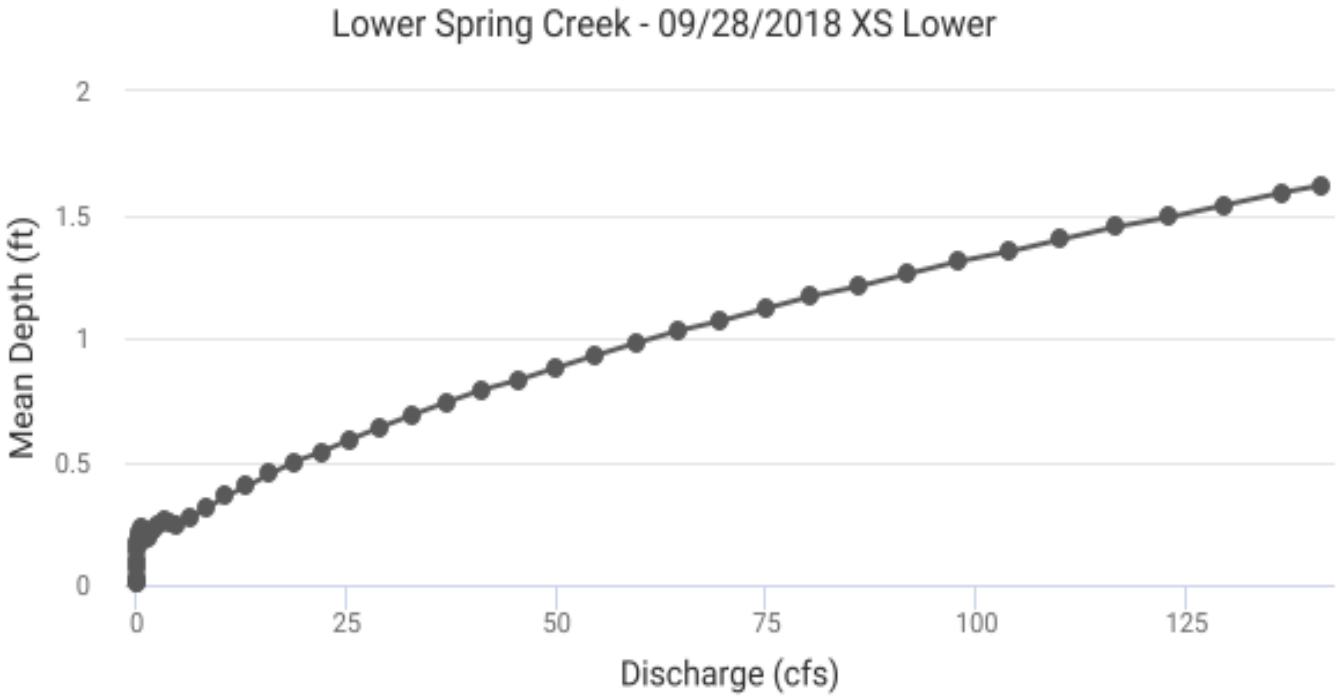
Habitat Criteria Results

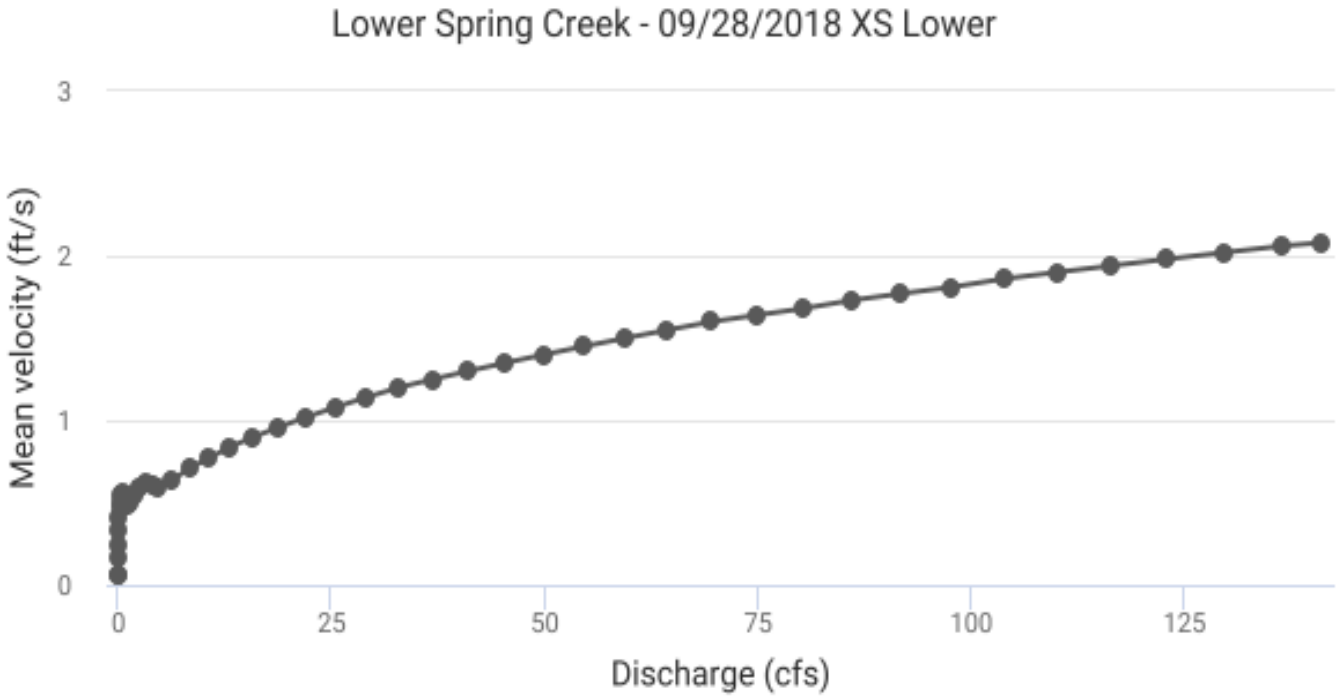
Bankfull top width (ft) = 41.92

	Habitat Criteria	Discharge (cfs) Meeting Criteria
Mean Depth (ft)	0.42	14.13
Percent Wetted Perimeter (%) **	50.53	3.15
Mean Velocity (ft/s)	1.0	20.81

**Values highlighted in yellow indicate that the discharge is less than 40% of measured Q or greater than 250% of measured Q.




Lower Spring Creek - 09/28/2018 XS Lower
Mean Depth (ft)
2
1.5
1
0.5
0
0
25
50
75
100
125
Discharge (cfs)


Lower Spring Creek - 09/28/2018 XS Lower
Mean velocity (ft/s)
3
2
1
0
0
25
50
75
100
125
Discharge (cfs)

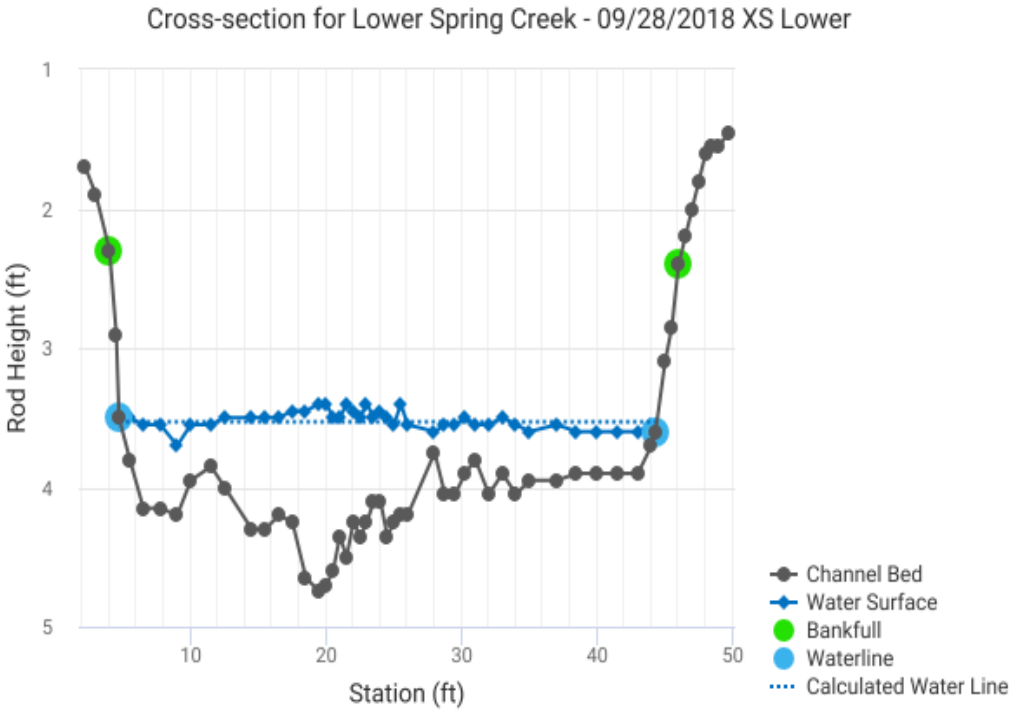
STAGING TABLE

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	2.4	41.92	1.62	2.35	67.79	43.74	100.00%	1.55	2.08	141.22
	2.43	41.85	1.59	2.32	66.36	43.64	99.78%	1.52	2.06	136.49
	2.48	41.75	1.54	2.27	64.27	43.5	99.46%	1.48	2.02	129.68
	2.53	41.66	1.49	2.22	62.19	43.36	99.14%	1.43	1.98	123.01
	2.58	41.56	1.45	2.17	60.11	43.22	98.82%	1.39	1.94	116.48
	2.63	41.46	1.4	2.12	58.03	43.08	98.50%	1.35	1.9	110.09
	2.68	41.36	1.35	2.07	55.96	42.94	98.18%	1.3	1.86	103.85
	2.73	41.27	1.31	2.02	53.9	42.8	97.86%	1.26	1.81	97.75
	2.78	41.17	1.26	1.97	51.83	42.66	97.54%	1.22	1.77	91.8
	2.83	41.07	1.21	1.92	49.78	42.52	97.22%	1.17	1.73	86.0
	2.88	40.94	1.17	1.87	47.73	42.36	96.85%	1.13	1.68	80.38
	2.93	40.82	1.12	1.82	45.68	42.19	96.46%	1.08	1.64	74.93
	2.98	40.7	1.07	1.77	43.65	42.02	96.09%	1.04	1.6	69.62
	3.03	40.59	1.03	1.72	41.61	41.86	95.71%	0.99	1.55	64.47
	3.08	40.47	0.98	1.67	39.59	41.69	95.33%	0.95	1.5	59.48
	3.13	40.37	0.93	1.62	37.57	41.55	95.00%	0.9	1.45	54.63
	3.18	40.29	0.88	1.57	35.55	41.41	94.68%	0.86	1.4	49.94
	3.23	40.2	0.83	1.52	33.54	41.27	94.36%	0.81	1.35	45.42
	3.28	40.11	0.79	1.47	31.53	41.13	94.05%	0.77	1.3	41.07
	3.33	40.03	0.74	1.42	29.53	40.99	93.73%	0.72	1.25	36.9
	3.38	39.94	0.69	1.37	27.53	40.85	93.41%	0.67	1.2	32.9
	3.43	39.85	0.64	1.32	25.53	40.72	93.09%	0.63	1.14	29.09
	3.48	39.77	0.59	1.27	23.54	40.58	92.78%	0.58	1.08	25.47
Waterline	3.53	39.6	0.54	1.22	21.56	40.38	92.32%	0.53	1.02	22.06
	3.58	39.4	0.5	1.17	19.58	40.15	91.80%	0.49	0.96	18.87

	3.63	39.14	0.45	1.12	17.62	39.87	91.16%	0.44	0.9	15.9
	3.68	38.86	0.4	1.07	15.67	39.57	90.48%	0.4	0.84	13.14
	3.73	38.51	0.36	1.02	13.73	39.2	89.64%	0.35	0.77	10.61
	3.78	37.88	0.31	0.97	11.82	38.56	88.16%	0.31	0.71	8.36
	3.83	36.76	0.27	0.92	9.95	37.39	85.50%	0.27	0.64	6.4
	3.88	34.7	0.24	0.87	8.16	35.3	80.71%	0.23	0.59	4.78
	3.93	26.58	0.25	0.82	6.66	27.13	62.03%	0.25	0.61	4.06
	3.98	21.45	0.26	0.77	5.48	21.95	50.18%	0.25	0.62	3.38
	4.03	18.81	0.24	0.72	4.48	19.25	44.02%	0.23	0.59	2.63
	4.08	16.61	0.22	0.67	3.61	17.02	38.90%	0.21	0.55	2.0
	4.13	15.03	0.19	0.62	2.82	15.4	35.21%	0.18	0.5	1.42
	4.18	11.86	0.18	0.57	2.16	12.19	27.87%	0.18	0.49	1.06
	4.23	8.86	0.19	0.52	1.64	9.16	20.95%	0.18	0.49	0.81
	4.28	6.73	0.19	0.47	1.25	6.99	15.98%	0.18	0.49	0.62
	4.33	4.39	0.23	0.42	0.99	4.6	10.51%	0.22	0.56	0.55
	4.38	3.71	0.21	0.37	0.79	3.88	8.87%	0.2	0.54	0.43
	4.43	3.22	0.19	0.32	0.62	3.35	7.65%	0.18	0.5	0.31
	4.48	2.73	0.17	0.27	0.47	2.81	6.43%	0.17	0.47	0.22
	4.53	2.42	0.14	0.22	0.34	2.48	5.66%	0.14	0.41	0.14
	4.58	2.2	0.1	0.17	0.22	2.23	5.10%	0.1	0.34	0.08
	4.63	1.87	0.07	0.12	0.12	1.89	4.31%	0.06	0.25	0.03
	4.68	1.24	0.03	0.07	0.04	1.25	2.85%	0.03	0.16	0.01
	4.73	0.32	0.01	0.02	0.0	0.32	0.73%	0.01	0.06	0.0
	4.74	0.3	0.01	0.01	0.0	0.3	0.69%	0.01	0.06	0.0

MODEL SUMMARY

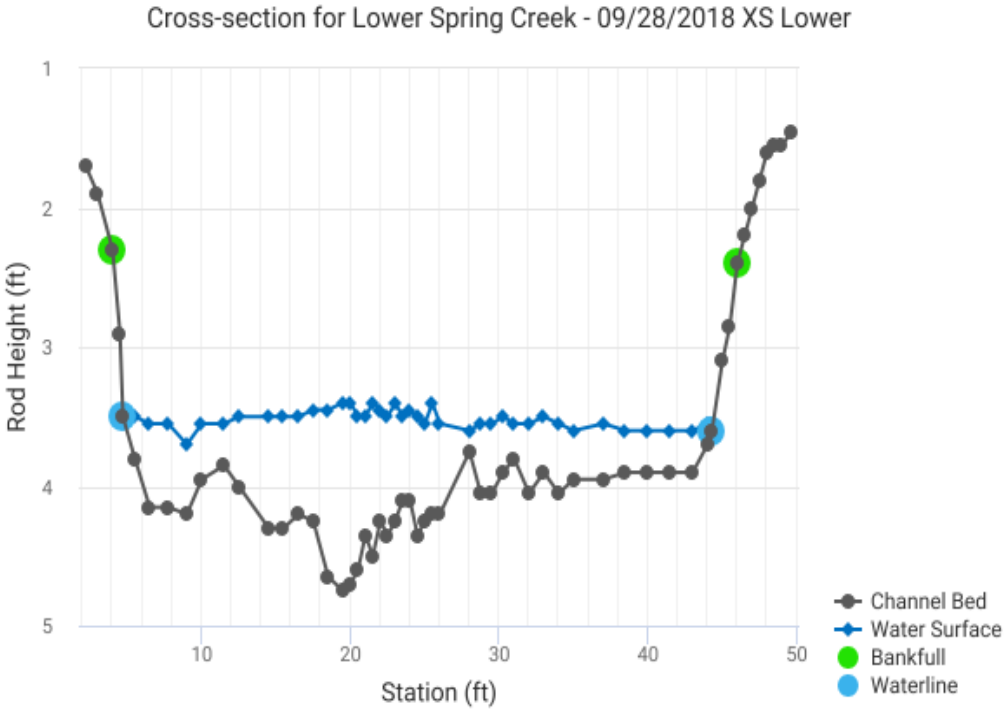
Measured Flow (Qm) =	22.07
Calculated Flow (Qc) =	22.06
(Qm-Qc)/Qm * 100 =	0.02%
Measured Waterline (WLm) =	3.55
Calculated Waterline (WLc) =	3.53
(WLm-WLc)/WLm * 100 =	0.45%
Max Measured Depth (Dm) =	1.35
Max Calculated Depth (Dc) =	1.22
(Dm-Dc)/Dm * 100 =	9.93%
Mean Velocity =	1.02
Manning's n =	0.119
0.4 * Qm =	8.83
2.5 * Qm =	55.17



FIELD DATA

Feature	Station (ft)	Rod Height (ft)	Water depth (ft)	Velocity (ft/s)
	2.2	1.7	0	0
	3	1.9	0	0
Bankfull	4	2.3	0	0
	4.5	2.9	0	0
Waterline	4.7	3.5	0	0
	5.5	3.8	0.3	0.01
	6.5	4.15	0.6	0.29
	7.75	4.15	0.6	-0.04
	9	4.2	0.5	0.52
	10	3.95	0.4	1.16
	11.5	3.85	0.3	0.43
	12.5	4	0.5	1.13
	14.5	4.3	0.8	0.34
	15.5	4.3	0.8	0.67
	16.5	4.2	0.7	0.88
	17.5	4.25	0.8	1.89
	18.5	4.65	1.2	0.61
	19.5	4.75	1.35	1.88
	20	4.7	1.3	1.15
	20.5	4.6	1.1	0.73
	21	4.35	0.85	1.41
	21.5	4.5	1.1	1.85
	22	4.25	0.8	2.88
	22.5	4.35	0.85	0.51
	23	4.25	0.85	1.41
	23.5	4.1	0.6	1.97
	24	4.1	0.65	2.34
	24.5	4.35	0.85	1.96
	25	4.25	0.7	1.67
	25.5	4.2	0.8	0.56

	26	4.2	0.65	0.36
	28	3.75	0.15	2.31
	28.75	4.05	0.5	1.77
	29.5	4.05	0.5	1.25
	30.25	3.9	0.4	2.27
	31	3.8	0.25	1.81
	32	4.05	0.5	0.71
	33	3.9	0.4	1.21
	34	4.05	0.5	-0.18
	35	3.95	0.35	0.31
	37	3.95	0.4	1.16
	38.5	3.9	0.3	0.95
	40	3.9	0.3	1.58
	41.5	3.9	0.3	0.65
	43	3.9	0.3	1.09
	44	3.7	0.15	0.44
Waterline	44.3	3.6	0	0
	45	3.1	0	0
	45.5	2.85	0	0
Bankfull	46	2.4	0	0
	46.5	2.2	0	0
	47	2	0	0
	47.5	1.8	0	0
	48	1.6	0	0
	48.5	1.55	0	0
	49	1.55	0	0
	49.7	1.45	0	0


Cross-section for Lower Spring Creek - 09/28/2018 XS Lower
Rod Height (ft)
1
2
3
4
5
10
20
30
40
50
Station (ft)
Channel Bed
Water Surface
Bankfull
Waterline

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
0.85	0.3	0.27	0	0.01
1.06	0.6	0.68	0.2	0.89
1.25	0.6	0.75	-0.03	-0.14
1.25	0.5	0.56	0.29	1.32
1.03	0.4	0.5	0.58	2.63
1.5	0.3	0.38	0.16	0.73
1.01	0.5	0.75	0.85	3.84
2.02	0.8	1.2	0.41	1.85
1	0.8	0.8	0.54	2.43
1	0.7	0.7	0.62	2.79
1	0.8	0.8	1.51	6.85
1.08	1.2	1.2	0.73	3.32
1	1.35	1.01	1.9	8.62
0.5	1.3	0.65	0.75	3.39
0.51	1.1	0.55	0.4	1.82
0.56	0.85	0.42	0.6	2.71
0.52	1.1	0.55	1.02	4.61
0.56	0.8	0.4	1.15	5.22
0.51	0.85	0.42	0.22	0.98
0.51	0.85	0.42	0.6	2.71
0.52	0.6	0.3	0.59	2.68
0.5	0.65	0.33	0.76	3.45
0.56	0.85	0.42	0.83	3.77
0.51	0.7	0.35	0.58	2.65
0.5	0.8	0.4	0.22	1.01

0.5	0.65	0.81	0.29	1.32
2.05	0.15	0.21	0.48	2.16
0.81	0.5	0.38	0.66	3.01
0.75	0.5	0.38	0.47	2.12
0.76	0.4	0.3	0.68	3.09
0.76	0.25	0.22	0.4	1.79
1.03	0.5	0.5	0.35	1.61
1.01	0.4	0.4	0.48	2.19
1.01	0.5	0.5	-0.09	-0.41
1	0.35	0.53	0.16	0.74
2	0.4	0.7	0.81	3.68
1.5	0.3	0.45	0.43	1.94
1.5	0.3	0.45	0.71	3.22
1.5	0.3	0.45	0.29	1.32
1.5	0.3	0.38	0.41	1.85
1.02	0.15	0.1	0.04	0.19
0.32	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.

