COLORADO PARKS & WILDLIFE

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December 30, 2013

Ms. Linda Bassi
Colorado Water Conservation Board
Stream and Lake Protection Section
1313 Sherman Street, Room 723
Denver, Colorado 80203

Re: Colorado Parks and Wildlife Instream Flow Recommendations for Two Segments of East Divide Creek – Garfield County

Dear Linda,

The purpose of this letter is to formally transmit Colorado Parks and Wildlife's (CPW) Instream Flow Recommendations for two segments of East Divide Creek. CPW has collected and reviewed data, including stream cross section information and natural environment data, needed to quantify the instream flow requirements for these reaches of East Divide Creek. CPW has conducted a preliminary evaluation of the stream hydrology and has subsequently consulted with CWCB staff where we reviewed their water availability analysis to determine if water is physically available for an instream flow appropriation. These East Divide Creek segments should be considered for inclusion in the Instream Flow Program (ISFP) because CPW is of the opinion that they have a natural environment that can be preserved to a reasonable degree with instream flow water righst.

The State of Colorado's ISFP was created in 1973 when the Colorado General Assembly recognized "the need to correlate the activities of mankind with some reasonable preservation of the natural environment" (See §37-92-102 (3) C.R.S.). The statute vests the Colorado Water Conservation Board (Board) with the exclusive authority to appropriate and acquire instream flow and natural lake level water rights. In order to encourage other entities to participate in Colorado's ISFP, the statute directs the Board to request instream flow recommendations from other state and federal agencies. CPW is recommending these segments of East Divide Creek to the Board for inclusion into the ISFP.

CPW is forwarding these instream flow recommendations to the Board to meet 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 a program and policy, there shall

STATE OF COLORADO
John W. Hickenlooper, Governor • Mike King, Executive Director, Department of Natural Resources
Bob D. Broscheid, Director, Colorado Parks and Wildlife
Parks and Wildlife Commission: Robert W. Bray • Chris Castilian, Secretary • Jeanne Horne
Bill Kane, Chair • Gaspar Perricone • James Pribyl • John Singletary
Mark Smith, Vice-Chair • James Vigil • Dean Wingfield • Michelle Zimmerman
Ex Officio Members: Mike King and John Salazar

be a continuous operation of planning, acquisition, and development of wildlife habitats and facilities for wildlife-related opportunities" (See §33-1-101 (1) C.R.S.). CPW's Strategic Plan goes on to state that "[h]ealthy aquatic environments are essential to maintain healthy and viable fisheries, and critical for self-sustaining populations… by protecting and enhancing the quality and quantity of aquatic habitats." CPW has long been of the opinion that the ISFP is a critical habitat protection program for the water dependant natural environment.

The information contained in the attached reports form the basis for the instream flow recommendation to be considered by the Board. It is CPW staff's opinion that the information is sufficient for the Board to support the findings required in the ISFP statutes and in Rule 5 (i) of the Instream Flow Rules.

East Divide Creek – Upper Segment

Natural Environment: Upper East Divide Creek is important to CPW because it supports healthy naturally reproducing populations both native and introduced species – Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus*) and rainbow trout (*Oncorhynchus mykiss*).

Initial Flow Recommendations: Initial CPW flow recommendations (prior to any water availability considerations) were 4.8 cfs for the summer months and 0.5 cfs for the winter months.

Final Flow Recommendations after Water Availability Consultations with CWCB Staff: After meeting with staff about the hydrology of upper segment of East Divide Creek, CPW has revised our flow recommendations to be (see attached report for rationale):

- 1.4 cfs (04/01 – 04/15)
- 4.8 cfs (04/16 – 06/30)
- 1.5 cfs (07/01 – 07/15)
- 1.2 cfs (07/16 – 07/30)
- 0.3 cfs (08/01 – 03/31)

East Divide Creek – Lower Segment

Natural Environment: This stream reach, lower East Divide Creek, is important to CPW because it supports healthy naturally reproducing populations both native and introduced species – Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus*), rainbow trout (*Oncorhynchus mykiss*), and speckled dace (*Rhinichthys osculus*).

Initial Flow Recommendations: Initial CPW flow recommendations (prior to any water availability considerations) were 7.2 cfs for the summer months and 3.0 cfs for the winter months.

Final Flow Recommendations after Water Availability Consultations with CWCB Staff:
After meeting with staff about the hydrology of the lower section of East Divide Creek, CPW has revised our flow recommendations to be (see attached report for rationale):

- 3.0 cfs (04/01 – 04/15)
- 7.2 cfs (04/16 – 06/30)
- 3.0 cfs (07/01 – 07/31)
- 1.1 cfs (08/01 – 03/31)

If you have any questions regarding the attached information or the instream flow recommendations, please contact me at (303)-291-7260.

Sincerely,

Jay W. Skinner

Jay W. Skinner
Colorado Parks and Wildlife
Instream Flow Program Coordinator

cc: Chad Bishop, CPW Assistant Director – Wildlife and Natural Resources Branch
Alex Davis, CPW Water Resources Section Manager
Regional Staff

Stream: East Divide Creek #1(Upper)

Executive Summary

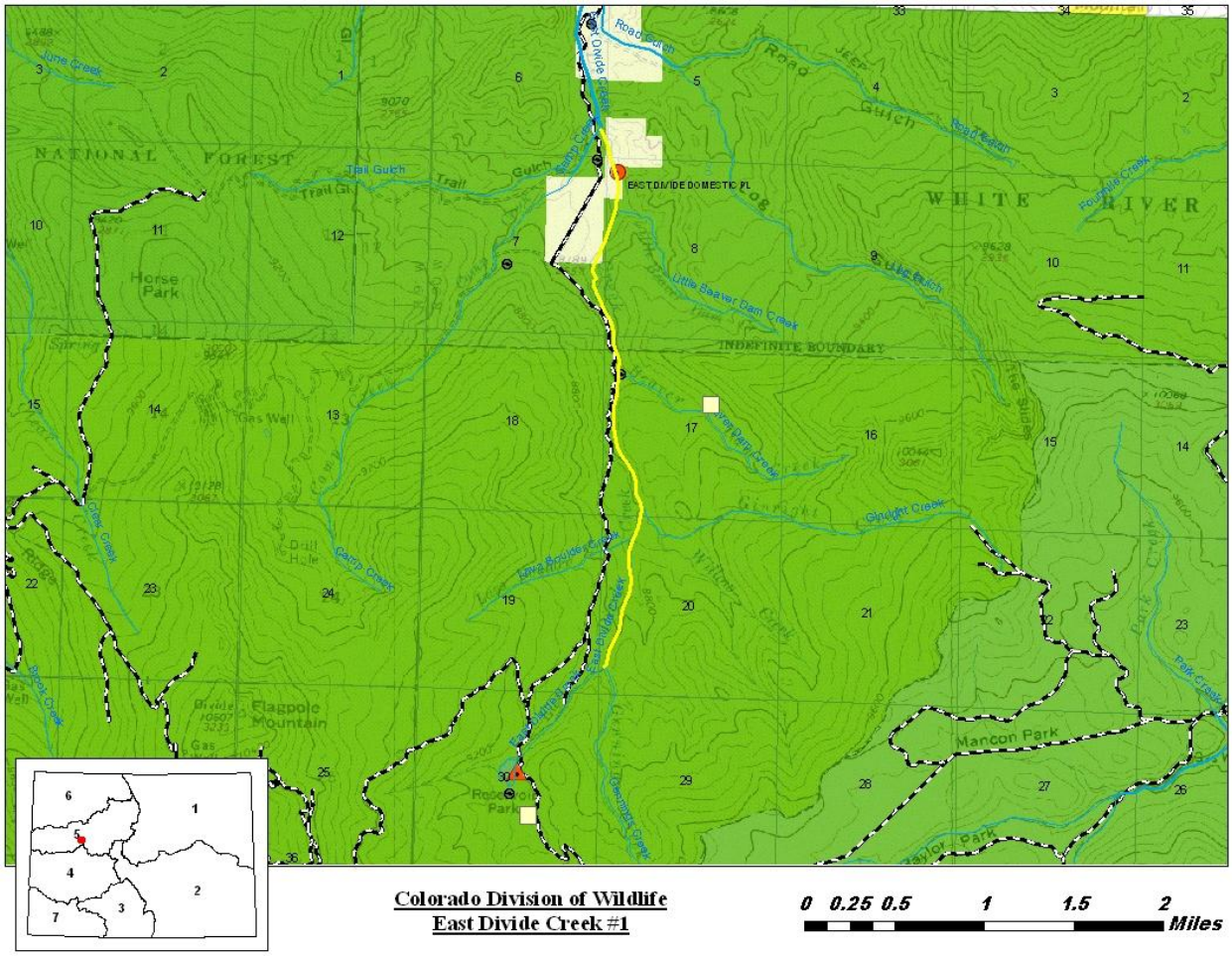
Water Division: 5
Water District: 45
CPW#: 20830

Segment: Gennings Creek to Camp Creek

Upper Terminus: Gennings Creek
Latitude: 39º 20’ 25.9”N Longitude: 107º 28’ 24.1"W

Lower Terminus: Camp Creek
Latitude: 39º 23’ 02.3”N Longitude: 107º 28’ 31.7"W

ISF Appropriation: 1.4 cfs (04/01 – 04/15)
4.8 cfs (04/16 – 06/30)
1.5 cfs (07/01 – 07/15)
1.2 cfs (07/16 – 07/30)
0.3 cfs (08/01 – 03/31)



The information contained in this report and the associated instream flow file folder forms the basis for the instream flow recommendation to be considered by the Colorado Water Conservation Board (Board). The investigations related to this instream flow recommendation were initiated prior to the statutory merging of two divisions within the Colorado Department of Natural Resources; in 2011, the Division of Wildlife and the Division of Parks and Outdoor Recreation merged to form Colorado Parks and Wildlife (CPW). It is the CPW staff's opinion that the information contained in this report is sufficient for the Board's staff to initiate an instream flow appropriation and address the findings required in Rule 5(i) of the Instream Flow Rules.

The State of Colorado's Instream Flow Program (ISFP) was created in 1973 when the Colorado General Assembly recognized "the need to correlate the activities of mankind with some reasonable preservation of the natural environment" (see 37-92-102 (3) C.R.S.). The statute vests the Board with the exclusive authority to appropriate and acquire instream flow and natural lake level water rights. In order to encourage other entities to participate in Colorado's ISFP, the statute directs the Board to request instream flow recommendations from other state and federal agencies. The CPW is recommending this segment of East Divide Creek to the Board for inclusion into the ISFP. East Divide Creek should be considered for inclusion into the ISFP

because it has a natural environment that can be preserved to a reasonable degree with an instream flow water right.

The CPW is forwarding this stream flow recommendation to the Board to meet 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" (See §33-1-101 (1) C.R.S.). The CPW Strategic Plan states "[h]ealthy aquatic environments are essential to maintain healthy and viable fisheries, and critical for self-sustaining populations… by protecting and enhancing the quality and quantity of aquatic habitats."

The subject of this report is a segment of East Divide Creek beginning at the confluence with Gennings Creek and extending downstream to the confluence with Camp Creek. The proposed segment is in Garfield County southeast of the Town of Silt. The recommendation for this segment is discussed below.

Instream Flow Recommendation(s)

The CPW is recommending 4.8 cfs, summer, and 0.5 cfs, winter, based on data collection efforts. This recommendation is based on the physical and biological data collected to date by CPW staff and does not incorporate any water availability constraints.

- 4.8 cubic feet per second is required to maintain the three principal hydraulic criteria of average depth, average velocity and percent wetted perimeter;
- 0.5 cubic feet per second is required to maintain two of the three principal hydraulic criteria.

The modeling results from this survey effort are within the confidence interval produced by the R2CROSS model (see Table 1).

Land Status Review

Upper Terminus	Lower Terminus	Total Length (miles)	Land Ownership	
			% Private	% Public
Gennings Creek	Camp Creek	3.1	13%	87%

100% of the public lands are managed by the USFS.

Biological and Field Survey Data

In July and August of 2010, CPW collected stream cross section information, natural environment data, and other data needed to quantify the instream flow needs for this reach of East Divide Creek. East Divide Creek is classified as a medium stream (between 20 to 35 feet wide) and fishery surveys indicate the stream environment of the East Divide Creek supports Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus*) and rainbow trout (*Oncorhynchus mykiss*) (See CPW Fish Survey in Appendix B).

Field Survey Data

CPW staff used the R2CROSS methodology to quantify the amount of water required to preserve the natural environment to a reasonable degree. The R2CROSS method requires that stream discharge and channel profile data be collected in a riffle stream habitat type. Riffles are most easily visualized, as the stream habitat type that would dry up first should streamflow cease. This type of hydraulic data collection consists of setting up a transect in a riffle or other hydraulic control, surveying the stream channel geometry, and measuring the stream discharge. Appendix B contains copies of field data collected for this proposed segment.

Biological Flow Recommendation

The Board staff relies upon the biological expertise of the cooperating agencies to interpret output from the R2CROSS data collected to develop the initial, biologic instream flow recommendation. This initial recommendation is designed to address the unique biologic requirements of each stream without regard to water availability. Three hydraulic parameters – average depth, percent wetted perimeter, and average velocity are used to develop biologic instream flow recommendations. The CDOW (prior to the 2011 merger) has determined that maintaining these three hydraulic parameters at adequate levels across riffle habitat types, aquatic habitat in pools and runs will also be maintained for most life stages of fish and aquatic invertebrates (Nehring 1979; Espegren 1996).

For this segment of stream, two data sets were collected with the results shown in Table 1 below. Table 1 shows who collected the data (Party), the date the data was collected, the measured discharge at the time of the survey (Q), the accuracy range of the predicted flows based on Manning's Equation (240% and 40% of Q), the summer flow recommendation based on meeting 3 of 3 hydraulic criteria and the winter flow recommendation based upon 2 of 3 hydraulic criteria.

Table 1: Data

Party	Date	Q	250%-40%	Summer (3/3)	Winter (2/3)
CDOW	7/7/2010	8.51	20.8 – 3.3	4.8	2.0[R]
CDOW	8/17/2010	0.48	1.2 – 0.2	?	0.5

CDOW = Colorado Division of Wildlife – data collected prior to 2011 merger R = Outside of R2X Accuracy Range

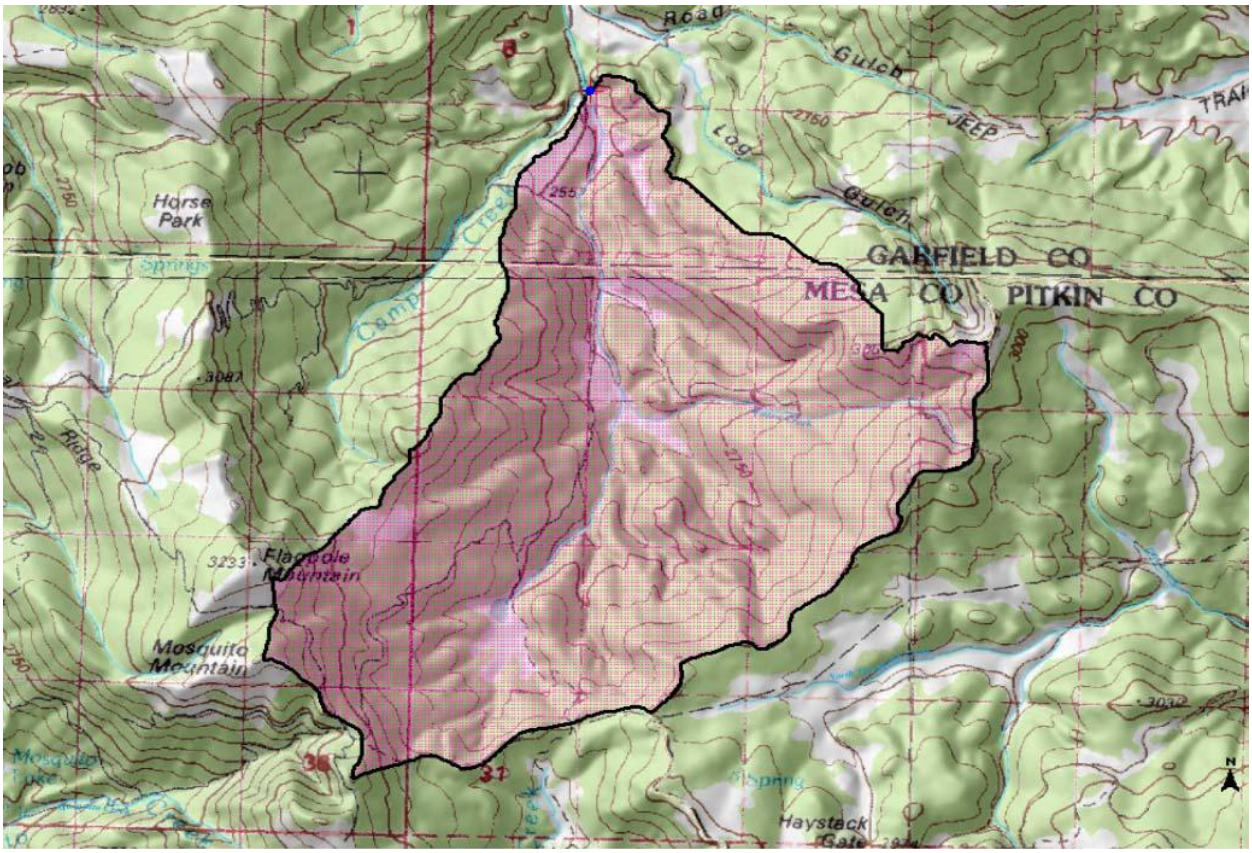
Biologic Flow Recommendation

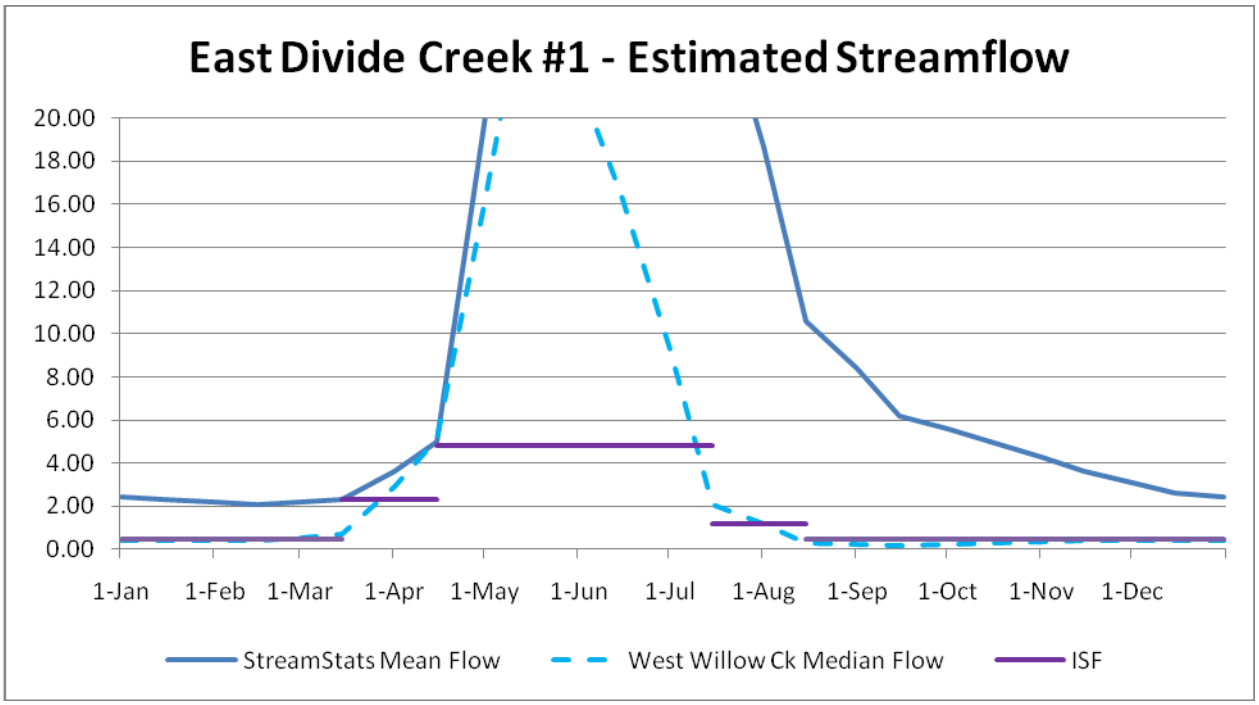
The summer flow recommendation which met 3 of 3 criteria is 4.8 cfs. 4.8 cfs is within the accuracy range of the R2CROSS model. The winter flow recommendation is 0.5 cfs, which meets 2 of 3 criteria. 0.5 cfs is within the accuracy range of the R2CROSS model (See Table 1).

Hydrologic Data

The CPW staff conducted a preliminary evaluation of the stream hydrology to determine if water was physically available for an instream flow appropriation. The hydrograph below was derived from data collected by the USGS stream gage for West Divide Creek, near Raven, CO (#09089500), which has a drainage area of 64.6 square miles (See Gage Summary in Appendix C) and by the USGS StreamStats Water Resources Web Application Program (see http://water.usgs.gov/osw/streamstats/index.html). The total drainage area upstream of this ISF segment of East Divide Creek is 10.6 square miles. The period of record for the West Divide

Creek near Raven gage was 1955 to 2005, the period of record used by staff in their analysis was 1955 to 2005, or 50 years of record. Table 2 below displays the estimated flow of East Divide Creek at the lower terminus of the instream flow reach in terms of a percentage of exceedence.




East Divide Creek #1 - Estimated Streamflow
20.00
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16.00
14.00
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0.00
1-Jan
1-Feb
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1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
1-Oct
1-Nov
1-Dec
StreamStats Mean Flow
West Willow Ck Median Flow
ISF

Table 2: Estimated Streamflow for East Divide Creek #1

East Divide Creek #1				Drainage Area = 10.6								
Exceedences	January	February	March	April	May	June	July	August	September	October	November	December
1%	1.3	1.2	7.3	41.8	107.1	83.7	21.6	5.0	2.5	3.1	2.3	1.5
5%	1.0	0.9	3.4	25.8	80.0	51.7	14.6	2.9	1.4	1.8	1.8	1.3
10%	0.8	0.8	2.5	19.0	66.1	38.7	11.3	2.0	1.1	1.3	1.1	0.9
20%	0.7	0.7	1.6	12.6	47.7	29.0	7.2	1.1	0.6	0.9	0.9	0.7
50%	0.4	0.4	0.7	5.1	26.9	16.4	2.1	0.3	0.2	0.3	0.4	0.4
80%	0.1	0.2	0.4	2.1	15.3	7.5	0.4	0.1	0.0	0.1	0.2	0.2
90%	0.1	0.1	0.2	1.4	9.5	3.9	0.1	0.0	0.0	0.1	0.1	0.1
95%	0.1	0.1	0.2	1.0	7.1	2.1	0.0	0.0	0.0	0.0	0.1	0.1
99%	0.0	0.0	0.1	0.6	2.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0
East Divide Creek #1 - Streamstats Mean Flow												
	January	February	March	April	May	June	July	August	September	October	November	December
	2.3	2.1	2.3	5.0	34.5	70.2	26.8	10.6	6.2	5.0	3.6	2.6
	Green indicates flow greater than summer flow recommendation and Yellow indicates flow greater than winter flow recommendation											

Table 2 shows that the summer flow recommendation of 4.8 cfs is available at least 50% of the time for the months of April through June. The winter flow recommendation of 0.5 cfs is available at least 50% of the time from August through March. Based on the above preliminary water availability analysis and on subsequent analyses conducted by CWCB staff during December of 2013, the summer recommendation was reduced to 1.5 cfs and to 1.2 cfs for short periods of time on either side of the peak of the hydrograph. In a similar manner, the winter base flow recommendation had to be revised down to 0.3 cfs due to water availability constraints. In summary, the original instream flow recommendation discussed above was revised to the following:

- 1.5 cubic feet per second is recommended from April 1 through April 15;
- 4.8 cubic feet per second is recommended from April 16 through June 30;
- 1.5 cubic feet per second is recommended from July 1 through July 15;
- 1.2 cubic feet per second is recommended from July 16 through July 31;
- 0.3 cubic feet per second is recommended from August 1 through March 31.

However, if additional water is determined to be available in further investigations, the CPW would recommend appropriating the additional water up to the recommended flow amounts to preserve the natural environment to a reasonable degree.

Existing Water Right Information

CPW staff has analyzed the Division of Water Resources' water rights tabulation and will consult with the Division Engineer's Office (DEO) to identify any potential water availability problems due to existing diversions. Preliminarily, records indicate that there is only one surface water diversion located within this reach of East Divide Creek.

<u>Stream</u>: East Divide Creek #2 (Lower)

Executive Summary

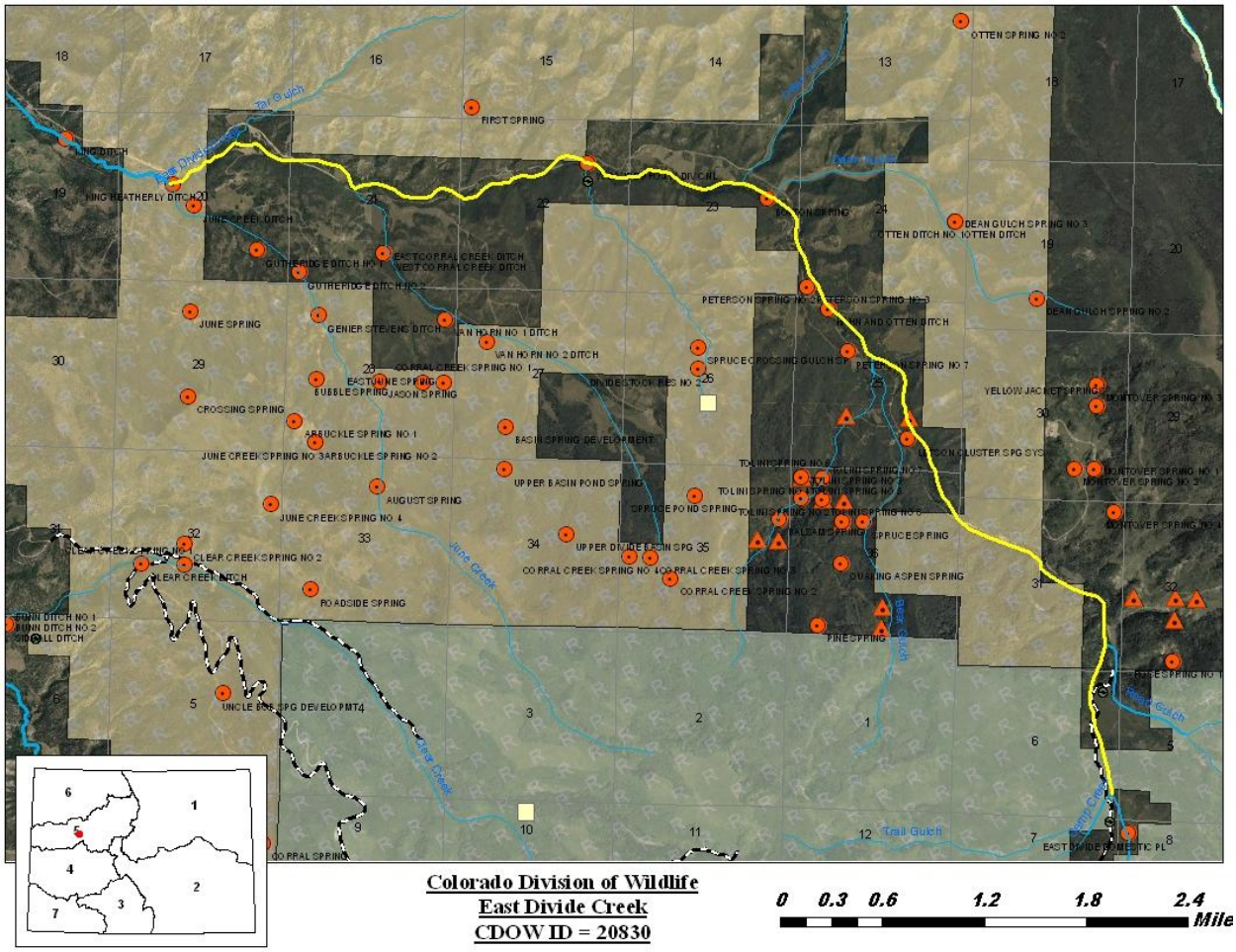
Water Division: 5
Water District: 45
CPW#: 20830

<u>Segment</u>: Camp Creek to June Creek

Upper Terminus: Camp Creek
Latitude: 39º 23’ 02.3”N Longitude: 107º 28’ 31.7"W

Lower Terminus: June Creek
Latitude: 39º 26’ 01.8”N Longitude: 107º 34’ 51.0"W

ISF Appropriation: 3.0 cfs (04/01 – 04/15)
7.2 cfs (04/16 – 06/30)
3.0 cfs (07/01 – 07/31)
1.1 cfs (08/01 – 03/31)



The information contained in this report and the associated instream flow file folder forms the basis for the instream flow recommendation to be considered by the Colorado Water Conservation Board (Board). The investigations related to this instream flow recommendation were initiated prior to the statutory merging of two divisions within the Colorado Department of Natural Resources; in 2011, the Division of Wildlife and the Division of Parks and Outdoor Recreation merged to form Colorado Parks and Wildlife (CPW). It is the CPW staff's opinion that the information contained in this report is sufficient for the Board's staff to initiate an instream flow appropriation and address the findings required in Rule 5(i) of the Instream Flow Rules.

The State of Colorado's Instream Flow Program (ISFP) was created in 1973 when the Colorado General Assembly recognized "the need to correlate the activities of mankind with some reasonable preservation of the natural environment" (see 37-92-102 (3) C.R.S.). The statute vests the Board with the exclusive authority to appropriate and acquire instream flow and natural lake level water rights. In order to encourage other entities to participate in Colorado's ISFP, the statute directs the Board to request instream flow recommendations from other state and federal agencies. The CPW is recommending this segment of East Divide Creek to the Board for inclusion into the ISFP. East Divide Creek should be considered for inclusion into the ISFP

because it has a natural environment that can be preserved to a reasonable degree with an instream flow water right.