S & S ✓

COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

COLORADO DIVISION OF WILDLIFE

LOCATION INFORMATION

STREAM NAME: Cement Creek (UPPER)					CROSS-SECTION NO.:
CROSS-SECTION LOCATION: Cement Creek 50 feet upstream of final Cement Creek road crossing. Near the start of Upper Cement Creek trail. (USFS trail #612)					
DATE: 9-26-18	OBSERVERS: AJB (Flow) JN (Pebble Count & scribe).				
LEGAL DESCRIPTION	¼ SECTION:	SECTION:	TOWNSHIP: N/S	RANGE: E/W	PM:
COUNTY: Gunnison	WATERSHED: East River		WATER DIVISION 4		DOW WATER CODE:
MAP(S):	USGS: Coordinates recorded on JN's GPS. Saved as location 009.				
	USFS:				

SUPPLEMENTAL DATA

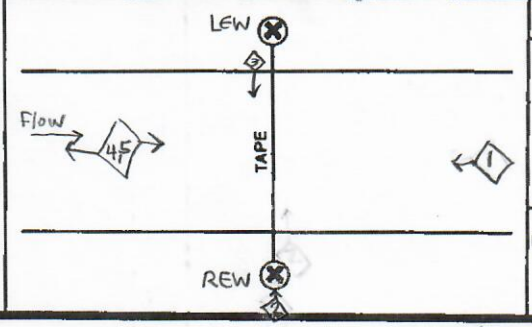
SAG TAPE SECTION SAME AS DISCHARGE SECTION: YES / NO	METER TYPE: Hach FH950			
METER NUMBER: AEC	DATE RATED: NA	CALIB/SPIN NA sec	TAPE WEIGHT NA lbs/foot	TAPE TENSION: NA lbs
CHANNEL BED MATERIAL SIZE RANGE: fines to Cobbles. See pebble count.		PHOTOGRAPHS TAKEN: YES/NO	NUMBER OF PHOTOGRAPHS:	

CHANNEL PROFILE DATA

*See photo log on reverse.

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
⊗ Tape @ Stake LB	~~0.0~~ 1.25'	
⊗ Tape @ Stake RB	~~0.0~~ 41.75	
① WS @ Tape LB/RB	0.0	37 13/16" / 37 15/16"
② WS Upstream	10'	34 1/8" / TO'
③ WS Downstream	10'	37 1/16" / 10'
SLOPE	0.244' / 20' = 0.01224	

SKETCH



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: Saw a 6"+ trout during survey

COMMENTS

Site selection in Cement Creek is generally challenging. Step-pool sequences, beaver complexes, braiding, and coarse woody debris are common. The habitat is excellent, riparian area is generally natural and undisturbed throughout Cement Creek watershed except in select areas near road and or trail crossings. Recreational use near cross-section includes fishing and wading.

Photos:

#	~time	description.	View
1	13:10	View of x-section from road	Upstream
2	13:16	View from RB to LB from uphill of stake	across
3	13:19	View from LB to RB from ds side of x-section near ~~stake~~.	across
4.	13:19	Upstream view ~ 100' us from X-Section → Step-pool, large boulders & bedrock characteristic of many parts of Cement Creek	Upstream
5.	13:20	View of cross-section ~ 50' upstream.	Downstream.

*Small gravel bar from ~ 18 to 21'

Flow File: CEM_1

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Cement Creek	CROSS-SECTION NO. 1	DATE 9/26/18	SHEET 2 OF 3
BEGINNING OF MEASUREMENT	EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT / RIGHT	Gage Reading: NA ft	TIME 13:53

	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)
	S	1.25		1.9	0					—		
		2.25		1.9	0					—		
	G (bankfull)	2.5		1.9	0					—		
		3.5		1.95	0					—		
		4.5		1.95	0					—		
		5.5		2.05	0					—		
		6.5		2.1	0					—		
		7.5		2.1	0					—		
		8.5		2.2	0					—		
		9.5		2.35	0					—		
		10		2.45	0					—		
		10.5		2.45	0					—		
		11		2.9	0					—		
1	W	11.25		3.05	0					—		
2		12		3.2	0.15					0.23		
3		13.5		3.25	0.2					0.45		
4		14.5		3.3	0.22					0.51		
5		15.5		3.2	0.15					0.26		
6		16.75		3.2	0.15					0.05		
7	Gravel Bar	18		3.15	0.1					0.22		
8		19		3.15	0.1					0.23		
9		20		3.1	0.05					TSTM ← .30 average.		
10		21.25		3.2	0.15					0.37		
11		22		3.25	0.2					0.82		
12		23		3.3	0.25					0.76		
13		23.75		3.35	0.3					1.03		
14		24.5		3.35	0.3					0.53		
15		25		3.3	0.25					0.71		
16		25.5		3.3	0.25					0.74		
17		26		3.35	0.3					1.69		
18		26.5		3.4	0.35					2.05		
19		27		3.45	0.4					1.78		
20		27.5		3.45	0.4					1.01 OK meas 2x		
21		28		3.4	0.35					2.33		
22		28.5		3.5	0.45					0.61 OK		
23		29		3.4	0.35					0.94		
24		29.5		3.5	0.4					0.33		
25		30		3.7	0.6					0.01 eddy		
26		31		3.55	0.5					0.6		
27		32		3.5	0.4					0.62		
28		32.75		3.55	0.45					1.07		
29		33.25		3.55	0.45					0.45		
	TOTALS											

End of Measurement	Time	Gage Reading ____ ft	CALCULATIONS PERFORMED BY:	CALCULATIONS CHECKED BY

Instantaneous discharge = 4.28 cfs

@ Too shallow to measure; average adjacent

4.28 ft/s

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Cement Creek	CROSS-SECTION NO. 1	DATE 9/26	SHEET 3 OF 3
BEGINNING OF MEASUREMENT	EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT / RIGHT	Gage Reading: ____ ft	TIME

	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)
30		34		3.5	0.4					0.02		
31		35		3.5	0.4					0.10		
32		36		3.3	0.2					0.12		
33		37		3.25	.15					0.04		
34	W	37.25		3.1								
35		38		3.5								
		38.5		3.4								
		39		3.4								
		39.5		2.85								
	G	39.75		2.1								
		40		1.75								
		40.25		1.5								
		40.5		1.25								
		41.0		0.9								
	S	41.75		0.35								
	TOTALS											

End of Measurement	Time	Gage Reading ____ ft	CALCULATIONS PERFORMED BY:	CALCULATIONS CHECKED BY

Riffle Pebble Count Actual Measurements (mm)

1	65L	26	23L	51	78L	76	94E		
2	35L	27	64L	52	180E	77	132E		
3	40L	28	40L	53	125L	78	105L Bug		
4	50E	29	62L	54	36L	79	97L		
5	55BL	30	24L	55	283L	80	103L Bug	101	
6	10L	31	36L	56	74L	81	32L	102	
7	62L	32	48L	57	33L	82	53L	103	
8	29BL	33	22L	58	73L	83	100E Bug	104	
9	35E	34	22L	59	74L	84	84L	105	
10	18L	35	57L	60	193E	85	74E	106	
11	73L	36	33L	61	330E	86	7L	107	
12	53L	37	64L	62	300E	87	82L	108	
13	67L	38	31L	63	52L	88	13L	109	
14	45L	39	31L	64	95L	89	39L	110	
15	80L	40	35L	65	327E	90	29L	111	
16	10E	41	64L	66	152L Bank	91	11L	112	
17	135L	42	58L	67	33L	92	43L	113	
18	190E	43	85E	68	240L	93	148L	114	
19	62L	44	38L	69	63L	94	18L Bank	115	
20	29L	45	97L	70	192E	95	38L		
21	55L	46	33L	71	105E	96	14L		
22	40L	47	50L	72	50L	97	124L		
23	35L	48	18L	73	EB123	98	53L		
24	93E	49	75L	74	12L	99	32L		
25	39L	50	123L	75	93E	100	73L Bug		

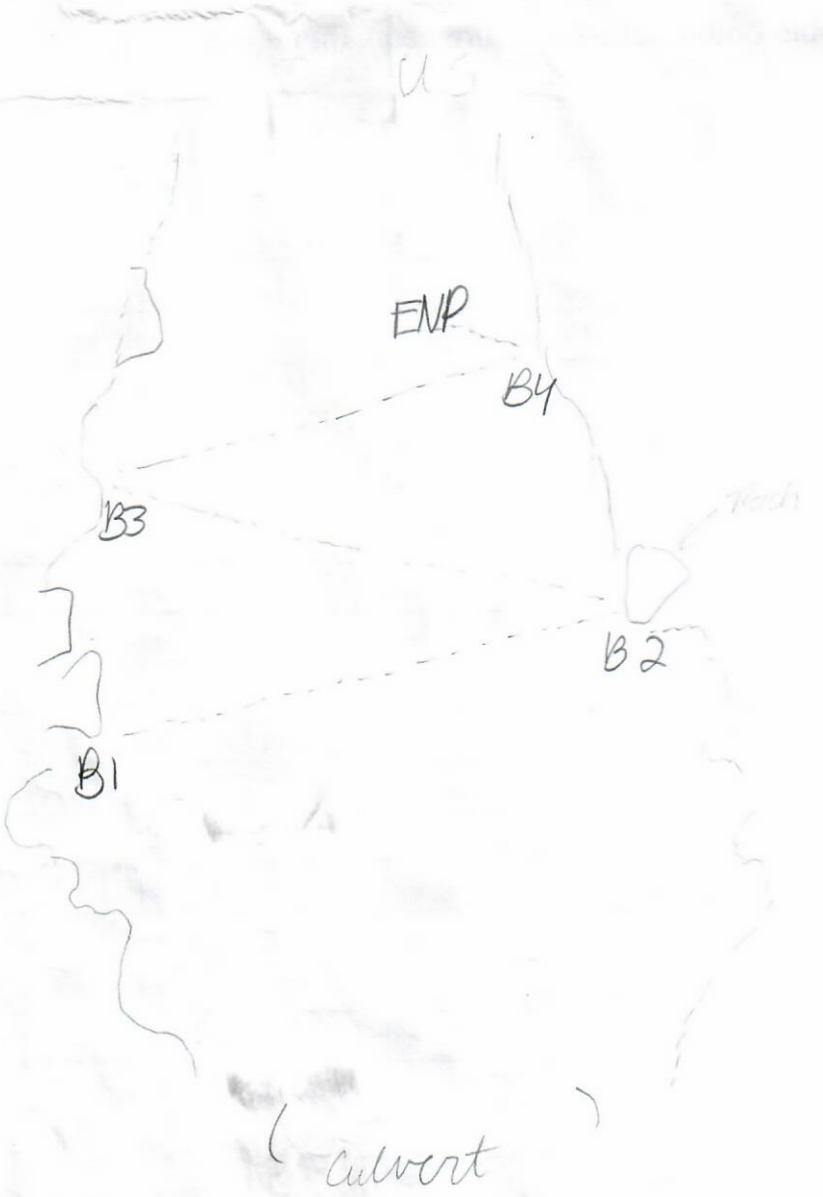
****Please be sure to measure at least 100 pebbles (10 in 10 transects or 5 in 20 transects- depending on stream size, for accurate distributional representation.****

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


ENP
B4
B3
B2
B1
culvert

√sas

COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

COLORADO DIVISION OF WILDLIFE

LOCATION INFORMATION

STREAM NAME: Cement Creek					CROSS-SECTION NO.: 2
CROSS-SECTION LOCATION: Lower Cement Creek (up-valley from Walrod trail head).					
DATE: 10/5/18	OBSERVERS: ashley Bembenek Julie Nania				
LEGAL DESCRIPTION	¼ SECTION:	SECTION:	TOWNSHIP: N/S	RANGE: E/W	PM:
COUNTY: Gunnison	WATERSHED: East River		WATER DIVISION: 4		DOW WATER CODE:
MAP(S):	USGS: Cement Mtn				
	USFS:				

SUPPLEMENTAL DATA

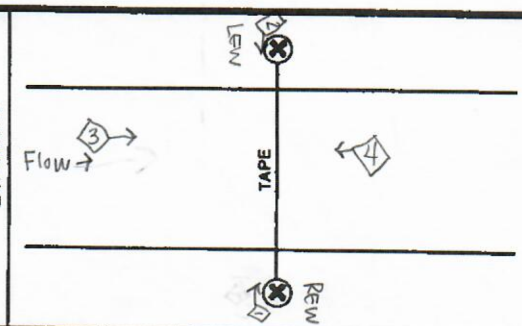
SAG TAPE SECTION SAME AS DISCHARGE SECTION: YES / NO	METER TYPE: Hach FH 950			
METER NUMBER: AEC	DATE RATED: NA	CALIB/SPIN: NA sec	TAPE WEIGHT ___ lbs/foot	TAPE TENSION ___ lbs
CHANNEL BED MATERIAL SIZE RANGE: Fines to boulders.		PHOTOGRAPHS TAKEN: YES/NO (YES marked)	NUMBER OF PHOTOGRAPHS:	

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
⊗ Tape @ Stake LB	0.0	
⊗ Tape @ Stake RB	0.0	
① WS @ Tape LB/RB	0.0 44⅛/44⅜	44⅛"/44⅜"
② WS Upstream	15ft	43"
③ WS Downstream	15ft	51.75"
SLOPE	0.0243	

0.72916 ft/30ft ↑

SKETCH



LEGEND: Stake ⊗ Station ① Photo ◇→ 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:

COMMENTS

Saw fish while completing cross-section.

FORM #ISF FD 1-85

29 11ft

Cem 2 (file name)

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Cement Creek	CROSS-SECTION NO.: 2	DATE: 10/4/18	SHEET 2 OF 3
BEGINNING OF MEASUREMENT	EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT / RIGHT	Gage Reading: ____ ft	TIME: 1210

	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)
	S	1.75		1.35								
		2.5		1.3								
		3		1.35								
		3.5		1.45								
		4		1.5								
		4.5		1.45								
		5		1.6								
		5.5		1.6								
		6		1.7								
		6.5		1.75								
	G	7		1.85								
		7.5		2.0								
		8		2.2								
		8.5		2.4								
		9		2.95								
		9.5		3.3								
		10		3.6								
		10.5		3.7								
		11		3.7								
1	W	11.4		3.8	—							
2		12.5		4.1	0.3					0.34		
3		14		4.2	0.4					0.73		
4		15.5		4.0	0.25					0.62		
5		16.5		3.95	0.2					0.43		
6		18		4.1	0.4					0.56		
7		19		4.2	0.5					0.71		
8		20		4.15	0.55					2.82		
9		21		4	0.3	(rock)				2.71		
10		22		4.1	0.35					1.45		
11		23		4.15	0.4					1.30		
12		24		3.85	0.2 (rock)					1.78		
13		25		4.25	0.5					1.05		
14		25.75		4.45	0.55					1.84		
15		26.5		4.15	0.4					0.35	eddy	
16		27.5		4.3	0.5					0.09	eddy	
17		29		4.25	0.45					0.91		
18		30		4.4	0.6					0.96		
19		31		4.25	0.35	(rock)				1.78		
20		32.25		4.4	0.6					1.84		
21		33		4.35	0.55					2.67		
22		33.75		4.4	0.6					1.50		
23		35.25		3.95	0.3	(rock)				1.12		
	TOTALS											

End of Measurement	Time	Gage Reading ____ ft	CALCULATIONS PERFORMED BY:	CALCULATIONS CHECKED BY

Cem2 (filename)

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Cement Creek	CROSS-SECTION NO. 2	DATE 10/4/18	SHEET 3 OF 3
BEGINNING OF MEASUREMENT	EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT / RIGHT	Gage Reading: ____ ft	TIME 12:10

	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)
24		36		3.9	0.2	(rock)				0.78		
25		37		4.0	0.3					1.09		
26		38		3.95	0.2					1.77		
27		38.75		3.9	0.15					1.70		
	W	39.9		3.75	0					0		
		40.5		3.35								
		41.0		3.05								
		41.5		2.95								
		42.0		2.70								
		42.5		2.55								
		43		2.4								
		43.5		2.25								
		44		2.05								
	G	44.5		1.95								
		45		1.7								
		45.5		1.7								
		46		1.7								
		46.5		1.65								
		47		1.6								
		47.5		1.4								
		48		1.3								
		48.5		1.0								
		49		0.95								
		49.5		0.6								
		50		0.25								
	S	50.75		0.1								
	TOTALS											

End of Measurement	Time	Gage Reading ____ ft	CALCULATIONS PERFORMED BY:	CALCULATIONS CHECKED BY

Cement Crk – lower
10/4/18

Riffle Pebble Count Actual Measurements (mm)

B1 1	48 L	26	87 L B	51	63 L	76	740 E				
2	39 L	27	160 L	52	305 E	77	fines				
3	585 E	28	56 L	53	47 L	78	fines				
4	77 L	29	70 L	54	180 E	79	fines				
5	115 E B	30	182 L	55	fines	B4 80	fines	101			
6	78 L	31	77 L	56	540 E	81	255 E	102			
7	435 E	32	67 L	57	55 L B	82	fines	103			
8	76 L	33	90 L	58	205 E	83	fines	104			
9	62 L B	34	71 E	59	43 L	84	fines	105			
10	71 L	35	245 E	60	fines	85	165 E	106			
11	235 E	36	45 L	B2 61	435 E	86	fines	107			
12	43 L	B2 37	155 E	62	fines	87	560 E	108			
13	120 L B	38	35 L	63	90 L	88	90 L	109			
14	98 L	39	110 L	64	355 E	89	230 E	110			
15	97 L	40	43 L	65	89 L	90	375 E	111			
16	125 L B	41	84 L	66	58 L	91	425 L	112			
17	270 L	42	74 L B	67	93 L	92	265 E	113			
18	265 E	43	163 L	68	135 L	93	95 L	114			
19	207 L	44	210 E	69	170 L B	94	185 E	115			
20	134 L	45	124 L	70	fines	95	65 L B				
21	195 L	46	215 E	71	658 E	96	fines				
22	106 L	47	335 E	72	122 L B	97	17 L				
23	140 L	48	195 L	73	34 L	98	725 E				
24	212 E	49	115 L	74	300 E	99	255 L				
25	252 E	50	365 L	75	220 E	100	365 E				

2 1/8 in

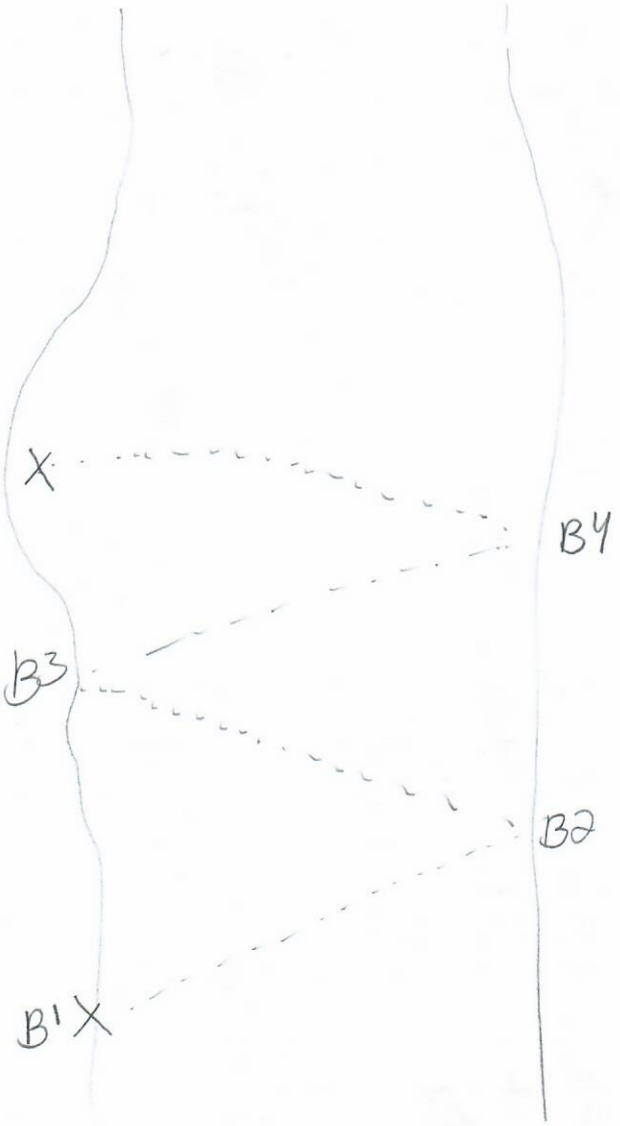
****Please be sure to measure at least 100 pebbles (10 in 10 transects or 5 in 20 transects- depending on stream size, for accurate distributional representation.****

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)

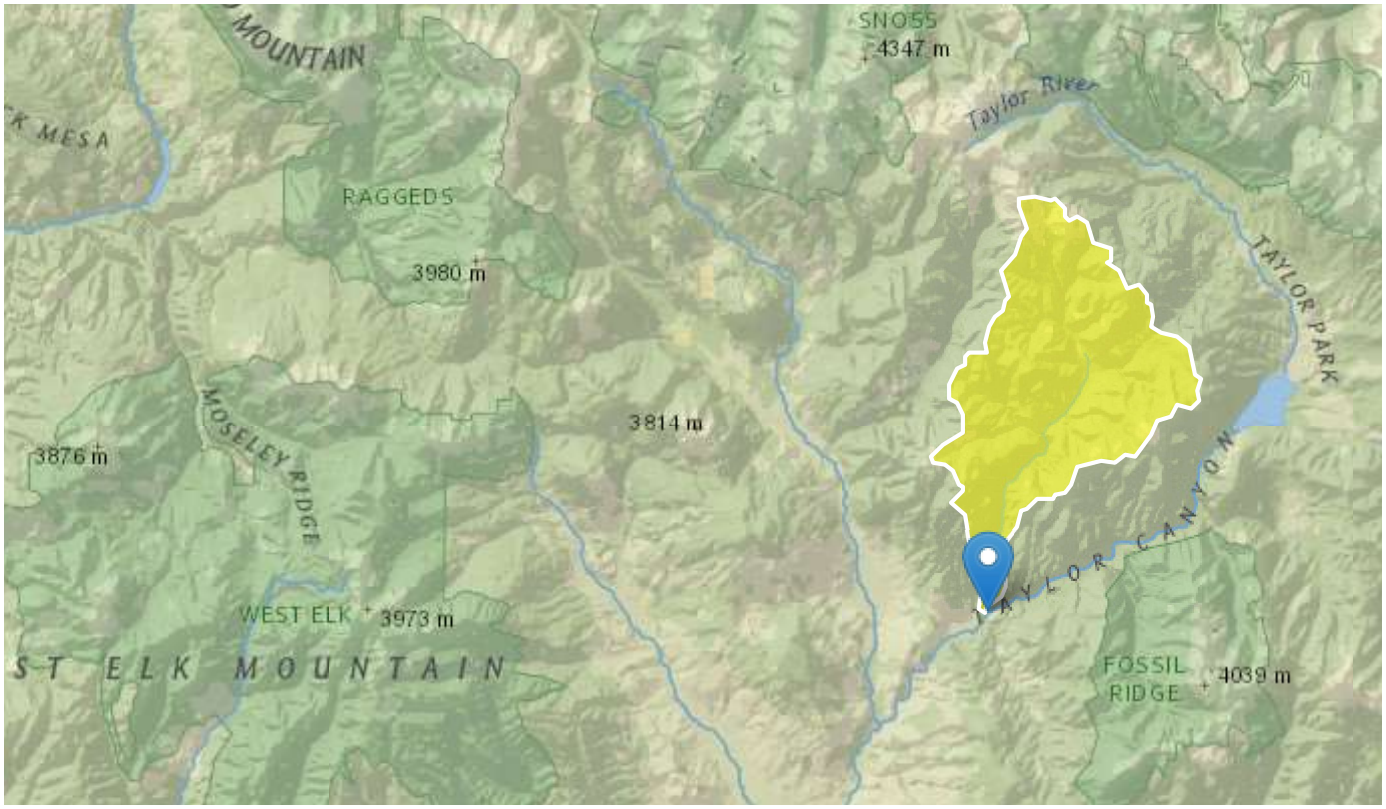
D(e) = embedded depth; D(t) = total depth


X
B4
B3
B2
B1
X

Attachment F- StreamStats and Water Availability Analysis

Spring Creek StreamStats Report

Region ID: CO
Workspace ID: CO20190117173839824000
Clicked Point (Latitude, Longitude): 38.72310, -106.77496
Time: 2019-01-17 10:38:51 -0700



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	68.7	square
PRECIP	Mean Annual Precipitation	25.66	inches
ELEV	Mean Basin Elevation	10717	feet
BSLDEM10M	Mean basin slope computed from 10 m DEM	32.5	percent
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	142	feet pe
EL7500	Percent of area above 7500 ft	100	percent

Parameter Code	Parameter Description	Value	Unit
ELEVMAX	Maximum basin elevation	13300	feet
I24H100Y	Maximum 24-hour precipitation that occurs on average once in 100 years	2.97	inches
I24H2Y	Maximum 24-hour precipitation that occurs on average once in 2 years - Equivalent to precipitation intensity index	1.4	inches
I6H100Y	6-hour precipitation that is expected to occur on average once in 100 years	1.73	inches
I6H2Y	Maximum 6-hour precipitation that occurs on average once in 2 years	0.84	inches
LAT_OUT	Latitude of Basin Outlet	38.723103	degrees
LC11BARE	Percentage of barren from NLCD 2011 class 31	3	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	68.2	percent
LC11GRASS	Percent of area covered by grassland/herbaceous using 2011 NLCD	25.4	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	1.2	percent
LC11SHRUB	Percent of area covered by shrubland using 2011 NLCD	0.4	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	2.7	percent
LFPLENGTH	Length of longest flow path	20.1	miles
LONG_OUT	Longitude of Basin Outlet	-106.774907	degrees
MINBELEV	Minimum basin elevation	8330	feet
OUTLETELEV	Elevation of the stream outlet in thousands of feet above NAVD88.	8326	feet
RCN	Runoff-curve number as defined by NRCS (http://policy.nrcs.usda.gov/OpenNonWebContent.aspx?content=17758.wba)	98	dimens

Parameter Code	Parameter Description	Value	Unit
RUNCO_CO	Soil runoff coefficient as defined by Verdin and Gross (2017)	0.41	dimens
SSURGOA	Percentage of area of Hydrologic Soil Type A from SSURGO	0	percent
SSURGOB	Percentage of area of Hydrologic Soil Type B from SSURGO	0	percent
SSURGOC	Percentage of area of Hydrologic Soil Type C from SSURGO	0	percent
SSURGOD	Percentage of area of Hydrologic Soil Type D from SSURGO	0	percent
STATSCLAY	Percentage of clay soils from STATSGO	15.51	percent
STORNHD	Percent storage (wetlands and waterbodies) determined from 1:24K NHD	0.2	percent
TOC	Time of concentration in hours	1.62	hours

Flow-Duration Statistics Parameters [Mountain Region Flow Duration]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	68.7	square miles	1	1060
PRECIP	Mean Annual Precipitation	25.66	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	133	ft^3/s	45
25 Percent Duration	40.7	ft^3/s	55
50 Percent Duration	16.2	ft^3/s	55
75 Percent Duration	9.51	ft^3/s	64
90 Percent Duration	6.33	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/)

Flood-Volume Statistics Parameters [Mountain Region Max Flow]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	68.7	square miles	1	1060
PRECIP	Mean Annual Precipitation	25.66	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	280	ft^3/s	46
7 Day 10 Year Maximum	490	ft^3/s	35
7 Day 50 Year Maximum	682	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/)

Monthly Flow Statistics Parameters [Mountain Region Mean Flow]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	68.7	square miles	1	1060
PRECIP	Mean Annual Precipitation	25.66	inches	18	47

Monthly 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
January Mean Flow	11	ft^3/s	50

Statistic	Value	Unit	SEp
February Mean Flow	10.3	ft^3/s	51
March Mean Flow	12	ft^3/s	49
April Mean Flow	28.5	ft^3/s	44
May Mean Flow	143	ft^3/s	46
June Mean Flow	228	ft^3/s	46
July Mean Flow	76.9	ft^3/s	76
August Mean Flow	33.3	ft^3/s	80
September Mean Flow	22.5	ft^3/s	59
October Mean Flow	19.2	ft^3/s	45
November Mean Flow	14.7	ft^3/s	46
December Mean Flow	12	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	68.7	square miles	1	1060
PRECIP	Mean Annual Precipitation	25.66	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	52	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	68.7	square miles	1	1060
PRECIP	Mean Annual Precipitation	25.66	inches	18	47
ELEV	Mean Basin Elevation	10717	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	7.37	ft^3/s	89
7 Day 10 Year Low Flow	4.28	ft^3/s	153
7 Day 50 Year Low Flow	3.61	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/)

Peak-Flow Statistics Parameters [Mountain Region Peak Flow]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	68.7	square miles	1	1060
BSLDEM10M	Mean Basin Slope from 10m DEM	32.5	percent	7.6	60.2
PRECIP	Mean Annual Precipitation	25.66	inches	18	47

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

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

Statistic	Value	Unit	SEp
2 Year Peak Flood	397	ft^3/s	49
5 Year Peak Flood	567	ft^3/s	44
10 Year Peak Flood	685	ft^3/s	41
25 Year Peak Flood	802	ft^3/s	40
50 Year Peak Flood	962	ft^3/s	39
100 Year Peak Flood	1080	ft^3/s	36
200 Year Peak Flood	1170	ft^3/s	36
500 Year Peak Flood	1360	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/)

Application Version: 4.3.0

WDID	Structure Name	Structure Type	Water Source
5905020	ALPINE RESORT WELL NO1&2	Well	GROUNDWATER: SPRING CREEK
5905610	CAIN WELL	Well	GROUNDWATER: SPRING CREEK
5905037	CHAR B DOMESTIC WELL	Well	GROUNDWATER: SPRING CREEK
5905309	FOLKS WELL	Well	GROUNDWATER: SPRING CREEK
5905087	HEAD DOMESTIC WELL	Well	GROUNDWATER: SPRING CREEK
5905137	MCLEOD WELL NO 1	Well	GROUNDWATER: SPRING CREEK
5905035	SPRING CR RESORT WELL #1	Well	GROUNDWATER: SPRING CREEK
5905144	SPRING CR RESORT WELL #2	Well	GROUNDWATER: SPRING CREEK
5905191	SPRING CR RESORT WELL #3	Well	GROUNDWATER: SPRING CREEK
5905210	SPRING CR RESORT WELL #4	Well	GROUNDWATER: SPRING CREEK
5905214	SPRING CR RESORT WELL #5	Well	GROUNDWATER: SPRING CREEK
5905218	SPRING CR RESORT WELL #6	Well	GROUNDWATER: SPRING CREEK
5905220	SPRING CR RESORT WELL #7	Well	GROUNDWATER: SPRING CREEK
5905633	WM.O.LEACH NO 1 WELL	Well	GROUNDWATER: SPRING CREEK
4002565	BARTLETT DITCH NO 2	Ditch	GROUSE SPRING CREEK
4001107	CRYSTAL DITCH NO 2	Ditch	LITTLE SPRING CREEK
4001107	CRYSTAL DITCH NO 2	Ditch	LITTLE SPRING CREEK
4001111	DEEP SPRING DOM PL	Pipeline	LITTLE SPRING CREEK
4001111	DEEP SPRING DOM PL	Pipeline	LITTLE SPRING CREEK
5900513	AXTELL DITCH	Ditch	SPRING CREEK
4003122	BEAVER LAKE	Reservoir	SPRING CREEK
5903734	BETTY LAKE	Reservoir	SPRING CREEK
4001082	BEUTEN DITCH	Ditch	SPRING CREEK
4001085	BEVER HIDE DITCH	Ditch	SPRING CREEK
4001085	BEVER HIDE DITCH	Ditch	SPRING CREEK
4001085	BEVER HIDE DITCH	Ditch	SPRING CREEK
2800516	BIG SPRING DITCH	Ditch	SPRING CREEK
2807408	BLACK SAGE	Spring	SPRING CREEK
2807408	BLACK SAGE	Spring	SPRING CREEK
4001087	BLACK SAGE DITCH	Ditch	SPRING CREEK
4001087	BLACK SAGE DITCH	Ditch	SPRING CREEK
4001087	BLACK SAGE DITCH	Ditch	SPRING CREEK
5900769	BOSTON SPG AND PIPELINE	Spring	SPRING CREEK
5900782	BOSTON SPRING PIPELINE	Spring	SPRING CREEK
5901394	BOYD PIPELINE	Spring	SPRING CREEK
5901695	BURDINE PUMP & PIPELINE	Pump	SPRING CREEK
5901604	CAROL'S PIPELINE	Pump	SPRING CREEK
5900824	CHAR-B PIPELINE NO 1	Seep	SPRING CREEK
5900825	CHAR-B PIPELINE NO 2	Spring	SPRING CREEK
4001106	COYOTE DITCH	Ditch	SPRING CREEK
5901667	CRAIG PIPELINE	Pipeline	SPRING CREEK
2807405	DAWSON RDGE	Reservoir	SPRING CREEK
2807405	DAWSON RDGE	Reservoir	SPRING CREEK
5901587	DEADMAN GULCH	Minimum Flow	SPRING CREEK
4001120	DOWNING DITCH	Ditch	SPRING CREEK
5901481	DUSTIN GULCH	Minimum Flow	SPRING CREEK

WDID	Structure Name	Structure Type	Water Source
5901285	ELLIS PUMP	Pump	SPRING CREEK
5900714	ELMER NO 2 DITCH	Ditch	SPRING CREEK
5900714	ELMER NO 2 DITCH	Ditch	SPRING CREEK
5900714	ELMER NO 2 DITCH	Ditch	SPRING CREEK
5901535	FLAG CREEK	Minimum Flow	SPRING CREEK
2800575	GULCH NO 1 NO 2 DITCHES	Ditch	SPRING CREEK
5900937	HAGAR DITCH & WATER SYS	Ditch	SPRING CREEK
5901219	HANSEN SPRING CREEK PL	Spring	SPRING CREEK
5900943	HEAD DOMESTIC PIPELINE	Pipeline	SPRING CREEK
5903712	HORSETHIEF LAKE	Reservoir	SPRING CREEK
5903712	HORSETHIEF LAKE	Reservoir	SPRING CREEK
2801642	HUPP LOWER SPRING	Spring	SPRING CREEK
2801644	HUPP UPPER SPRING	Spring	SPRING CREEK
5901299	JOHN ROBINSON PUMP	Pump	SPRING CREEK
4003883	KATHY'S RESERVOIR NO. 1	Reservoir	SPRING CREEK
4003123	LARSON LAKE	Reservoir	SPRING CREEK
5901492	MYSTERIOUS CREEK	Minimum Flow	SPRING CREEK
2807406	N BLACK SAGE	Spring	SPRING CREEK
2807406	N BLACK SAGE	Spring	SPRING CREEK
2800864	PILONI SPRING NO 4 PL	Spring	SPRING CREEK
2800868	PILONI SPRING NO 5 DITCH	Spring	SPRING CREEK
5901279	POWELL HOUSE PUMP	Pump	SPRING CREEK
5901680	RINGLER PUMP & PL	Pump	SPRING CREEK
5901500	ROCKY BROOK CREEK	Minimum Flow	SPRING CREEK
5901586	ROSEBUD GULCH	Minimum Flow	SPRING CREEK
5901300	SALLY'S PUMP	Pump	SPRING CREEK
2807403	SEC 13 POND	Reservoir	SPRING CREEK
2807403	SEC 13 POND	Reservoir	SPRING CREEK
5901118	SHARPS DOM SPRING & PL	Spring	SPRING CREEK
5901138	SPEARS DITCH WATER SYS	Ditch	SPRING CREEK
5900679	SPRING CR IRG DITCH	Ditch	SPRING CREEK
5900679	SPRING CR IRG DITCH	Ditch	SPRING CREEK
5900679	SPRING CR IRG DITCH	Ditch	SPRING CREEK
5900679	SPRING CR IRG DITCH	Ditch	SPRING CREEK
2801104	SPRING CREEK	Minimum Flow	SPRING CREEK
5901520	SPRING CREEK	Minimum Flow	SPRING CREEK
5901509	SPRING CREEK	Minimum Flow	SPRING CREEK
5901510	SPRING CREEK	Minimum Flow	SPRING CREEK
5901742	SPRING CREEK RES FLOW RT	Reservoir	SPRING CREEK
5903665	SPRING CREEK RESERVOIR	Reservoir	SPRING CREEK
5903665	SPRING CREEK RESERVOIR	Reservoir	SPRING CREEK
5907149	STOCK POND (ST 97 TR 03)	Spring	SPRING CREEK
5907149	STOCK POND (ST 97 TR 03)	Spring	SPRING CREEK
5907335	STOCK TANK	Spring	SPRING CREEK
5907335	STOCK TANK	Spring	SPRING CREEK
5907321	STOCK TANK (LONG PARK SPRING)	Spring	SPRING CREEK