The CPW is forwarding this stream flow recommendation to the Board to meet 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" (See §33-1-101 (1) C.R.S.). The CPW Strategic Plan states "[h]ealthy aquatic environments are essential to maintain healthy and viable fisheries, and critical for self-sustaining populations… by protecting and enhancing the quality and quantity of aquatic habitats."

The subject of this report is a segment of East Divide Creek beginning at the confluence with Camp Creek and extending downstream to the confluence with June Creek. The proposed segment is in Garfield County southeast of the Town of Silt. The recommendation for this segment is discussed below.

Instream Flow Recommendation(s)

The CPW is recommending 7.2 cfs, summer, and 3.0 cfs, winter, based on data collection efforts. This recommendation is based on the physical and biological data collected by CPW staff to date and does not incorporate any water availability constraints.

- 7.2 cubic feet per second is required to maintain the three principal hydraulic criteria of average depth, average velocity and percent wetted perimeter;
- 3.0 cubic feet per second is required to maintain two of the three principal hydraulic criteria.

The modeling results from this survey effort are within the confidence interval produced by the R2CROSS model (see Table 1).

Land Status Review

Upper Terminus	Lower Terminus	Total Length (miles)	Land Ownership	
			% Private	% Public
Camp Creek	June Creek	8.3	82%	18%

20% of the public lands are managed by the USFS and 80% are managed by the BLM.

Biological and Field Survey Data

In July and August of 2010, CPW collected stream cross section information, natural environment data, and other data needed to quantify the instream flow needs for this reach of East Divide Creek. East Divide Creek is classified as a medium stream (between 20 to 35 feet wide) and fishery surveys indicate the stream environment of the East Divide Creek supports Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus*), rainbow trout (*Oncorhynchus mykiss*) and speckled dace (Rhinichthys osculus) (See CPW Fish Survey in Appendix B).

Field Survey Data

CPW staff used the R2CROSS methodology to quantify the amount of water required to preserve the natural environment to a reasonable degree. The R2CROSS method requires that stream discharge and channel profile data be collected in a riffle stream habitat type. Riffles are most easily visualized, as the stream habitat type that would dry up first should streamflow cease. This type of hydraulic data collection consists of setting up a transect in a riffle or other hydraulic control, surveying the stream channel geometry, and measuring the stream discharge. Appendix B contains copies of field data collected for this proposed segment.

Biological Flow Recommendation

The Board staff relies upon the biological expertise of the cooperating agencies to interpret output from the R2CROSS data collected to develop the initial, biologic instream flow recommendation. This initial recommendation is designed to address the unique biologic requirements of each stream without regard to water availability. Three hydraulic parameters – average depth, percent wetted perimeter, and average velocity are used to develop biologic instream flow recommendations. The CDOW (prior to the 2011 merger) has determined that maintaining these three hydraulic parameters at adequate levels across riffle habitat types, aquatic habitat in pools and runs will also be maintained for most life stages of fish and aquatic invertebrates (Nehring 1979; Espegren 1996).

For this segment of stream, two data sets were collected with the results shown in Table 1 below. Table 1 shows who collected the data (Party), the date the data was collected, the measured discharge at the time of the survey (Q), the accuracy range of the predicted flows based on Manning's Equation (240% and 40% of Q), the summer flow recommendation based on meeting 3 of 3 hydraulic criteria and the winter flow recommendation based upon 2 of 3 hydraulic criteria.

Table 1: Data

Party	Date	Q	250%-40%	Summer (3/3)	Winter (2/3)
CDOW	7/8/2010	11.6	29.5 – 4.7	7.2	3.7^{R}
CDOW	8/17/2010	1.9	4.7 – 0.8	14.1^{R}	3.0

CDOW = Colorado Division of Wildlife – data collected prior to 2011 merger R = Outside of R2X Accuracy Range

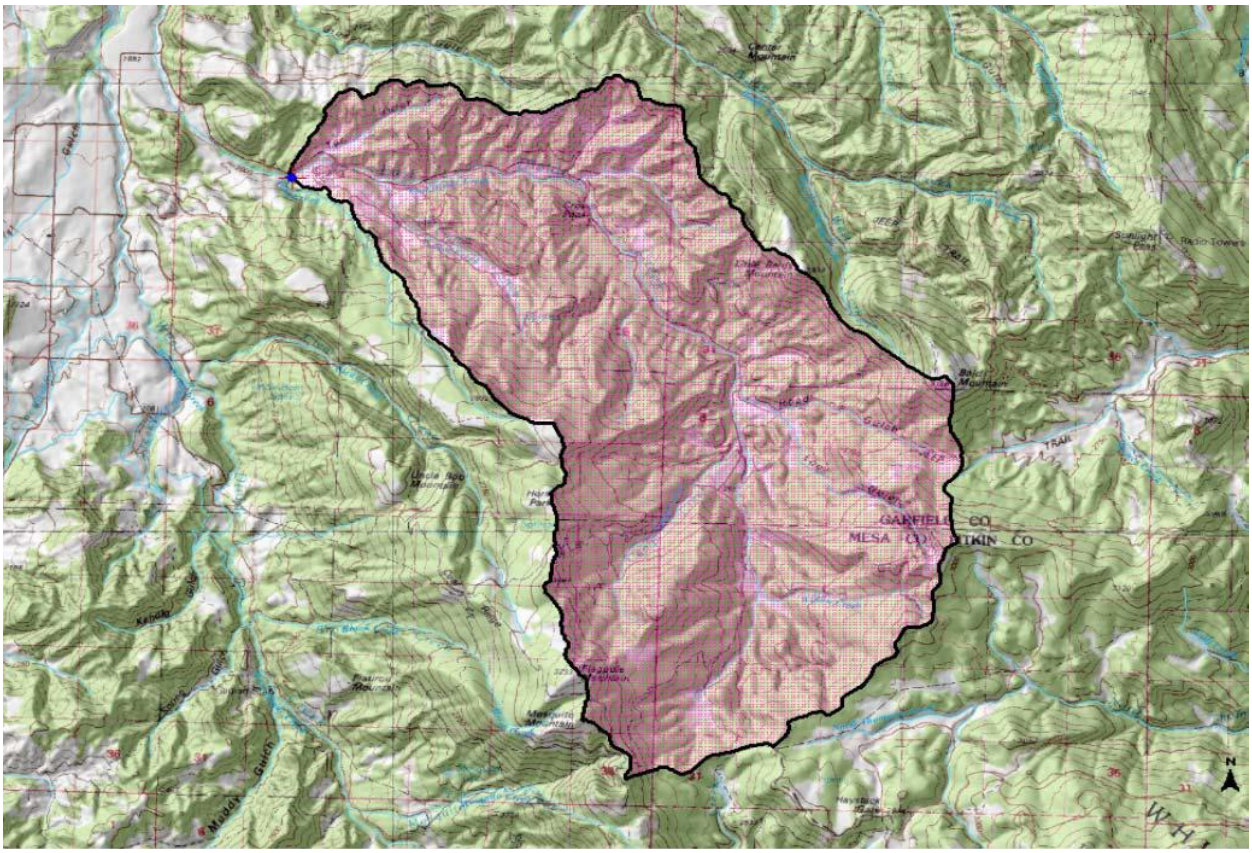
Biologic Flow Recommendation

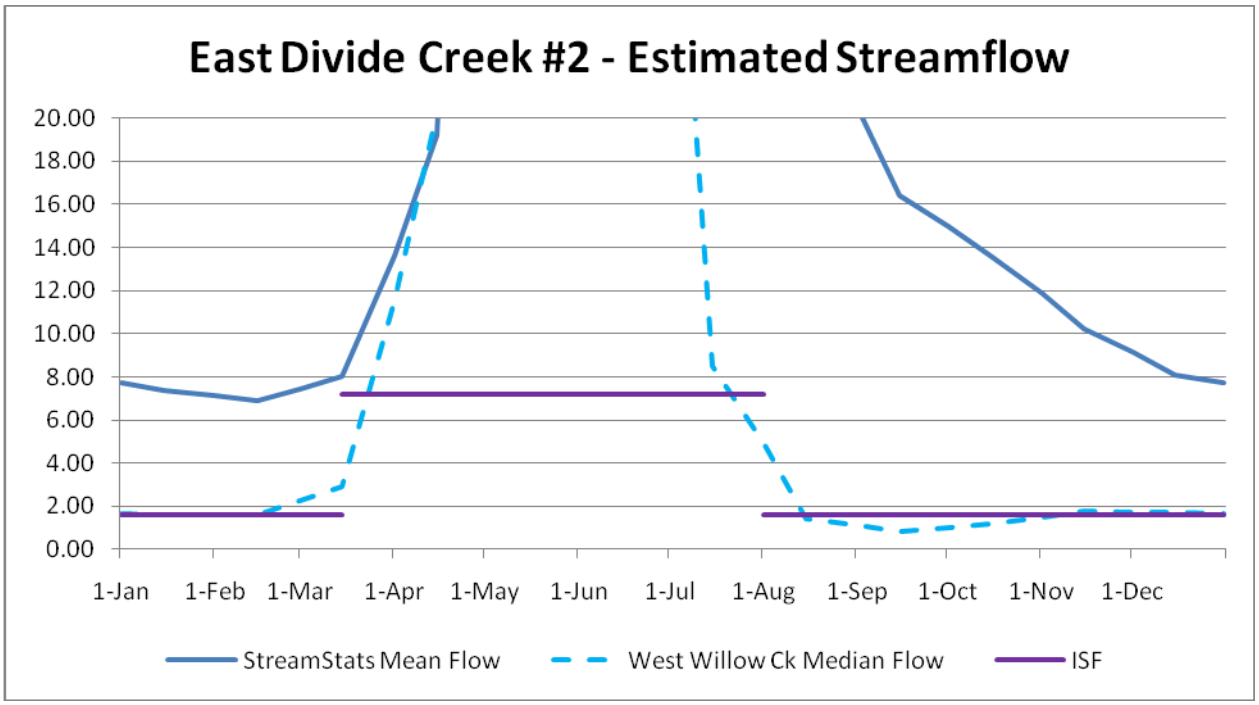
The summer flow recommendation which meets 3 of 3 criteria is 7.2 cfs. 7.2 cfs is within the accuracy range of the R2CROSS model. The winter flow recommendation which meets 2 of 3 criteria is 3.0 cfs. 3.0 cfs is within the accuracy range of the R2CROSS model (See Table 1).

Hydrologic Data

The CPW staff conducted a preliminary evaluation of the stream hydrology to determine if water was physically available for an instream flow appropriation. The hydrograph below was derived from data collected by the USGS stream gage for West Divide Creek, near Raven, CO (#09089500), which has a drainage area of 64.6 square miles (See Gage Summary in Appendix C) and by the USGS StreamStats Water Resources Web Application Program (see http://water.usgs.gov/osw/streamstats/index.html). The total drainage area upstream of this ISF segment of East Divide Creek is 42.1 square miles. The period of record for the West Divide

Creek near Raven gage was 1955 to 2005, the period of record used by staff in their analysis was 1955 to 2005, or 50 years of record. Table 2 below displays the estimated flow of East Divide Creek at the lower terminus of the instream flow reach in terms of a percentage of exceedence.




East Divide Creek #2 - Estimated Streamflow
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1-Jan
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1-May
1-Jun
1-Jul
1-Aug
1-Sep
1-Oct
1-Nov
1-Dec
StreamStats Mean Flow
West Willow Ck Median Flow
ISF

Table 2: Estimated Streamflow for East Divide Creek #2

East Divide Creek #2				Drainage Area = 42.1								
Exceedences	January	February	March	April	May	June	July	August	September	October	November	December
1%	5.3	4.9	29.1	166.2	425.6	332.4	85.7	19.9	9.8	12.4	9.1	6.1
5%	3.8	3.6	13.7	102.3	317.7	205.3	58.0	11.4	5.7	7.2	7.2	5.1
10%	3.1	3.1	9.8	75.6	262.6	153.8	45.0	7.8	4.2	5.1	4.4	3.7
20%	2.7	2.6	6.5	50.2	189.6	115.4	28.7	4.3	2.4	3.4	3.4	2.8
50%	1.6	1.6	2.9	20.2	106.9	65.2	8.5	1.4	0.8	1.2	1.8	1.7
80%	0.6	0.8	1.4	8.5	60.6	30.0	1.6	0.3	0.2	0.5	0.7	0.7
90%	0.5	0.5	1.0	5.5	37.8	15.6	0.6	0.1	0.0	0.3	0.5	0.5
95%	0.3	0.3	0.7	4.1	28.0	8.5	0.1	0.0	0.0	0.1	0.2	0.3
99%	0.0	0.0	0.4	2.3	11.4	1.1	0.0	0.0	0.0	0.0	0.1	0.0
East Divide Creek #1 - Streamstats Mean Flow												
	January	February	March	April	May	June	July	August	September	October	November	December
	7.4	6.9	8.0	19.2	101.0	158.0	57.3	24.6	16.4	13.6	10.2	8.1
	Green indicates flow greater than summer flow recommendation and Yellow indicates flow greater than winter flow recommendation											

Table 2 shows that the summer flow recommendation of 7.2 cfs is available at least 50% of the time for the months of March through July. Subsequent CWCB analyses showed that the time period for this availability is actually mid-April through June. The winter flow recommendation of 3.0 cfs is not available during the typical winter months to meet the CWCB standard of availability 50% of the time. Based on the above preliminary water availability analysis and data provided by the CWCB, the winter recommendation was reduced to 1.1 cfs August through March. After incorporating the above water availability constraints, the original CPW instream flow recommendation was revised to the following:

- 3.0 cubic feet per second is recommended from April 1 through April 15;
- 7.2 cubic feet per second is recommended from April 16 through June 30;
- 3.0 cubic feet per second is recommended from July 1 through July 31;
- 1.1 cubic feet per second is recommended from August 1 through March 31.

However, if additional water is determined to be available in further investigations, the CPW would recommend appropriating the additional water up to the recommended flow amounts to preserve the natural environment to a reasonable degree.

Existing Water Right Information

CPW staff has analyzed the Division of Water Resources' water rights tabulation and will consult with the Division Engineer's Office (DEO) to identify any potential water availability problems due to existing diversions. Preliminarily, records indicate that there two surface water diversions located within this reach of East Divide Creek.

COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

COLORADO DIVISION OF WILDLIFE

LOCATION INFORMATION

STREAM NAME: East Divide ck #1 072111						CROSS-SECTION NO.:
CROSS-SECTION LOCATION: 39 22 04.7 107 28 26.9						
DATE: 7/21/11	OBSERVERS: Uppendahl + Chestnut					
LEGAL DESCRIPTION	¼ SECTION:	SECTION: 8	TOWNSHIP: 8 N/S	RANGE: 90 E/W	PM:	
COUNTY: Garfield	WATERSHED: Divide ck	WATER DIVISION: 5	DOW WATER CODE: 20830			
MAP(S):	USGS:					
	USFS:					

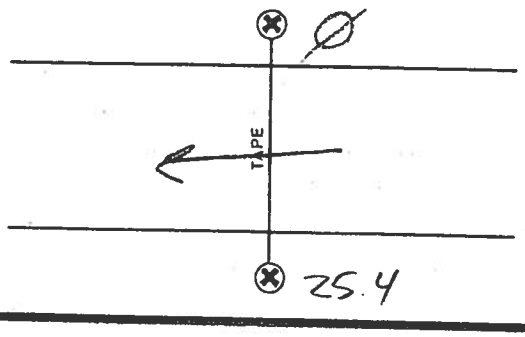
SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION: YES/NO	METER TYPE: Marsh McBirney			
METER NUMBER:	DATE RATED:	CALIB/SPIN: _____ sec	TAPE WEIGHT: _____ lbs/foot	TAPE TENSION: _____ lbs
CHANNEL BED MATERIAL SIZE RANGE:		PHOTOGRAPHS TAKEN: YES/NO	NUMBER OF PHOTOGRAPHS: 3	

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	
② WS Upstream		
③ WS Downstream		
SLOPE	.0119	

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

SWL = 9.65
TBir 6.87

FORM #ISF FD 1-95

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: East Divide CK # 1	CROSS-SECTION NO.:	DATE: 7/21/11	SHEET ___ OF ___
BEGINNING OF MEASUREMENT	EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT / RIGHT	Gage Reading: ____ ft	TIME: 11:00

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)
P,n	~~0~~										
	4.0		9.65	0							
	5			.20				.08			
	6			.20				.18			
	7			.50				.82			
	8			.40				.44			
	9			.50				.05			
	10			.60				.60			
	11			1.0				.37			
R	12			0.10				.52			
	13			.40				1.85			
	13.5			.70				2.29			
	14			.80				1.93			
	14.5			.80				1.03			
	15.0			.60				~~1.31~~	1.31		
	15.5			.60				1.74			
	16.0			.50				0.31			
	16.5			.80				.94			
	17			~~.70~~				.51			
	18			.70				.03			
	19			.60				.07			
	20			.40				1.23			
SW L	20.2		9.65	~~0~~							
P,n	25.4										
											5.98 cfs
								mm			
							1	128	220		
							2	90	128		6
							3	128	+373		
							4	sand	200		
							5	128	200		
							6	128	45		
							7	128	90		
							8	#373	22.5		
							9	60	11.3		
							10	200	11.3		
TOTALS:											

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

COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

COLORADO DIVISION OF WILDLIFE

LOCATION INFORMATION

STREAM NAME: EAST DIVIDE CREEK #1

CROSS-SECTION NO.: 070710 -3

CROSS-SECTION LOCATION: 39° 22' 04.7" 107° 28' 26.9"

0.25 miles d/s Beaver Dams Creek

DATE: 7/7/10 OBSERVERS: UPPENDAHL

LEGAL DESCRIPTION	¼ SECTION:	SECTION:	TOWNSHIP:	RANGE:	PM:
		8	8 N(S)	90 E(W)	6

COUNTY:	WATERSHED:	WATER DIVISION:	DOW WATER CODE:
GARFIELD	DIVIDE CR	5	20830

MAP(S): USGS:

USFS:

SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION: (YES) NO

METER TYPE: MARSH McBIRNEY

METER NUMBER: DATE RATED: CALIB/SPIN: _____ sec TAPE WEIGHT: _____ lbs/foot TAPE TENSION: _____ lbs

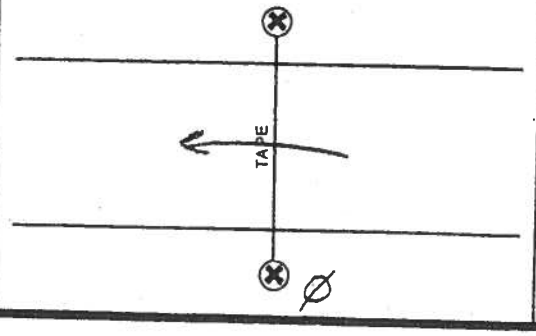
CHANNEL BED MATERIAL SIZE RANGE:

PHOTOGRAPHS TAKEN: (YES)/NO 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	
② WS Upstream	3.6	8.55
③ WS Downstream	11.5	8.73
SLOPE	.18 / 15.1 = 0.012	

SKETCH



LEGEND:

Stake ⊗

Station ①

Photo ①

Direction of Flow

AQUATIC SAMPLING SUMMARY

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

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

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

AQUATIC INSECTS IN STREAM SECTION BY COMMON OR SCIENTIFIC ORDER NAME:

COMMENTS

DISCHARGE/CROSS SECTION NOTES

STREAM NAME:	CROSS-SECTION NO.:	DATE	SHEET
EAST DIVIDE CREEK #1	070710-3	7/7/10	1 OF 1

BEGINNING OF MEASUREMENT	EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) (LEFT) / RIGHT	Gage Reading: ____ ft	TIME: 16:00

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)
TOP PIN	0		5.80								
BASE PIN	0		6.00								
	1		6.25								
	1.5		6.40								
BL	2		6.90								
	2.5		8.12								
SWLE	4		8.55	0				0			
	5.3			.05				0			
	6			.60				.60			
	7			.60				1.58			
	7.5			.80				.02			
	8			.75				.20			
	8.5			.60				.72			
	9			.70				2.05			
BR	9.5			.70				0			
	10			.85				1.79			
	10.5			1.00				1.91			
	11			.80				.53			
	11.5			.40				1.86			
	12			.45				1.66			
	12.5			.80				1.23			
	13			.50				2.41			
	13.5			.50				2.38			
	14			.70				.95			
	14.5			.70				.82			
	15			.70				.31			
	15.5			.40				2.02			
	16			.50				1.47			
	17			.35				.05			
	18			.05				0			
	19			.10				1.18			
	20			.10				.85			
	21			.10				.25			
SWRB	22		8.65	0				0			
BL	22.5		6.99								
	24.0		6.66								
BASE	25.4		6.51								
TOP	25.4		6.33								
TOTALS:											

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

COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

COLORADO DIVISION OF WILDLIFE

LOCATION INFORMATION

STREAM NAME: East Divide Creek #2						CROSS-SECTION NO.: 070810-1
CROSS-SECTION LOCATION: 39° 26' 02.2" 107° 34' 48.3" BLM LAND						
d/s of Road X.ing w/s of June Creek						
DATE: 7/8/10	OBSERVERS: UPPENDAHL					
LEGAL DESCRIPTION	¼ SECTION: NW	SECTION: 20	TOWNSHIP: 7 N/S	RANGE: 91 E/W	PM: 6	
COUNTY: GARFIELD	WATERSHED: DIVIDE CREEK	WATER DIVISION: 5	DOW WATER CODE: 20830			
MAP(S):	USGS:					
	USFS:					

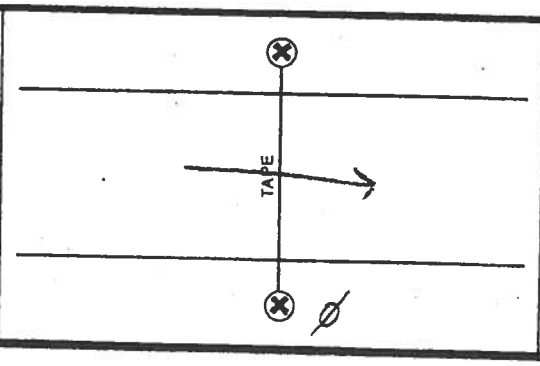
SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION: (YES) NO	METER TYPE: MARSH-McBIRNEY			
METER NUMBER:	DATE RATED:	CALIB/SPIN: ____ sec	TAPE WEIGHT: ____ lbs/foot	TAPE TENSION: ____ lbs
CHANNEL BED MATERIAL SIZE RANGE:	PHOTOGRAPHS TAKEN (YES)/NO	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	
② WS Upstream	2.5'	8.06
③ WS Downstream	11.0'	8.60
SLOPE	0.54 / 13.5 = 0.040	

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.)

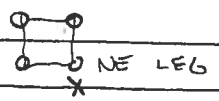
SPECIES (FILL IN)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	>15	TOTAL

AQUATIC INSECTS IN STREAM SECTION BY COMMON OR SCIENTIFIC ORDER NAME:

COMMENTS

Bench Mark = Base of Iron Leg (GAS PIPELINE) w/ Warning Pipeline sticker

BM = 4.00'



FORM #ISF FD 1-85

DISCHARGE/CROSS SECTION NOTES

STREAM NAME:	CROSS-SECTION NO.:	DATE:	SHEET
EAST DIVIDE CREEK	070810-1	7/8/10	1 OF

BEGINNING OF MEASUREMENT	EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE)	LEFT / RIGHT	Gage Reading: ____ ft	TIME: 9:30

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)
BASE PIN	Ø		6.54								
	1		6.71								
	2		7.01								
GL	2.5		7.20								
	3.5		7.45								
	5		8.01								
SW LB	5.8		8.23		Ø			Ø			
	7				.20			.75			
	8				.20			1.41			
	9				.40			.49			
	10				.40			.36			
	11				.50			.68			
	12				.40			2.87			
	13				.50			1.86			
	14				.70			1.60			
	14.5				.50			2.57			
	15				.40			2.60			
	15.5				.35			2.30			
	16				.50			2.10			
	16.5				.55			2.40			
	17				.65			2.16			
	18				.50			2.60			
	19				.50			2.43			
	20				.60			.37			
	21				.25			2.81			
	22				.30			.29			
	23				.25			1.67			
SW RB	24		8.33		Ø			Ø			
	25		8.26								
	26		7.60								
	27		7.92								
	30		7.76								
	31		7.55								
GL	32		7.20								
	33		7.02								
BASE PIN	34		6.86								
TOTALS:											

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

Data Input & Proofing

STREAM NAME:	EAST DIVIDE CREEK #2 - 8/17/10
XS LOCATION:	39 26' 02.2" 107 34' 48.3"
XS NUMBER:	8/17/2010
DATE:	8/17/2010
OBSERVERS:	UPPENDAHL
1/4 SEC:	NW
SECTION:	20
TWP:	7 S
RANGE:	91 W
PM:	6
COUNTY:	GARFIELD
WATERSHED:	DIVIDE CREEK
DIVISION:	5
DOW CODE:	20830
USGS MAP:	
USFS MAP:	
	Level and Rod Survey
TAPE WT:	0.0106 lbs / ft
TENSION:	99999 lbs
SLOPE:	0.04 ft / ft

CHECKED BY:.....DATE.....

ASSIGNED TO: .....DATE.....