WDID	Structure Name	Structure Type	Water Source
5907321	STOCK TANK (LONG PARK SPRING)	Spring	SPRING CREEK
5907322	STOCK TANK (LOWER DEADMAN SPRING)	Spring	SPRING CREEK
5907322	STOCK TANK (LOWER DEADMAN SPRING)	Spring	SPRING CREEK
5907143	STOCK TANK (ST 97 TR 04)	Spring	SPRING CREEK
5907143	STOCK TANK (ST 97 TR 04)	Spring	SPRING CREEK
5907145	STOCK TANK (ST 97 TR 06)	Spring	SPRING CREEK
5907145	STOCK TANK (ST 97 TR 06)	Spring	SPRING CREEK
5907148	STOCK TANK (ST 97 TR 09)	Spring	SPRING CREEK
5907148	STOCK TANK (ST 97 TR 09)	Spring	SPRING CREEK
5907323	STOCK TANK (UPPER DEADMAN POND)	Reservoir	SPRING CREEK
5907323	STOCK TANK (UPPER DEADMAN POND)	Reservoir	SPRING CREEK
5901337	STRINGER DOMESTIC PL	Pump	SPRING CREEK
5901304	SUHR PUMPHOUSE	Pump	SPRING CREEK
2800910	TOMICHI DOME SP NO 11 D	Ditch	SPRING CREEK
2800910	TOMICHI DOME SP NO 11 D	Ditch	SPRING CREEK
2803630	TOMICHI DOME SP NO4 POND	Reservoir	SPRING CREEK
2803630	TOMICHI DOME SP NO4 POND	Reservoir	SPRING CREEK
2803631	TOMICHI DOME SP NO5 POND	Spring	SPRING CREEK
2803631	TOMICHI DOME SP NO5 POND	Spring	SPRING CREEK
2803633	TOMICHI DOME SP NO6 POND	Spring	SPRING CREEK
2803633	TOMICHI DOME SP NO6 POND	Spring	SPRING CREEK
2803634	TOMICHI DOME SP NO7 POND	Spring	SPRING CREEK
2803634	TOMICHI DOME SP NO7 POND	Spring	SPRING CREEK
2803635	TOMICHI DOME SP NO8 POND	Spring	SPRING CREEK
2803635	TOMICHI DOME SP NO8 POND	Spring	SPRING CREEK
2801643	TONI SPRING	Spring	SPRING CREEK
2807407	U BLACK SAGE	Spring	SPRING CREEK
2807407	U BLACK SAGE	Spring	SPRING CREEK
5901560	UTE GULCH	Minimum Flow	SPRING CREEK
4001798	VOLK DITCH	Ditch	SPRING CREEK
5901886	WILLIAMSON PUMP	Pump	SPRING CREEK
4001224	WRAY DITCH	Ditch	SPRING CREEK
4001224	WRAY DITCH	Ditch	SPRING CREEK
5901190	WRIGHT WATKINS PIPELINE	Pipeline	SPRING CREEK
5901262	ZABEL PUMPSITE SP CR STR	Pump	SPRING CREEK

GNIS ID	Stream Mile	Div	WD	County	Adjudication Date	Previous Adj Date
188820		4	59	GUNNISON	12/31/1972 0:00	
188820		4	59	GUNNISON	12/31/1982 0:00	
188820		4	59	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
188820		4	59	GUNNISON	12/31/1984 0:00	12/31/1983 0:00
188820		4	59	GUNNISON	12/31/1974 0:00	
188820		4	59	GUNNISON	12/31/1973 0:00	
188820		4	59	GUNNISON	12/31/1999 0:00	12/31/1998 0:00
188820		4	59	GUNNISON	12/31/1999 0:00	12/31/1998 0:00
188820		4	59	GUNNISON	12/31/1999 0:00	12/31/1998 0:00
188820		4	59	GUNNISON	12/31/1999 0:00	12/31/1998 0:00
188820		4	59	GUNNISON	12/31/1999 0:00	12/31/1998 0:00
188820		4	59	GUNNISON	12/31/1999 0:00	12/31/1998 0:00
188820		4	59	GUNNISON	12/31/1999 0:00	12/31/1998 0:00
188820		4	59	GUNNISON	12/31/1986 0:00	
186384	1.77	4	40	GUNNISON	12/31/2006 0:00	12/31/2005 0:00
400003	0	4	40	GUNNISON	5/28/1937 0:00	2/10/1930 0:00
400003	0	4	40	GUNNISON	3/20/1954 0:00	5/28/1937 0:00
400003	0.26	4	40	GUNNISON	8/11/1969 0:00	1/31/1964 0:00
400003	0.26	4	40	GUNNISON	12/31/1992 0:00	12/31/1991 0:00
188820	1.39	4	59	GUNNISON	4/28/1932 0:00	7/6/1931 0:00
175506	1.88	4	40	GUNNISON	12/31/2005 0:00	12/31/2004 0:00
188820	18.6	4	59	GUNNISON	12/31/1977 0:00	12/31/1976 0:00
175171	1.48	4	40	GUNNISON	8/28/1920 0:00	2/27/1918 0:00
175506	2.01	4	40	GUNNISON	5/28/1937 0:00	2/10/1930 0:00
175506	2.01	4	40	GUNNISON	5/28/1937 0:00	2/10/1930 0:00
175506	2.01	4	40	GUNNISON	12/31/2005 0:00	12/31/2004 0:00
189039	0.15	4	28	GUNNISON	9/3/1918 0:00	11/30/1915 0:00
189039		4	28	GUNNISON	12/31/1972 0:00	
189039		4	28	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
175171	1.91	4	40	GUNNISON	6/23/1914 0:00	3/20/1908 0:00
175171	1.91	4	40	GUNNISON	8/28/1920 0:00	2/27/1918 0:00
175171	1.91	4	40	GUNNISON	3/20/1954 0:00	5/28/1937 0:00
188820		4	59	GUNNISON	12/31/2004 0:00	12/31/2003 0:00
188820		4	59	GUNNISON	12/31/1973 0:00	12/31/1972 0:00
188820		4	59	GUNNISON	12/31/1982 0:00	12/31/1981 0:00
188820	0.97	4	59	GUNNISON	12/31/1995 0:00	12/31/1994 0:00
188820	1.09	4	59	GUNNISON	12/31/2016 0:00	12/31/2015 0:00
188820		4	59	GUNNISON	10/28/1965 0:00	1/27/1961 0:00
188820		4	59	GUNNISON	10/28/1965 0:00	1/27/1961 0:00
175506	1.36	4	40	GUNNISON	5/28/1937 0:00	2/10/1930 0:00
188820	0.63	4	59	GUNNISON	12/31/1993 0:00	12/31/1992 0:00
189039	3.63	4	28	GUNNISON	12/31/1972 0:00	
189039	3.63	4	28	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
188820	8.21	4	59	GUNNISON	12/31/1987 0:00	12/31/1986 0:00
175506	2.16	4	40	GUNNISON	5/28/1937 0:00	2/10/1930 0:00
188820	11.79	4	59	GUNNISON	12/31/1984 0:00	12/31/1983 0:00

GNIS ID	Stream Mile	Div	WD	County	Adjudication Date	Previous Adj Date
188820	1.05	4	59	GUNNISON	12/31/2003 0:00	12/31/2002 0:00
188820	1.46	4	59	GUNNISON	10/25/1921 0:00	9/14/1906 0:00
188820	1.46	4	59	GUNNISON	4/28/1932 0:00	7/6/1931 0:00
188820	1.46	4	59	GUNNISON	4/29/1941 0:00	12/18/1933 0:00
188820	16.54	4	59	GUNNISON	12/31/1984 0:00	12/31/1983 0:00
189039	2.85	4	28	GUNNISON	9/3/1918 0:00	11/30/1915 0:00
188820	1	4	59	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
188820		4	59	GUNNISON	12/31/1979 0:00	12/31/1978 0:00
188820	1.03	4	59	GUNNISON	12/31/1974 0:00	12/31/1973 0:00
188820	12.98	4	59	GUNNISON	12/31/1973 0:00	12/31/1972 0:00
188820	12.98	4	59	GUNNISON	12/31/1977 0:00	12/31/1976 0:00
189039		4	28	GUNNISON	12/31/2001 0:00	12/31/2000 0:00
189039		4	28	GUNNISON	12/31/2001 0:00	12/31/2000 0:00
188820	1.65	4	59	GUNNISON	12/31/2003 0:00	12/31/2002 0:00
175506	1.75	4	40	GUNNISON	12/31/2005 0:00	12/31/2004 0:00
175506	1.68	4	40	GUNNISON	12/31/2005 0:00	12/31/2004 0:00
188820	16.81	4	59	GUNNISON	12/31/1984 0:00	12/31/1983 0:00
189039		4	28	GUNNISON	12/31/1972 0:00	
189039		4	28	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
189039		4	28	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
189039		4	28	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
188820	1.73	4	59	GUNNISON	12/31/2003 0:00	12/31/2002 0:00
188820	1.25	4	59	GUNNISON	12/31/1994 0:00	12/31/1993 0:00
188820	12.98	4	59	GUNNISON	12/31/1984 0:00	12/31/1983 0:00
188820	5.33	4	59	GUNNISON	12/31/1987 0:00	12/31/1986 0:00
188820	1.76	4	59	GUNNISON	12/31/2003 0:00	12/31/2002 0:00
189039	2.65	4	28	GUNNISON	12/31/1972 0:00	
189039	2.65	4	28	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
188820		4	59	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
188820	1.3	4	59	GUNNISON	12/31/1973 0:00	12/31/1972 0:00
188820	0.57	4	59	GUNNISON	10/25/1921 0:00	9/14/1906 0:00
188820	0.57	4	59	GUNNISON	4/28/1932 0:00	7/6/1931 0:00
188820	0.57	4	59	GUNNISON	4/29/1941 0:00	12/18/1933 0:00
188820	0.57	4	59	GUNNISON	12/31/2008 0:00	12/31/2007 0:00
189039	3.95	4	28	GUNNISON	12/31/1980 0:00	12/31/1979 0:00
188820	18.6	4	59	GUNNISON	12/31/1983 0:00	12/31/1982 0:00
188820	14.99	4	59	GUNNISON	12/31/1984 0:00	12/31/1983 0:00
188820	11.35	4	59	GUNNISON	12/31/1984 0:00	12/31/1983 0:00
188820	12.79	4	59	GUNNISON	10/28/1965 0:00	1/27/1961 0:00
188820	12.19	4	59	GUNNISON	1/27/1961 0:00	6/20/1957 0:00
188820	12.19	4	59	GUNNISON	10/28/1965 0:00	1/27/1961 0:00
188820		4	59	GUNNISON	12/31/1972 0:00	
188820		4	59	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
188820		4	59	GUNNISON	12/31/1972 0:00	
188820		4	59	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
188820		4	59	GUNNISON	12/31/1972 0:00	

GNIS ID	Stream Mile	Div	WD	County	Adjudication Date	Previous Adj Date
188820		4	59	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
188820		4	59	GUNNISON	12/31/1972 0:00	
188820		4	59	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
188820		4	59	GUNNISON	12/31/1972 0:00	
188820		4	59	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
188820		4	59	GUNNISON	12/31/1972 0:00	
188820		4	59	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
188820		4	59	GUNNISON	12/31/1972 0:00	
188820		4	59	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
188820	8.21	4	59	GUNNISON	12/31/1972 0:00	
188820	8.21	4	59	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
188820	1.03	4	59	GUNNISON	4/28/1932 0:00	7/6/1931 0:00
188820	1.64	4	59	GUNNISON	12/31/2003 0:00	12/31/2002 0:00
189039	1.72	4	28	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
189039	1.72	4	28	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
189039	1.51	4	28	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
189039	1.51	4	28	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
189039		4	28	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
189039		4	28	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
189039		4	28	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
189039		4	28	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
189039		4	28	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
189039		4	28	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
189039		4	28	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
189039		4	28	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
189039		4	28	GUNNISON	12/14/2001 0:00	12/31/2000 0:00
189039		4	28	GUNNISON	12/31/1972 0:00	
189039		4	28	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
188820	10.06	4	59	GUNNISON	12/31/1984 0:00	12/31/1983 0:00
175506		4	40	GUNNISON	12/31/1975 0:00	12/31/1974 0:00
188820	1.58	4	59	GUNNISON	12/31/2002 0:00	12/31/2001 0:00
175171	0.16	4	40	GUNNISON	5/28/1937 0:00	2/10/1930 0:00
175171	0.16	4	40	GUNNISON	12/31/2005 0:00	12/31/2004 0:00
188820	1.74	4	59	GUNNISON	12/31/1972 0:00	12/31/1971 0:00
188820	1.83	4	59	GUNNISON	12/31/1985 0:00	12/31/1984 0:00

Appropriation Date	Priority Admin No	Order No	Priority No	Associated Case Numbers
5/1/1968 0:00	43220	0		W1085
4/16/1979 0:00	47222	0		82CW0299
4/20/1968 0:00	44559.43209	0		W1084
8/26/1981 0:00	48942.48085	0		83CW0264
12/5/1968 0:00	43438	0		W2336
6/15/1964 0:00	41804	0		W1980
3/5/1999 0:00	54485	0		99CW0145, 07CW0051
3/5/1999 0:00	54485	0		99CW0145, 07CW0051
3/5/1999 0:00	54485	0		99CW0145
3/5/1999 0:00	54485	0		99CW0145
6/5/1999 0:00	54577	0		99CW0145
3/5/1999 0:00	54485	0		99CW0145, 07CW0051
3/5/1999 0:00	54485	0		13CW3046, 99CW0145
11/13/1980 0:00	47799	0		86CW0078
10/13/2005 0:00	56978.56899	0		16CW0018, 06CW0042
9/1/1933 0:00	30559	0	H158	CA2563
4/1/1949 0:00	36250	0	J331	CA3503
7/1/1966 0:00	42550	0	L82	CA5873
6/1/1971 0:00	51864.44346	0		05CW0257, 92CW0038
9/1/1922 0:00	29771.26541	0		CA1934, 82CW0236
12/29/2005 0:00	56976	0		15CW3006, 05CW0257
3/9/1977 0:00	46454	0		W3338
6/1/1913 0:00	24894.23162	0	B41	CA1424
9/1/1919 0:00	29260.25445	0	H-115	04CW0190, CA2563
6/30/1922 0:00	29260.26478	0	H130	CA2563
6/1/1983 0:00	56613.48729	0		05CW0029
8/1/1901 0:00	24074.1884	0	157	CA1602
6/13/1905 0:00	20252	0		W0425
4/30/1974 0:00	45410	0		W0425
5/30/1908 0:00	21334	0	A100	CA0617
6/15/1909 0:00	24894.21715	0	B33	CA1424
5/30/1908 0:00	31924.21334	0	J125	CA3503, 06CW0159
9/1/1940 0:00	56247.33116	0		04CW0137
9/1/1967 0:00	44925.42977	0		W2086
7/1/1962 0:00	48212.41089	0		82CW0317
8/25/1994 0:00	52960.52832	0		95CW0095
7/1/2001 0:00	60630.55334	0		16CW3056
6/15/1960 0:00	40569.40343	0	632	CA5782
9/1/1964 0:00	41882	0		W0096, CA5782
6/1/1917 0:00	29260.24623	0	H108	CA2563
5/15/1992 0:00	52230.52	0		98CW0079, 93CW0083
6/13/1905 0:00	20252	0		W0425
4/30/1974 0:00	45410	0		W0425
10/2/1987 0:00	50313	0		87CW0263
9/15/1915 0:00	29260.23998	0	H102	04CW0190, CA2563
5/4/1984 0:00	49067	0		84CW0370

Appropriation Date	Priority Admin No	Order No	Priority No	Associated Case Numbers
6/30/1988 0:00	55882.50585	0		03CW0227
5/10/1915 0:00	23870	0	213	CA1635, 84CW0147
3/28/1932 0:00	30037	0	271	CA1934
5/10/1915 0:00	30667.2387	0	432	CA2021
5/4/1984 0:00	49067	0		84CW0367
12/31/1895 12:00:00 AM	24074.16801	0	154	CA1602
5/1/1946 0:00	44559.35184	0		W0909
6/1/1947 0:00	47116.3558	0		79CW0100
6/1/1974 0:00	45442	0		W2337
6/1/1910 0:00	44925.22066	0		W1995
5/12/1976 0:00	46386.46153	0		W3374
6/30/1979 0:00	55152.47297	0		00CW0129
6/30/1979 0:00	55152.47297	0		00CW0129
5/1/1930 0:00	55882.2934	0		03CW0188
3/1/2005 0:00	56673	0		12CW0003, 18CW0028, 05CW0029
7/1/1966 0:00	56613.4255	0		05CW0257
5/4/1984 0:00	49067	0		84CW0366
6/13/1905 0:00	20252	0		W0425
4/30/1974 0:00	45410	0		W0425
5/1/1927 0:00	44559.28244	0		W1616
5/1/1922 0:00	44559.26418	0		W1617
9/1/1955 0:00	55882.38594	0		03CW0207
5/16/1994 0:00	52731	0		94CW0068
5/4/1984 0:00	49067	0		84CW0369
10/2/1987 0:00	50313	0		87CW0262
5/1/1976 0:00	55882.46142	0		03CW0193
6/13/1905 0:00	20252	0		W0425
4/30/1974 0:00	45410	0		W0425
10/23/1971 0:00	44559.4449	0		W0454
6/1/1935 0:00	44925.31197	0		W1917
6/1/1891 12:00:00 AM	20710.15127	0	186	CA1635, 84CW0237
3/28/1932 0:00	30037	0	271	CA1934
6/15/1882 12:00:00 AM	30667.11854	0	303	CA2021, 84CW0237
12/1/2007 0:00	57708.57678	0		08CW0180
3/17/1980 0:00	47558	0		80CW0116
7/7/1983 0:00	48765	0		83CW0209
5/4/1984 0:00	49067	0		84CW0365
5/4/1984 0:00	49067	0		84CW0368
9/13/1956 0:00	40569.38972	0	618	CA5782
8/4/1959 0:00	40027	0		CA5782, CA5590
9/13/1956 0:00	40569.38972	0	617	CA5782
5/12/1905 0:00	20220	0		W0425
4/30/1974 0:00	45410	0		W0425
5/12/1905 0:00	20220	0		W0425
4/30/1974 0:00	45410	0		W0425
5/12/1905 0:00	20220	0		W0425

Appropriation Date	Priority Admin No	Order No	Priority No	Associated Case Numbers
4/30/1974 0:00	45410	0		W0425
5/12/1905 0:00	20220	0		W0425
4/30/1974 0:00	45410	0		W0425
5/12/1905 0:00	20220	0		W0425
4/30/1974 0:00	45410	0		W0425
5/12/1905 0:00	20220	0		W0425
4/30/1974 0:00	45410	0		W0425
5/12/1905 0:00	20220	0		W0425
4/30/1974 0:00	45410	0		W0425
5/12/1905 0:00	20220	0		W0425
4/30/1974 0:00	45410	0		W0425
9/1/1922 0:00	29771.26541	0		82CW0236
5/1/1948 0:00	55882.35915	0		03CW0182
5/15/1900 0:00	44559.18397	0		W1630
12/29/1972 0:00	44923	0		W1630, 80CW0216
5/15/1900 0:00	44559.18397	0		W1623
12/29/1972 0:00	44923	0		W1623, 80CW0209
5/15/1900 0:00	44559.18397	0		W1624
12/29/1972 0:00	44923	0		W1624, 80CW0210
5/15/1900 0:00	44559.18397	0		W1625
12/29/1972 0:00	44923	0		W1625, 80CW0211
5/15/1900 0:00	44559.18397	0		W1626
12/29/1972 0:00	44923	0		W1626, 80CW0212
5/15/1900 0:00	44559.18397	0		W1627
12/29/1972 0:00	44923	0		W1627, 80CW0213
6/30/1979 0:00	55152.47297	0		00CW0129
6/13/1905 0:00	20252	0		W0425
4/30/1974 0:00	45410	0		W0425
5/4/1984 0:00	49067	0		84CW0371
7/15/1975 0:00	45851	0		80CW0005, W2656
1/1/1965 0:00	55517.42004	0		02CW0161
5/1/1908 0:00	29260.21305	0	H69	CA2563
6/1/1940 0:00	56613.33024	0		05CW0122
6/1/1950 0:00	44559.36676	0		W1251
7/31/1970 0:00	49308.44041	0		85CW0219

Decreed Use(s)	Net Absolute	Net Conditonal	Net APEX Absolute	Net APEX Conditional	Decreed Units
38	0.044	0	0	0	C
8	0.033	0	0	0	C
38	0.044	0	0	0	C
8	0.033	0	0	0	C
8	0.031	0	0	0	C
8	0.033	0	0	0	C
18	0.033	0	0	0	C
18	0.033	0	0	0	C
18	0	0.033	0	0	C
18	0	0.033	0	0	C
18	0	0.033	0	0	C
18	0.033	0	0	0	C
18	0.033	0	0	0	C
8	0.01	0	0	0	C
89	0.1	0	0	0	C
1	4	0	0	0	C
1	2	0	0	0	C
1468	0.034	0	0	0	C
389	0	0	0	0	C
1	1.45	0	0	0	C
3A	3	0	0	0	A
M	14	0	0	0	A
1	0.75	0	0	0	C
1	1.875	0	0	0	C
1	2.25	0	0	0	C
689	1.875	0	0	0	C
1	1.6	0	0	0	C
F	0.001	0	0	0	C
79	0	0	0	0	C
1	2	0	0	0	C
1	1	0	0	0	C
89	1	0	0	0	C
89	0.033	0	0	0	C
8	0	0	0	0	C
8	0.022	0	0	0	C
1	0.05	0	0	0	C
1	0.044	0	0	0	C
8	0.34	0	0	0	C
18	0.34	0	0	0	C
1	6	0	0	0	C
1	0.033	0	0	0	C
F	0.1	0	0	0	A
79	0	0	0	0	A
M	2.5	0	0	0	C
1	6	0	0	0	C
M	1	0	0	0	C

Decreed Use(s)	Net Absolute	Net Conditonal	Net APEX Absolute	Net APEX Conditional	Decreed Units
1	0.033	0	0	0	C
1A	1.875	0	0	0	C
1	2	0	0	0	C
1	2.225	0	0	0	C
M	1.5	0	0	0	C
1	5.6	0	0	0	C
8	0.033	0	0	0	C
8	0.033	0	0	0	C
8	0.033	0	0	0	C
569	86	0	0	0	A
M	5	0	0	0	A
78	0.0036	0	0	0	C
78	0.0056	0	0	0	C
8	0.011	0	0	0	C
689A	43.8	0	0	0	A
56	4.2	0	0	0	A
M	1	0	0	0	C
F	0.001	0	0	0	C
79	0	0	0	0	C
9	0.05	0	0	0	C
19	4.05	0	0	0	C
8	0.022	0	0	0	C
1	0.02	0	0	0	C
M	1	0	0	0	C
M	2.5	0	0	0	C
8	0.022	0	0	0	C
F	0.1	0	0	0	A
79	0	0	0	0	A
8	0.033	0	0	0	C
8	0.033	0	0	0	C
1A	10	0	0	0	C
1	0	0	0	0	C
1A	33.2	0	0	0	C
56	30	0	0	0	C
M	1.5	0	0	0	C
M	2	0	0	0	C
M	3	0	0	0	C
M	7.5	0	0	0	C
6	2	0	0	0	C
189	746.4	0	0	0	A
56Q	885.5	0	0	0	A
F	0.001	0	0	0	C
79	0	0	0	0	C
F	0.001	0	0	0	C
79	0	0	0	0	C
F	0.001	0	0	0	C

Decreed Use(s)	Net Absolute	Net Conditonal	Net APEX Absolute	Net APEX Conditional	Decreed Units
79	0	0	0	0	C
F	0.001	0	0	0	C
79	0	0	0	0	C
F	0.001	0	0	0	C
79	0	0	0	0	C
F	0.001	0	0	0	C
79	0	0	0	0	C
F	0.001	0	0	0	C
79	0	0	0	0	C
F	0.001	0	0	0	C
79	0	0	0	0	C
1	0.045	0	0	0	C
1	0.022	0	0	0	C
19	1	0	0	0	C
8	0	0	0	0	C
9	0.03	0	0	0	C
18	0	0	0	0	C
9	0.03	0	0	0	C
18	0	0	0	0	C
9	0.03	0	0	0	C
18	0	0	0	0	C
19	0.03	0	0	0	C
18	0	0	0	0	C
9	0.03	0	0	0	C
18	0	0	0	0	C
79	0.0078	0	0	0	C
F	0.001	0	0	0	C
79	0	0	0	0	C
M	1	0	0	0	C
189	3.5	0	0	0	C
8	0.03	0	0	0	C
1	0.66	0	0	0	C
1	1	0	0	0	C
178	0.026	0	0	0	C
78	0.033	0	0	0	C

Seasonal Limits
Yes
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Yes
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Seasonal Limits
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Seasonal Limits
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Comments
PMT NO 105960
PERMIT 122297
YEAR ROUND DOM USE, IRRG 500 SQ FT., YEAR ROUND DOM USE, IRRG 500 SQ FT.
YEAR ROUND DOM USE; IRRG 500 SQ FT, YEAR ROUND DOM USE; IRRG 500 SQ FT
YEAR ROUND DOM USE; IRRG OF 500 SQ FT
YEAR ROUND DOME USE; IRRG OF 500 SQ FT
YEAR ROUND DOM USE; IRRG OF 500 SQ FT
YEAR ROUND DOM USE; IRRG OF 500 SQ FT, YEAR ROUND DOM USE; IRRG OF 500 SQ FT
YEAR ROUND DOM USE; IRRG 500 SQ FT, YEAR ROUND DOM USE; IRRG 500 SQ FT(MAY1-SEPT 30)
DOMESTIC IN 3 DWELLINGS; PROTECTED BY BARTLETT P/A., STOCK USE ABSOLUTE, DOMESTIC REMAINS CONDITI
. P1451 , CASE #13CW3019 CHANGES PLACE OF USE ON JACOBS RANCH, SEE STIP.
P2190
DEEP SPG SEP AREA. P3141
AKA DEEP SPRING DOMESTIC PIPELINE EXT.,NEW USE, LDS CHURCH CAMP USE PROTECTED BY BEAVER LAKE
P205 DCR IN ERROR TO LOC, TT STRINGER DOM PL; 22.5 -20GPM-IRR, 2.5GPM-DOM, ABND TO OFFSET INJURY BY
PROTECTS LDS CAMP USE OF DEEP SPRING DOMESTIC PL, PROTECTS LDS CAMP USE OF DEEP SPRING DOMESTIC P
CWCB MIN LAKE LEVEL; DECREED LOCATION INCORRECT
. P775
P1401;, P1401, CA 5/7/1948 P3383; ., TRANSFER TO COYOTE NO 2 DITCH ID 2148
. P1418
PROTECTED BY AUGMENTATION RELEASES FROM KATHY'S RES 1&2;
P169
USFS RESERVED RIGHT
P402
P766
RESTRICTED TO 1.00C IN CONJ. WITH HOMESTEAD D. P1929, RESTRICTED TO 1.00C IN CONJ. WITH HOMESTEAD D
CANCELLED BY THE COURT 8/11/80
SPRING CR P1060
SPRING CR COND DCR P1114
. P1390
USFS RESERVED RIGHT
CWCB MIN STR FLO BEAR CK TO SPRING CK 1.7 MI
P1385, P1385, CA 5/3/1948 P3408, TRANSFER TO COYOTE NO 2 ID #2148
CWCB MIN STR FLO HDWTRS TO ROCKY BROOK CK 2 MI

Comments
IRRIGATES 1/4 A
P138, P138, USE ADDED, AUG USE ADDED; RPL HARMEL RESORT P/A
TF SPRING CR IRG D P206
P 460 2.0 CFS, DPN 271
CWCB MIN STR FLO HDWTRS TO SPRING CK 2.8 MI
LEGAL DESCRIPTION APPARENTLY IN ERROR P166
LOT 4 EUBANK ACRES
PRIVATE FIING ON LAKE LEVEL
CWCB MINIMUM LAKE LEVEL
1.64GPM
2.43GPM
RPL FOR LAMPTON P/A, USES FOR STOCK, FISH AND DOMESTIC REMAIN CONDITIONAL, RPL FOR LAMPTON P/A
EVAP REPLACED BY BEAVER LAKE
CWCB MIN STR FLO HDWTRS TO SPRING CK 2 MI
USFS RESERVED RIGHT
FOR USE IN ONE SINGLE FAMILY DWELLING
CWCB MIN STR FLO HDWTRS TO SPRING CK 4 MI
CWCB MIN STR FLO HDWTRS TO DEADMAN GULCH 3.3 MI;1CFS NOV1-MAR31
USFS RESERVED RIGHT
P124; .34 ALT PT TAYLOR PIPELINE, USE ADDED, AUG ADDED; RPL TAYLOR RIVER RANCH P/A; 44.92AF/IRG SEAS, 3
ELMER ENLARGEMENT P205, TT ELMER NO. 2 DITCH P205
SPRING CR P301; 1.12CFS ALT PT TO TAYLOR PIPELINE, USE ADDED, AUG ADDED; RPL TAYLOR RIVER RANCH P/A; 4
FILL AND MAINTAIN LEVELS IN PONDS A-F; PROT WILDER ON THE TAYLOR P/A
CWCB MIN STR FL HDWTRS DOWNSTREAM 3.9 MI.
CWCB MIN STR FLO HDWTRS TO MYSTERIOUS CK 3.5MI
CWCB MIN STR FLO MYSTERIOUS CK TO SPRING CK RES 2 MI
CWCB MIN STR FLO ROCKY BROOK CK TO TAYLOR RIVER 10.6 MI
DIRECT FLOW SPRING CR EVAPORATION+AREATION P1011
SPRING CR P885, MADE ABSOLUTE 6-23-1961 P1009
TOTAL STORAGE 1631.9 AF P1009
USFS RESERVED RIGHT
USFS RESERVED RIGHT
USFS RESERVED RIGHT

Comments
USFS RESERVED RIGHT
USFS RESERVED RIGHT
USFS RESERVED RIGHT
USFS RESERVED RIGHT
USFS RESERVED RIGHT
TF AXTELL DITCH 20GPM IRR 2.5GPM DOM (85CW238)
IRRIGATES 0.25A
SEE STIPULATION IN DECREE, 1.00 CFS IS ABSOLUTE FOR STOCK & IRRIGATION
3.375GPM
USFS RESERVED RIGHT
CWCB MIN STR FLO HDWTRS TO SPRING CK 1.7 MI
W2656 FILED 7/22/1975, .10CFS OF TOTAL FOR DOM USE REF W 2656
P1336
WRAY DITCH ENLARGEMENT IRRIGATES SAME ACREAGE

Q10	Q40	Q160	Section	Township	Range	PM	Distance E/W	Direction I	Distance N/S	Direction N/S
NE	SW	NW	22	15.0 S	84.0 W	S				
SW	SE	SW	15	15.0 S	84.0 W	S				
NE	NE	SW	15	15.0 S	84.0 W	S				
SE	NW	NW	22	15.0 S	84.0 W	S				
NW	SE	NW	22	15.0 S	84.0 W	S				
SE	NW	SW	22	15.0 S	84.0 W	S				
SE	SW	NW	22	15.0 S	84.0 W	S	962	W	2213	N
SE	SW	NW	22	15.0 S	84.0 W	S	897	W	2553	N
NE	NW	SW	22	15.0 S	84.0 W	S				
	NW	SW	22	15.0 S	84.0 W	S				
NE	NW	SW	22	15.0 S	84.0 W	S				
SE	SW	NW	22	15.0 S	84.0 W	S	1225	W	2387	N
	SE	NW	22	15.0 S	84.0 W	S				
NE	SE	SW	15	15.0 S	84.0 W	S				
ONAL	NW	SW	20	13.0 S	88.0 W	S				
NE	NE	SW	9	12.0 S	89.0 W	S	2549	W	2316	S
NE	NE	SW	9	12.0 S	89.0 W	S	2549	W	2316	S
NE	NE	NE	9	12.0 S	89.0 W	S	477	E	40	N
NE	NE	NE	9	12.0 S	89.0 W	S	477	E	40	N
SW	SE	SW	15	15.0 S	84.0 W	S				
L	NE	NE	9	12.0 S	89.0 W	S				
NW	SE	NW	12	13.0 S	84.0 W	S				
NW	SW	SW	1	11.0 S	90.0 W	S	511	W	1287	S
SW	SW	NW	10	12.0 S	89.0 W	S	543	W	2060	N
SW	SW	NW	10	12.0 S	89.0 W	S	543	W	2060	N
SW	SW	NW	10	12.0 S	89.0 W	S	543	W	2060	N
SW	NW	SE	15	49.0 N	4.0 E	N				
NE	NW	NW	19	49.0 N	5.0 E	N				
NE	NW	NW	19	49.0 N	5.0 E	N				
	SE	NW	1	11.0 S	90.0 W	S				
	SE	NW	1	11.0 S	90.0 W	S				
. P19	SE	NW	1	11.0 S	90.0 W	S				
SE	SW	NW	18	14.0 S	83.0 W	S	962	W	2343	N
NE	NE	NW	24	14.0 S	84.0 W	S				
SW	NE	SW	15	15.0 S	84.0 W	S				
	SE	NW	22	15.0 S	84.0 W	S				
	SE	NW	22	15.0 S	84.0 W	S	3406	E	3907	S
NE	NE	SW	15	15.0 S	84.0 W	S				
SW	NE	NE	15	15.0 S	84.0 W	S				
NW	NW	SE	9	12.0 S	89.0 W	S	2419	E	2010	S
SE	NW	SW	22	15.0 S	84.0 W	S				
	NW	NE	25	49.0 N	4.5 E	N				
	NW	NE	25	49.0 N	4.5 E	N				
NW	NE	SE	15	14.0 S	84.0 W	S				
NE	SW	NW	10	12.0 S	89.0 W	S	1040	W	1477	N
SW	NW	NW	11	14.0 S	83.0 W	S				

Q10	Q40	Q160	Section	Township	Range	PM	Distance E/W	Direction I	Distance N/S	Direction N/S
NW	SE	NW	22	15.0 S	84.0 W	S	1737	W	1540	N
SW	SE	SW	15	15.0 S	84.0 W	S				
SW	SE	SW	15	15.0 S	84.0 W	S				
SW	SE	SW	15	15.0 S	84.0 W	S				
NW	SW	NE	23	13.0 S	84.0 W	S				
NW	NW	NE	24	49.0 N	4.5 E	N				
NE	SW	NW	22	15.0 S	84.0 W	S				
		NW	22	15.0 S	84.0 W	S				
NW	SE	NW	22	15.0 S	84.0 W	S				
	SE	NE	28	13.0 S	83.0 W	S				
	SE	NE	28	13.0 S	83.0 W	S				
SE	SE	NW	12	49.0 N	4.5 E	N				
SW	SW	NE	12	49.0 N	4.5 E	N				
SE	NE	SW	15	15.0 S	84.0 W	S	2080	W	1406	S
	SE	NW	15	12.0 S	89.0 W	S				
	NW	NE	9	12.0 S	89.0 W	S				
SW	NE	SE	18	13.0 S	83.0 W	S				
NW	SE	SW	18	49.0 N	5.0 E	N				
NW	SE	SW	18	49.0 N	5.0 E	N				
NW	SE	NE	13	49.0 N	4.0 E	N				
	SW	SW	12	49.0 N	4.0 E	N				
SE	NE	SW	15	15.0 S	84.0 W	S	2175	W	1850	S
NW	NE	NW	22	15.0 S	84.0 W	S				
NW	SE	SW	28	13.0 S	83.0 W	S				
NW	NE	SW	29	14.0 S	84.0 W	S				
SW	NW	SE	15	15.0 S	84.0 W	S	2166	E	1655	S
SE	NW	SE	13	49.0 N	4.5 E	N				
SE	NW	SE	13	49.0 N	4.5 E	N				
NE	NE	SE	15	15.0 S	84.0 W	S				
NE	NE	NW	22	15.0 S	84.0 W	S				
ADJ	SW	SW	22	15.0 S	84.0 W	S				
	SW	SW	22	15.0 S	84.0 W	S				
4.92A	SW	SW	22	15.0 S	84.0 W	S				
	SW	SW	22	15.0 S	84.0 W	S				
SE	NE	SE	25	49.0 N	4.0 E	N				
NW	SE	NW	12	13.0 S	84.0 W	S				
SE	SE	NE	25	13.0 S	84.0 W	S				
NE	SW	NE	7	14.0 S	83.0 W	S				
NE	SE	NE	1	14.0 S	84.0 W	S				
	NW	SE	6	14.0 S	83.0 W	S				
	NW	SE	6	14.0 S	83.0 W	S				
SE	SW	SE	25	14.0 S	84.0 W	S				
SE	SW	SE	25	14.0 S	84.0 W	S				
	SE	NE	14	14.0 S	84.0 W	S				
	SE	NE	14	14.0 S	84.0 W	S				
NE	NW	NW	22	14.0 S	84.0 W	S				

Q10	Q40	Q160	Section	Township	Range	PM	Distance E/W	Direction I	Distance N/S	Direction N/S
NE	NW	NW	22	14.0 S	84.0 W	S				
NW	SE	NW	16	14.0 S	84.0 W	S				
NW	SE	NW	16	14.0 S	84.0 W	S				
NW	NE	NW	19	14.0 S	83.0 W	S				
NW	NE	NW	19	14.0 S	83.0 W	S				
SW	SW	NW	30	14.0 S	83.0 W	S				
SW	SW	NW	30	14.0 S	83.0 W	S				
SW	NE	SW	9	14.0 S	84.0 W	S				
SW	NE	SW	9	14.0 S	84.0 W	S				
NW	SE	SE	8	14.0 S	84.0 W	S				
NW	SE	SE	8	14.0 S	84.0 W	S				
NW	SE	NW	22	15.0 S	84.0 W	S				
SE	NE	SW	15	15.0 S	84.0 W	S	1993	W	1388	S
NE	SW	SW	13	49.0 N	4.0 E	N				
NE	SW	SW	13	49.0 N	4.0 E	N				
SW	SW	NW	23	49.0 N	4.0 E	N				
SW	SW	NW	23	49.0 N	4.0 E	N				
NW	SW	NW	23	49.0 N	4.0 E	N				
NW	SW	NW	23	49.0 N	4.0 E	N				
NE	SW	NE	23	49.0 N	4.0 E	N				
NE	SW	NE	23	49.0 N	4.0 E	N				
NW	SW	SE	14	49.0 N	4.0 E	N				
NW	SW	SE	14	49.0 N	4.0 E	N				
SE	NW	NE	23	49.0 N	4.0 E	N				
SE	NW	NE	23	49.0 N	4.0 E	N				
SE	NE	NW	12	49.0 N	4.5 E	N				
NE	SW	NE	19	49.0 N	5.0 E	N				
NE	SW	NE	19	49.0 N	5.0 E	N				
NE	NE	NW	20	14.0 S	83.0 W	S				
NE	NE	SW	9	12.0 S	89.0 W	S	2201	W	2060	S
SW	SE	SW	15	15.0 S	84.0 W	S	1940	W	1065	S
NE	NW	SE	11	11.0 S	90.0 W	S	1816	E	1540	S
NE	NW	SE	11	11.0 S	90.0 W	S	1816	E	1540	S
	NE	SW	15	15.0 S	84.0 W	S				
NE	NE	SW	15	15.0 S	84.0 W	S				