Total Data Points = 36

GL=1	FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL	A	Q	Tape to Water
	B PIN	0.00	6.54			0.00	0.00	0.00
		1.00	6.71			0.00	0.00	0.00
		2.00	7.01			0.00	0.00	0.00
1	GL	2.50	7.20			0.00	0.00	0.00
		3.50	7.45			0.00	0.00	0.00
		5.00	8.01			0.00	0.00	0.00
		5.80	8.23			0.00	0.00	0.00
		7.00	8.48			0.00	0.00	0.00
	SWL	8.00	8.48	0.00	0.00	0.00	0.00	0.00
		9.00	8.68	0.20	0.51	0.20	0.10	8.48
		10.00	8.68	0.20	0.51	0.20	0.10	8.48
		11.00	8.78	0.30	0.51	0.30	0.15	8.48
		12.00	8.68	0.20	0.51	0.20	0.10	8.48
		13.00	8.78	0.30	0.51	0.30	0.15	8.48
		14.00	8.98	0.50	0.51	0.38	0.19	8.48
		14.50	8.78	0.30	0.51	0.15	0.08	8.48
		15.00	8.68	0.20	0.51	0.10	0.05	8.48
		15.50	8.63	0.15	0.51	0.08	0.04	8.48
		16.00	8.78	0.30	0.51	0.15	0.08	8.48
		16.50	8.83	0.35	0.51	0.18	0.09	8.48
		17.00	8.93	0.45	0.51	0.34	0.17	8.48
		18.00	8.78	0.30	0.51	0.30	0.15	8.48
		19.00	8.78	0.30	0.51	0.30	0.15	8.48
		20.00	8.88	0.40	0.51	0.40	0.20	8.48
		21.00	8.53	0.05	0.51	0.05	0.03	8.48
		22.00	8.58	0.10	0.51	0.10	0.05	8.48
	SWL	23.00	8.48	0.00	0.00	0.00	0.00	0.00
		24.00	8.33			0.00	0.00	0.00
		25.00	8.26			0.00	0.00	0.00
		26.00	7.60			0.00	0.00	0.00
		27.00	7.92			0.00	0.00	0.00
		30.00	7.76			0.00	0.00	0.00
		31.00	7.55			0.00	0.00	0.00
1	GL	32.00	7.20			0.00	0.00	0.00
		33.00	7.02			0.00	0.00	0.00
	B PIN	34.00	6.86			0.00	0.00	0.00
					Totals	3.71	1.89	

STREAM NAME: EAST DIVIDE CREEK #1 - 081710
XS LOCATION: 39 22' 04.7" 107 28' 26.9"
XS NUMBER: 81710

DATA POINTS= 39

VALUES COMPUTED FROM RAW FIELD DATA

FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL	WETTED PERIM.	WATER DEPTH	AREA (Am)	Q (Qm)	% Q CELL
TOP PIN	0.00	5.80			0.00		0.00	0.00	0.0%
B PIN	0.01	6.00			0.00		0.00	0.00	0.0%
	1.00	6.25			0.00		0.00	0.00	0.0%
	1.50	6.40			0.00		0.00	0.00	0.0%
1 GL	2.00	6.90			0.00		0.00	0.00	0.0%
	2.50	8.12			0.00		0.00	0.00	0.0%
	4.00	8.55			0.00		0.00	0.00	0.0%
	5.30	8.65			0.00		0.00	0.00	0.0%
SWL	5.60	9.00	0.00	0.00	0.00		0.00	0.00	0.0%
	6.00	9.20	0.20	0.18	0.45	0.20	0.14	0.03	5.3%
	7.00	9.20	0.20	0.18	1.00	0.20	0.15	0.03	5.7%
	7.50	9.40	0.40	0.18	0.54	0.40	0.20	0.04	7.6%
	8.00	9.35	0.35	0.18	0.50	0.35	0.18	0.03	6.6%
	8.50	9.20	0.20	0.18	0.52	0.20	0.10	0.02	3.8%
	9.00	9.30	0.30	0.18	0.51	0.30	0.15	0.03	5.7%
ROCK	9.50	9.30	0.30	0.18	0.50	0.30	0.15	0.03	5.7%
	10.00	9.45	0.45	0.18	0.52	0.45	0.23	0.04	8.5%
	10.50	9.60	0.60	0.18	0.52	0.60	0.30	0.05	11.4%
	11.00	9.40	0.40	0.18	0.54	0.40	0.20	0.04	7.6%
	11.50	9.00	0.00	0.18	0.64		0.00	0.00	0.0%
	12.00	9.05	0.05	0.18	0.50	0.05	0.03	0.00	0.9%
	12.50	9.40	0.40	0.18	0.61	0.40	0.20	0.04	7.6%
	13.00	9.10	0.10	0.18	0.58	0.10	0.05	0.01	1.9%
	13.50	9.10	0.10	0.18	0.50	0.10	0.05	0.01	1.9%
	14.00	9.30	0.30	0.18	0.54	0.30	0.15	0.03	5.7%
	14.50	9.30	0.30	0.18	0.50	0.30	0.15	0.03	5.7%
	15.00	9.30	0.30	0.18	0.50	0.30	0.15	0.03	5.7%
	15.50	9.00	0.00	0.18	0.58		0.00	0.00	0.0%
	16.00	9.10	0.10	0.18	0.51	0.10	0.07	0.01	2.8%
	17.00	9.00	0.00	0.00	1.00		0.00	0.00	0.0%
	18.00	8.65			0.00		0.00	0.00	0.0%
	19.00	8.70			0.00		0.00	0.00	0.0%
	20.00	8.70			0.00		0.00	0.00	0.0%
	21.00	8.70			0.00		0.00	0.00	0.0%
SWL	22.00	8.65			0.00		0.00	0.00	0.0%
1 GL	22.50	6.99			0.00		0.00	0.00	0.0%
	24.00	6.66			0.00		0.00	0.00	0.0%
B PIN	25.40	6.51			0.00		0.00	0.00	0.0%
TOP PIN	25.41	6.33			0.00		0.00	0.00	0.0%
TOTALS ----------					12.08	0.6 (Max.)	2.64	0.48	100.0%

Manning's n = 0.3271
Hydraulic Radius= 0.21862596

COLORADO STREAM SURVEY E (1976 REVISION)

Surveyed by: Bennett, Martinez (X) if stream has no fishery value ☐

	Record Data
Code No.	20830
Date	8-12-80
Section No.	1
Stream Name:	East Divide Creek
Primary Drainage:	Divide Creek
Major Drainage	Colorado 32C
Lower terminus FISHERY	////////////
Location:	confluence with West Divide Cr.
T.	6 S
R.	92 W
S.	36
Width	8'
Elevation	5850
Flow (c.f.s.)	
pH	
phth	
MO	
EDTA	
Conductivity	
X if stream profile obtained	
Upper terminus	////////////
Location:	Headwaters (Park Reservoir)
T.	8 S
R.	90 W
S.	30
Width	6
Elevation	9050
Flow	
pH	
phth	
MO	
EDTA	
Conductivity	
X if stream profile obtained	
Section Summary	////////////
Meander factor	1.1
Length in Miles	18.1
Width in feet	7
Acreage	15.5
Observed Flow	normal
X if inundated by reservoir	
Mileage unsectioned	
Counties where section located	////////////
County	Garfield
Miles	15.6
County	Mesa
Miles	2.5
County	
Miles	

	Record Data
Region	NW
Beaver Dams	////////////
Number (count or estimate)	
Estimated acreage	
Physical stream damage (% of section affected)	////////////
Bank degredation	
Channelization	
Dredging	
Mine tailing encroachment	
Road encroachment	
Accessibility (miles)	////////////
Surfaced	
Non-Surfaced car	5.1
4-Wheel	
Established trail	
No established trail	13.0
Boat only	
No access	
Land Status and mileage	////////////
USFS	3.0
BLM	2.0
Municipal	
Div. of Wild.	
Private, no public access	13.1
Private, open to public	
State Land Board	
County	
Mixed small tracts, open	
Mixed small tracts, closed	
Stocking	////////////
Miles creel size	
Miles fingerling	
Miles Fry	
Miles not stocked	
Aquatic Vegetation	////////////
Filamentous algae (x one)	////////////
Absent	
Rare	x
Common	
Abundant	
Watercress	////////////
X if present	
Size Classification (X one)	////////////
Large river ≥ 100'	
River 60-99'	
Large stream 36-59'	
Medium 20-35'	
Small 10-19'	
Minor 4-9'	x
Very small stream < 4'	
Gradient (computer entry)	////////////
Percent per mile	3.3

	Record Data
Fishery Value (X one)	//////////
None	
Poor	X
Below average	
Average	
Above Average	
Excellent	
Fishery Value - limiting	//////////
factors	//////////
Highly Erosive Drainage	A-4
Extreme Drawdown	A-16
Land abuse-livestock	C-12
FISH SAMPLING	//////////
Lower or only station	//////////
Elevation	
Describe or map station location below	

At confluence with County Road
(T. 7 N, R. 92 W. S. 12)

NO FISH

Sampling method	
Length - feet	
Sampling adequate	
Sampling inadequate	
X if scales collected	
Estimated % fish biomass	//////////
Rough Fish	
Game Fish	
Est. % rough fish biomass	//////////
Bullheads	
Carp	
Cottids	
Dace	
Minnows	
Suckers	
Sunfish	

	Record Data
Upper Station	//////////
Elevation	
Describe or map station location below	

At Forest Service Boundary
below Beaver Dam Creek
(T. 8 S., R. 90 W., S. 6)

Sampling method	Electro 50
Length - feet	100 %
Sampling adequate	80 %
Sampling inadequate	
X if scales collected	
Estimated % fish biomass	//////////
Rough Fish	100 %
Game Fish	
Est. % rough fish biomass	//////////
Bullheads	
Carp	
Cottids	
Dace	100 %
Minnows	
Suckers	
Sunfish	
Combined stations	//////////
Estimated % fish biomass	//////////
Rough Fish	
Game Fish	
Est. % rough fish biomass	//////////
Bullheads	
Carp	
Cottids	
Dace	
Minnows	
Suckers	
Sunfish	
No. of game fish 6.0 per mile.	

Length-frequency distribution by one-inch size groups (1.0 - 1.9 etc.)

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	>15	Total
						LOWER STATION No Trout										
Rainbow																
Brown																
Brook																
Native																
Whitefish																
Total																
						UPPER STATION No Trout										
Rainbow																
Brown																
Brook																
Native																
Whitefish																
Total																
						COMBINED STATIONS No Trout										
Rainbow																
Brown																
Brook																
Native																
Whitefish																
Total																

East Divide Creek at the lower station has a 20' rock channel with only 6' area holding water. At the upper station the stream was a bit silty and had a few shallow pools. Only speckled dace were collected in the sample.

CHECKLIST OF COLORADO FISHES

If collected during a stream survey, indicate the presence of these species with an X.

CODE

CATOSTOMIDAE

RCS _ River Carpsucker Carpiodes carpio carpio
PCS _ Plains Carpsucker Carpiodes cyprinus
WS _ White Sucker Catostomus commersoni
FMS _ Flannelmouth Sucker Catostomus latipinnis
LGS _ Western Longnose Sucker Catostomus catostomus
BHS _ Bluehead Sucker Catostomus discobolus
MOS _ Mountain Sucker Catostomus platyrhynchus
RGS _ Rio Grande Sucker Catostomus plebius
NR _ Northern Redhorse Moxostoma macrolepidotum
RBS _ Razorback Sucker Xyrauchen texanus

CYPRINIDAE

CP _ European Carp Cyprinus carpio
GF _ Goldfish Carassius auratus
ST _ Stoneroller Campostoma anomalum
NRD _ Northern Redbelly Dace Phoxinus eos
SRD _ Southern Redbelly Dace Phoxinus erythrogaster
FD _ Finescale Dace Phoxinus neogaeus
LD _ Longnose Dace Rhinichthys cataractae
SD X Colorado Speckled Dace Rhinichthys osculus
SQ _ Colorado Squawfish Ptychocheilus lucius
WA _ White Amur Ctenopharyngodon idella
RGC _ Rio Grande Chub Gila pandorae
RTC _ Roundtail Chub Gila robusta
BC _ Bonytail Chub Gila elegans
HPC _ Humpback Chub Gila cypha
CRC _ Creek Chub Semotilus atromaculatus
HRC _ Hornyhead Chub Nocomis biguttatus
ASC _ Arkansas River Speckled Chub Hybopsis aestivalis tetranema
FC _ Flathead Chub Hybopsis gracilis
LC _ Lake Chub Couesius plumbeus
SC _ Silver Chub Hybopsis storeriana
SM _ Suckermouth Minnow Phenacobius mirabilis
FM _ Fathead Minnow Pimephales promelas
BM _ Brassy Minnow Hybognathus hankinsoni
PM _ Plains Minnow Hybognathus placitus
RSS _ Redside Shiner Richardsonius balteatus
CS _ Common Shiner Notropis cornutus
RS _ River Shiner Notropis blennius
RDS _ Red Shiner Notropis lutrensis
SS _ Sand Shiner Notropis stramineus
BS _ Blacknose Shiner Notropis heterolepis
BMS _ Bigmouth Shiner Notropis dorsalis
SPS _ Spottail Shiner Notropis hudsonius
GDS _ Golden Shiner Notemigonus crysoleucas
T _ Tench Tinca tinca

ANTHERINIDAE

MS _ Mississippi Silverside Menidia audens

POECHILIIDAE

MSQ _ Mosquitofish Gambusia affinis

CYPRINODONTIDAE

CPK _ Central Plains Killifish Fundulus kansae
PTM _ Plains Topminnow Fundulus sciadicus

PERCIDAE

LP _ Logperch Percina caprodes
YP _ Yellow perch Perca flavescens
JD _ Johnny Darter Etheostoma nigrum
ID _ Iowa Darter Etheostoma exile
AD _ Arkansas Darter Etheostoma cragini
POD _ Plains Orangethroat Darter Etheostoma spectabile pulchellum
W _ Walleye Stizostedion vitreum
SG _ Sauger Stizostedion canadense

SCIAENIDAE

D _ Freshwater Drum Aplodinotus grunniens

CODE

PERCICHTHYIDAE

WB _ White Bass Morone chrysops
SB _ Striped Bass Morone saxatilis

COTTIDAE

PS _ Piute Sculpin Cottus beldingi
MTS _ Mottled Sculpin Cottus bairdi

CENTRARCHIDAE

SNF _ Green Sunfish Lepomis cyanellus
OS _ Orangespotted Sunfish Lepomis humilis
PKS _ Pumpkinseed Lepomis gibbosus
WKM _ Warmouth Lepomis gulosus
BG _ Bluegill Lepomis macrochirus

SP _ Sacramento Perch Archoplites interruptus
RB _ Rock Bass Ambloplites rupestris
WCR _ White Crappie Pomixis annularis
BCR _ Black Crappie Pomoxis nigromaculatus
SMB _ Smallmouth Bass Micropterus dolomieui
LMB _ Largemouth Bass Micropterus salmoides

GASTEROSTEIDAE

BST _ Brook Stickleback Culaea inconstans

CICHLIDAE

TIL _ Tilapia Sartherodon mossambica

CLUPEIDAE

GS _ Gizzard Shad Dorosoma cepedianum
THS _ Threadfin Shad Dorosoma petenense
ALW _ Alewife Alosa pseudoharengus

OSMERIDAE

AMS _ American Smelt Osmerus mordax

ESOCIDAE

GRP _ Grass Pickerel Esox americanus vermiculatus
NP _ Northern Pike Esox lucius

SALMONIDAE

COH _ Coho (Silver) Salmon Oncorhynchus kisutch
K _ Kokaneee (Sockeye) Salmon Oncorhynchus nerka kennerlyi
WF _ Mountain Whitefish Prosopium williamsoni
LW _ Lake Whitefish Coregonus clupeaformis
BLC _ Bear Lake (Bonneville) Cisco Prosopium gemmiferum
GO _ Golden Trout Salmo aguabonita
RGN _ Rio Grande Cutthroat Salmo clarki virginalis
CRN _ Colorado Cutthroat Salmo clarki pleuriticus
GRN _ Greenback Cutthroat Salmo clarki stomias
SRC _ Snake River Cutthroat Salmo clarki
N _ Yellowstone Cutthroat Salmo clarki lewisi
R _ Rainbow Trout Salmo gairdneri
L _ Brown Trout Salmo trutta
B _ Brook (Trout) Char Salvelinus fontinalis
M _ Lake (Trout) Char Salvelinus namaycush
SPL _ Splake Salvelinus fontinalis x Salvelinus namaycush
GR _ Arctic Grayling Thymallus arcticus

ANGUILLIDAE

EEL _ American Eel Anguilla rostrata

ICTALURIDAE

CC _ Channel Catfish Ictalurus punctatus
BCT _ Blue Catfish Ictalurus furcatus
BB _ Black Bullhead Ictalurus melas
YB _ Yellow Bullhead Ictalurus natalis
BRB _ Brown Bullhead Ictalurus nebulosus
FLC _ Flathead Catfish Pylodictis olivaris
STP _ Stonecat Noturus flavus

'72-'73 FISHERIES INVENTORY / 1041 RELATED DATA

Stream Code 20830

'72-'73 Inventory S- _____

Stream Name East Divide Creek

Percent Open to Public 100,
('72 Inventory)

1041 Form

Quality of Water _____,
Pool-riffle Ratio _____,
Temperature of Water _____,
Clarity of Water _____,
Fish Food Supply _____,
Condition of Fish _____,
Legal Access _____,
Physical Access* _____,
Aesthetic Value _____,
Meanders Value _____,
Improvement Potential _____,

No Data

'72 Inventory

Stocking Status rarely, (regularly, occasionally, rarely or never)
Population Status normal, (normal, over-populated, under-populated)

☐ MINIMUM STREAM FLOW DATA

SB-97 Computer run Step A

Maximum Channel Width _____,
Maximum Wetted Perimeter _____,
Maximum Depth _____,

"Filed on" Blue book

Decreed Flow _____,

Initial Month _____,
Initial Day _____,
Initial Year _____*

STOCKING AND FISH SAMPLING DATA

STREAM CODE 20830

STOCKING

STOCK 79-83 0 YRS

STOCKYRS N N N IV IV

SPECIES-SIZE STOCKED:

FISH SAMPLING

SAMPLE DATE: 08 / 12 / 80

METHODS: ELEC

	SPECIES	#TAKEN	AVG. LENGTH (cm)	RANGE (cm)	AVG. WT (g)	RANGE (g)	%TOTAL CATCH
1.	SD.						100
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							
14.							
15.							

COLORADO WATER CONSERVATION BOARD
INSTREAM FLOW / NATURAL LAKE LEVEL PROGRAM
STREAM CROSS-SECTION AND FLOW ANALYSIS

LOCATION INFORMATION

STREAM NAME:	EAST DIVIDE CREEK #1
XS LOCATION:	39 22' 04.7" 107 28' 26.9"
XS NUMBER:	070710-3
DATE:	7-Jul-10
OBSERVERS:	UPPENDAHL
1/4 SEC:	0
SECTION:	8
TWP:	8 S
RANGE:	90 W
PM:	6
COUNTY:	GARFIELD
WATERSHED:	DIVIDE CREEK
DIVISION:	5
DOW CODE:	20830
USGS MAP:	0
USFS MAP:	0

SUPPLEMENTAL DATA

TAPE WT:	0.0106
TENSION:	99999

*** NOTE ***
Leave TAPE WT and TENSION at defaults for data collected with a survey level and rod

CHANNEL PROFILE DATA

SLOPE:	0.01192053

INPUT DATA CHECKED BY: .....DATE.....

ASSIGNED TO: ….....……..…….....DATE.....

STREAM NAME: EAST DIVIDE CREEK #1
XS LOCATION: 39 22' 04.7" 107 28' 26.9"
XS NUMBER: 070710-3

DATA POINTS= 38

VALUES COMPUTED FROM RAW FIELD DATA

FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL	WETTED PERIM.	WATER DEPTH	AREA (Am)	Q (Qm)	% Q CELL
TOP PIN	0.00	5.80			0.00		0.00	0.00	0.0%
B PIN	0.01	6.00			0.00		0.00	0.00	0.0%
	1.00	6.25			0.00		0.00	0.00	0.0%
	1.50	6.40			0.00		0.00	0.00	0.0%
1 GL	2.00	6.90			0.00		0.00	0.00	0.0%
	2.50	8.12			0.00		0.00	0.00	0.0%
SWL	4.00	8.55	0.00	0.00	0.00		0.00	0.00	0.0%
	5.30	8.65	0.05	0.00	1.30	0.05	0.05	0.00	0.0%
	6.00	9.20	0.60	0.60	0.89	0.60	0.51	0.31	3.7%
	7.00	9.20	0.60	1.58	1.00	0.60	0.45	0.71	8.5%
	7.50	9.40	0.80	0.02	0.54	0.80	0.40	0.01	0.1%
	8.00	9.35	0.75	0.20	0.50	0.75	0.38	0.08	0.9%
	8.50	9.20	0.60	0.72	0.52	0.60	0.30	0.22	2.6%
	9.00	9.30	0.70	2.05	0.51	0.70	0.35	0.72	8.6%
ROCK	9.50	9.30	0.70	0.00	0.50	0.70	0.35	0.00	0.0%
	10.00	9.45	0.85	1.79	0.52	0.85	0.43	0.76	9.1%
	10.50	9.60	1.00	1.91	0.52	1.00	0.50	0.96	11.5%
	11.00	9.40	0.80	0.53	0.54	0.80	0.40	0.21	2.5%
	11.50	9.00	0.40	1.86	0.64	0.40	0.20	0.37	4.5%
	12.00	9.05	0.45	1.66	0.50	0.45	0.23	0.37	4.5%
	12.50	9.40	0.80	1.23	0.61	0.80	0.40	0.49	5.9%
	13.00	9.10	0.50	2.41	0.58	0.50	0.25	0.60	7.2%
	13.50	9.10	0.50	2.38	0.50	0.50	0.25	0.60	7.1%
	14.00	9.30	0.70	0.95	0.54	0.70	0.35	0.33	4.0%
	14.50	9.30	0.70	0.82	0.50	0.70	0.35	0.29	3.4%
	15.00	9.30	0.70	0.31	0.50	0.70	0.35	0.11	1.3%
	15.50	9.00	0.40	2.02	0.58	0.40	0.20	0.40	4.9%
	16.00	9.10	0.50	1.47	0.51	0.50	0.38	0.55	6.6%
	17.00	8.95	0.35	0.05	1.01	0.35	0.35	0.02	0.2%
	18.00	8.65	0.05	0.00	1.04	0.05	0.05	0.00	0.0%
	19.00	8.70	0.10	1.18	1.00	0.10	0.10	0.12	1.4%
	20.00	8.70	0.10	0.85	1.00	0.10	0.10	0.09	1.0%
	21.00	8.70	0.10	0.25	1.00	0.10	0.10	0.03	0.3%
SWL	22.00	8.65	0.00	0.00	1.00		0.00	0.00	0.0%
1 GL	22.50	6.99			0.00		0.00	0.00	0.0%
	24.00	6.66			0.00		0.00	0.00	0.0%
B PIN	25.40	6.51			0.00		0.00	0.00	0.0%
TOP PIN	25.41	6.33			0.00		0.00	0.00	0.0%
TOTALS ----------					18.87	1 (Max.)	7.76	8.33	100.0%

Manning's n = 0.0836
Hydraulic Radius= 0.41112585

STREAM NAME: EAST DIVIDE CREEK #1
XS LOCATION: 39 22' 04.7" 107 28' 26.9"
XS NUMBER: 070710-3

WATER LINE COMPARISON TABLE

WATER LINE	MEAS AREA	COMP AREA	AREA ERROR
	7.76	7.77	0.1%
8.35	7.76	12.34	59.0%
8.37	7.76	11.96	54.1%
8.39	7.76	11.59	49.3%
8.41	7.76	11.22	44.5%
8.43	7.76	10.84	39.8%
8.45	7.76	10.48	35.0%
8.47	7.76	10.11	30.3%
8.49	7.76	9.74	25.6%
8.51	7.76	9.38	20.9%
8.53	7.76	9.02	16.2%
8.55	7.76	8.65	11.5%
8.56	7.76	8.47	9.2%
8.57	7.76	8.30	6.9%
8.58	7.76	8.12	4.6%
8.59	7.76	7.94	2.4%
8.60	7.76	7.77	0.1%
8.61	7.76	7.60	-2.1%
8.62	7.76	7.42	-4.3%
8.63	7.76	7.25	-6.5%
8.64	7.76	7.09	-8.7%
8.65	7.76	6.92	-10.9%
8.67	7.76	6.59	-15.0%
8.69	7.76	6.29	-19.0%
8.71	7.76	6.01	-22.5%
8.73	7.76	5.77	-25.7%
8.75	7.76	5.52	-28.9%
8.77	7.76	5.28	-32.0%
8.79	7.76	5.03	-35.1%
8.81	7.76	4.79	-38.2%
8.83	7.76	4.56	-41.3%
8.85	7.76	4.32	-44.3%

WATERLINE AT ZERO
AREA ERROR = 8.601

STREAM NAME: EAST DIVIDE CREEK #1
XS LOCATION: 39 22' 04.7" 107 28' 26.9"
XS NUMBER: 070710-3

Constant Manning's n

GL = lowest Grassline elevation corrected for sag
STAGING TABLE *WL* = Waterline corrected for variations in field measured water surface elevations and sag

	DIST TO WATER (FT)	TOP WIDTH (FT)	AVG. DEPTH (FT)	MAX. DEPTH (FT)	AREA (SQ FT)	WETTED PERIM. (FT)	PERCENT WET PERIM (%)	HYDR RADIUS (FT)	FLOW (CFS)	AVG. VELOCITY (FT/SEC)
GL	6.99	20.46	1.93	2.61	39.43	23.39	100.0%	1.69	108.36	2.75
	7.60	20.03	1.35	2.00	27.07	22.09	94.5%	1.23	60.13	2.22
	7.65	19.99	1.30	1.95	26.07	21.99	94.0%	1.19	56.65	2.17
	7.70	19.96	1.26	1.90	25.07	21.88	93.5%	1.15	53.25	2.12
	7.75	19.92	1.21	1.85	24.07	21.77	93.1%	1.11	49.93	2.07
	7.80	19.89	1.16	1.80	23.07	21.67	92.6%	1.06	46.69	2.02
	7.85	19.85	1.11	1.75	22.08	21.56	92.2%	1.02	43.53	1.97
	7.90	19.82	1.06	1.70	21.09	21.46	91.7%	0.98	40.45	1.92
	7.95	19.78	1.02	1.65	20.10	21.35	91.3%	0.94	37.46	1.86
	8.00	19.74	0.97	1.60	19.11	21.24	90.8%	0.90	34.56	1.81
	8.05	19.71	0.92	1.55	18.12	21.14	90.4%	0.86	31.74	1.75
	8.10	19.67	0.87	1.50	17.14	21.03	89.9%	0.82	29.02	1.69
	8.15	19.54	0.83	1.45	16.16	20.85	89.1%	0.78	26.46	1.64
	8.20	19.35	0.78	1.40	15.19	20.61	88.1%	0.74	24.04	1.58
	8.25	19.16	0.74	1.35	14.22	20.38	87.1%	0.70	21.72	1.53
	8.30	18.98	0.70	1.30	13.27	20.15	86.1%	0.66	19.49	1.47
	8.35	18.79	0.66	1.25	12.33	19.91	85.1%	0.62	17.37	1.41
	8.40	18.60	0.61	1.20	11.39	19.68	84.1%	0.58	15.35	1.35
	8.45	18.41	0.57	1.15	10.47	19.44	83.1%	0.54	13.44	1.28
	8.50	18.22	0.52	1.10	9.55	19.21	82.1%	0.50	11.63	1.22
	8.55	18.02	0.48	1.05	8.64	18.97	81.1%	0.46	9.93	1.15
WL	8.60	17.36	0.45	1.00	7.76	18.27	78.1%	0.42	8.51	1.10
	8.65	16.68	0.41	0.95	6.91	17.55	75.0%	0.39	7.20	1.04
	8.70	12.47	0.49	0.90	6.13	13.31	56.9%	0.46	7.10	1.16
	8.75	12.24	0.45	0.85	5.51	13.06	55.8%	0.42	6.02	1.09
	8.80	12.01	0.41	0.80	4.91	12.80	54.7%	0.38	5.03	1.02
	8.85	11.78	0.37	0.75	4.31	12.55	53.6%	0.34	4.11	0.95
	8.90	11.55	0.32	0.70	3.73	12.29	52.5%	0.30	3.27	0.88
	8.95	11.31	0.28	0.65	3.16	12.03	51.5%	0.26	2.51	0.80
	9.00	10.91	0.24	0.60	2.60	11.61	49.6%	0.22	1.86	0.72
	9.05	9.62	0.22	0.55	2.09	10.26	43.9%	0.20	1.40	0.67
	9.10	8.26	0.20	0.50	1.63	8.82	37.7%	0.18	1.03	0.63
	9.15	7.77	0.16	0.45	1.23	8.25	35.3%	0.15	0.67	0.55
	9.20	6.28	0.14	0.40	0.85	6.67	28.5%	0.13	0.42	0.49
	9.25	5.31	0.11	0.35	0.56	5.61	24.0%	0.10	0.24	0.42
	9.30	2.84	0.11	0.30	0.32	3.05	13.0%	0.11	0.14	0.44
	9.35	2.16	0.09	0.25	0.20	2.30	9.8%	0.09	0.08	0.38
	9.40	1.16	0.10	0.20	0.12	1.23	5.3%	0.09	0.05	0.40
	9.45	0.87	0.07	0.15	0.07	0.92	3.9%	0.07	0.02	0.33
	9.50	0.58	0.05	0.10	0.03	0.61	2.6%	0.05	0.01	0.25
	9.55	0.29	0.02	0.05	0.01	0.31	1.3%	0.02	0.00	0.16

STREAM NAME:	EAST DIVIDE CREEK #1
XS LOCATION:	39 22' 04.7" 107 28' 26.9"
XS NUMBER:	070710-3

SUMMARY SHEET

MEASURED FLOW (Qm)=	8.33	cfs
CALCULATED FLOW (Qc)=	8.51	cfs
(Qm-Qc)/Qm * 100 =	-2.2	%
MEASURED WATERLINE (WLm)=	8.60	ft
CALCULATED WATERLINE (WLc)=	8.60	ft
(WLm-WLc)/WLm * 100 =	0.0	%
MAX MEASURED DEPTH (Dm)=	1.00	ft
MAX CALCULATED DEPTH (Dc)=	1.00	ft
(Dm-Dc)/Dm * 100	0.1	%
MEAN VELOCITY=	1.10	ft/sec
MANNING'S N=	0.084	
SLOPE=	0.01192053	ft/ft
.4 * Qm =	3.3	cfs
2.5 * Qm=	20.8	cfs

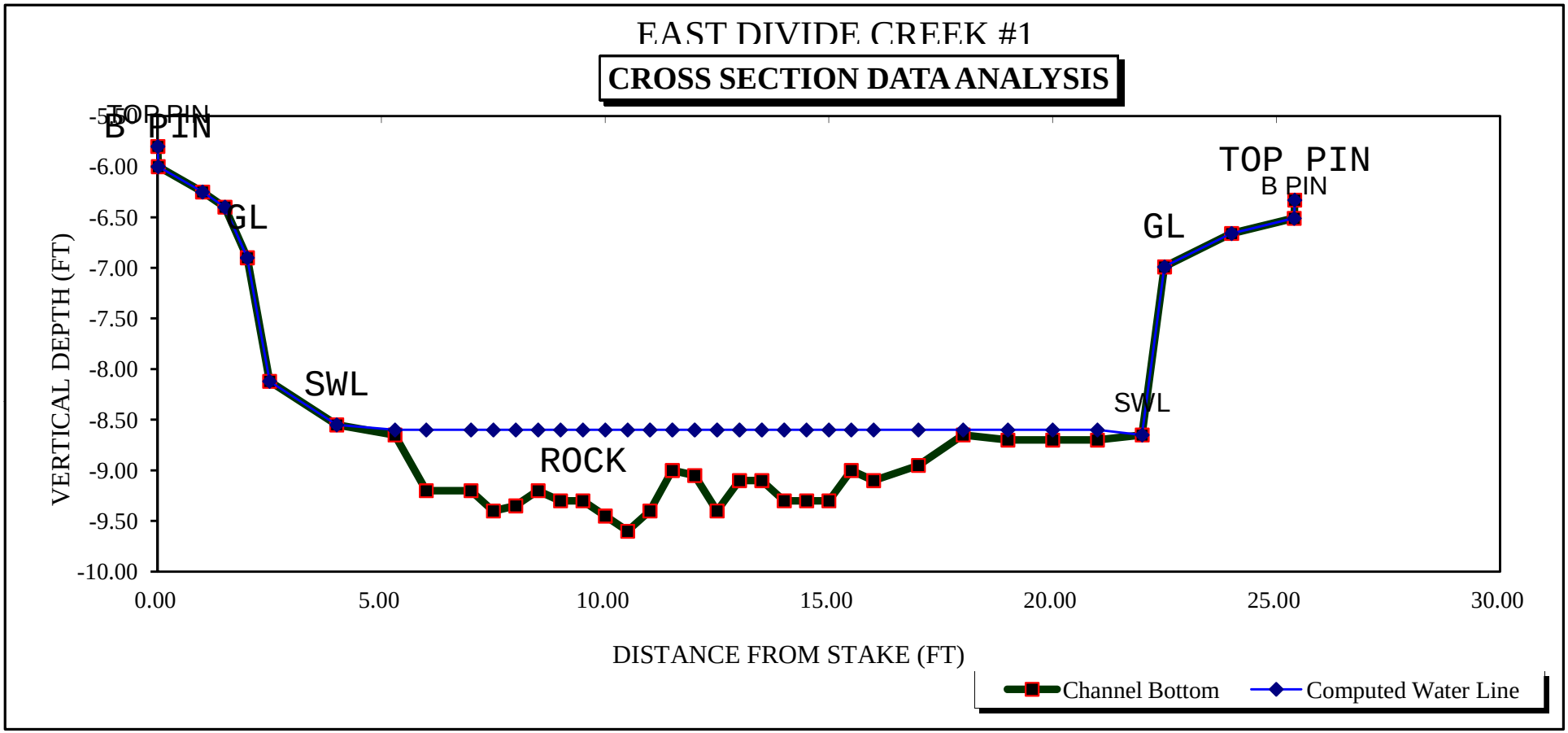
RECOMMENDED INSTREAM FLOW:
============================

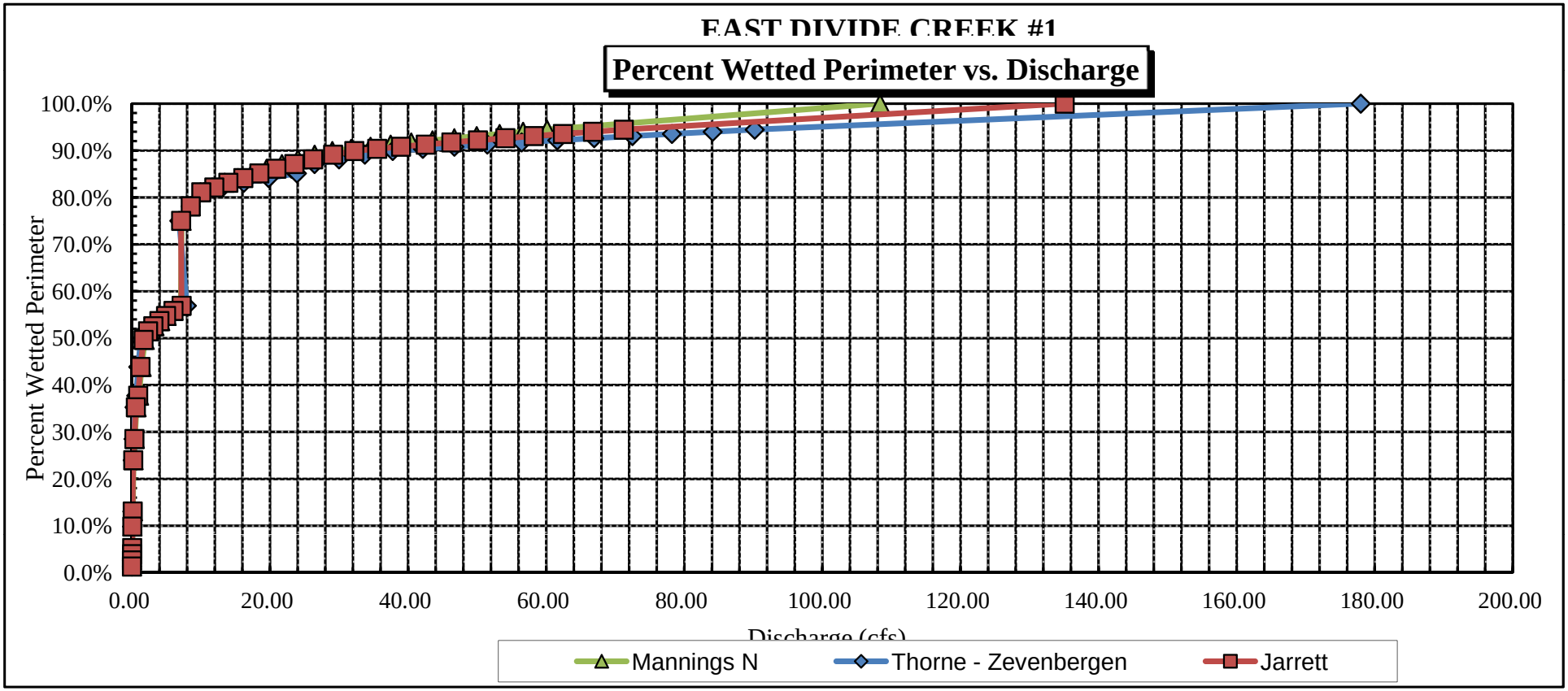
FLOW (CFS)	PERIOD
===========	========
____________________	____________________
____________________	____________________
____________________	____________________
____________________	____________________

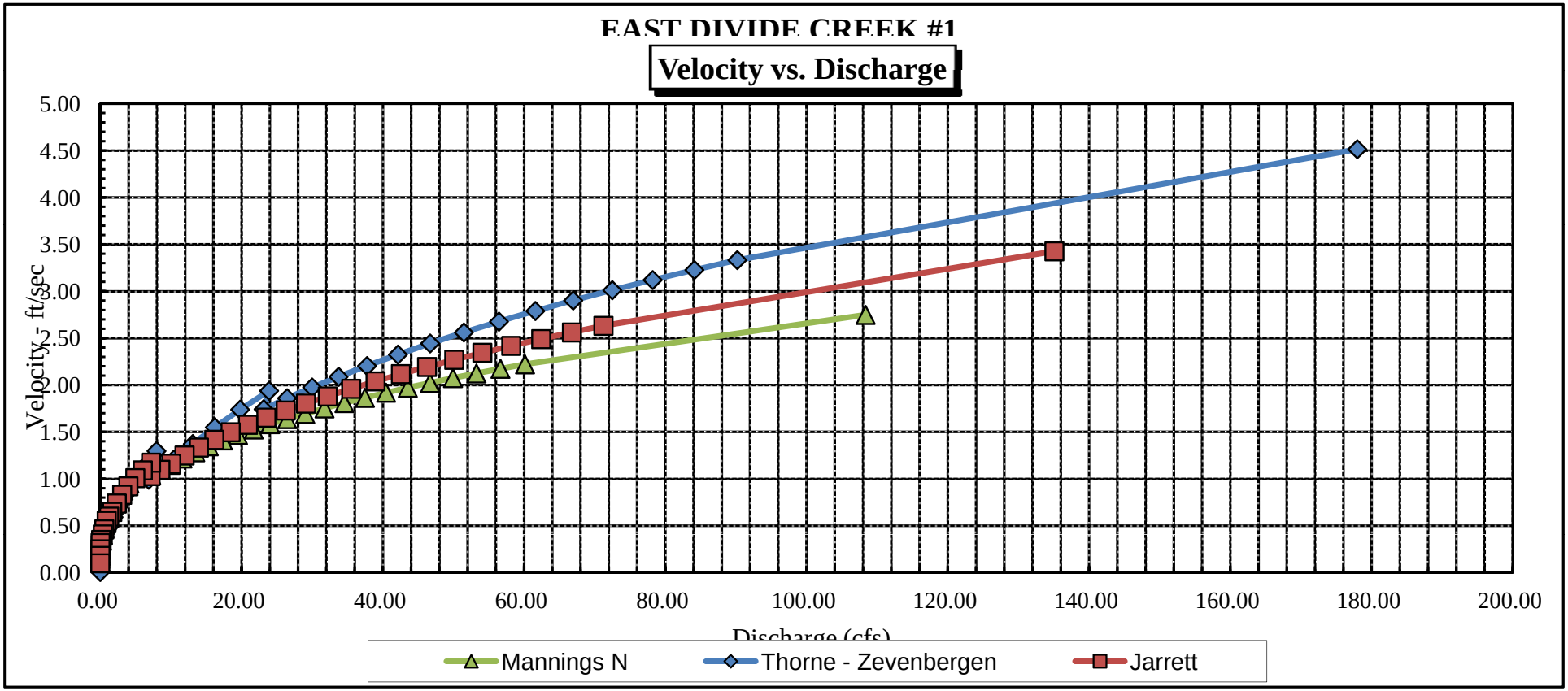
RATIONALE FOR RECOMMENDATION:
============================

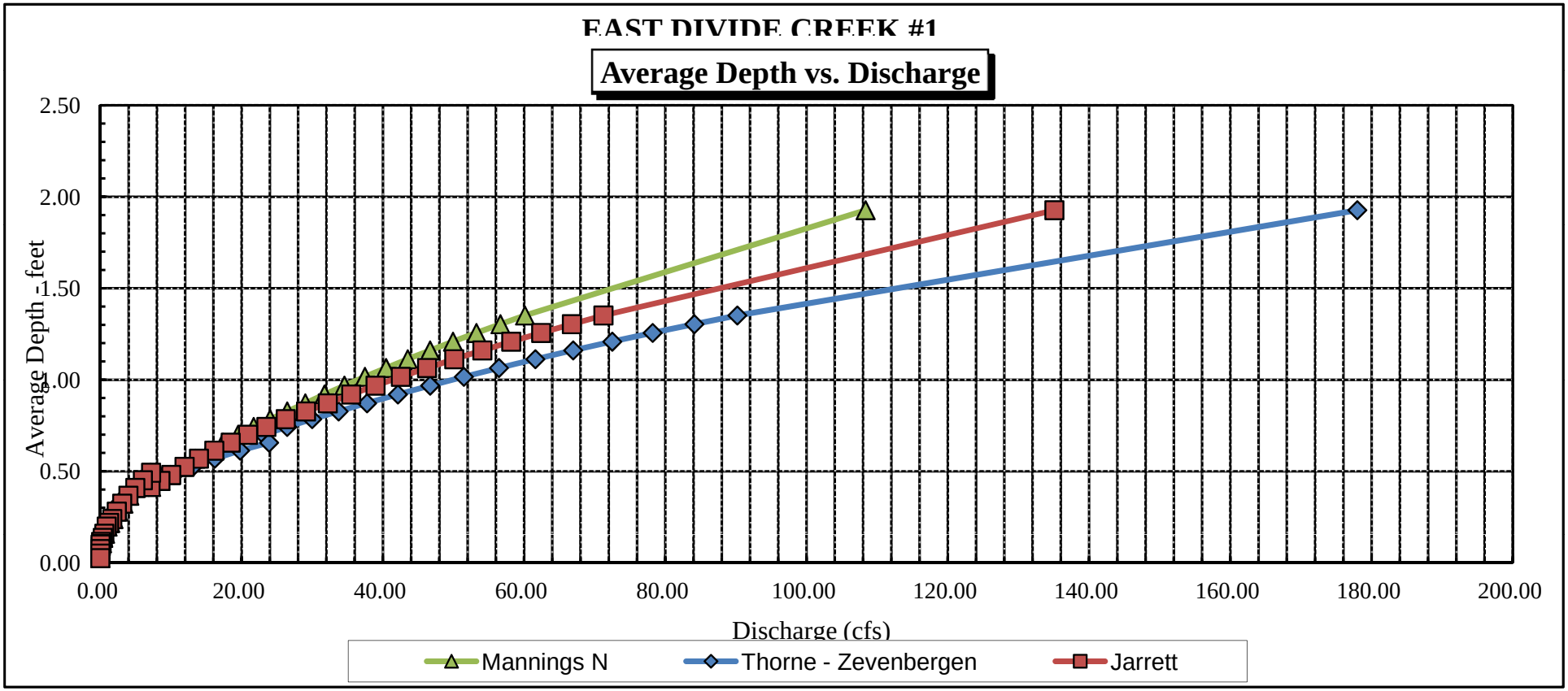
RECOMMENDATION BY: …………………...………..……................................ AGENCY..……………………….....…......…...…....... DATE:.......…...…......……………

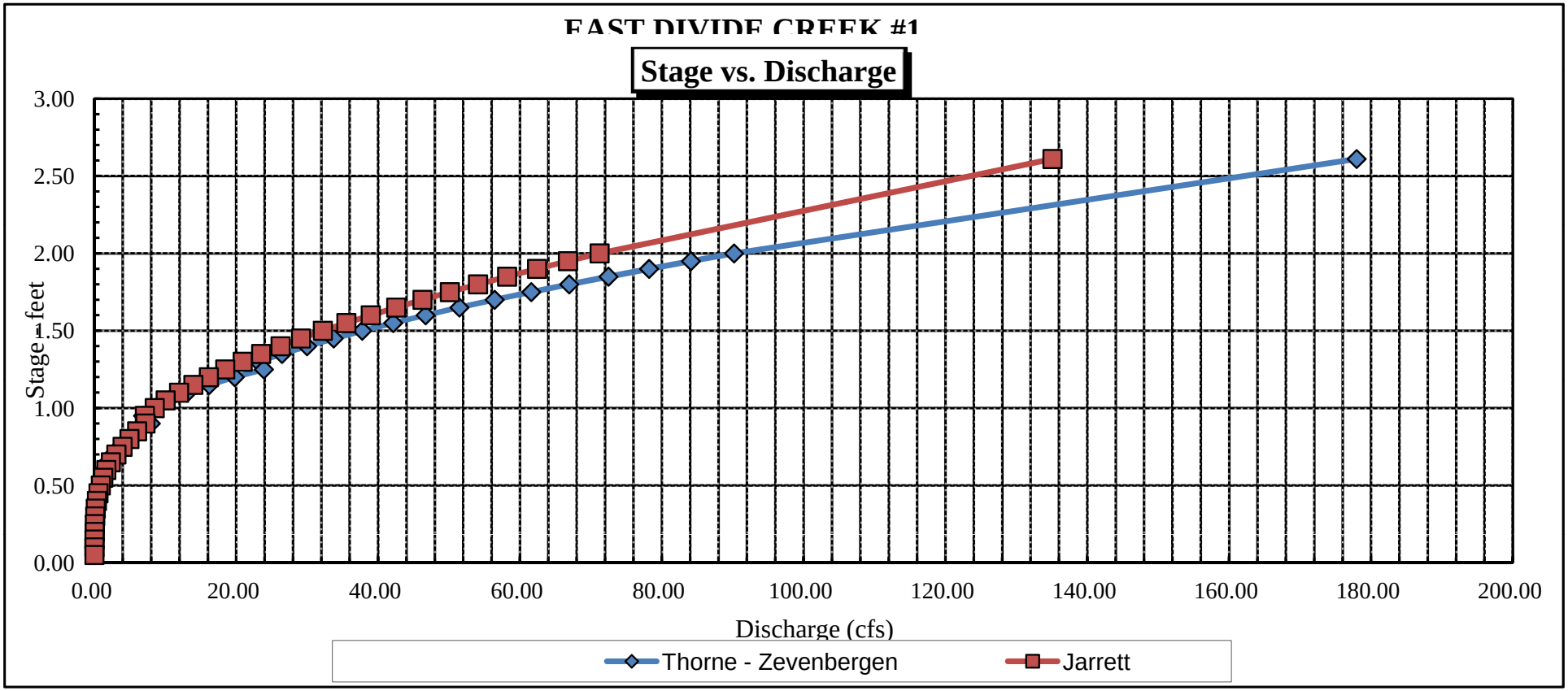
CWCB REVIEW BY: ..……………………………...…………………………………………………...…............ DATE:..................…………….…


EAST DIVIDE CREEK #1
CROSS SECTION DATA ANALYSIS
TOP PIN
B PIN
GL
SWL
ROCK
SWL
GL
TOP PIN
B PIN
VERTICAL DEPTH (FT)
-5.50
-6.00
-6.50
-7.00
-7.50
-8.00
-8.50
-9.00
-9.50
-10.00
0.00
5.00
10.00
15.00
20.00
25.00
30.00
DISTANCE FROM STAKE (FT)
Channel Bottom
Computed Water Line


EAST DIVIDE CREEK #1
Percent Wetted Perimeter vs. Discharge
Percent Wetted Perimeter
100.0%
90.0%
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
160.00
180.00
200.00
Discharge (cfs)
Mannings N
Thorne - Zevenbergen
Jarrett


EAST DIVIDE CREEK #1
Velocity vs. Discharge
Velocity - ft/sec
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
160.00
180.00
200.00
Discharge (cfs)
Mannings N
Thorne - Zevenbergen
Jarrett


EAST DIVIDE CREEK #1
Average Depth vs. Discharge
Average Depth - feet
2.50
2.00
1.50
1.00
0.50
0.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
160.00
180.00
200.00
Discharge (cfs)
Mannings N
Thorne - Zevenbergen
Jarrett


EAST DIVIDE CREEK #1
Stage vs. Discharge
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Stage - feet
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
160.00
180.00
200.00
Discharge (cfs)
Thorne - Zevenbergen
Jarrett

COLORADO WATER CONSERVATION BOARD
INSTREAM FLOW / NATURAL LAKE LEVEL PROGRAM
STREAM CROSS-SECTION AND FLOW ANALYSIS

LOCATION INFORMATION

STREAM NAME:	EAST DIVIDE CREEK #1 - 072111
XS LOCATION:	39 22' 04.7" 107 28' 26.9"
XS NUMBER:	72111
DATE:	21-Jul-11
OBSERVERS:	UPPENDAHL
1/4 SEC:	0
SECTION:	8
TWP:	8 S
RANGE:	90 W
PM:	6
COUNTY:	GARFIELD
WATERSHED:	DIVIDE CREEK
DIVISION:	5
DOW CODE:	20830
USGS MAP:	0
USFS MAP:	0

SUPPLEMENTAL DATA

*** NOTE ***
Leave TAPE WT and TENSION at defaults for data collected with a survey level and rod

TAPE WT:	0.0106
TENSION:	99999

CHANNEL PROFILE DATA

SLOPE:	0.01192053

INPUT DATA CHECKED BY: .....DATE.....

ASSIGNED TO: ….....……..…….....DATE.....

STREAM NAME: EAST DIVIDE CREEK #1 - 072111
XS LOCATION: 39 22' 04.7" 107 28' 26.9"
XS NUMBER: 72111

DATA POINTS= 34

VALUES COMPUTED FROM RAW FIELD DATA

FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL	WETTED PERIM.	WATER DEPTH	AREA (Am)	Q (Qm)	% Q CELL
TOP PIN	0.00	5.80			0.00		0.00	0.00	0.0%
B PIN	0.01	6.00			0.00		0.00	0.00	0.0%
	1.00	6.25			0.00		0.00	0.00	0.0%
	1.50	6.40			0.00		0.00	0.00	0.0%
1 GL	2.00	6.90			0.00		0.00	0.00	0.0%
	2.50	8.12			0.00		0.00	0.00	0.0%
SWL	4.00	8.58	0.00	0.00	0.00		0.00	0.00	0.0%
	5.00	8.78	0.20	0.08	1.02	0.20	0.20	0.02	0.3%
	6.00	8.78	0.20	0.18	1.00	0.20	0.20	0.04	0.6%
	7.00	9.08	0.50	0.82	1.04	0.50	0.50	0.41	6.9%
	8.00	8.98	0.40	0.44	1.00	0.40	0.40	0.18	2.9%
	9.00	9.08	0.50	0.05	1.00	0.50	0.50	0.03	0.4%
	10.00	9.18	0.60	0.60	1.00	0.60	0.60	0.36	6.0%
	11.00	9.58	1.00	0.37	1.08	1.00	1.00	0.37	6.2%
ROCK	12.00	8.68	0.10	0.52	1.35	0.10	0.10	0.05	0.9%
	13.00	8.98	0.40	1.85	1.04	0.40	0.30	0.56	9.3%
	13.50	9.28	0.70	2.29	0.58	0.70	0.35	0.80	13.4%
	14.00	9.38	0.80	1.93	0.51	0.80	0.40	0.77	12.9%
	14.50	9.38	0.80	1.03	0.50	0.80	0.40	0.41	6.9%
	15.00	9.18	0.60	1.31	0.54	0.60	0.30	0.39	6.6%
	15.50	9.18	0.60	1.74	0.50	0.60	0.30	0.52	8.7%
	16.00	9.08	0.50	0.31	0.51	0.50	0.25	0.08	1.3%
	16.50	9.38	0.80	0.94	0.58	0.80	0.40	0.38	6.3%
	17.00	9.28	0.70	0.51	0.51	0.70	0.53	0.27	4.5%
	18.00	9.28	0.70	0.03	1.00	0.70	0.70	0.02	0.4%
	19.00	9.18	0.60	0.07	1.00	0.60	0.60	0.04	0.7%
	20.00	8.98	0.40	1.23	1.02	0.40	0.24	0.30	4.9%
SWL	20.20	8.58	0.00	0.00	0.45		0.00	0.00	0.0%
	21.00	8.70			0.00		0.00	0.00	0.0%
	22.00	8.65			0.00		0.00	0.00	0.0%
1 GL	22.50	6.99			0.00		0.00	0.00	0.0%
	24.00	6.66			0.00		0.00	0.00	0.0%
B PIN	25.40	6.51			0.00		0.00	0.00	0.0%
TOP PIN	25.41	6.33			0.00		0.00	0.00	0.0%
TOTALS ----------					17.25	1 (Max.)	8.27	5.98	100.0%

Manning's n = 0.1373
Hydraulic Radius= 0.47908486

STREAM NAME: EAST DIVIDE CREEK #1 - 072111
XS LOCATION: 39 22' 04.7" 107 28' 26.9"
XS NUMBER: 72111

WATER LINE COMPARISON TABLE

WATER LINE	MEAS AREA	COMP AREA	AREA ERROR
	8.27	8.41	1.7%
8.33	8.27	13.03	57.6%
8.35	8.27	12.65	53.0%
8.37	8.27	12.27	48.5%
8.39	8.27	11.90	43.9%
8.41	8.27	11.52	39.4%
8.43	8.27	11.15	34.9%
8.45	8.27	10.78	30.4%
8.47	8.27	10.41	26.0%
8.49	8.27	10.05	21.5%
8.51	8.27	9.68	17.1%
8.53	8.27	9.31	12.7%
8.54	8.27	9.13	10.5%
8.55	8.27	8.95	8.3%
8.56	8.27	8.77	6.1%
8.57	8.27	8.59	3.9%
8.58	8.27	8.41	1.7%
8.59	8.27	8.23	-0.4%
8.60	8.27	8.05	-2.6%
8.61	8.27	7.87	-4.7%
8.62	8.27	7.70	-6.9%
8.63	8.27	7.52	-9.0%
8.65	8.27	7.18	-13.2%
8.67	8.27	6.84	-17.2%
8.69	8.27	6.52	-21.1%
8.71	8.27	6.21	-24.9%
8.73	8.27	5.90	-28.6%
8.75	8.27	5.60	-32.2%
8.77	8.27	5.30	-35.8%
8.79	8.27	5.02	-39.2%
8.81	8.27	4.75	-42.5%
8.83	8.27	4.48	-45.7%

WATERLINE AT ZERO
AREA ERROR = 8.588

STREAM NAME: EAST DIVIDE CREEK #1 - 072111
XS LOCATION: 39 22' 04.7" 107 28' 26.9"
XS NUMBER: 72111 Constant Manning's n

GL = lowest Grassline elevation corrected for sag
STAGING TABLE *WL* = Waterline corrected for variations in field measured water surface elevations and sag

	DIST TO WATER (FT)	TOP WIDTH (FT)	AVG. DEPTH (FT)	MAX. DEPTH (FT)	AREA (SQ FT)	WETTED PERIM. (FT)	PERCENT WET PERIM (%)	HYDR RADIUS (FT)	FLOW (CFS)	AVG. VELOCITY (FT/SEC)
GL	6.99	20.46	1.94	2.59	39.74	23.59	100.0%	1.69	66.51	1.67
	7.59	20.04	1.38	1.99	27.63	22.31	94.6%	1.24	37.66	1.36
	7.64	20.00	1.33	1.94	26.63	22.21	94.2%	1.20	35.53	1.33
	7.69	19.97	1.28	1.89	25.63	22.10	93.7%	1.16	33.44	1.30
	7.74	19.93	1.24	1.84	24.64	22.00	93.3%	1.12	31.40	1.27
	7.79	19.90	1.19	1.79	23.64	21.89	92.8%	1.08	29.41	1.24
	7.84	19.86	1.14	1.74	22.65	21.78	92.4%	1.04	27.47	1.21
	7.89	19.82	1.09	1.69	21.66	21.68	91.9%	1.00	25.57	1.18
	7.94	19.79	1.04	1.64	20.67	21.57	91.5%	0.96	23.73	1.15
	7.99	19.75	1.00	1.59	19.68	21.46	91.0%	0.92	21.94	1.12
	8.04	19.72	0.95	1.54	18.69	21.36	90.6%	0.88	20.21	1.08
	8.09	19.68	0.90	1.49	17.70	21.25	90.1%	0.83	18.52	1.05
	8.14	19.60	0.85	1.44	16.72	21.10	89.5%	0.79	16.92	1.01
	8.19	19.42	0.81	1.39	15.75	20.88	88.5%	0.75	15.42	0.98
	8.24	19.24	0.77	1.34	14.78	20.66	87.6%	0.72	13.97	0.95
	8.29	19.06	0.73	1.29	13.82	20.44	86.6%	0.68	12.59	0.91
	8.34	18.88	0.68	1.24	12.87	20.21	85.7%	0.64	11.26	0.87
	8.39	18.70	0.64	1.19	11.93	19.99	84.8%	0.60	10.00	0.84
	8.44	18.53	0.59	1.14	11.00	19.77	83.8%	0.56	8.80	0.80
	8.49	18.35	0.55	1.09	10.08	19.54	82.9%	0.52	7.66	0.76
	8.54	18.17	0.50	1.04	9.17	19.32	81.9%	0.47	6.59	0.72
WL	8.59	17.92	0.46	0.99	8.26	19.02	80.7%	0.43	5.60	0.68
	8.64	17.30	0.43	0.94	7.38	18.32	77.7%	0.40	4.76	0.64
	8.69	15.89	0.41	0.89	6.55	16.86	71.5%	0.39	4.12	0.63
	8.74	15.07	0.38	0.84	5.78	15.98	67.8%	0.36	3.47	0.60
	8.79	13.59	0.37	0.79	5.05	14.43	61.2%	0.35	2.96	0.59
	8.84	13.18	0.33	0.74	4.38	13.96	59.2%	0.31	2.39	0.55
	8.89	12.76	0.29	0.69	3.73	13.48	57.1%	0.28	1.87	0.50
	8.94	12.35	0.25	0.64	3.10	13.00	55.1%	0.24	1.41	0.45
	8.99	11.75	0.21	0.59	2.50	12.34	52.3%	0.20	1.02	0.41
	9.04	10.20	0.19	0.54	1.95	10.73	45.5%	0.18	0.74	0.38
	9.09	8.69	0.17	0.49	1.48	9.18	38.9%	0.16	0.52	0.35
	9.14	7.47	0.14	0.44	1.07	7.90	33.5%	0.14	0.33	0.31
	9.19	5.79	0.13	0.39	0.73	6.15	26.1%	0.12	0.21	0.29
	9.24	4.82	0.10	0.34	0.47	5.11	21.7%	0.09	0.11	0.24
	9.29	2.86	0.09	0.29	0.26	3.09	13.1%	0.08	0.06	0.23
	9.34	1.97	0.07	0.24	0.14	2.14	9.1%	0.07	0.03	0.19
	9.39	0.69	0.10	0.19	0.07	0.80	3.4%	0.08	0.01	0.22
	9.44	0.51	0.07	0.14	0.04	0.59	2.5%	0.06	0.01	0.18
	9.49	0.33	0.05	0.09	0.02	0.39	1.6%	0.04	0.00	0.14
	9.54	0.15	0.02	0.04	0.00	0.18	0.7%	0.02	0.00	0.08

STREAM NAME: EAST DIVIDE CREEK #1 - 072111
XS LOCATION: 39 22' 04.7" 107 28' 26.9"
XS NUMBER: 72111

SUMMARY SHEET

MEASURED FLOW (Qm)=	5.98	cfs
CALCULATED FLOW (Qc)=	5.60	cfs
(Qm-Qc)/Qm * 100 =	6.3	%
MEASURED WATERLINE (WLm)=	8.58	ft
CALCULATED WATERLINE (WLc)=	8.59	ft
(WLm-WLc)/WLm * 100 =	-0.1	%
MAX MEASURED DEPTH (Dm)=	1.00	ft
MAX CALCULATED DEPTH (Dc)=	0.99	ft
(Dm-Dc)/Dm * 100	0.8	%
MEAN VELOCITY=	0.68	ft/sec
MANNING'S N=	0.137	
SLOPE=	0.01192053	ft/ft
.4 * Qm =	2.4	cfs
2.5 * Qm=	14.9	cfs