UTM x	UTM y	Latitude	Longitude	Location Accuracy	Modified
346020.5	4288939.5	38.735719	-106.77159	Spotted from quarters	5/4/2006 15:06
346249.9	4289532	38.741096	-106.769084	Spotted from quarters	5/4/2006 14:57
346464.1	4290129.6	38.746516	-106.766753	Spotted from quarters	5/4/2006 14:48
346031.8	4289139	38.737518	-106.771504	Spotted from quarters	5/4/2006 15:01
346220.4	4288932	38.735686	-106.769289	Spotted from quarters	5/4/2006 15:03
345986.7	4288341	38.730322	-106.771845	Spotted from quarters	5/4/2006 15:13
346003	4288765	38.734144	-106.771752	GPS	12/13/2007 15:15
345977	4288662	38.733212	-106.772028	GPS	12/13/2007 15:17
345997.9	4288540.5	38.732121	-106.771761	Spotted from quarters	12/22/2014 9:18
346092	4288571	38.732412	-106.770686	Per Decree	12/22/2014 9:20
345997.9	4288540.5	38.732121	-106.771761	Spotted from quarters	12/22/2014 9:20
346080	4288709	38.733653	-106.770854	GPS	12/13/2007 15:21
346130	4288781	38.73431	-106.770295	Per Decree	12/22/2014 9:15
346453.9	4289726.5	38.742883	-106.76678	Spotted from quarters	5/4/2006 14:53
304451	4308837	38.906666	-107.255202	GPS	2/6/2017 15:05
297328	4322477	39.027863	-107.341328	GPS	2/15/2018 9:12
297328	4322477	39.027863	-107.341328	GPS	2/15/2018 9:12
298049	4323345	39.035846	-107.333263	GPS	2/2/2015 5:36
298049	4323345	39.035846	-107.333263	GPS	2/2/2015 5:36
346294.5	4289473.5	38.740576	-106.768558	GPS	5/4/2006 14:56
297939	4323271	39.035154	-107.334511	Per Decree	2/10/2016 11:50
349858	4311560	38.940133	-106.732391	Digitized	2/12/2013 10:37
292188	4333431	39.125279	-107.404005	GPS	2/15/2018 8:03
298344	4322721	39.030295	-107.329673	GPS	2/15/2018 8:42
298344	4322721	39.030295	-107.329673	GPS	2/15/2018 8:42
298344	4322721	39.030295	-107.329673	GPS	2/15/2018 8:42
367757	4262753	38.503333	-106.516615	GPS	3/27/2006 14:04
372922	4261907	38.496463	-106.457245	User supplied	12/18/2008 11:24
372922	4261907	38.496463	-106.457245	User supplied	12/18/2008 11:24
292543	4333907	39.129649	-107.400048	GPS	2/15/2018 8:46
292543	4333907	39.129649	-107.400048	GPS	2/15/2018 8:46
292543	4333907	39.129649	-107.400048	GPS	2/15/2018 8:46
351058	4299816	38.834554	-106.716004	GPS	5/4/2006 14:27
349843.3	4298926.7	38.826337	-106.729799	Spotted from quarters	5/4/2006 14:44
346259.8	4289935.6	38.744733	-106.769059	Spotted from quarters	5/4/2006 14:52
346315	4288828.5	38.73477	-106.768179	Spotted from quarters	5/4/2006 15:02
346286	4289020	38.736496	-106.768565	GPS	7/11/2017 13:53
346464.1	4290129.6	38.746516	-106.766753	Spotted from quarters	5/4/2006 14:47
347079.4	4290708.1	38.751833	-106.759803	Spotted from quarters	5/4/2006 14:48
297432	4322381	39.027023	-107.340099	GPS	2/15/2018 9:09
345986.7	4288341	38.730322	-106.771845	Spotted from quarters	5/4/2006 15:14
371897	4260232	38.481226	-106.468689	User supplied	12/18/2008 11:07
371897	4260232	38.481226	-106.468689	User supplied	12/18/2008 11:07
347162	4299750	38.833292	-106.760857	Digitized	3/15/2013 14:18
298500	4322895	39.031898	-107.327923	GPS	2/20/2018 8:58
357396	4301605	38.851719	-106.643381	Digitized	3/15/2013 13:53

UTM x	UTM y	Latitude	Longitude	Location Accuracy	Modified
346251	4288961	38.735953	-106.768944	GPS	5/4/2006 15:04
346279.5	4289546.5	38.741231	-106.768746	GPS	1/23/2007 10:50
346279.5	4289546.5	38.741231	-106.768746	GPS	1/23/2007 10:50
346279.5	4289546.5	38.741231	-106.768746	GPS	1/23/2007 10:50
348624	4308320	38.910738	-106.745908	Digitized	3/20/2013 15:10
372036	4261924	38.496489	-106.467405	GPS	3/29/2006 8:58
346020.5	4288939.5	38.735719	-106.77159	Spotted from quarters	5/4/2006 15:06
346125.4	4289037.5	38.73662	-106.770405	Spotted from quarters	5/4/2006 14:59
346220.4	4288932	38.735686	-106.769289	Spotted from quarters	5/4/2006 15:04
355702	4305941	38.8905	-106.663806	Digitized	1/28/2014 10:20
355702	4305941	38.8905	-106.663806	Digitized	1/28/2014 10:20
372455.6	4264619.6	38.520835	-106.463086	Spotted from quarters	3/30/2006 16:28
372625.6	4264620.6	38.520868	-106.461137	Spotted from quarters	3/30/2006 16:29
346393.5	4289855	38.74403	-106.767504	Spotted from section lines	5/4/2006 14:51
298686	4321118	39.015947	-107.325262	Per Decree	10/24/2018 10:23
297587	4323199	39.034424	-107.338553	Per Decree	1/27/2016 8:46
352251	4309039	38.917832	-106.704248	Digitized	3/15/2013 14:05
373169	4262309	38.50012	-106.454486	User supplied	12/18/2008 11:11
373169	4262309	38.50012	-106.454486	User supplied	12/18/2008 11:11
371418.5	4263264.5	38.508477	-106.47473	Spotted from quarters	4/6/2006 11:33
370323.2	4264013.6	38.515067	-106.487428	Spotted from quarters	1/1/1986 0:00
346425.4	4289989.1	38.745243	-106.767167	Spotted from section lines	5/4/2006 14:52
346242	4289331.5	38.739288	-106.76913	Spotted from quarters	5/4/2006 15:00
354794	4305376	38.885261	-106.674152	Digitized	3/15/2013 13:59
343245	4296782	38.80587	-106.805289	Digitized	3/15/2013 14:49
346695.7	4289920	38.744668	-106.764042	Spotted from section lines	5/4/2006 14:46
372230	4262564	38.502283	-106.465298	User supplied	12/18/2008 10:59
372230	4262564	38.502283	-106.465298	User supplied	12/18/2008 10:59
347261.7	4290098.1	38.74637	-106.757572	Spotted from quarters	5/4/2006 14:49
346440.9	4289324	38.739255	-106.766841	Spotted from quarters	5/4/2006 15:00
346009.5	4288241.5	38.72943	-106.771561	GPS	12/20/2013 10:45
346009.5	4288241.5	38.72943	-106.771561	GPS	12/20/2013 10:45
346009.5	4288241.5	38.72943	-106.771561	GPS	12/20/2013 10:45
346009.5	4288241.5	38.72943	-106.771561	GPS	12/20/2013 10:45
371434	4259658	38.475988	-106.47389	Digitized	1/14/2013 8:56
349882	4311551	38.940056	-106.732113	Digitized	3/15/2013 15:14
350779	4306348	38.893344	-106.720635	Digitized	3/15/2013 15:17
351954	4301596	38.850739	-106.706068	Digitized	3/15/2013 14:24
350727.7	4303275.2	38.865657	-106.720558	Spotted from quarters	5/4/2006 14:39
351892.6	4302755.7	38.861175	-106.707025	GPS	5/4/2006 14:39
351892.6	4302755.7	38.861175	-106.707025	GPS	5/4/2006 14:39
350278	4295946	38.799563	-106.724146	User supplied	2/10/2009 15:57
350278	4295946	38.799563	-106.724146	User supplied	2/10/2009 15:57
348957.6	4300063.5	38.836426	-106.740247	Spotted from quarters	12/7/2010 14:39
348957.6	4300063.5	38.836426	-106.740247	Spotted from quarters	12/7/2010 14:39
346264	4299080	38.827101	-106.771048	User supplied	8/19/2010 11:36

UTM x	UTM y	Latitude	Longitude	Location Accuracy	Modified
346264	4299080	38.827101	-106.771048	User supplied	8/19/2010 11:36
344881	4300220	38.837126	-106.78723	User supplied	8/19/2010 11:41
344881	4300220	38.837126	-106.78723	User supplied	8/19/2010 11:41
351270	4298789	38.825339	-106.71334	User supplied	2/10/2009 14:55
351270	4298789	38.825339	-106.71334	User supplied	2/10/2009 14:55
350899	4296729	38.806721	-106.717167	User supplied	2/10/2009 15:03
350899	4296729	38.806721	-106.717167	User supplied	2/10/2009 15:03
344785	4301290	38.846747	-106.788577	User supplied	2/10/2009 15:45
344785	4301290	38.846747	-106.788577	User supplied	2/10/2009 15:45
344157	4301230	38.846095	-106.795797	User supplied	8/19/2010 11:45
344157	4301230	38.846095	-106.795797	User supplied	8/19/2010 11:45
346220.4	4288932	38.735686	-106.769289	Spotted from quarters	5/4/2006 15:03
346366.9	4289850.5	38.743985	-106.767809	Spotted from section lines	5/4/2006 14:51
370384	4262491	38.501359	-106.486448	Spotted from quarters	4/7/2006 8:43
370384	4262491	38.501359	-106.486448	Spotted from quarters	4/7/2006 8:43
368596.3	4261553	38.492646	-106.506767	Spotted from quarters	4/7/2006 8:48
368596.3	4261553	38.492646	-106.506767	Spotted from quarters	4/7/2006 8:48
368595.1	4261755	38.494466	-106.506819	Spotted from quarters	4/7/2006 8:49
368595.1	4261755	38.494466	-106.506819	Spotted from quarters	4/7/2006 8:49
369570.4	4261721	38.494303	-106.495632	Spotted from quarters	4/7/2006 8:50
369570.4	4261721	38.494303	-106.495632	Spotted from quarters	4/7/2006 8:50
369385.8	4262529.5	38.50156	-106.497899	Spotted from quarters	4/7/2006 8:51
369385.8	4262529.5	38.50156	-106.497899	Spotted from quarters	4/7/2006 8:51
369573.6	4261919.5	38.496092	-106.495633	Spotted from quarters	4/7/2006 8:51
369573.6	4261919.5	38.496092	-106.495633	Spotted from quarters	4/7/2006 8:51
372464	4265020.1	38.524444	-106.463063	Spotted from quarters	4/7/2006 8:54
373797	4261496	38.492885	-106.44714	User supplied	12/18/2008 11:15
373797	4261496	38.492885	-106.44714	User supplied	12/18/2008 11:15
353169	4298746	38.825271	-106.691464	Digitized	3/15/2013 14:10
297220	4322402	39.027163	-107.342553	GPS	1/18/2019 10:09
346348.6	4289752.6	38.7431	-106.767997	Spotted from section lines	5/4/2006 14:58
291438	4331898	39.111298	-107.412203	GPS	2/23/2018 9:48
291438	4331898	39.111298	-107.412203	GPS	2/23/2018 9:48
346362	4290032.1	38.74562	-106.767905	Spotted from quarters	5/4/2006 14:46
346464.1	4290129.6	38.746516	-106.766753	Spotted from quarters	5/4/2006 14:51

More Information
https://dnrweb.state.co.us/CDSS/WaterRights/NetAmounts/Details/534191
https://dnrweb.state.co.us/CDSS/WaterRights/NetAmounts/Details/534649
https://dnrweb.state.co.us/CDSS/WaterRights/NetAmounts/Details/534208
https://dnrweb.state.co.us/CDSS/WaterRights/NetAmounts/Details/534521
https://dnrweb.state.co.us/CDSS/WaterRights/NetAmounts/Details/534267
https://dnrweb.state.co.us/CDSS/WaterRights/NetAmounts/Details/534335
https://dnrweb.state.co.us/CDSS/WaterRights/NetAmounts/Details/534206
https://dnrweb.state.co.us/CDSS/WaterRights/NetAmounts/Details/534342
https://dnrweb.state.co.us/CDSS/WaterRights/NetAmounts/Details/534393
https://dnrweb.state.co.us/CDSS/WaterRights/NetAmounts/Details/534414
https://dnrweb.state.co.us/CDSS/WaterRights/NetAmounts/Details/534419
https://dnrweb.state.co.us/CDSS/WaterRights/NetAmounts/Details/534423
https://dnrweb.state.co.us/CDSS/WaterRights/NetAmounts/Details/534425
https://dnrweb.state.co.us/CDSS/WaterRights/NetAmounts/Details/534674
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COLORADO
Division of Water Resources
Department of Natural Resources

In accordance with sections 37-92-401(1)(a) and (a.5), C.R.S., the state and division engineers "*maintain a tabulation in order of seniority of all decreed water rights and conditional water rights in his or her division*". The tabulations "*set forth the priority and amount thereof as established by court decrees" and "include judgments and decrees determining, changing, or otherwise affecting water rights and conditional water rights, which judgments and decrees have been entered more than six months before the date of review."* The tabulation is continuously updated electronically and is subject to change without notice.

This report satisfies the requirements of section 37-92-401(2)(a), C.R.S., which requires the state and division engineer to "*make a copy of the tabulation available for inspection in their offices at any time during regular office hours, as well as on the state engineer's website"* and to "*provide a copy of the tabulation for a fee as set forth in section 24-72-205 (5)."*

This report shows the current net amount of water rights based on all tabulated actions of the courts. Pursuant to section 37-92-401(3), "*Any person wishing to object to the manner in which a water right or conditional water right is listed in the tabulation or to the omission of a water right or conditional water right from the tabulation...must file a statement of objection in writing with the division engineer."*

Respectfully,

KEVIN REIN, P.E.

State Engineer/Director

Name of Structure	Structure Type	Water Source	PLSS Location	Adj Date	Prev Adj Date	Appro Date	Admin No	O#	Priority Date	Decreed Uses *	Net Abs	Net Cond	Net APEX Abs	Net APEX Cond	Decreed Units	Seasonal Limit	WDID
SPRING CR IRG DITCH	Ditch	SPRING CREEK [00188820]	SW SW 22 84.0W 15.0S S	10/25/1921	9/14/1906	6/1/1891	20710.15127	0	9/14/1906	1A	10.0000	0	0	0	C	No	5900679
SPRING CR IRG DITCH	Ditch	SPRING CREEK [00188820]	SW SW 22 84.0W 15.0S S	10/25/1921	9/14/1906	6/1/1891	20710.15127	0	9/14/1906	1A	10.0000	0	0	0	C	No	5900679
SPRING CR IRG DITCH	Ditch	SPRING CREEK [00188820]	SW SW 22 84.0W 15.0S S	4/29/1941	12/18/1933	6/15/1882	30667.11854	0	12/18/1933	1A	33.2000	0	0	0	C	No	5900679
SPRING CR IRG DITCH	Ditch	SPRING CREEK [00188820]	SW SW 22 84.0W 15.0S S	4/29/1941	12/18/1933	6/15/1882	30667.11854	0	12/18/1933	1A	33.2000	0	0	0	C	No	5900679
SPRING CR IRG DITCH	Ditch	SPRING CREEK [00188820]	SW SW 22 84.0W 15.0S S	12/31/2008	12/31/2007	12/1/2007	57708.57678	0	12/31/2007	56	30.0000	0	0	0	C	No	5900679
SPRING CR IRG DITCH	Ditch	SPRING CREEK [00188820]	SW SW 22 84.0W 15.0S S	12/31/2008	12/31/2007	12/1/2007	57708.57678	0	12/31/2007	56	30.0000	0	0	0	C	No	5900679

NOTES
* Use Codes: 0 - storage, 1 - irrigation, 2 - municipal, 3 - commercial, 4- industrial , 5- recreation, 6 - fishery, 7 - fire, 8 - domestic, 9 - stock, A - augmentation, B - export from basin, C - cumulative accretion to river, D - cumulative depletion from river, E - evaporation, F - federal reserve, G - geothermal, H - household use only, K - snow making, M - minimum flow, N - net effect of river, P - power generation, Q - other, R - recharge, S - export from state, T - transmountain export, W - wildlife, X - all beneficial use

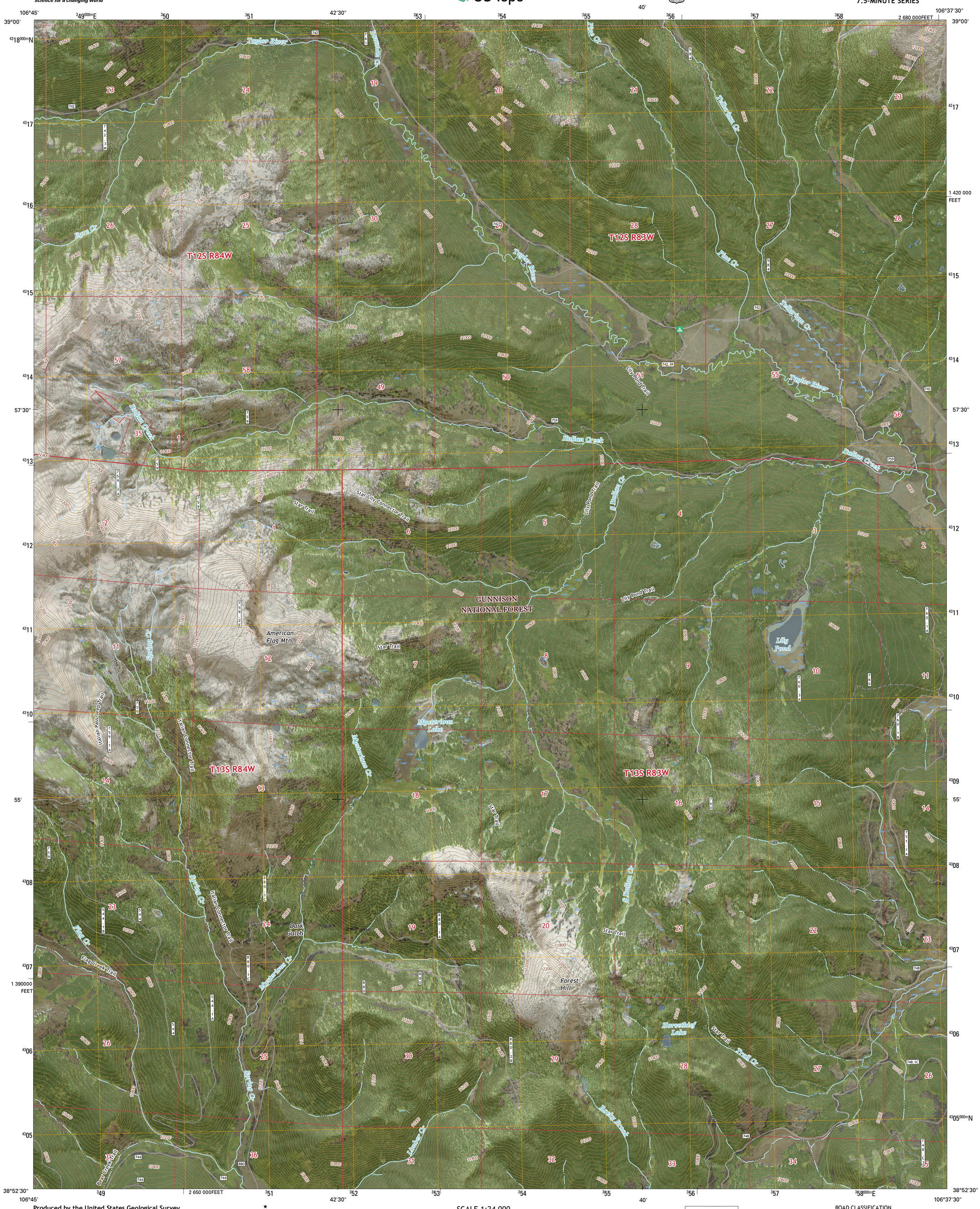
If seasonal limit is indicated, decreed amount may differ from amount shown.