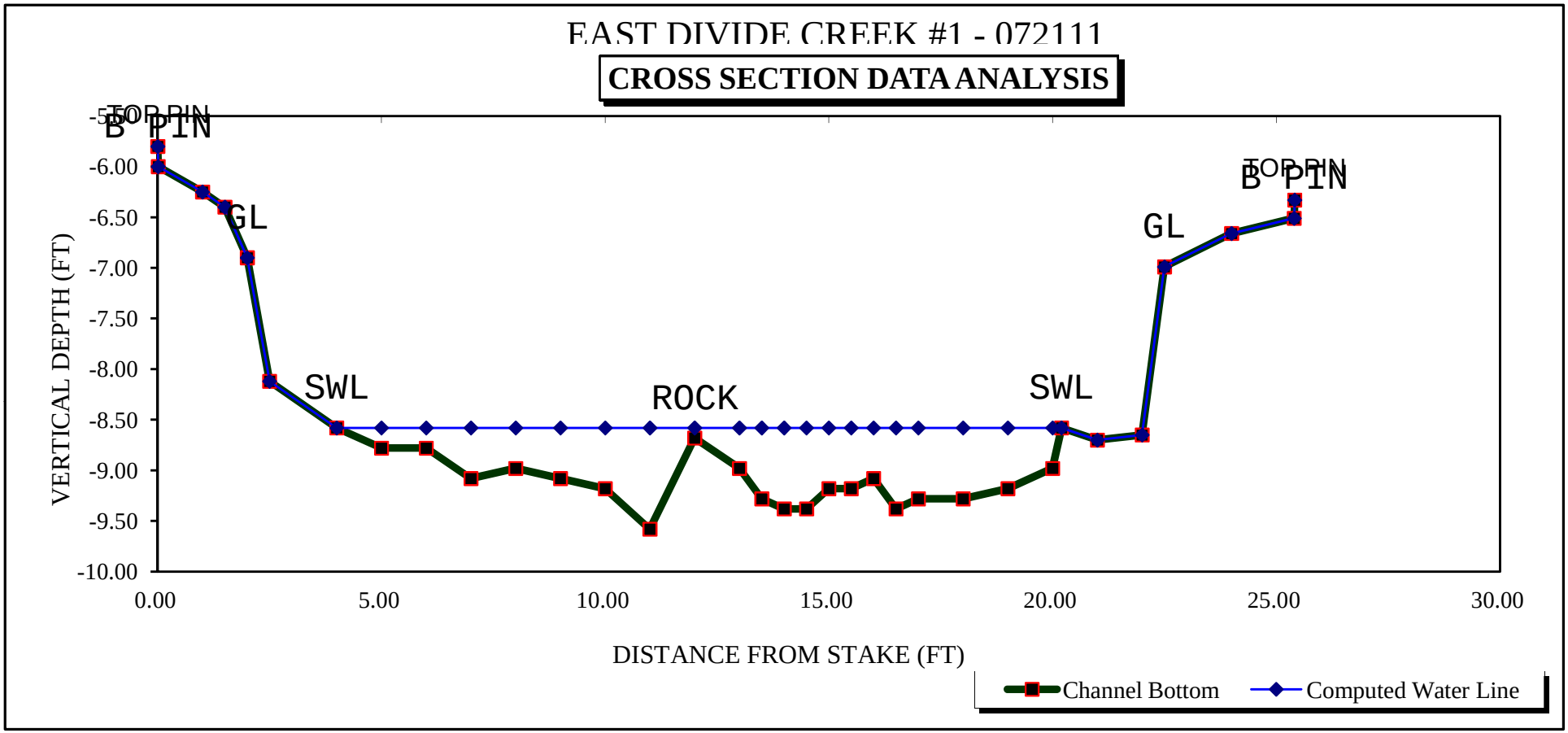
RECOMMENDED INSTREAM FLOW:
==========

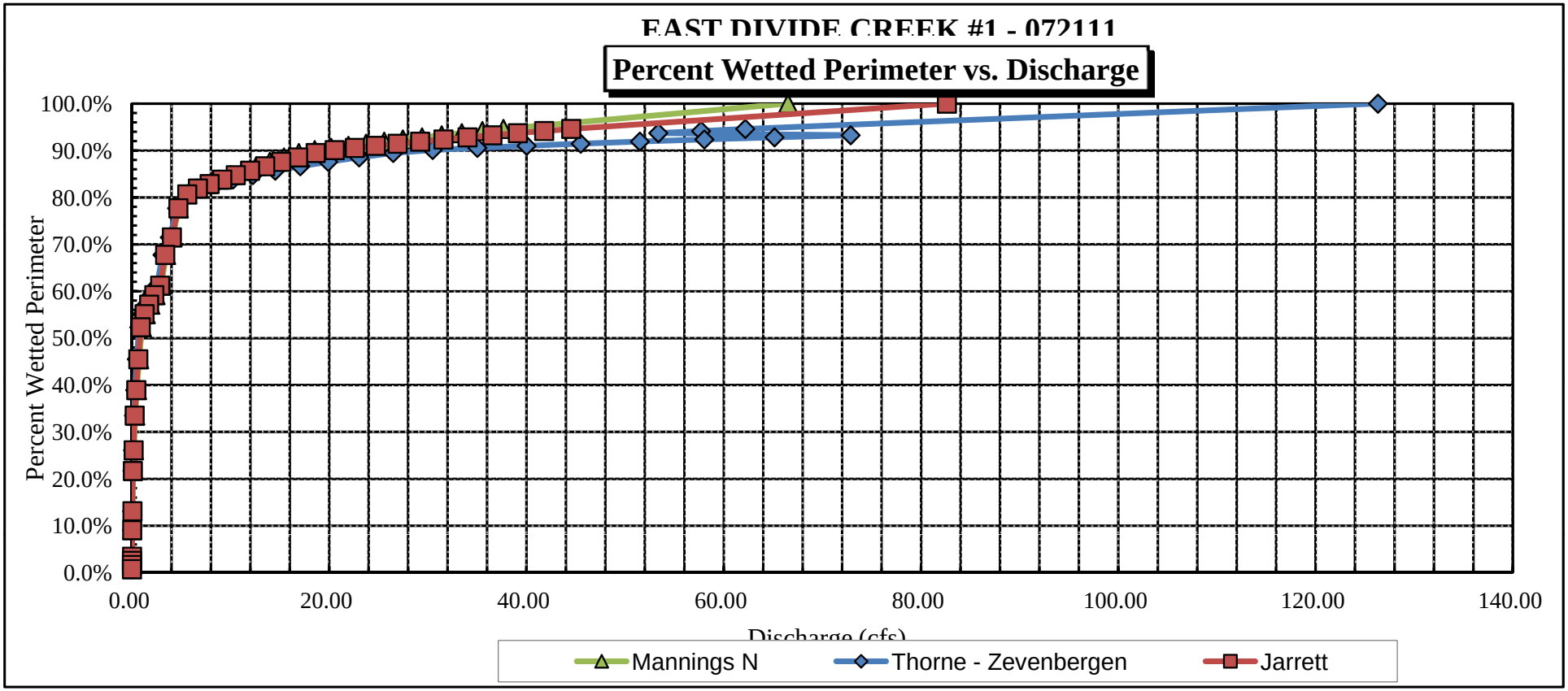
FLOW (CFS)	PERIOD
==========	========
_____	_____
_____	_____
_____	_____
_____	_____

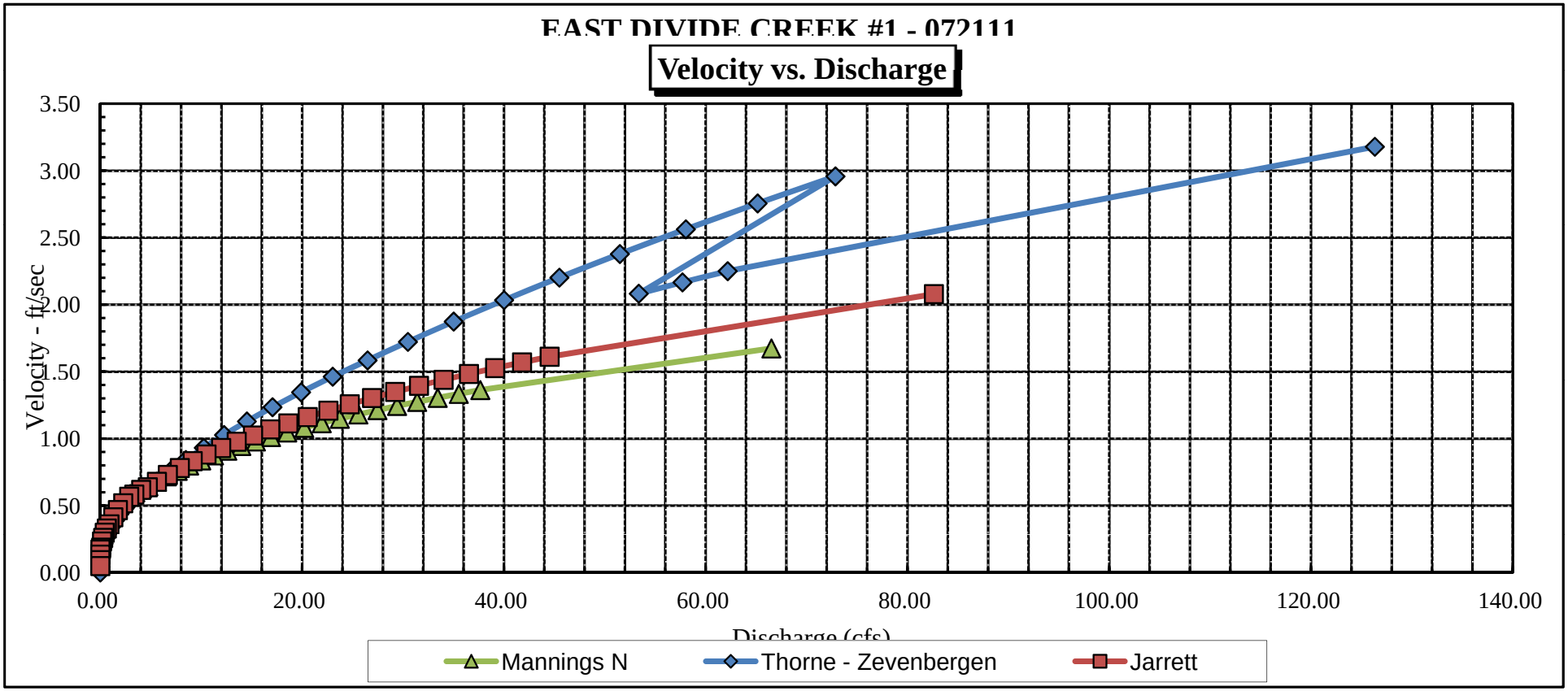
RATIONALE FOR RECOMMENDATION:
==========

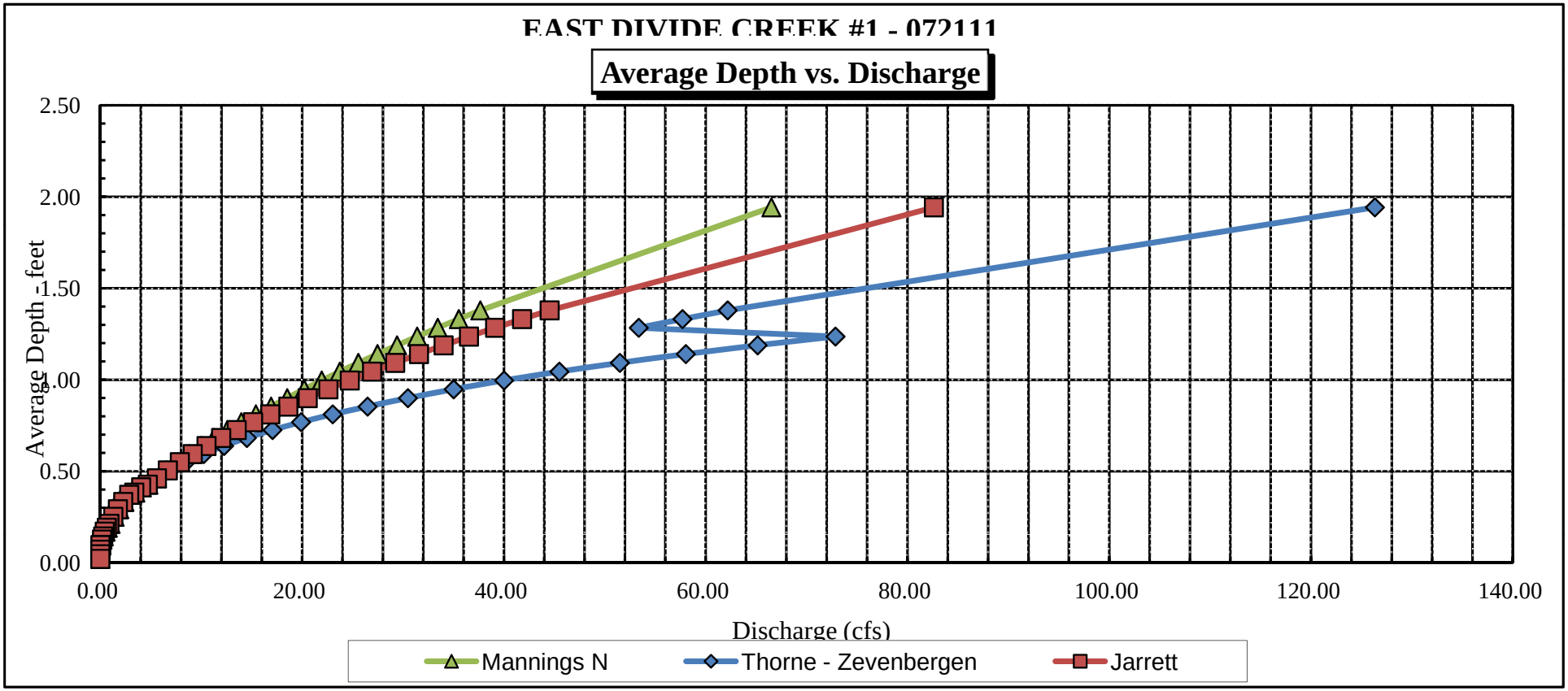
RECOMMENDATION BY: ..... AGENCY..... DATE:.....

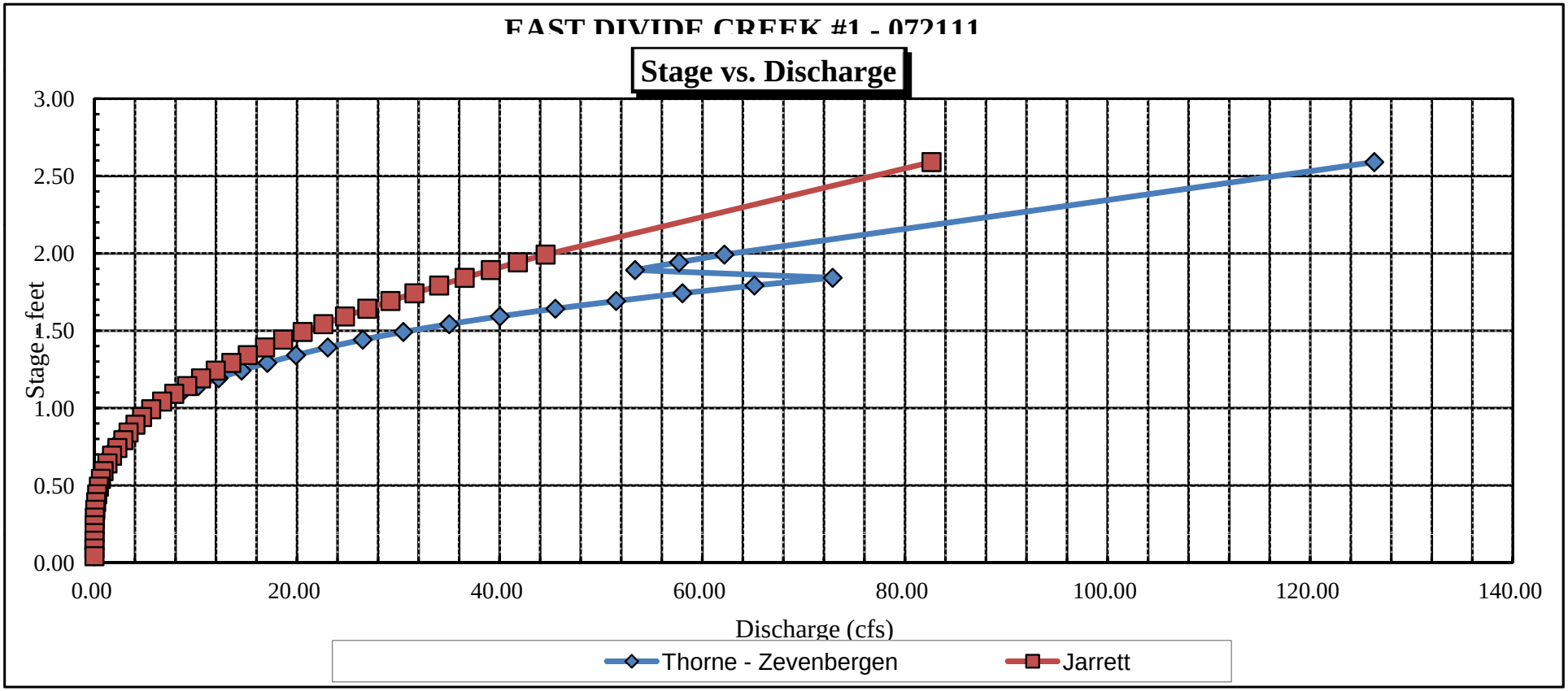
CWCB REVIEW BY: ..... DATE:.....


EAST DIVIDE CREEK #1 - 072111
CROSS SECTION DATA ANALYSIS
TOP PIN
B PIN
GL
SWL
ROCK
SWL
GL
TOP PIN
B PIN
-5.50
-6.00
-6.50
-7.00
-7.50
-8.00
-8.50
-9.00
-9.50
-10.00
VERTICAL DEPTH (FT)
0.00
5.00
10.00
15.00
20.00
25.00
30.00
DISTANCE FROM STAKE (FT)
Channel Bottom
Computed Water Line


EAST DIVIDE CREEK #1 - 072111
Percent Wetted Perimeter vs. Discharge
Percent Wetted Perimeter
100.0%
90.0%
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
Discharge (cfs)
Mannings N
Thorne - Zevenbergen
Jarrett


EAST DIVIDE CREEK #1 - 072111
Velocity vs. Discharge
Velocity - ft/sec
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
Discharge (cfs)
Mannings N
Thorne - Zevenbergen
Jarrett


EAST DIVIDE CREEK #1 - 072111
Average Depth vs. Discharge
Average Depth - feet
2.50
2.00
1.50
1.00
0.50
0.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
Discharge (cfs)
Mannings N
Thorne - Zevenbergen
Jarrett


EAST DIVIDE CREEK #1 - 072111
Stage vs. Discharge
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Stage - feet
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
Discharge (cfs)
Thorne - Zevenbergen
Jarrett

COLORADO WATER CONSERVATION BOARD
INSTREAM FLOW / NATURAL LAKE LEVEL PROGRAM
STREAM CROSS-SECTION AND FLOW ANALYSIS

LOCATION INFORMATION

STREAM NAME:	EAST DIVIDE CREEK #1 - 081710
XS LOCATION:	39 22' 04.7" 107 28' 26.9"
XS NUMBER:	81710
DATE:	17-Aug-10
OBSERVERS:	UPPENDAHL
1/4 SEC:	0
SECTION:	8
TWP:	8 S
RANGE:	90 W
PM:	6
COUNTY:	GARFIELD
WATERSHED:	DIVIDE CREEK
DIVISION:	5
DOW CODE:	20830
USGS MAP:	0
USFS MAP:	0

SUPPLEMENTAL DATA

TAPE WT:	0.0106
TENSION:	99999

*** NOTE ***
Leave TAPE WT and TENSION at defaults for data collected with a survey level and rod

CHANNEL PROFILE DATA

SLOPE:	0.01192053

INPUT DATA CHECKED BY: .....DATE.....

ASSIGNED TO: ….....……..…….....DATE.....

STREAM NAME: EAST DIVIDE CREEK #1 - 081710
XS LOCATION: 39 22' 04.7" 107 28' 26.9"
XS NUMBER: 81710

DATA POINTS= 39

VALUES COMPUTED FROM RAW FIELD DATA

FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL	WETTED PERIM.	WATER DEPTH	AREA (Am)	Q (Qm)	% Q CELL
TOP PIN	0.00	5.80			0.00		0.00	0.00	0.0%
B PIN	0.01	6.00			0.00		0.00	0.00	0.0%
	1.00	6.25			0.00		0.00	0.00	0.0%
	1.50	6.40			0.00		0.00	0.00	0.0%
1 GL	2.00	6.90			0.00		0.00	0.00	0.0%
	2.50	8.12			0.00		0.00	0.00	0.0%
	4.00	8.55			0.00		0.00	0.00	0.0%
	5.30	8.65			0.00		0.00	0.00	0.0%
SWL	5.60	9.00	0.00	0.00	0.00		0.00	0.00	0.0%
	6.00	9.20	0.20	0.18	0.45	0.20	0.14	0.03	5.3%
	7.00	9.20	0.20	0.18	1.00	0.20	0.15	0.03	5.7%
	7.50	9.40	0.40	0.18	0.54	0.40	0.20	0.04	7.6%
	8.00	9.35	0.35	0.18	0.50	0.35	0.18	0.03	6.6%
	8.50	9.20	0.20	0.18	0.52	0.20	0.10	0.02	3.8%
	9.00	9.30	0.30	0.18	0.51	0.30	0.15	0.03	5.7%
ROCK	9.50	9.30	0.30	0.18	0.50	0.30	0.15	0.03	5.7%
	10.00	9.45	0.45	0.18	0.52	0.45	0.23	0.04	8.5%
	10.50	9.60	0.60	0.18	0.52	0.60	0.30	0.05	11.4%
	11.00	9.40	0.40	0.18	0.54	0.40	0.20	0.04	7.6%
	11.50	9.00	0.00	0.18	0.64		0.00	0.00	0.0%
	12.00	9.05	0.05	0.18	0.50	0.05	0.03	0.00	0.9%
	12.50	9.40	0.40	0.18	0.61	0.40	0.20	0.04	7.6%
	13.00	9.10	0.10	0.18	0.58	0.10	0.05	0.01	1.9%
	13.50	9.10	0.10	0.18	0.50	0.10	0.05	0.01	1.9%
	14.00	9.30	0.30	0.18	0.54	0.30	0.15	0.03	5.7%
	14.50	9.30	0.30	0.18	0.50	0.30	0.15	0.03	5.7%
	15.00	9.30	0.30	0.18	0.50	0.30	0.15	0.03	5.7%
	15.50	9.00	0.00	0.18	0.58		0.00	0.00	0.0%
	16.00	9.10	0.10	0.18	0.51	0.10	0.07	0.01	2.8%
	17.00	9.00	0.00	0.00	1.00		0.00	0.00	0.0%
	18.00	8.65			0.00		0.00	0.00	0.0%
	19.00	8.70			0.00		0.00	0.00	0.0%
	20.00	8.70			0.00		0.00	0.00	0.0%
	21.00	8.70			0.00		0.00	0.00	0.0%
SWL	22.00	8.65			0.00		0.00	0.00	0.0%
1 GL	22.50	6.99			0.00		0.00	0.00	0.0%
	24.00	6.66			0.00		0.00	0.00	0.0%
B PIN	25.40	6.51			0.00		0.00	0.00	0.0%
TOP PIN	25.41	6.33			0.00		0.00	0.00	0.0%
TOTALS ----------					12.08	0.6 (Max.)	2.64	0.48	100.0%

Manning's n = 0.3271
Hydraulic Radius= 0.21862596

STREAM NAME: EAST DIVIDE CREEK #1 - 081710
XS LOCATION: 39 22' 04.7" 107 28' 26.9"
XS NUMBER: 81710

WATER LINE COMPARISON TABLE

WATER LINE	MEAS AREA	COMP AREA	AREA ERROR
	2.64	2.64	0.0%
8.75	2.64	5.61	112.4%
8.77	2.64	5.36	103.0%
8.79	2.64	5.12	93.8%
8.81	2.64	4.87	84.6%
8.83	2.64	4.63	75.4%
8.85	2.64	4.39	66.4%
8.87	2.64	4.15	57.3%
8.89	2.64	3.92	48.4%
8.91	2.64	3.68	39.4%
8.93	2.64	3.45	30.6%
8.95	2.64	3.21	21.8%
8.96	2.64	3.10	17.4%
8.97	2.64	2.98	13.0%
8.98	2.64	2.87	8.7%
8.99	2.64	2.75	4.3%
9.00	2.64	2.64	0.0%
9.01	2.64	2.53	-4.3%
9.02	2.64	2.42	-8.4%
9.03	2.64	2.31	-12.4%
9.04	2.64	2.21	-16.4%
9.05	2.64	2.11	-20.2%
9.07	2.64	1.91	-27.5%
9.09	2.64	1.73	-34.5%
9.11	2.64	1.56	-41.1%
9.13	2.64	1.39	-47.2%
9.15	2.64	1.24	-53.2%
9.17	2.64	1.08	-59.1%
9.19	2.64	0.93	-64.7%
9.21	2.64	0.80	-69.9%
9.23	2.64	0.68	-74.3%
9.25	2.64	0.57	-78.5%

WATERLINE AT ZERO
AREA ERROR = 9.000

STREAM NAME: EAST DIVIDE CREEK #1 - 081710
XS LOCATION: 39 22' 04.7" 107 28' 26.9"
XS NUMBER: 81710 Constant Manning's n

GL = lowest Grassline elevation corrected for sag
STAGING TABLE *WL* = Waterline corrected for variations in field measured water surface elevations and sag

	DIST TO WATER (FT)	TOP WIDTH (FT)	AVG. DEPTH (FT)	MAX. DEPTH (FT)	AREA (SQ FT)	WETTED PERIM. (FT)	PERCENT WET PERIM (%)	HYDR RADIUS (FT)	FLOW (CFS)	AVG. VELOCITY (FT/SEC)
GL	6.99	20.46	1.93	2.61	39.52	23.42	100.0%	1.69	27.78	0.70
	8.00	19.74	0.97	1.60	19.21	21.27	90.8%	0.90	8.90	0.46
	8.05	19.71	0.92	1.55	18.23	21.16	90.4%	0.86	8.18	0.45
	8.10	19.67	0.88	1.50	17.24	21.06	89.9%	0.82	7.48	0.43
	8.15	19.55	0.83	1.45	16.26	20.88	89.1%	0.78	6.83	0.42
	8.20	19.36	0.79	1.40	15.29	20.64	88.1%	0.74	6.21	0.41
	8.25	19.17	0.75	1.35	14.32	20.41	87.2%	0.70	5.61	0.39
	8.30	18.98	0.70	1.30	13.37	20.17	86.2%	0.66	5.04	0.38
	8.35	18.79	0.66	1.25	12.43	19.94	85.2%	0.62	4.50	0.36
	8.40	18.60	0.62	1.20	11.49	19.71	84.2%	0.58	3.98	0.35
	8.45	18.41	0.57	1.15	10.57	19.47	83.2%	0.54	3.49	0.33
	8.50	18.22	0.53	1.10	9.65	19.24	82.2%	0.50	3.02	0.31
	8.55	18.03	0.48	1.05	8.74	19.01	81.2%	0.46	2.58	0.30
	8.60	17.37	0.45	1.00	7.86	18.30	78.2%	0.43	2.22	0.28
	8.65	16.70	0.42	0.95	7.01	17.60	75.2%	0.40	1.88	0.27
	8.70	12.51	0.50	0.90	6.23	13.38	57.1%	0.47	1.86	0.30
	8.75	12.33	0.45	0.85	5.61	13.16	56.2%	0.43	1.57	0.28
	8.80	12.14	0.41	0.80	4.99	12.94	55.3%	0.39	1.31	0.26
	8.85	11.96	0.37	0.75	4.39	12.73	54.3%	0.35	1.07	0.24
	8.90	11.77	0.32	0.70	3.80	12.51	53.4%	0.30	0.85	0.22
	8.95	11.59	0.28	0.65	3.21	12.29	52.5%	0.26	0.65	0.20
WL	9.00	11.40	0.23	0.60	2.64	12.08	51.6%	0.22	0.48	0.18
	9.05	9.90	0.21	0.55	2.11	10.53	45.0%	0.20	0.36	0.17
	9.10	8.34	0.20	0.50	1.64	8.89	38.0%	0.18	0.26	0.16
	9.15	7.81	0.16	0.45	1.24	8.28	35.4%	0.15	0.17	0.14
	9.20	6.29	0.14	0.40	0.86	6.68	28.5%	0.13	0.11	0.13
	9.25	5.32	0.11	0.35	0.57	5.62	24.0%	0.10	0.06	0.11
	9.30	2.85	0.11	0.30	0.33	3.06	13.1%	0.11	0.04	0.11
	9.35	2.18	0.09	0.25	0.20	2.31	9.9%	0.09	0.02	0.10
	9.40	1.17	0.10	0.20	0.12	1.23	5.3%	0.09	0.01	0.10
	9.45	0.88	0.08	0.15	0.07	0.93	4.0%	0.07	0.01	0.08
	9.50	0.58	0.05	0.10	0.03	0.62	2.6%	0.05	0.00	0.06
	9.55	0.29	0.03	0.05	0.01	0.31	1.3%	0.02	0.00	0.04
	9.60	0.00	#DIV/0!	0.00	0.00	0.00	0.0%	#DIV/0!	#DIV/0!	#DIV/0!

STREAM NAME: EAST DIVIDE CREEK #1 - 081710
XS LOCATION: 39 22' 04.7" 107 28' 26.9"
XS NUMBER: 81710

SUMMARY SHEET

MEASURED FLOW (Qm)=	0.48	cfs
CALCULATED FLOW (Qc)=	0.48	cfs
(Qm-Qc)/Qm * 100 =	0.0	%
MEASURED WATERLINE (WLm)=	9.00	ft
CALCULATED WATERLINE (WLc)=	9.00	ft
(WLm-WLc)/WLm * 100 =	0.0	%
MAX MEASURED DEPTH (Dm)=	0.60	ft
MAX CALCULATED DEPTH (Dc)=	0.60	ft
(Dm-Dc)/Dm * 100	0.0	%
MEAN VELOCITY=	0.18	ft/sec
MANNING'S N=	0.327	
SLOPE=	0.01192053	ft/ft
.4 * Qm =	0.2	cfs
2.5 * Qm=	1.2	cfs

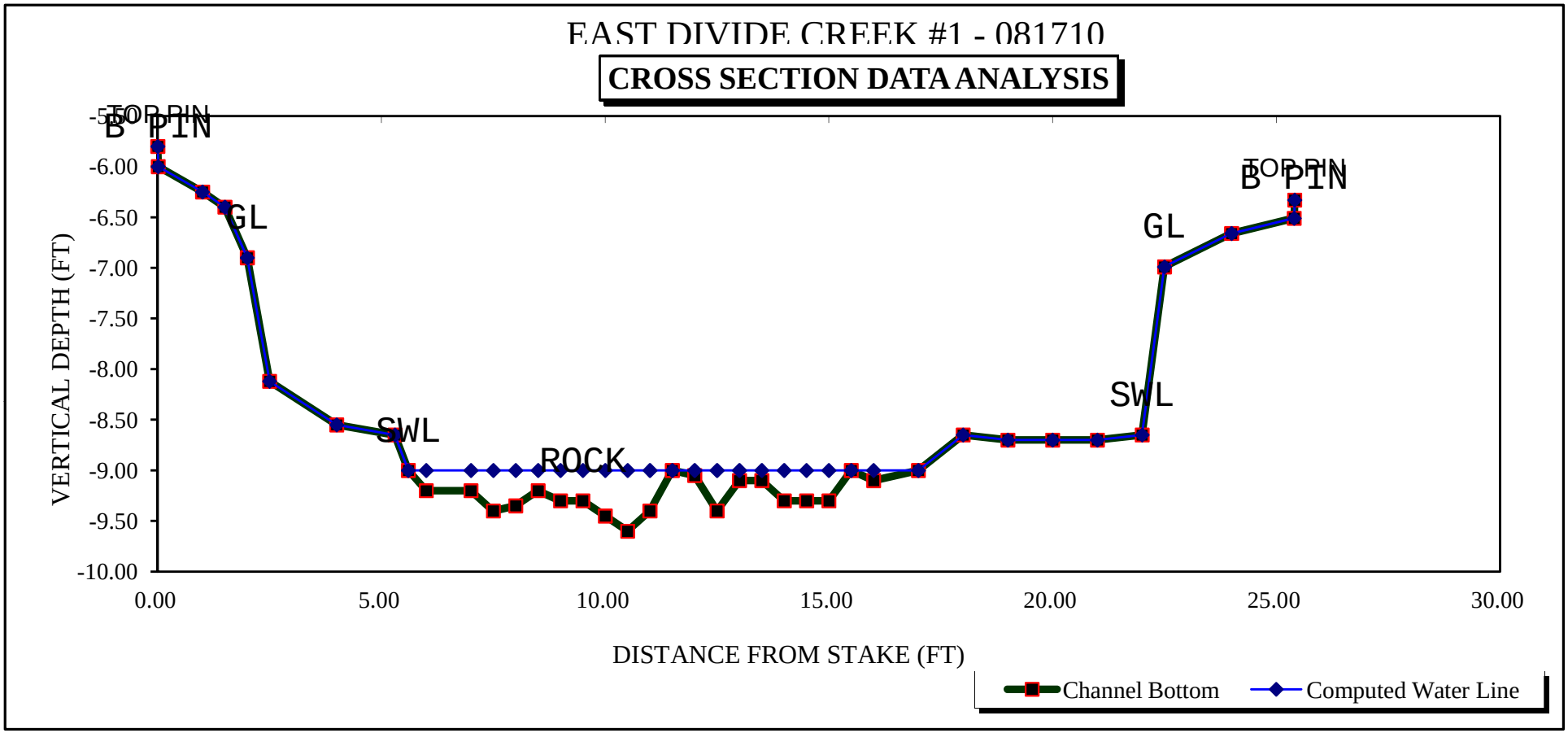
RECOMMENDED INSTREAM FLOW:
==========

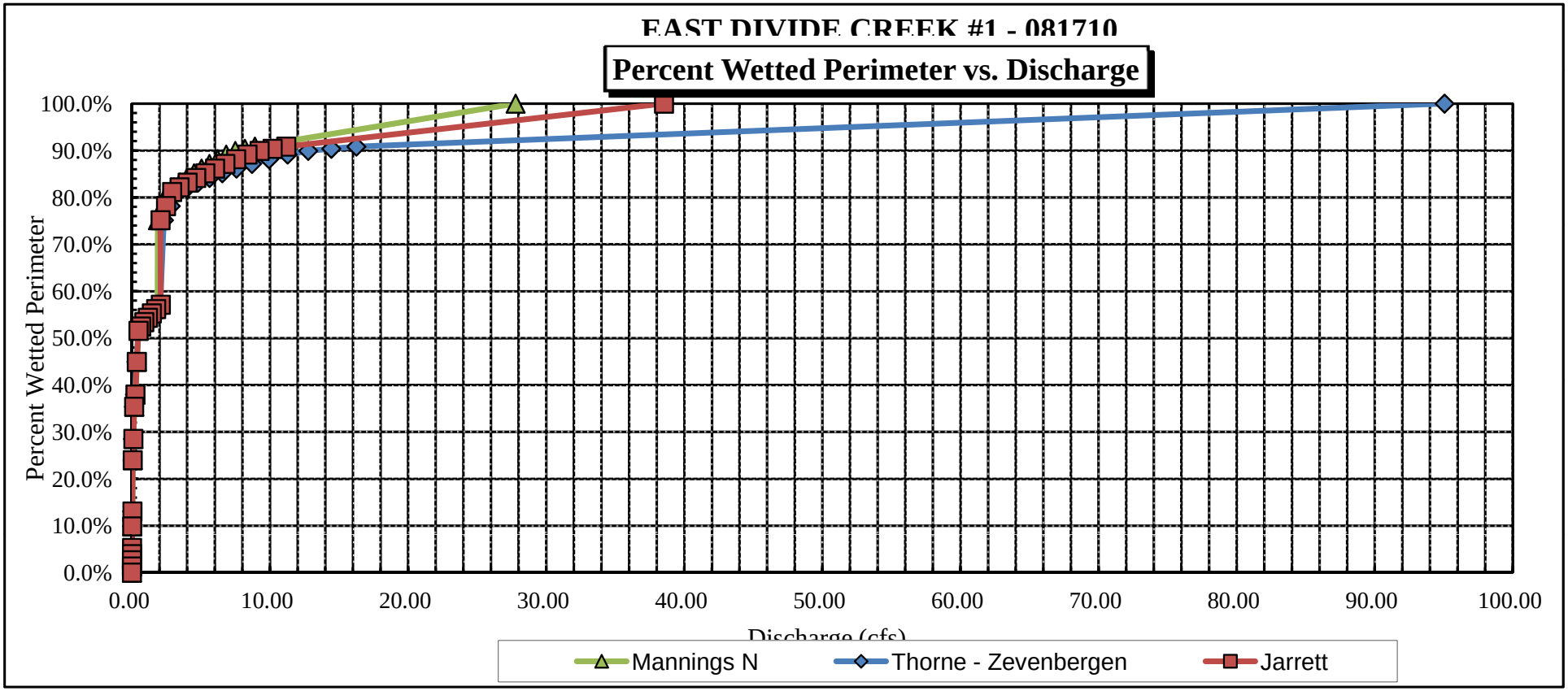
FLOW (CFS)	PERIOD
==========	========
_____	_____
_____	_____
_____	_____
_____	_____

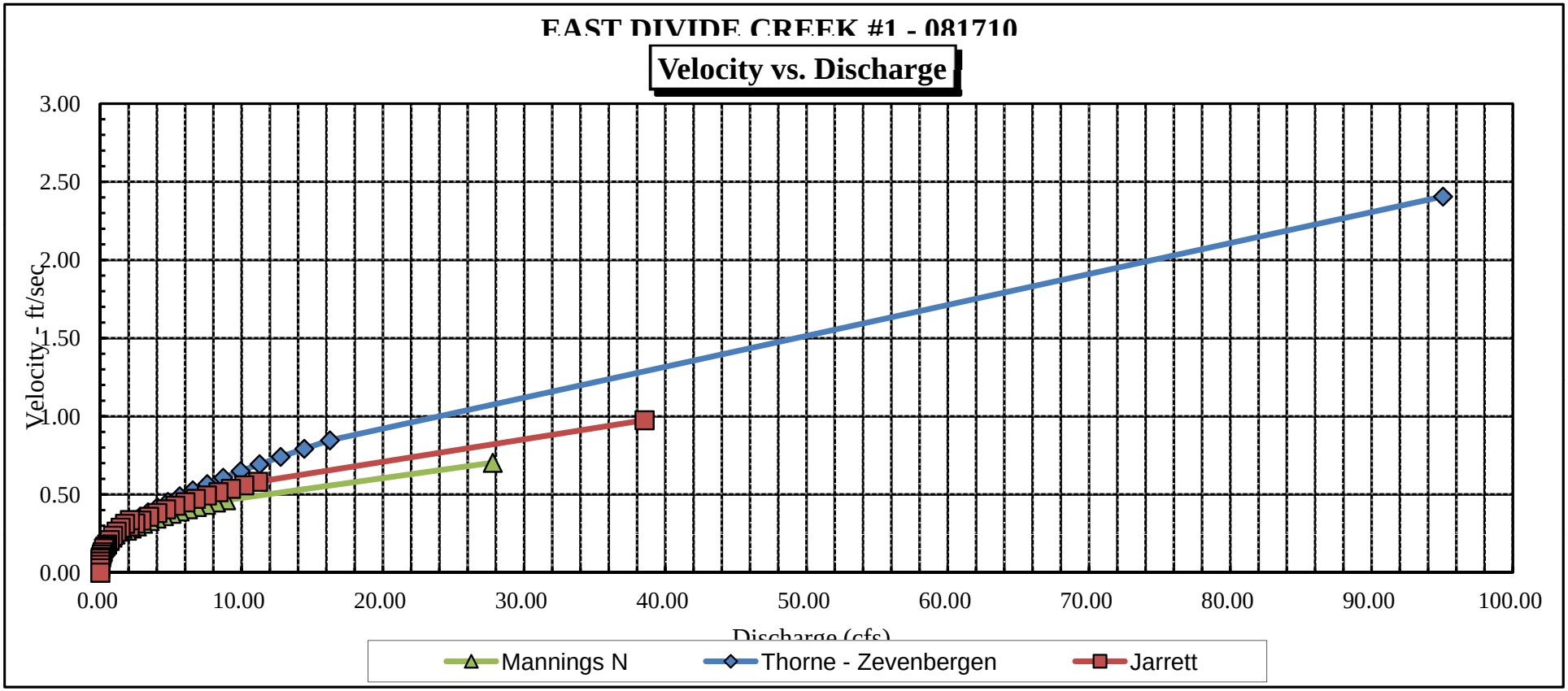
RATIONALE FOR RECOMMENDATION:
==========

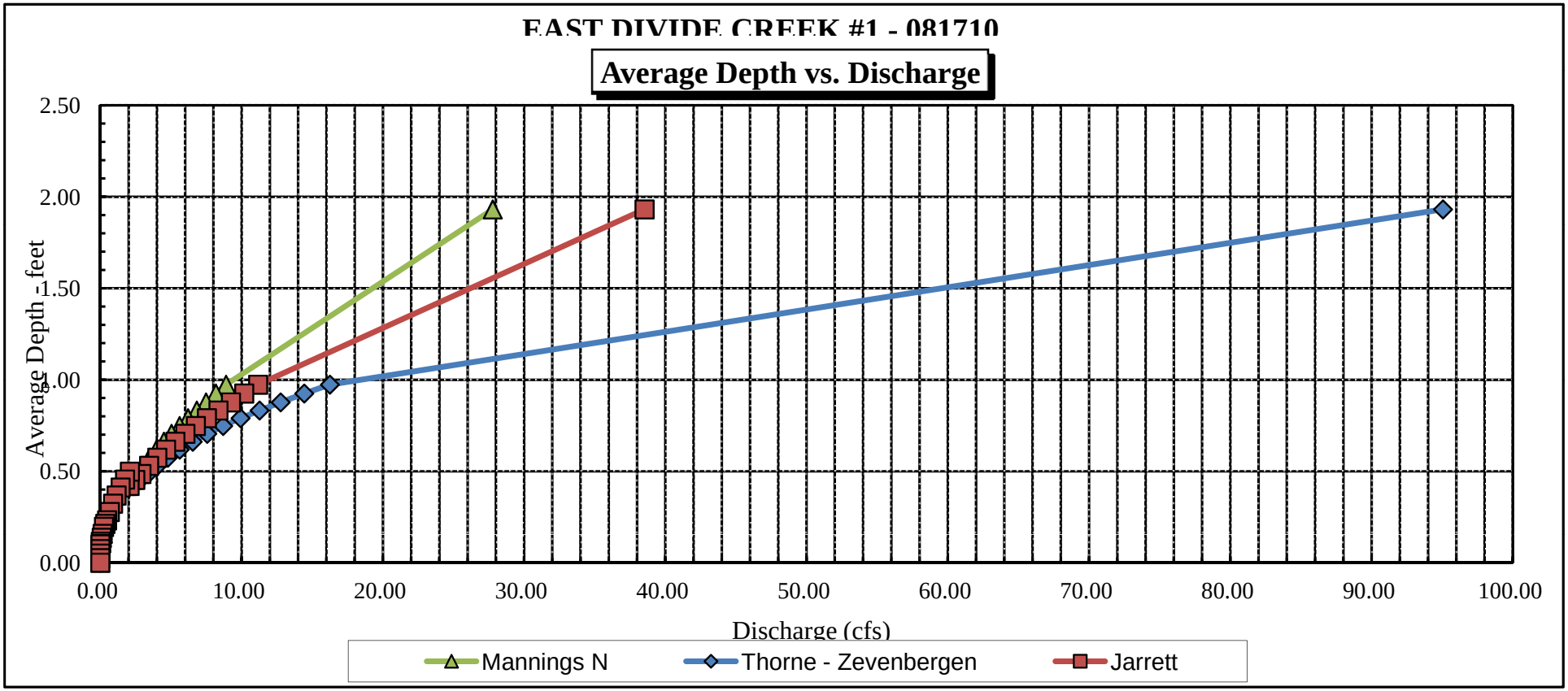
RECOMMENDATION BY: ..... AGENCY..... DATE:.....

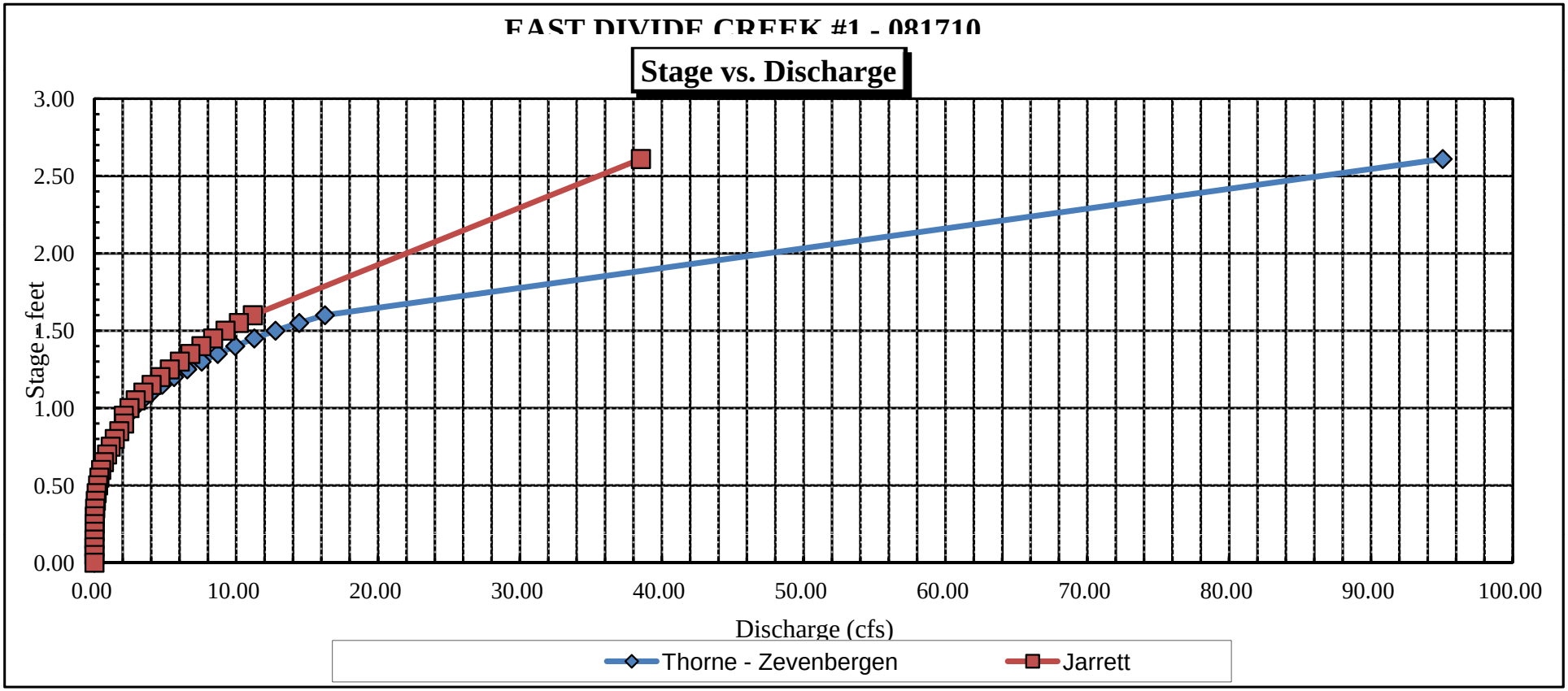
CWCB REVIEW BY: ..... DATE:.....


EAST DIVIDE CREEK #1 - 081710
CROSS SECTION DATA ANALYSIS
TOP PIN
B PIN
GL
SWL
ROCK
TOP PIN
B PIN
GL
SWL
VERTICAL DEPTH (FT)
-5.50
-6.00
-6.50
-7.00
-7.50
-8.00
-8.50
-9.00
-9.50
-10.00
0.00
5.00
10.00
15.00
20.00
25.00
30.00
DISTANCE FROM STAKE (FT)
Channel Bottom
Computed Water Line


EAST DIVIDE CREEK #1 - 081710
Percent Wetted Perimeter vs. Discharge
Percent Wetted Perimeter
100.0%
90.0%
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
Discharge (cfs)
Mannings N
Thorne - Zevenbergen
Jarrett


EAST DIVIDE CREEK #1 - 081710
Velocity vs. Discharge
Velocity - ft/sec
3.00
2.50
2.00
1.50
1.00
0.50
0.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
Discharge (cfs)
Mannings N
Thorne - Zevenbergen
Jarrett


EAST DIVIDE CREEK #1 - 081710
Average Depth vs. Discharge
Average Depth - feet
2.50
2.00
1.50
1.00
0.50
0.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
Discharge (cfs)
Mannings N
Thorne - Zevenbergen
Jarrett


EAST DIVIDE CREEK #1 - 081710
Stage vs. Discharge
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Stage - feet
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
Discharge (cfs)
Thorne - Zevenbergen
Jarrett

EAST DIVIDE CREEK #1 - COMBINED X-SECTIONS - STAGING TABLE

	DIST TO WATER (FT)	TOP WIDTH (FT)	AVG. DEPTH (FT)	MAX. DEPTH (FT)	AREA (SQ FT)	WETTED PERIM. (FT)	PERCENT WET PERIM (%)	HYDR RADIUS (FT)	FLOW (CFS)	AVG. VELOCITY (FT/SEC)
GL	6.99	20.46	1.93	2.61	39.43	23.39	1.00	1.69	610.83	15.49
	7.60	20.03	1.35	2.00	27.07	22.09	0.94	1.23	227.17	8.39
	7.65	19.99	1.30	1.95	26.07	21.99	0.94	1.19	205.75	7.89
	7.70	19.96	1.26	1.90	25.07	21.88	0.94	1.15	185.66	7.41
	7.75	19.92	1.21	1.85	24.07	21.77	0.93	1.11	166.87	6.93
	7.80	19.89	1.16	1.80	23.07	21.67	0.93	1.06	149.33	6.47
	7.85	19.85	1.11	1.75	22.08	21.56	0.92	1.02	133.02	6.02
	7.90	19.82	1.06	1.70	21.09	21.46	0.92	0.98	117.88	5.59
	7.95	19.78	1.02	1.65	20.10	21.35	0.91	0.94	103.88	5.17
	8.00	19.74	0.97	1.60	19.11	21.24	0.91	0.90	90.98	4.76
	8.05	19.71	0.92	1.55	18.12	21.14	0.90	0.86	79.15	4.37
	8.10	19.67	0.87	1.50	17.14	21.03	0.90	0.82	68.34	3.99
	8.15	19.54	0.83	1.45	16.16	20.85	0.89	0.78	58.53	3.62
	8.20	19.35	0.78	1.40	15.19	20.61	0.88	0.74	49.71	3.27
	8.25	19.16	0.74	1.35	14.22	20.38	0.87	0.70	41.85	2.94
	8.30	18.98	0.70	1.30	13.27	20.15	0.86	0.66	34.87	2.63
	8.35	18.79	0.66	1.25	12.33	19.91	0.85	0.62	28.72	2.33
	8.40	18.60	0.61	1.20	11.39	19.68	0.84	0.58	23.34	2.05
	8.45	18.41	0.57	1.15	10.47	19.44	0.83	0.54	18.68	1.78
	8.50	18.22	0.52	1.10	9.55	19.21	0.82	0.50	14.68	1.54
	8.55	18.02	0.48	1.05	8.64	18.97	0.81	0.46	11.30	1.31
Q	8.60	17.36	0.45	1.00	7.76	18.27	0.78	0.42	8.51	1.10
	8.65	16.68	0.41	0.95	6.91	17.55	0.75	0.39	6.27	0.91
	8.70	12.47	0.49	0.90	6.13	13.31	0.57	0.46	4.58	0.75
	8.75	12.24	0.45	0.85	5.51	13.06	0.56	0.42	3.46	0.63
	8.80	12.01	0.41	0.80	4.91	12.80	0.55	0.38	2.55	0.52
	8.85	11.78	0.37	0.75	4.31	12.55	0.54	0.34	1.82	0.42
	8.90	11.55	0.32	0.70	3.73	12.29	0.53	0.30	1.24	0.33
	8.95	11.31	0.28	0.65	3.16	12.03	0.51	0.26	0.80	0.25
Q	9.00	10.91	0.24	0.60	2.60	11.61	0.50	0.22	0.48	0.18
	9.05	9.62	0.22	0.55	2.09	10.26	0.44	0.20	0.27	0.13
	9.10	8.26	0.20	0.50	1.63	8.82	0.38	0.18	0.14	0.09
	9.15	7.77	0.16	0.45	1.23	8.25	0.35	0.15	0.07	0.05
	9.20	6.28	0.14	0.40	0.85	6.67	0.28	0.13	0.03	0.03
	9.25	5.31	0.11	0.35	0.56	5.61	0.24	0.10	0.01	0.02
	9.30	2.84	0.11	0.30	0.32	3.05	0.13	0.11	0.00	0.00
	9.35	2.16	0.09	0.25	0.20	2.30	0.10	0.09	0.00	0.00
	9.40	1.16	0.10	0.20	0.12	1.23	0.05	0.09	0.00	0.00
	9.45	0.87	0.07	0.15	0.07	0.92	0.04	0.07	0.00	0.00
	9.50	0.58	0.05	0.10	0.03	0.61	0.03	0.05	0.00	0.00
	9.55	0.29	0.02	0.05	0.01	0.31	0.01	0.02	0.00	0.00

COLORADO WATER CONSERVATION BOARD
INSTREAM FLOW / NATURAL LAKE LEVEL PROGRAM
STREAM CROSS-SECTION AND FLOW ANALYSIS

LOCATION INFORMATION

STREAM NAME:	EAST DIVIDE CREEK #2
XS LOCATION:	39 26' 02.2" 107 34' 48.3"
XS NUMBER:	070810-2
DATE:	8-Jul-10
OBSERVERS:	UPPENDAHL
1/4 SEC:	NW
SECTION:	20
TWP:	7 S
RANGE:	91 W
PM:	6
COUNTY:	GARFIELD
WATERSHED:	DIVIDE CREEK
DIVISION:	5
DOW CODE:	20830
USGS MAP:	0
USFS MAP:	0

SUPPLEMENTAL DATA

TAPE WT:	0.0106
TENSION:	99999

*** NOTE ***
Leave TAPE WT and TENSION at defaults for data collected with a survey level and rod

CHANNEL PROFILE DATA

SLOPE:	0.04

INPUT DATA CHECKED BY: .....DATE.....

ASSIGNED TO: ….....……..…….....DATE.....

STREAM NAME: EAST DIVIDE CREEK #2
XS LOCATION: 39 26' 02.2" 107 34' 48.3"
XS NUMBER: 070810-2

DATA POINTS= 36

VALUES COMPUTED FROM RAW FIELD DATA

FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL	WETTED PERIM.	WATER DEPTH	AREA (Am)	Q (Qm)	% Q CELL
B PIN	0.00	6.54			0.00		0.00	0.00	0.0%
	1.00	6.71			0.00		0.00	0.00	0.0%
	2.00	7.01			0.00		0.00	0.00	0.0%
1 GL	2.50	7.20			0.00		0.00	0.00	0.0%
	3.50	7.45			0.00		0.00	0.00	0.0%
	5.00	8.01			0.00		0.00	0.00	0.0%
SWL	5.80	8.23	0.00	0.00	0.00		0.00	0.00	0.0%
	7.00	8.48	0.20	0.75	1.23	0.20	0.22	0.17	1.4%
	8.00	8.48	0.20	1.41	1.00	0.20	0.20	0.28	2.4%
	9.00	8.68	0.40	0.49	1.02	0.40	0.40	0.20	1.7%
	10.00	8.68	0.40	0.36	1.00	0.40	0.40	0.14	1.2%
	11.00	8.78	0.50	0.68	1.00	0.50	0.50	0.34	2.9%
	12.00	8.68	0.40	2.87	1.00	0.40	0.40	1.15	9.7%
	13.00	8.78	0.50	1.86	1.00	0.50	0.50	0.93	7.9%
	14.00	8.98	0.70	1.60	1.02	0.70	0.53	0.84	7.1%
	14.50	8.78	0.50	2.57	0.54	0.50	0.25	0.64	5.4%
	15.00	8.68	0.40	2.60	0.51	0.40	0.20	0.52	4.4%
	15.50	8.63	0.35	2.30	0.50	0.35	0.18	0.40	3.4%
	16.00	8.78	0.50	2.10	0.52	0.50	0.25	0.53	4.5%
	16.50	8.83	0.55	2.40	0.50	0.55	0.28	0.66	5.6%
	17.00	8.93	0.65	2.16	0.51	0.65	0.49	1.05	8.9%
	18.00	8.78	0.50	2.60	1.01	0.50	0.50	1.30	11.0%
	19.00	8.78	0.50	2.43	1.00	0.50	0.50	1.22	10.3%
	20.00	8.88	0.60	0.37	1.00	0.60	0.60	0.22	1.9%
	21.00	8.53	0.25	2.81	1.06	0.25	0.25	0.70	6.0%
	22.00	8.58	0.30	0.29	1.00	0.30	0.30	0.09	0.7%
	23.00	8.53	0.25	1.67	1.00	0.25	0.25	0.42	3.5%
SWL	24.00	8.33	0.00	0.00	1.02		0.00	0.00	0.0%
	25.00	8.26			0.00		0.00	0.00	0.0%
	26.00	7.60			0.00		0.00	0.00	0.0%
	27.00	7.92			0.00		0.00	0.00	0.0%
	30.00	7.76			0.00		0.00	0.00	0.0%
	31.00	7.55			0.00		0.00	0.00	0.0%
1 GL	32.00	7.20			0.00		0.00	0.00	0.0%
	33.00	7.02			0.00		0.00	0.00	0.0%
B PIN	34.00	6.86			0.00		0.00	0.00	0.0%
TOTALS ----------					18.46	0.7 (Max.)	7.18	11.79	100.0%

Manning's n = 0.0965
Hydraulic Radius= 0.38900828

STREAM NAME: EAST DIVIDE CREEK #2
XS LOCATION: 39 26' 02.2" 107 34' 48.3"
XS NUMBER: 070810-2

WATER LINE COMPARISON TABLE

WATER LINE	MEAS AREA	COMP AREA	AREA ERROR
	7.18	7.20	0.3%
8.03	7.18	12.11	68.5%
8.05	7.18	11.70	62.9%
8.07	7.18	11.30	57.3%
8.09	7.18	10.90	51.7%
8.11	7.18	10.50	46.2%
8.13	7.18	10.10	40.7%
8.15	7.18	9.71	35.2%
8.17	7.18	9.32	29.7%
8.19	7.18	8.93	24.3%
8.21	7.18	8.54	18.9%
8.23	7.18	8.15	13.5%
8.24	7.18	7.96	10.8%
8.25	7.18	7.77	8.2%
8.26	7.18	7.58	5.5%
8.27	7.18	7.39	2.9%
8.28	7.18	7.20	0.3%
8.29	7.18	7.02	-2.3%
8.30	7.18	6.83	-4.9%
8.31	7.18	6.65	-7.4%
8.32	7.18	6.47	-9.9%
8.33	7.18	6.29	-12.4%
8.35	7.18	5.94	-17.3%
8.37	7.18	5.59	-22.2%
8.39	7.18	5.25	-27.0%
8.41	7.18	4.91	-31.7%
8.43	7.18	4.57	-36.4%
8.45	7.18	4.24	-41.0%
8.47	7.18	3.91	-45.6%
8.49	7.18	3.59	-50.0%
8.51	7.18	3.29	-54.2%
8.53	7.18	2.99	-58.3%

WATERLINE AT ZERO
AREA ERROR = 8.281

STREAM NAME: EAST DIVIDE CREEK #2
XS LOCATION: 39 26' 02.2" 107 34' 48.3"
XS NUMBER: 070810-2 Constant Manning's n

STAGING TABLE

GL = lowest Grassline elevation corrected for sag
WL = Waterline corrected for variations in field measured water surface elevations and sag