Attachment G- USGS Topographic Quadrangle Maps

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

The National Map US Topo

ITALIAN CREEK 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, 2005
Boundaries.....Multiple sources; see metadata file 1972 - 2016
Public Land Survey System.....BLM, 2011
Wetlands.....FWS National Wetlands Inventory 1977 - 2014

MN
GN
9° 11′
163 MILS
1° 4′
19 MILS
UTM GRID AND 2016 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

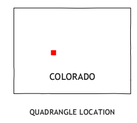
U.S. National Grid
100,000-m Square ID
CD
Grid Zone Designation
13S

SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

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

1	2	3
4		5
6	7	8

ADJOINING QUADRANGLES
1 Hayden Peak
2 New York Peak
3 Independence Pass
4 Pearl Pass
5 Pieplant
6 Cement Mountain
7 Matchless Mountain
8 Taylor Park Reservoir

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
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.

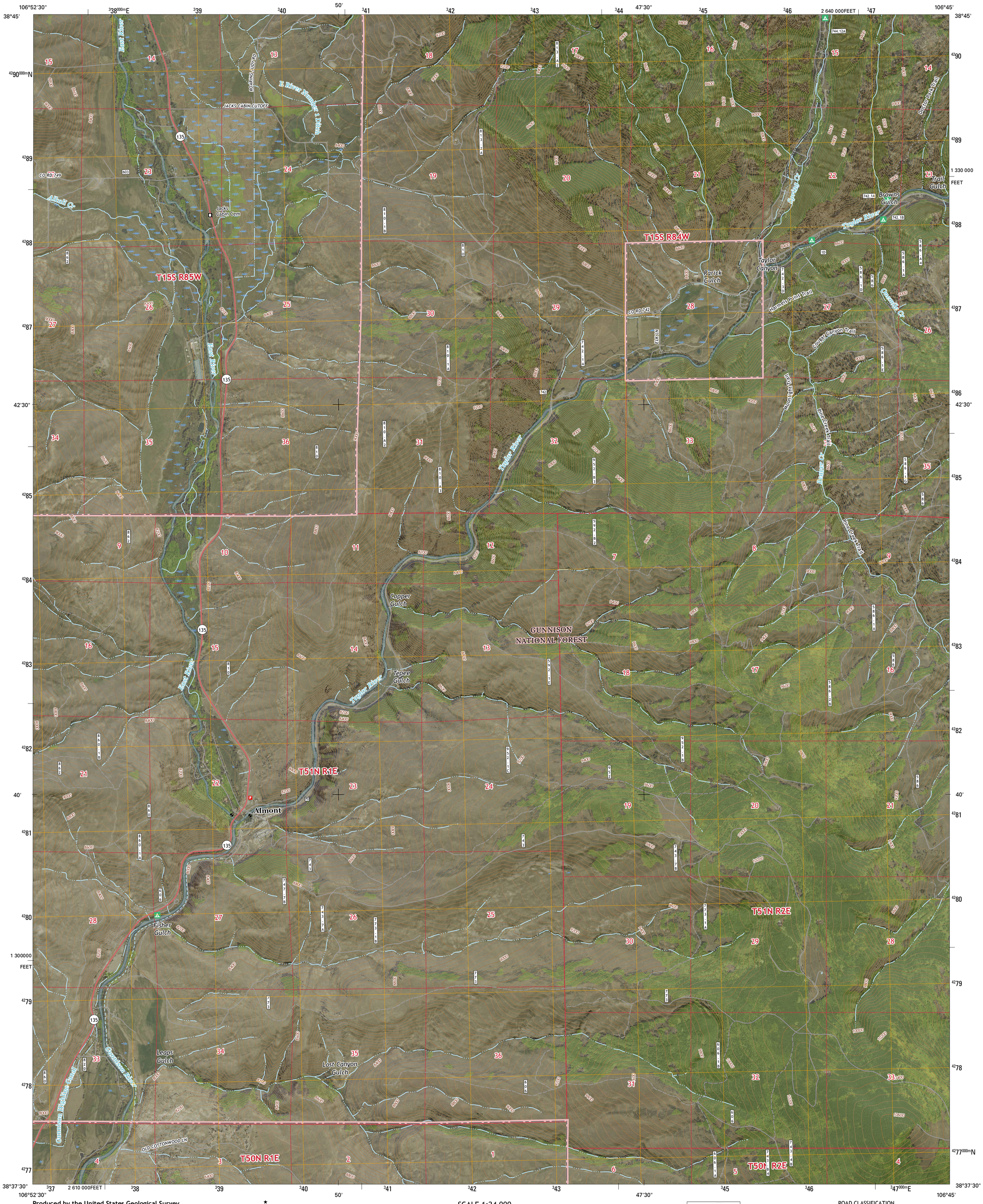
ITALIAN CREEK, CO
2016

NSN 7643016359121
NGA REF NO. USGSX24K221183

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

The National Map US Topo

ALMONT 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)

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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

MN
GN
9° 13'
164 MILS
1° 8'
20 MILS
UTM GRID AND 2016 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

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

SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

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

1	2	3
4		5
6	7	8

ADJOINING QUADRANGLES
1 Crested Butte
2 Cement Mountain
3 Matchless Mountain
4 Flat Top
5 Crystal Creek
6 Gunnison
7 Signal Peak
8 Parlin

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
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.

ALMONT, CO
2016

NSN. 7643016355831 5
NGA REF NO. USGSX24K678

Discharge Measurment Field Visit Data Report *(Filters: Name begins with spring; Processing Status = Moving Forward;)*

Div	Name	CWCB Case Number	Segment ID	Meas. Date	UTM	Location	Flow Amount (cfs)	Meas #	Rating	Station ID
4	Spring Creek		20/4/A-003	08/02/2019	UTMx: 349688 UTMy: 4298707	Spring Creek 0.5 miles US of LT	49.1437	1	F	
4	Spring Creek		20/4/A-003	10/17/2019	UTMx: 349688 UTMy: 4298707	Spring Creek 0.5 miles US of LT	22.83	2	G	

Discharge Measurement Summary

File Information

File name	Spring Creek upper_20190802-093258.ft
Start date and time	8/2/2019 9:11 AM
Calculations engine	FlowTracker2
Data collection mode	Discharge

Discharge Summary

Start time	8/2/2019 9:13:24 AM	End time	8/2/2019 9:30:45 AM
# Stations	19	Avg interval	40
Mean depth	1.435 ft		
Mean velocity	2.2242 ft/s	Total width	15.400 ft
Mean SNR	43 dB	Total area	22.0950 ft²
Mean temp	50.277 °F	Total discharge	49.1437 ft³/s

System Information

Sensor type	Top Setting
Handheld serial number	FT2H1747037
Probe serial number	FT2P1747048
Probe firmware	1.23
Handheld software	1.4

Site Details

Site name	Spring Creek upper
Site number	001
Operator(s)	JEL
Comment	Spot meas

Discharge Uncertainty

Category	ISO	IVE
Accuracy	1.0%	1.0%
Depth	0.1%	3.4%
Velocity	1.1%	11.2%
Width	0.1%	0.1%
Method	2.0%	
# Stations	2.6%	
Overall	3.7%	11.8%

Discharge Settings

Discharge equation	Mid Section
Discharge uncertainty	IVE
Discharge reference	Rated

Station Warning Settings

Station discharge caution	5.00	%
Station discharge warning	10.00	%
Maximum depth change	50.00	%
Maximum spacing change	100.00	%

Summary overview

No changes were made to this file
Quality control warnings

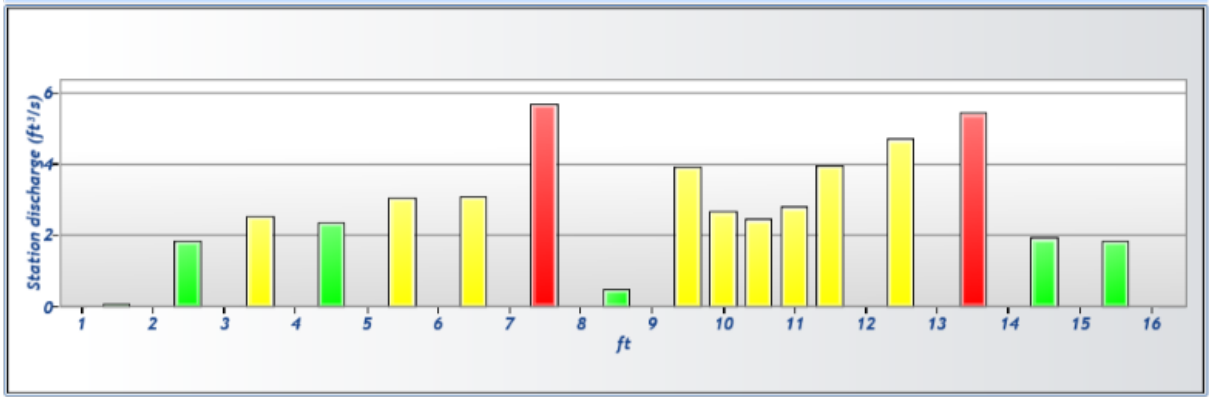
Data Collection Settings

Salinity	0.000	PSS-78
Temperature		°F
Sound speed		ft/s
Mounting correction	0.00	%

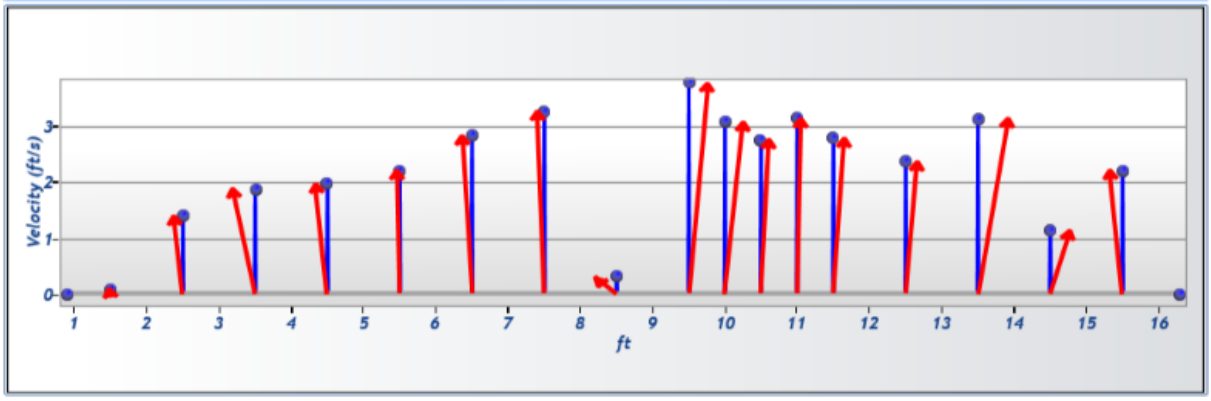
Quality Control Settings

SNR threshold	10	dB
Standard error threshold	0.0328	ft/s
Spike threshold	10.00	%
Maximum velocity angle	20.0	deg
Maximum tilt angle	5.0	deg

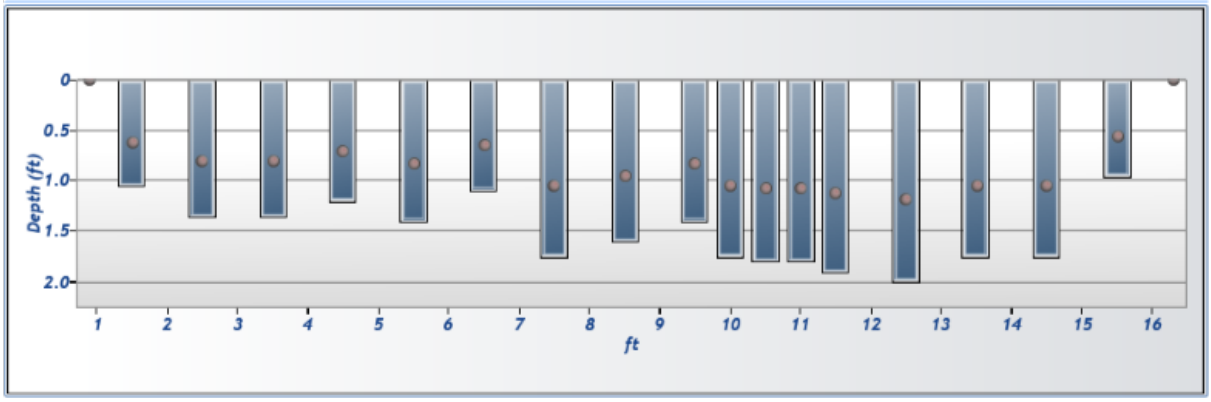
Discharge chart



Velocity chart



Depth chart



Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft^2)	Flow (ft^3/s)	%Q	
0	9:13 AM	0.900	None	0.000	0.0000	0.000	0	0.0000	1.0000	0.0835	0.0000	0.0000	0.00	✓
1	9:13 AM	1.500	0.6	1.050	0.6000	0.630	45	0.0835	1.0000	0.0835	0.8400	0.0702	0.14	✓
2	9:15 AM	2.500	0.6	1.350	0.6000	0.810	51	1.3904	1.0000	1.3904	1.3500	1.8770	3.82	✓
3	9:16 AM	3.500	0.6	1.350	0.6000	0.810	45	1.8754	1.0000	1.8754	1.3500	2.5317	5.15	✓
4	9:17 AM	4.500	0.6	1.200	0.6000	0.720	43	1.9716	1.0000	1.9716	1.2000	2.3659	4.81	✓
5	9:17 AM	5.500	0.6	1.400	0.6000	0.840	42	2.1994	1.0000	2.1994	1.4000	3.0792	6.27	✓
6	9:18 AM	6.500	0.6	1.100	0.6000	0.660	57	2.8277	1.0000	2.8277	1.1000	3.1104	6.33	✓
7	9:20 AM	7.500	0.6	1.750	0.6000	1.050	50	3.2514	1.0000	3.2514	1.7500	5.6900	11.58	✓
8	9:21 AM	8.500	0.6	1.600	0.6000	0.960	80	0.3165	1.0000	0.3165	1.6000	0.5064	1.03	✓
9	9:22 AM	9.500	0.6	1.400	0.6000	0.840	44	3.7612	1.0000	3.7612	1.0500	3.9492	8.04	✓
10	9:29 AM	10.000	0.6	1.750	0.6000	1.050	43	3.0719	1.0000	3.0719	0.8750	2.6879	5.47	✓
11	9:23 AM	10.500	0.6	1.800	0.6000	1.080	42	2.7583	1.0000	2.7583	0.9000	2.4825	5.05	✓
12	9:30 AM	11.000	0.6	1.800	0.6000	1.080	46	3.1287	1.0000	3.1287	0.9000	2.8158	5.73	✓
13	9:24 AM	11.500	0.6	1.900	0.6000	1.140	52	2.7840	1.0000	2.7840	1.4250	3.9672	8.07	✓
14	9:25 AM	12.500	0.6	2.000	0.6000	1.200	50	2.3533	1.0000	2.3533	2.0000	4.7067	9.58	✓
15	9:26 AM	13.500	0.6	1.750	0.6000	1.050	46	3.1215	1.0000	3.1215	1.7500	5.4626	11.12	✓
16	9:27 AM	14.500	0.6	1.750	0.6000	1.050	46	1.1217	1.0000	1.1217	1.7500	1.9630	3.99	✓
17	9:28 AM	15.500	0.6	0.950	0.6000	0.570	46	2.1964	1.0000	2.1964	0.8550	1.8779	3.82	✓
18	9:29 AM	16.300	None	0.000	0.0000	0.000	0	0.0000	1.0000	2.1964	0.0000	0.0000	0.00	✓

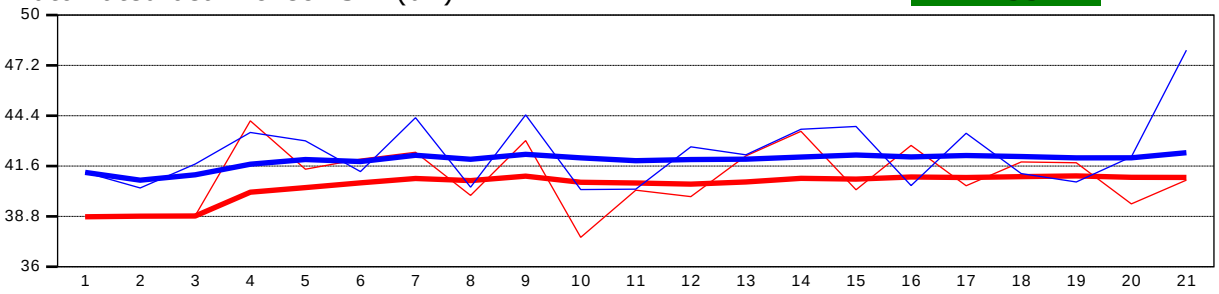
Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings	
1	9:13 AM	1.500	0.6	1.050	0.6000	0.630	Large SNR Variation	
2	9:15 AM	2.500	0.6	1.350	0.6000	0.810	Standard Error > QC	
3	9:16 AM	3.500	0.6	1.350	0.6000	0.810	Standard Error > QC	
4	9:17 AM	4.500	0.6	1.200	0.6000	0.720	Standard Error > QC	
5	9:17 AM	5.500	0.6	1.400	0.6000	0.840	Standard Error > QC	
6	9:18 AM	6.500	0.6	1.100	0.6000	0.660	Standard Error > QC	
7	9:20 AM	7.500	0.6	1.750	0.6000	1.050	Standard Error > QC,High Stn % Discharge	
8	9:21 AM	8.500	0.6	1.600	0.6000	0.960	Standard Error > QC,Velocity Angle > QC	
9	9:22 AM	9.500	0.6	1.400	0.6000	0.840	Standard Error > QC	
10	9:29 AM	10.000	0.6	1.750	0.6000	1.050	Standard Error > QC	
11	9:23 AM	10.500	0.6	1.800	0.6000	1.080	Standard Error > QC	
12	9:30 AM	11.000	0.6	1.800	0.6000	1.080	Standard Error > QC	
13	9:24 AM	11.500	0.6	1.900	0.6000	1.140	Standard Error > QC	
14	9:25 AM	12.500	0.6	2.000	0.6000	1.200	Standard Error > QC	
15	9:26 AM	13.500	0.6	1.750	0.6000	1.050	Standard Error > QC,High Stn % Discharge	
16	9:27 AM	14.500	0.6	1.750	0.6000	1.050	Standard Error > QC	
17	9:28 AM	15.500	0.6	0.950	0.6000	0.570	Standard Error > QC	
18	9:29 AM	16.300	None	0.000	0.0000	0.000	Water Depth > QC	

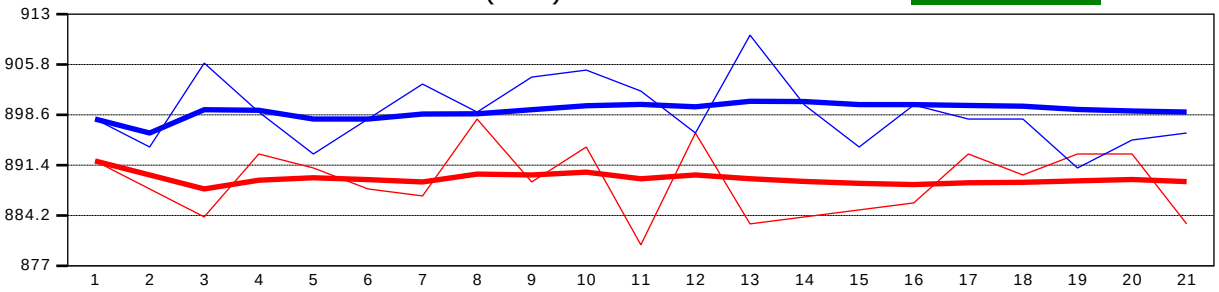
12/12/2019 8:11:59 AM

Automated beam check Start time 8/2/2019 9:12:59 AM

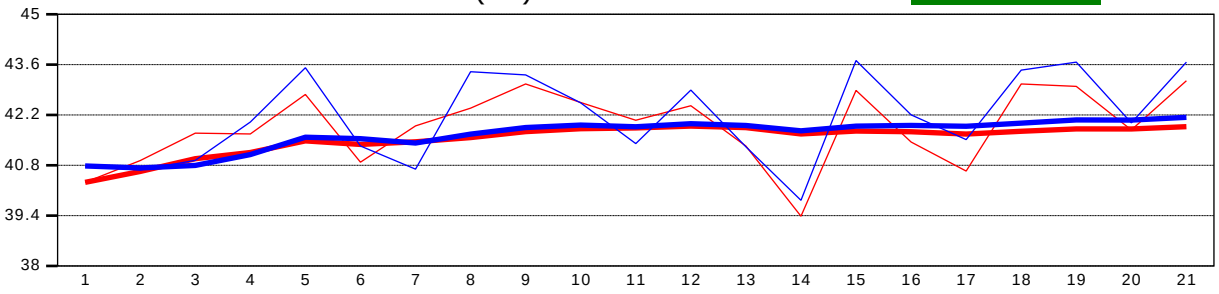
Automated beam check SNR(dB) PASS



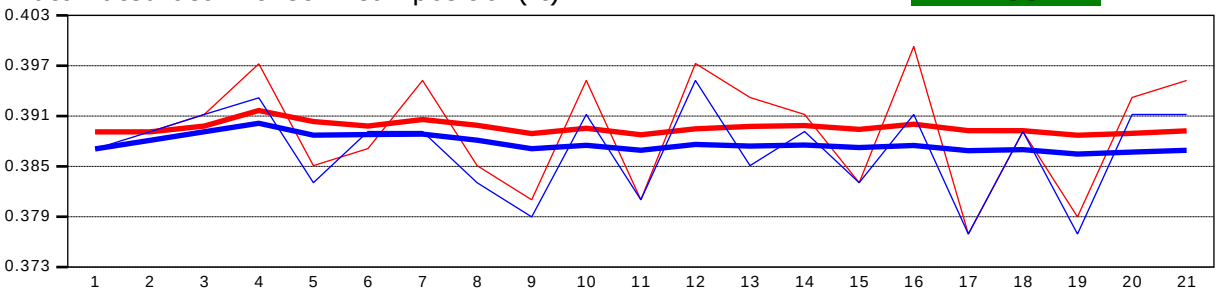
Automated beam check Noise level(cnts) PASS



Automated beam check Peak level(dB) PASS



Automated beam check Peak position(ft) PASS



Automated beam check Quality control warnings

No quality control warnings

Discharge Measurement Summary

File Information

File name	SPRINGD4_20191017-185302.ft
Start date and time	10/17/2019 6:38 PM
Calculations engine	FlowTracker2
Data collection mode	Discharge

Discharge Summary

Start time	10/17/2019 6:40:16 PM	End time	10/17/2019 6:52:14 PM
# Stations	16	Avg interval	40
Mean depth	0.926 ft		
Mean velocity	1.6551 ft/s	Total width	14.900 ft
Mean SNR	34 dB	Total area	13.7925 ft²
Mean temp	46.272 °F	Total discharge	22.8280 ft³/s

System Information

Sensor type	Top Setting
Handheld serial number	FT2H1747037
Probe serial number	FT2P1747048
Probe firmware	1.23
Handheld software	1.4

Site Details

Site name	Spring Cr upper
Site number	1017
Operator(s)	JEL
Comment	Spot

Discharge Uncertainty

Category	ISO	IVE
Accuracy	1.0%	1.0%
Depth	0.3%	5.7%
Velocity	0.6%	4.3%
Width	0.1%	0.1%
Method	2.0%	
# Stations	3.1%	
Overall	3.9%	7.2%

Discharge Settings

Discharge equation	Mid Section
Discharge uncertainty	IVE
Discharge reference	Rated

Station Warning Settings

Station discharge caution	5.00	%
Station discharge warning	10.00	%
Maximum depth change	50.00	%
Maximum spacing change	100.00	%

Summary overview

No changes were made to this file
Quality control warnings

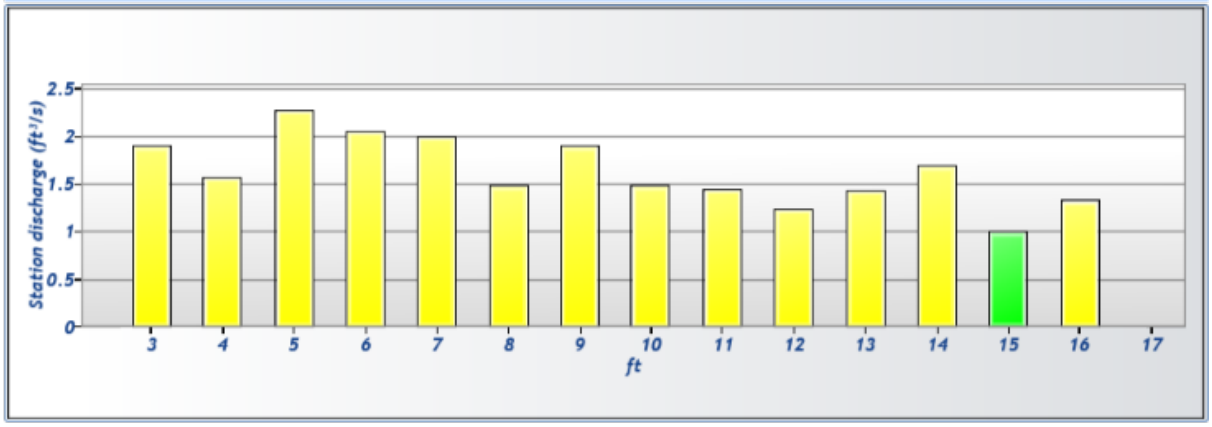
Data Collection Settings

Salinity	0.000	PSS-78
Temperature		°F
Sound speed		ft/s
Mounting correction	0.00	%

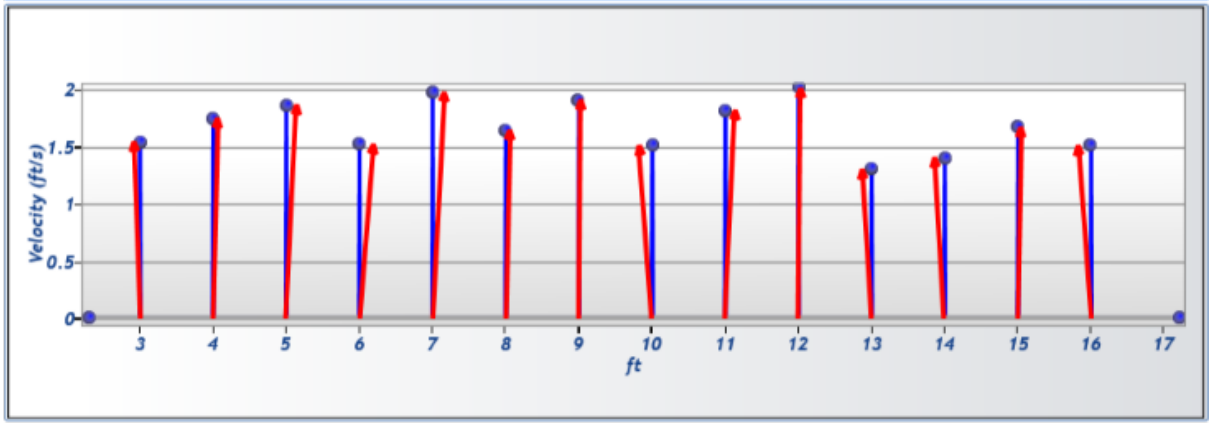
Quality Control Settings

SNR threshold	10	dB
Standard error threshold	0.0328	ft/s
Spike threshold	10.00	%
Maximum velocity angle	20.0	deg
Maximum tilt angle	5.0	deg

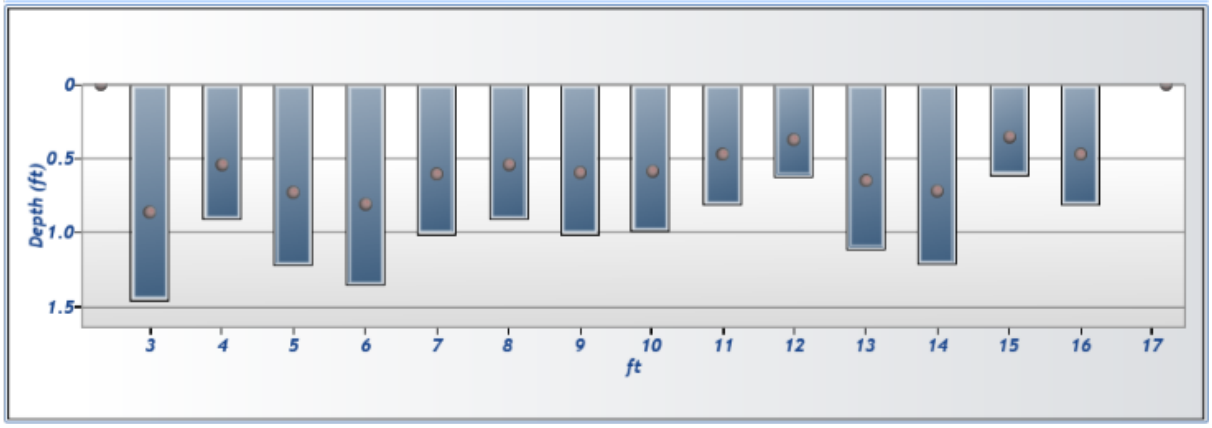
Discharge chart



Velocity chart



Depth chart



Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft^2)	Flow (ft^3/s)	%Q		
0	6:40 PM	2.300	None	0.000	0.0000	0.000	0	0.0000	1.0000	1.5456	0.0000	0.0000	0.00	✓	
1	6:40 PM	3.000	0.6	1.450	0.6000	0.870	50	1.5456	1.0000	1.5456	1.2325	1.9049	8.34	✓	
2	6:41 PM	4.000	0.6	0.900	0.6000	0.540	42	1.7482	1.0000	1.7482	0.9000	1.5734	6.89	✓	
3	6:42 PM	5.000	0.6	1.220	0.6000	0.732	80	1.8607	1.0000	1.8607	1.2200	2.2701	9.94	✓	
4	6:43 PM	6.000	0.6	1.350	0.6000	0.810	43	1.5227	1.0000	1.5227	1.3500	2.0557	9.01	✓	
5	6:44 PM	7.000	0.6	1.010	0.6000	0.606	42	1.9798	1.0000	1.9798	1.0100	1.9996	8.76	✓	
6	6:45 PM	8.000	0.6	0.900	0.6000	0.540	59	1.6479	1.0000	1.6479	0.9000	1.4831	6.50	✓	
7	6:46 PM	9.000	0.6	1.000	0.6000	0.600	43	1.9042	1.0000	1.9042	1.0000	1.9042	8.34	✓	
8	6:46 PM	10.000	0.6	0.980	0.6000	0.588	47	1.5135	1.0000	1.5135	0.9800	1.4833	6.50	✓	
9	6:47 PM	11.000	0.6	0.800	0.6000	0.480	43	1.8160	1.0000	1.8160	0.8000	1.4528	6.36	✓	
10	6:48 PM	12.000	0.6	0.620	0.6000	0.372	44	2.0138	1.0000	2.0138	0.6200	1.2485	5.47	✓	
11	6:49 PM	13.000	0.6	1.100	0.6000	0.660	44	1.3058	1.0000	1.3058	1.1000	1.4364	6.29	✓	
12	6:49 PM	14.000	0.6	1.200	0.6000	0.720	44	1.4019	1.0000	1.4019	1.2000	1.6823	7.37	✓	
13	6:50 PM	15.000	0.6	0.600	0.6000	0.360	42	1.6726	1.0000	1.6726	0.6000	1.0036	4.40	✓	
14	6:51 PM	16.000	0.6	0.800	0.6000	0.480	59	1.5115	1.0000	1.5115	0.8800	1.3301	5.83	✓	
15	6:52 PM	17.200	None	0.000	0.0000	0.000	0	0.0000	1.0000	1.5115	0.0000	0.0000	0.00	✓	

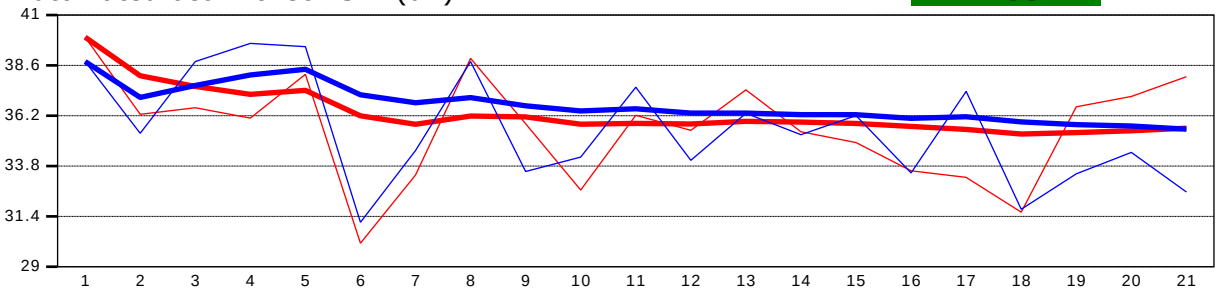
Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
1	6:40 PM	3.000	0.6	1.450	0.6000	0.870	Water Depth > QC
4	6:43 PM	6.000	0.6	1.350	0.6000	0.810	Standard Error > QC
5	6:44 PM	7.000	0.6	1.010	0.6000	0.606	Standard Error > QC
6	6:45 PM	8.000	0.6	0.900	0.6000	0.540	Standard Error > QC
7	6:46 PM	9.000	0.6	1.000	0.6000	0.600	Standard Error > QC
8	6:46 PM	10.000	0.6	0.980	0.6000	0.588	Standard Error > QC
9	6:47 PM	11.000	0.6	0.800	0.6000	0.480	Standard Error > QC
11	6:49 PM	13.000	0.6	1.100	0.6000	0.660	Standard Error > QC
12	6:49 PM	14.000	0.6	1.200	0.6000	0.720	Standard Error > QC
14	6:51 PM	16.000	0.6	0.800	0.6000	0.480	Standard Error > QC
15	6:52 PM	17.200	None	0.000	0.0000	0.000	Water Depth > QC

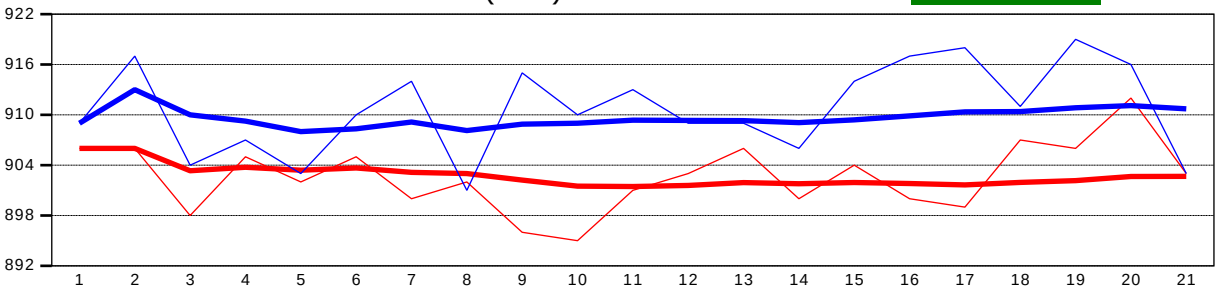
12/12/2019 8:14:18 AM

Automated beam check Start time 10/17/2019 6:39:52 PM

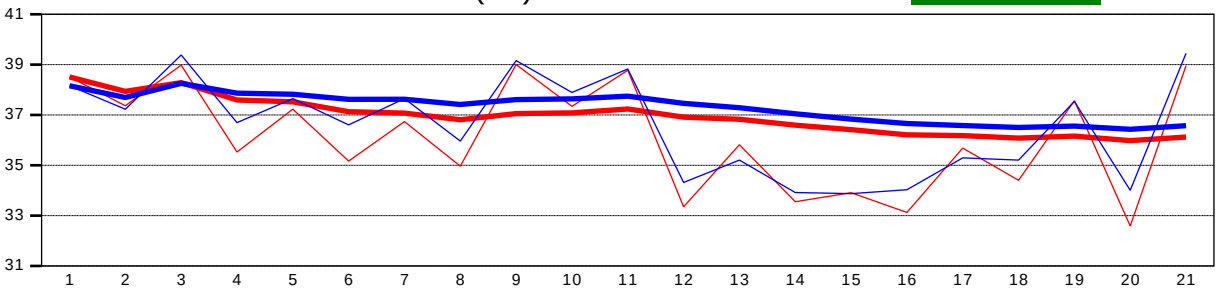
Automated beam check SNR(dB) PASS



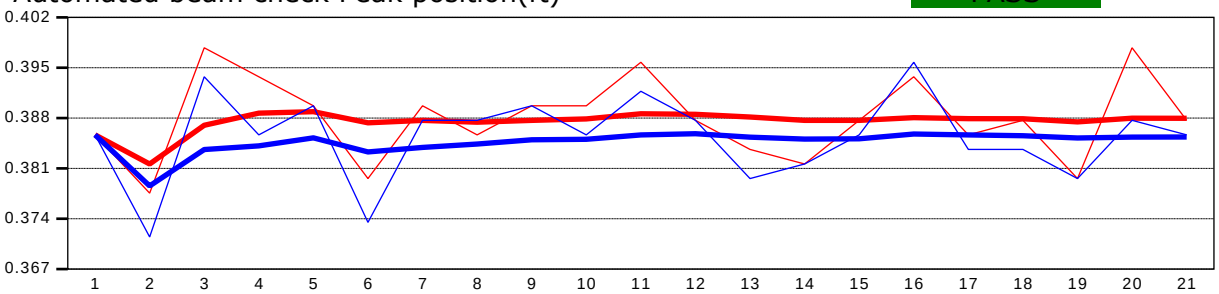
Automated beam check Noise level(cnts) PASS



Automated beam check Peak level(dB) PASS



Automated beam check Peak position(ft) PASS



Automated beam check Quality control warnings

No quality control warnings