	DIST TO WATER (FT)	TOP WIDTH (FT)	AVG. DEPTH (FT)	MAX. DEPTH (FT)	AREA (SQ FT)	WETTED PERIM. (FT)	PERCENT WET PERIM (%)	HYDR RADIUS (FT)	FLOW (CFS)	AVG. VELOCITY (FT/SEC)
GL	7.20	29.50	1.13	1.78	33.42	30.26	100.0%	1.10	110.04	3.29
	7.28	28.94	1.07	1.70	31.06	29.68	98.1%	1.05	98.62	3.18
	7.33	28.60	1.04	1.65	29.62	29.32	96.9%	1.01	91.86	3.10
	7.38	28.26	1.00	1.60	28.20	28.97	95.7%	0.97	85.33	3.03
	7.43	27.92	0.96	1.55	26.79	28.61	94.5%	0.94	79.01	2.95
	7.48	27.61	0.92	1.50	25.40	28.29	93.5%	0.90	72.85	2.87
	7.53	27.34	0.88	1.45	24.03	28.00	92.5%	0.86	66.87	2.78
	7.58	27.00	0.84	1.40	22.67	27.65	91.4%	0.82	61.20	2.70
	7.63	26.49	0.81	1.35	21.33	27.10	89.6%	0.79	56.03	2.63
	7.68	25.88	0.77	1.30	20.02	26.46	87.4%	0.76	51.23	2.56
	7.73	25.28	0.74	1.25	18.75	25.82	85.3%	0.73	46.65	2.49
	7.78	24.38	0.72	1.20	17.50	24.89	82.2%	0.70	42.63	2.44
	7.83	23.08	0.71	1.15	16.31	23.55	77.8%	0.69	39.35	2.41
	7.88	21.77	0.70	1.10	15.19	22.21	73.4%	0.68	36.33	2.39
	7.93	20.71	0.68	1.05	14.13	21.12	69.8%	0.67	33.32	2.36
	7.98	20.50	0.64	1.00	13.10	20.89	69.0%	0.63	29.59	2.26
	8.03	20.27	0.60	0.95	12.08	20.63	68.2%	0.59	26.06	2.16
	8.08	20.01	0.55	0.90	11.08	20.35	67.3%	0.54	22.75	2.05
	8.13	19.76	0.51	0.85	10.08	20.07	66.3%	0.50	19.63	1.95
	8.18	19.50	0.47	0.80	9.10	19.79	65.4%	0.46	16.71	1.84
	8.23	19.24	0.42	0.75	8.13	19.51	64.5%	0.42	13.98	1.72
WL	8.28	18.65	0.39	0.70	7.18	18.91	62.5%	0.38	11.60	1.62
	8.33	17.71	0.35	0.65	6.27	17.96	59.4%	0.35	9.59	1.53
	8.38	17.22	0.31	0.60	5.40	17.46	57.7%	0.31	7.61	1.41
	8.43	16.73	0.27	0.55	4.55	16.96	56.1%	0.27	5.83	1.28
	8.48	15.24	0.24	0.50	3.73	15.46	51.1%	0.24	4.45	1.19
	8.53	14.70	0.20	0.45	2.98	14.91	49.3%	0.20	3.14	1.05
	8.58	12.35	0.19	0.40	2.30	12.55	41.5%	0.18	2.29	1.00
	8.63	11.94	0.14	0.35	1.70	12.13	40.1%	0.14	1.41	0.83
	8.68	9.86	0.11	0.30	1.13	10.02	33.1%	0.11	0.81	0.72
	8.73	7.80	0.09	0.25	0.68	7.94	26.2%	0.09	0.41	0.60
	8.78	4.75	0.07	0.20	0.35	4.85	16.0%	0.07	0.18	0.53
	8.83	2.90	0.05	0.15	0.16	2.97	9.8%	0.05	0.07	0.43
	8.88	1.31	0.04	0.10	0.05	1.35	4.5%	0.04	0.02	0.35
	8.93	0.37	0.02	0.05	0.01	0.38	1.3%	0.02	0.00	0.25

STREAM NAME: EAST DIVIDE CREEK #2
XS LOCATION: 39 26' 02.2" 107 34' 48.3"
XS NUMBER: 070810-2

SUMMARY SHEET

MEASURED FLOW (Qm)=	11.79	cfs
CALCULATED FLOW (Qc)=	11.60	cfs
(Qm-Qc)/Qm * 100 =	1.6	%
MEASURED WATERLINE (WLm)=	8.28	ft
CALCULATED WATERLINE (WLc)=	8.28	ft
(WLm-WLc)/WLm * 100 =	0.0	%
MAX MEASURED DEPTH (Dm)=	0.70	ft
MAX CALCULATED DEPTH (Dc)=	0.70	ft
(Dm-Dc)/Dm * 100	0.1	%
MEAN VELOCITY=	1.62	ft/sec
MANNING'S N=	0.096	
SLOPE=	0.04	ft/ft
.4 * Qm =	4.7	cfs
2.5 * Qm=	29.5	cfs

RECOMMENDED INSTREAM FLOW:
==========

FLOW (CFS)	PERIOD
==========	========
_____	_____
_____	_____
_____	_____
_____	_____

RATIONALE FOR RECOMMENDATION:
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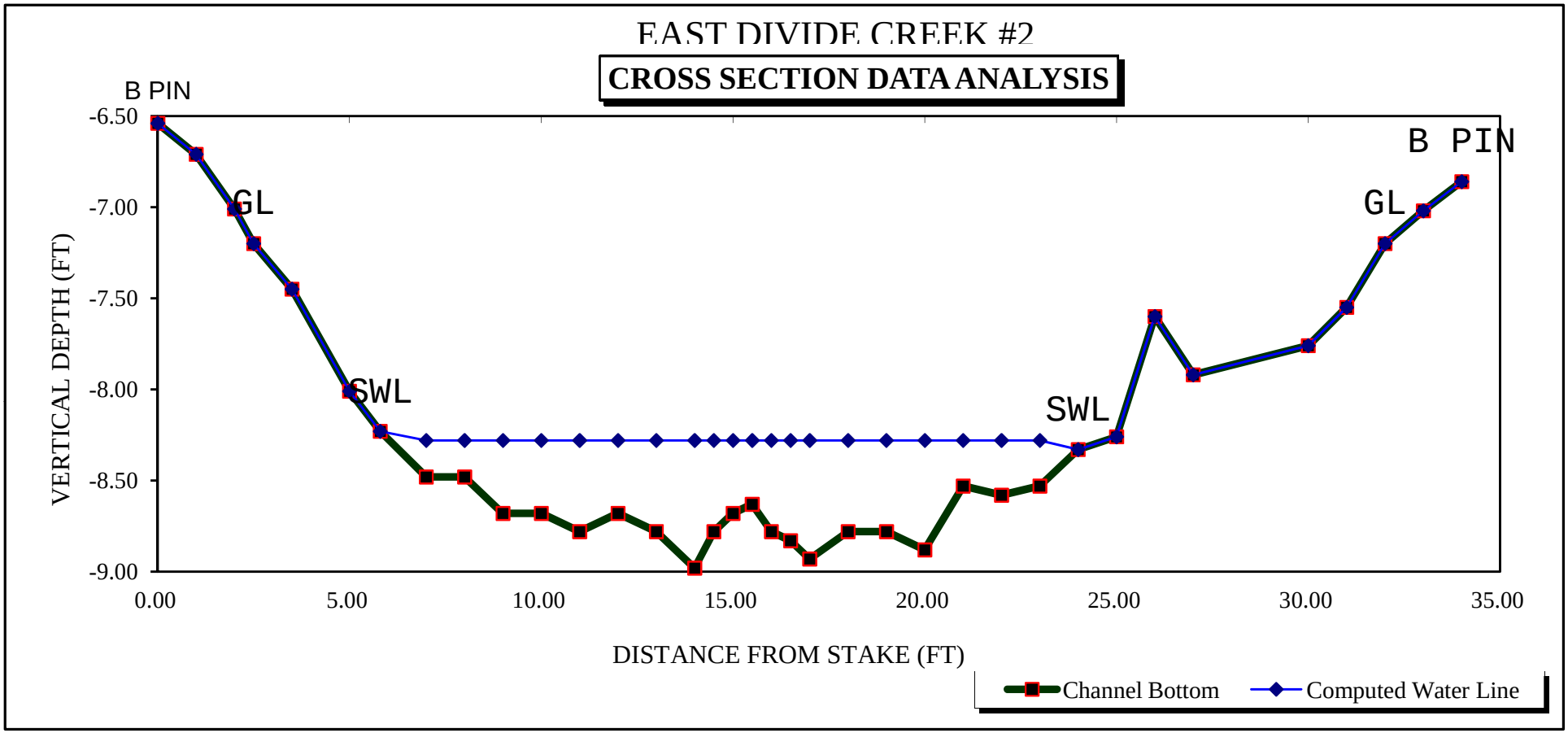
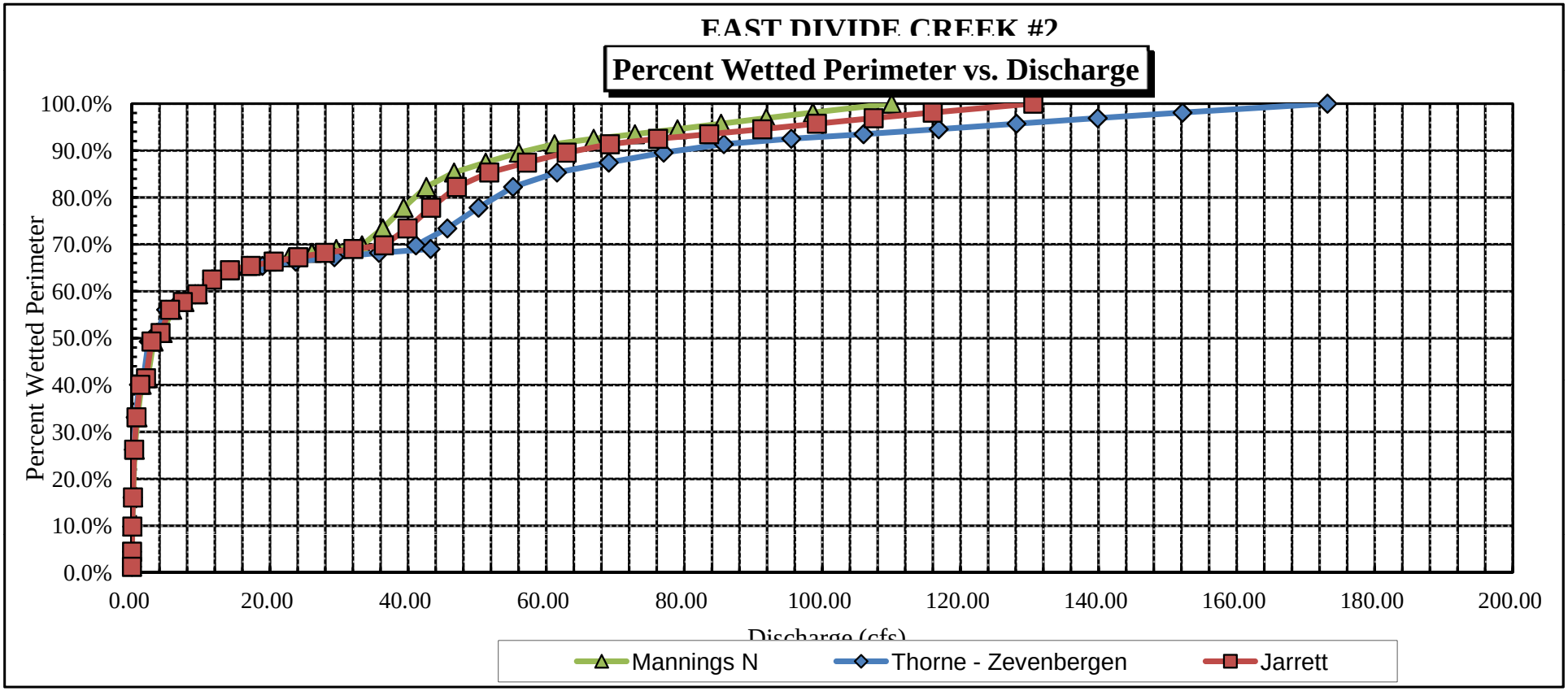
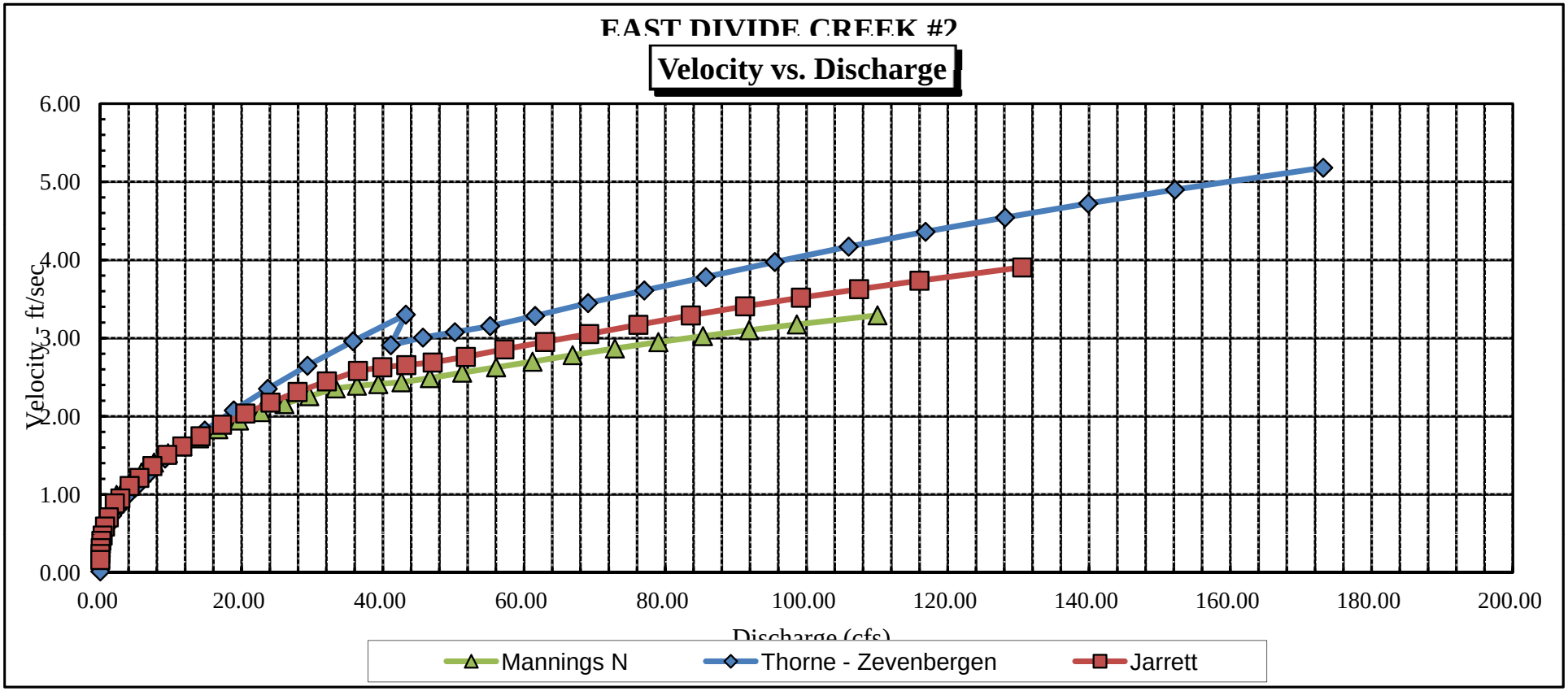
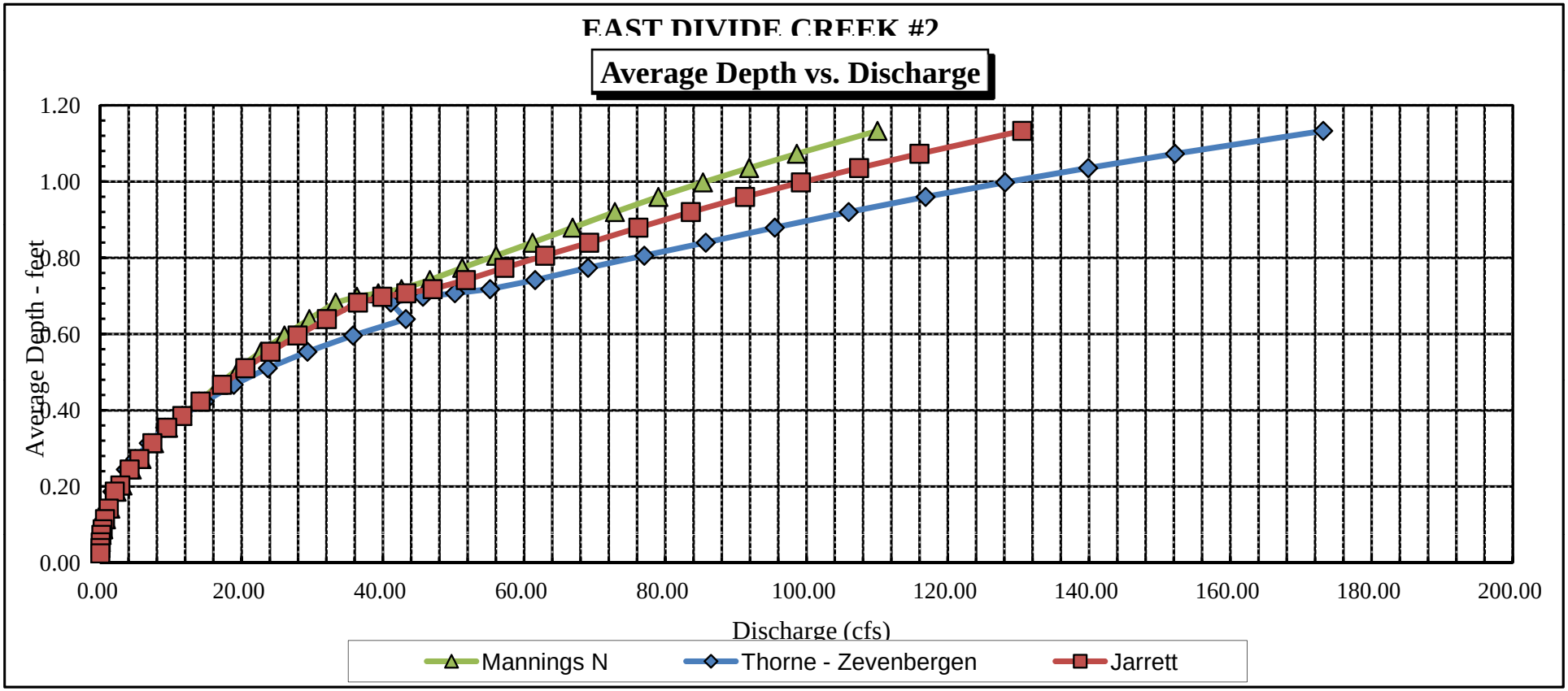
RECOMMENDATION BY: ..... AGENCY..... DATE:.....

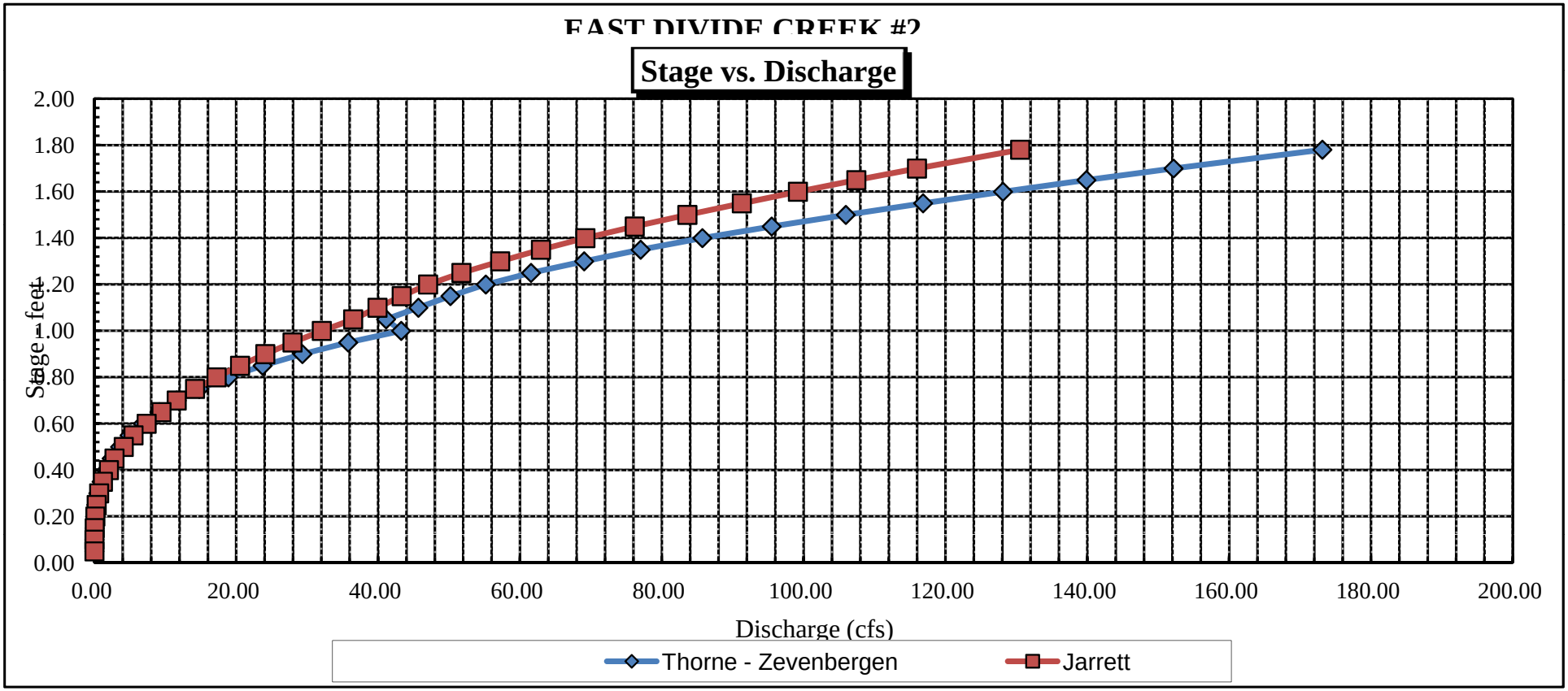
CWCB REVIEW BY: ..... DATE:.....


EAST DIVIDE CREEK #2
CROSS SECTION DATA ANALYSIS
B PIN
GL
SWL
SWL
GL
B PIN
-6.50
-7.00
-7.50
-8.00
-8.50
-9.00
VERTICAL DEPTH (FT)
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
DISTANCE FROM STAKE (FT)
Channel Bottom
Computed Water Line


EAST DIVIDE CREEK #2
Percent Wetted Perimeter vs. Discharge
Percent Wetted Perimeter
100.0%
90.0%
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
160.00
180.00
200.00
Discharge (cfs)
Mannings N
Thorne - Zevenbergen
Jarrett


EAST DIVIDE CREEK #2
Velocity vs. Discharge
Velocity - ft/sec
6.00
5.00
4.00
3.00
2.00
1.00
0.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
160.00
180.00
200.00
Discharge (cfs)
Mannings N
Thorne - Zevenbergen
Jarrett


EAST DIVIDE CREEK #2
Average Depth vs. Discharge
Average Depth - feet
1.20
1.00
0.80
0.60
0.40
0.20
0.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
160.00
180.00
200.00
Discharge (cfs)
Mannings N
Thorne - Zevenbergen
Jarrett


EAST DIVIDE CREEK #2
Stage vs. Discharge
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
Stage - feet
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
160.00
180.00
200.00
Discharge (cfs)
Thorne - Zevenbergen
Jarrett

COLORADO WATER CONSERVATION BOARD
INSTREAM FLOW / NATURAL LAKE LEVEL PROGRAM
STREAM CROSS-SECTION AND FLOW ANALYSIS

LOCATION INFORMATION

STREAM NAME:	EAST DIVIDE CREEK #2 - 8/17/10
XS LOCATION:	39 26' 02.2" 107 34' 48.3"
XS NUMBER:	40407
DATE:	17-Aug-10
OBSERVERS:	UPPENDAHL
1/4 SEC:	NW
SECTION:	20
TWP:	7 S
RANGE:	91 W
PM:	6
COUNTY:	GARFIELD
WATERSHED:	DIVIDE CREEK
DIVISION:	5
DOW CODE:	20830
USGS MAP:	0
USFS MAP:	0

SUPPLEMENTAL DATA

TAPE WT:	0.0106
TENSION:	99999

*** NOTE ***
Leave TAPE WT and TENSION at defaults for data collected with a survey level and rod

CHANNEL PROFILE DATA

SLOPE:	0.04

INPUT DATA CHECKED BY: .....DATE.....

ASSIGNED TO: ….....……..…….....DATE.....

STREAM NAME: EAST DIVIDE CREEK #2 - 8/17/10
XS LOCATION: 39 26' 02.2" 107 34' 48.3"
XS NUMBER: 40407

DATA POINTS= 36

VALUES COMPUTED FROM RAW FIELD DATA

FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL	WETTED PERIM.	WATER DEPTH	AREA (Am)	Q (Qm)	% Q CELL
B PIN	0.00	6.54			0.00		0.00	0.00	0.0%
	1.00	6.71			0.00		0.00	0.00	0.0%
	2.00	7.01			0.00		0.00	0.00	0.0%
1 GL	2.50	7.20			0.00		0.00	0.00	0.0%
	3.50	7.45			0.00		0.00	0.00	0.0%
	5.00	8.01			0.00		0.00	0.00	0.0%
	5.80	8.23			0.00		0.00	0.00	0.0%
	7.00	8.48			0.00		0.00	0.00	0.0%
SWL	8.00	8.48	0.00	0.00	0.00		0.00	0.00	0.0%
	9.00	8.68	0.20	0.51	1.02	0.20	0.20	0.10	5.4%
	10.00	8.68	0.20	0.51	1.00	0.20	0.20	0.10	5.4%
	11.00	8.78	0.30	0.51	1.00	0.30	0.30	0.15	8.1%
	12.00	8.68	0.20	0.51	1.00	0.20	0.20	0.10	5.4%
	13.00	8.78	0.30	0.51	1.00	0.30	0.30	0.15	8.1%
	14.00	8.98	0.50	0.51	1.02	0.50	0.38	0.19	10.1%
	14.50	8.78	0.30	0.51	0.54	0.30	0.15	0.08	4.0%
	15.00	8.68	0.20	0.51	0.51	0.20	0.10	0.05	2.7%
	15.50	8.63	0.15	0.51	0.50	0.15	0.08	0.04	2.0%
	16.00	8.78	0.30	0.51	0.52	0.30	0.15	0.08	4.0%
	16.50	8.83	0.35	0.51	0.50	0.35	0.18	0.09	4.7%
	17.00	8.93	0.45	0.51	0.51	0.45	0.34	0.17	9.1%
	18.00	8.78	0.30	0.51	1.01	0.30	0.30	0.15	8.1%
	19.00	8.78	0.30	0.51	1.00	0.30	0.30	0.15	8.1%
	20.00	8.88	0.40	0.51	1.00	0.40	0.40	0.20	10.8%
	21.00	8.53	0.05	0.51	1.06	0.05	0.05	0.03	1.3%
	22.00	8.58	0.10	0.51	1.00	0.10	0.10	0.05	2.7%
SWL	23.00	8.48	0.00	0.00	1.00		0.00	0.00	0.0%
	24.00	8.33			0.00		0.00	0.00	0.0%
	25.00	8.26			0.00		0.00	0.00	0.0%
	26.00	7.60			0.00		0.00	0.00	0.0%
	27.00	7.92			0.00		0.00	0.00	0.0%
	30.00	7.76			0.00		0.00	0.00	0.0%
	31.00	7.55			0.00		0.00	0.00	0.0%
1 GL	32.00	7.20			0.00		0.00	0.00	0.0%
	33.00	7.02			0.00		0.00	0.00	0.0%
B PIN	34.00	6.86			0.00		0.00	0.00	0.0%
TOTALS ----------					15.22	0.5 (Max.)	3.71	1.89	100.0%

Manning's n = 0.2275
Hydraulic Radius= 0.24389384

STREAM NAME: EAST DIVIDE CREEK #2 - 8/17/10
XS LOCATION: 39 26' 02.2" 107 34' 48.3"
XS NUMBER: 40407

WATER LINE COMPARISON TABLE

WATER LINE	MEAS AREA	COMP AREA	AREA ERROR
	3.71	3.71	0.0%
8.23	3.71	8.10	118.3%
8.25	3.71	7.72	107.9%
8.27	3.71	7.34	97.7%
8.29	3.71	6.97	87.6%
8.31	3.71	6.60	77.8%
8.33	3.71	6.24	68.1%
8.35	3.71	5.89	58.6%
8.37	3.71	5.54	49.3%
8.39	3.71	5.20	40.0%
8.41	3.71	4.86	30.9%
8.43	3.71	4.53	21.9%
8.44	3.71	4.36	17.5%
8.45	3.71	4.20	13.1%
8.46	3.71	4.03	8.7%
8.47	3.71	3.87	4.3%
8.48	3.71	3.71	0.0%
8.49	3.71	3.56	-4.0%
8.50	3.71	3.42	-8.0%
8.51	3.71	3.27	-11.9%
8.52	3.71	3.12	-15.8%
8.53	3.71	2.98	-19.7%
8.55	3.71	2.70	-27.2%
8.57	3.71	2.44	-34.2%
8.59	3.71	2.19	-40.9%
8.61	3.71	1.95	-47.5%
8.63	3.71	1.71	-54.0%
8.65	3.71	1.47	-60.3%
8.67	3.71	1.25	-66.4%
8.69	3.71	1.04	-72.0%
8.71	3.71	0.86	-76.9%
8.73	3.71	0.69	-81.3%

WATERLINE AT ZERO
AREA ERROR = 8.480

STREAM NAME: EAST DIVIDE CREEK #2 - 8/17/10
XS LOCATION: 39 26' 02.2" 107 34' 48.3"
XS NUMBER: 40407 Constant Manning's n

GL = lowest Grassline elevation corrected for sag
STAGING TABLE *WL* = Waterline corrected for variations in field measured water surface elevations and sag

	DIST TO WATER (FT)	TOP WIDTH (FT)	AVG. DEPTH (FT)	MAX. DEPTH (FT)	AREA (SQ FT)	WETTED PERIM. (FT)	PERCENT WET PERIM (%)	HYDR RADIUS (FT)	FLOW (CFS)	AVG. VELOCITY (FT/SEC)
GL	7.20	29.50	1.13	1.78	33.37	30.26	100.0%	1.10	46.55	1.39
	7.48	27.62	0.92	1.50	25.38	28.29	93.5%	0.90	30.85	1.22
	7.53	27.34	0.88	1.45	24.01	28.00	92.5%	0.86	28.31	1.18
	7.58	27.01	0.84	1.40	22.65	27.65	91.4%	0.82	25.91	1.14
	7.63	26.50	0.80	1.35	21.31	27.11	89.6%	0.79	23.71	1.11
	7.68	25.89	0.77	1.30	20.00	26.47	87.5%	0.76	21.68	1.08
	7.73	25.29	0.74	1.25	18.72	25.83	85.4%	0.72	19.74	1.05
	7.78	24.41	0.72	1.20	17.47	24.91	82.3%	0.70	18.03	1.03
	7.83	23.10	0.70	1.15	16.29	23.57	77.9%	0.69	16.63	1.02
	7.88	21.80	0.70	1.10	15.16	22.23	73.5%	0.68	15.35	1.01
	7.93	20.71	0.68	1.05	14.11	21.12	69.8%	0.67	14.08	1.00
	7.98	20.50	0.64	1.00	13.08	20.88	69.0%	0.63	12.50	0.96
	8.03	20.28	0.59	0.95	12.06	20.63	68.2%	0.58	11.01	0.91
	8.08	20.02	0.55	0.90	11.05	20.35	67.3%	0.54	9.60	0.87
	8.13	19.76	0.51	0.85	10.05	20.07	66.3%	0.50	8.28	0.82
	8.18	19.50	0.47	0.80	9.07	19.79	65.4%	0.46	7.05	0.78
	8.23	19.25	0.42	0.75	8.10	19.52	64.5%	0.42	5.89	0.73
	8.28	18.67	0.38	0.70	7.15	18.93	62.6%	0.38	4.88	0.68
	8.33	17.72	0.35	0.65	6.24	17.97	59.4%	0.35	4.03	0.65
	8.38	17.15	0.31	0.60	5.37	17.39	57.5%	0.31	3.21	0.60
	8.43	16.57	0.27	0.55	4.53	16.80	55.5%	0.27	2.47	0.54
WL	8.48	15.00	0.25	0.50	3.71	15.22	50.3%	0.24	1.89	0.51
	8.53	14.25	0.21	0.45	2.98	14.46	47.8%	0.21	1.36	0.46
	8.58	12.36	0.19	0.40	2.32	12.55	41.5%	0.18	0.98	0.42
	8.63	11.96	0.14	0.35	1.71	12.15	40.2%	0.14	0.60	0.35
	8.68	9.90	0.11	0.30	1.14	10.07	33.3%	0.11	0.35	0.31
	8.73	7.85	0.09	0.25	0.69	7.98	26.4%	0.09	0.18	0.26
	8.78	4.79	0.07	0.20	0.35	4.89	16.2%	0.07	0.08	0.23
	8.83	2.93	0.05	0.15	0.16	3.01	9.9%	0.05	0.03	0.18
	8.88	1.33	0.04	0.10	0.05	1.37	4.5%	0.04	0.01	0.15
	8.93	0.38	0.03	0.05	0.01	0.39	1.3%	0.02	0.00	0.11
	8.98	0.00	#DIV/0!	0.00	0.00	0.00	0.0%	#DIV/0!	#DIV/0!	#DIV/0!

STREAM NAME: EAST DIVIDE CREEK #2 - 8/17/10
XS LOCATION: 39 26' 02.2" 107 34' 48.3"
XS NUMBER: 40407

SUMMARY SHEET

MEASURED FLOW (Qm)=	1.89	cfs
CALCULATED FLOW (Qc)=	1.89	cfs
(Qm-Qc)/Qm * 100 =	0.0	%
MEASURED WATERLINE (WLm)=	8.48	ft
CALCULATED WATERLINE (WLc)=	8.48	ft
(WLm-WLc)/WLm * 100 =	0.0	%
MAX MEASURED DEPTH (Dm)=	0.50	ft
MAX CALCULATED DEPTH (Dc)=	0.50	ft
(Dm-Dc)/Dm * 100	0.0	%
MEAN VELOCITY=	0.51	ft/sec
MANNING'S N=	0.227	
SLOPE=	0.04	ft/ft
.4 * Qm =	0.8	cfs
2.5 * Qm=	4.7	cfs

RECOMMENDED INSTREAM FLOW:
=============================

FLOW (CFS)	PERIOD
===========	========
____________________	____________________
____________________	____________________
____________________	____________________
____________________	____________________

RATIONALE FOR RECOMMENDATION:
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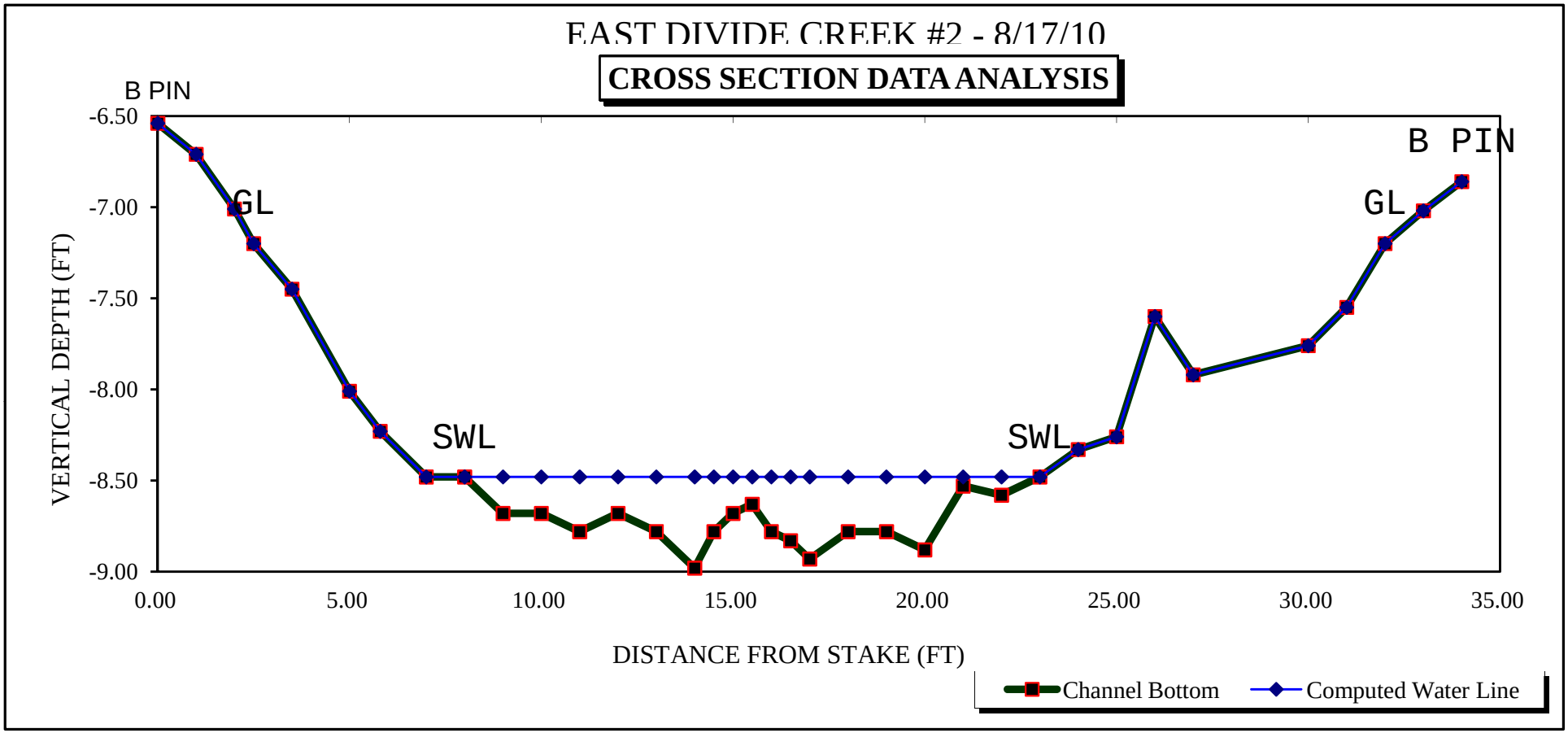
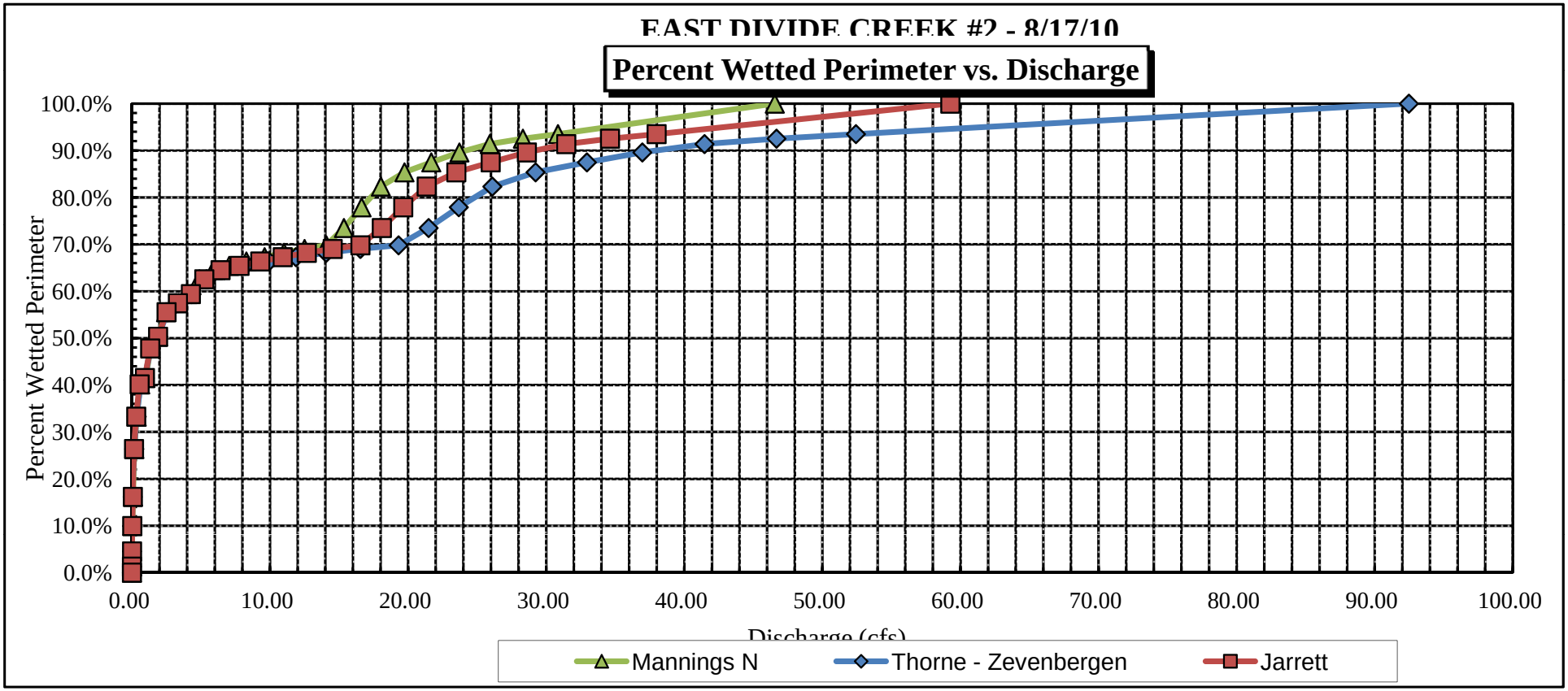
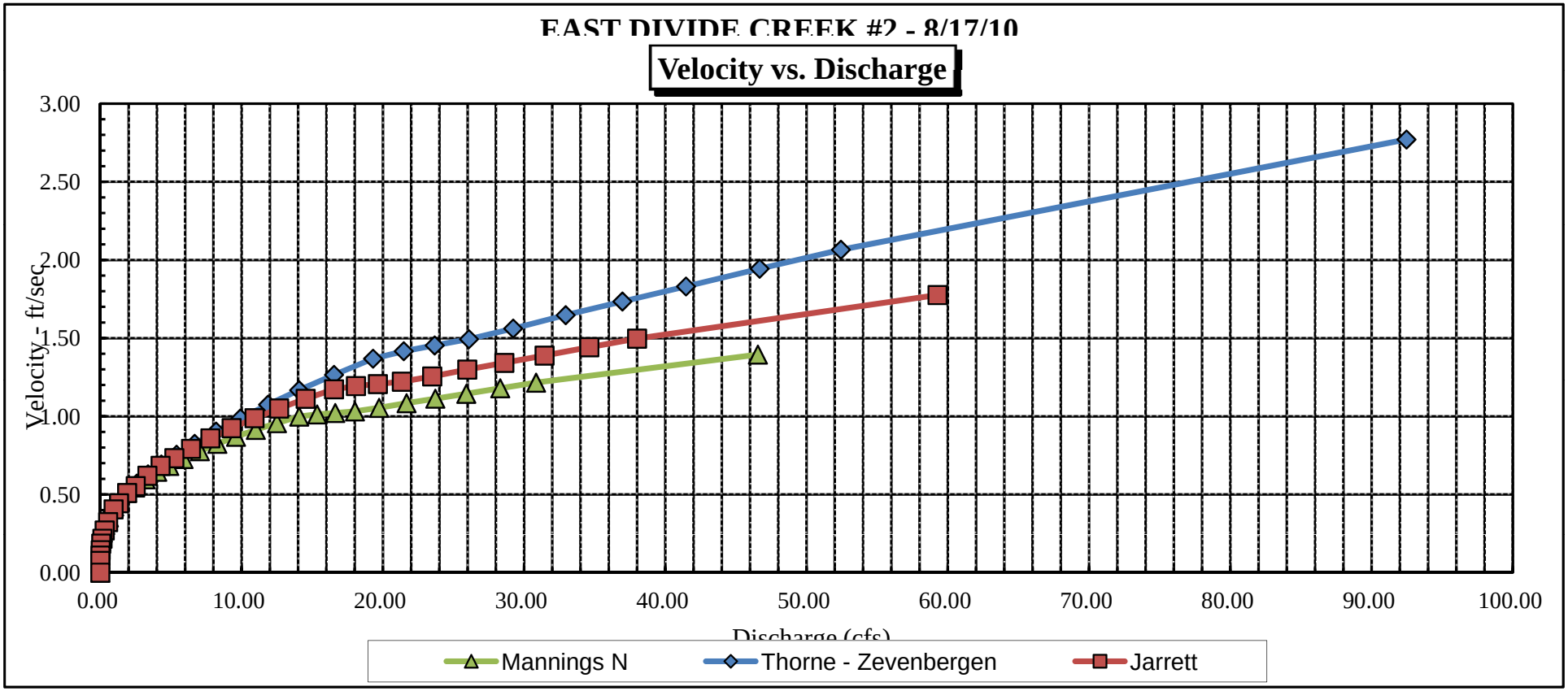
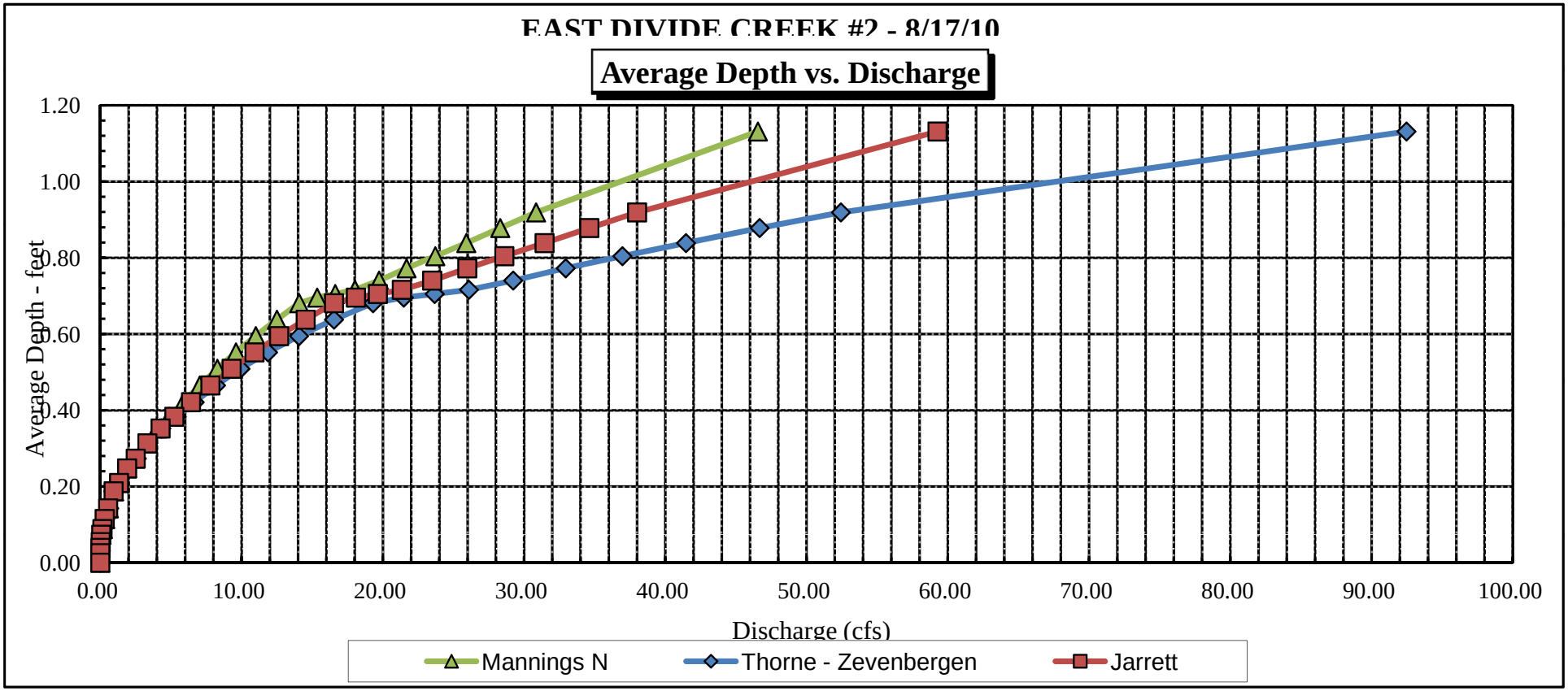
RECOMMENDATION BY: ……………………………………………… AGENCY……………………………………………… DATE:………………………………

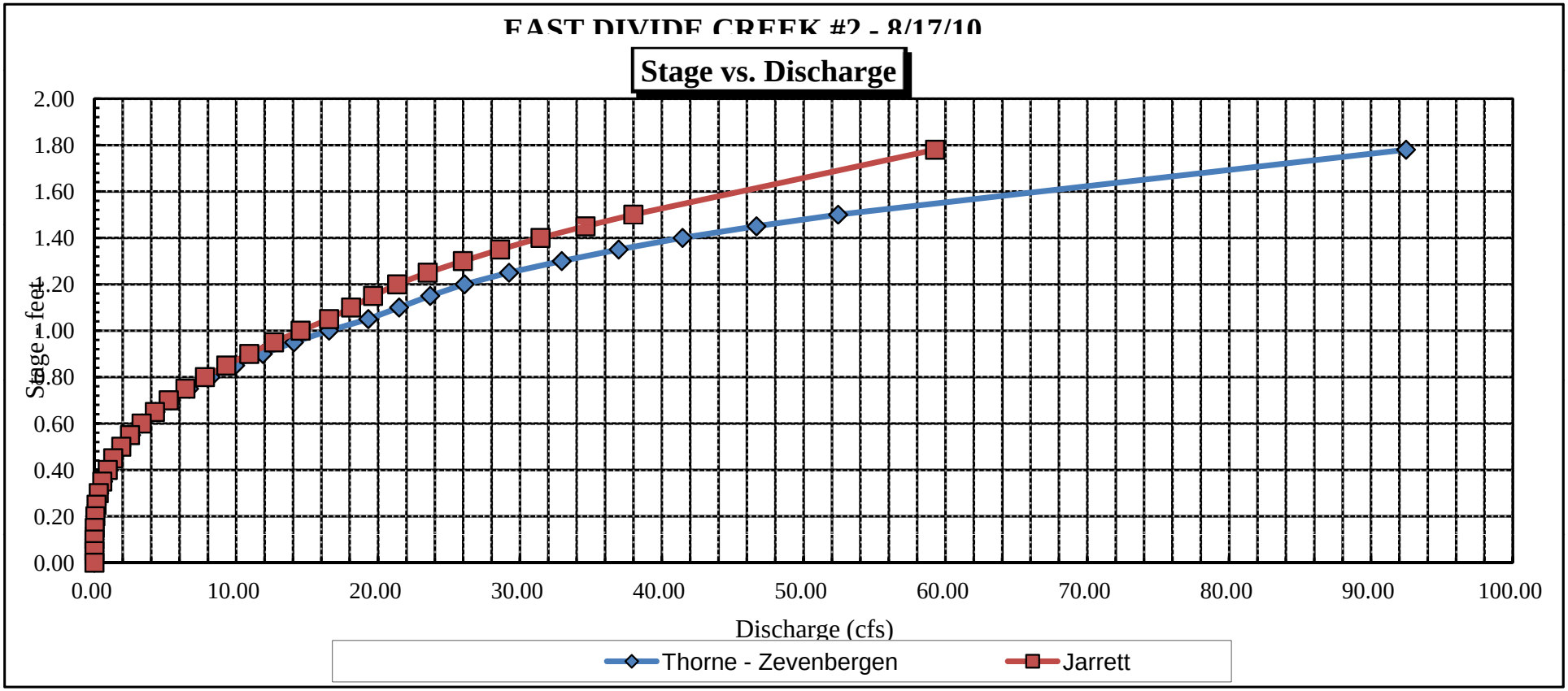
CWCB REVIEW BY: ……………………………………………………………………………………………… DATE:………………………………


EAST DIVIDE CREEK #2 - 8/17/10
CROSS SECTION DATA ANALYSIS
B PIN
GL
SWL
SWL
GL
B PIN
-6.50
-7.00
-7.50
-8.00
-8.50
-9.00
VERTICAL DEPTH (FT)
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
DISTANCE FROM STAKE (FT)
Channel Bottom
Computed Water Line


EAST DIVIDE CREEK #2 - 8/17/10
Percent Wetted Perimeter vs. Discharge
Percent Wetted Perimeter
100.0%
90.0%
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
Discharge (cfs)
Mannings N
Thorne - Zevenbergen
Jarrett


EAST DIVIDE CREEK #2 - 8/17/10
Velocity vs. Discharge
Velocity - ft/sec
3.00
2.50
2.00
1.50
1.00
0.50
0.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
Discharge (cfs)
Mannings N
Thorne - Zevenbergen
Jarrett


EAST DIVIDE CREEK #2 - 8/17/10
Average Depth vs. Discharge
Average Depth - feet
1.20
1.00
0.80
0.60
0.40
0.20
0.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
Discharge (cfs)
Mannings N
Thorne - Zevenbergen
Jarrett


EAST DIVIDE CREEK #2 - 8/17/10
Stage vs. Discharge
Stage - feet
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
Discharge (cfs)
Thorne - Zevenbergen
Jarrett

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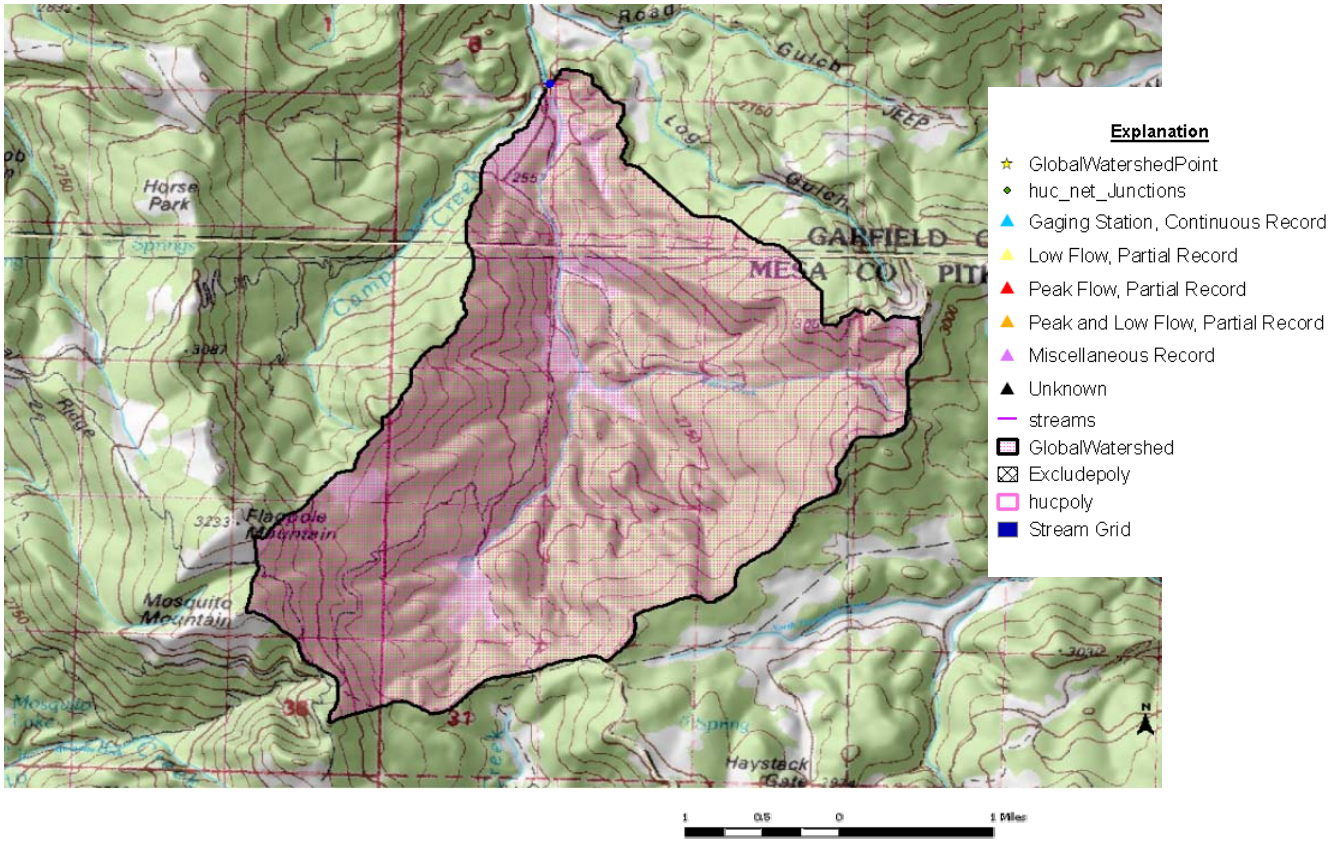

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STREAM NAME: EAST DIVIDE CREEK #2

XS LOCATION: 39 26' 02.2" 107 34' 48.3"

COMBINED X-SECTIONS - STAGING TABLE

	DIST TO WATER (FT)	TOP WIDTH (FT)	AVG. DEPTH (FT)	MAX. DEPTH (FT)	AREA (SQ FT)	WETTED PERIM. (FT)	PERCENT WET PERIM (%)	HYDR RADIUS (FT)	FLOW (CFS)	AVG. VELOCITY (FT/SEC)
GL	7.20	29.50	1.13	1.78	33.42	30.26	1.00	1.10	794.23	23.76
	7.28	28.94	1.07	1.70	31.06	29.68	0.98	1.05	649.03	20.90
	7.33	28.60	1.04	1.65	29.62	29.32	0.97	1.01	569.71	19.24
	7.38	28.26	1.00	1.60	28.20	28.97	0.96	0.97	497.69	17.65
	7.43	27.92	0.96	1.55	26.79	28.61	0.95	0.94	432.50	16.14
	7.48	27.61	0.92	1.50	25.40	28.29	0.93	0.90	373.69	14.71
	7.53	27.34	0.88	1.45	24.03	28.00	0.93	0.86	320.75	13.35
	7.58	27.00	0.84	1.40	22.67	27.65	0.91	0.82	273.33	12.06
	7.63	26.49	0.81	1.35	21.33	27.10	0.90	0.79	231.24	10.84
	7.68	25.88	0.77	1.30	20.02	26.46	0.87	0.76	194.30	9.70
	7.73	25.28	0.74	1.25	18.75	25.82	0.85	0.73	162.07	8.65
	7.78	24.38	0.72	1.20	17.50	24.89	0.82	0.70	134.17	7.67
	7.83	23.08	0.71	1.15	16.31	23.55	0.78	0.69	110.63	6.78
	7.88	21.77	0.70	1.10	15.19	22.21	0.73	0.68	90.97	5.99
	7.93	20.71	0.68	1.05	14.13	21.12	0.70	0.67	74.61	5.28
	7.98	20.50	0.64	1.00	13.10	20.89	0.69	0.63	60.60	4.62
	8.03	20.27	0.60	0.95	12.08	20.63	0.68	0.59	48.51	4.01
	8.08	20.01	0.55	0.90	11.08	20.35	0.67	0.54	38.19	3.45
	8.13	19.76	0.51	0.85	10.08	20.07	0.66	0.50	29.49	2.92
	8.18	19.50	0.47	0.80	9.10	19.79	0.65	0.46	22.26	2.45
	8.23	19.24	0.42	0.75	8.13	19.51	0.64	0.42	16.34	2.01
Q	8.28	18.65	0.39	0.70	7.18	18.91	0.63	0.38	11.61	1.62
	8.33	17.71	0.35	0.65	6.27	17.96	0.59	0.35	8.01	1.28
	8.38	17.22	0.31	0.60	5.40	17.46	0.58	0.31	5.30	0.98
	8.43	16.73	0.27	0.55	4.55	16.96	0.56	0.27	3.31	0.73
Q	8.48	15.24	0.24	0.50	3.73	15.46	0.51	0.24	1.92	0.51
	8.53	14.70	0.20	0.45	2.98	14.91	0.49	0.20	1.03	0.35
	8.58	12.35	0.19	0.40	2.30	12.55	0.41	0.18	0.51	0.22
	8.63	11.94	0.14	0.35	1.70	12.13	0.40	0.14	0.22	0.13
	8.68	9.86	0.11	0.30	1.13	10.02	0.33	0.11	0.07	0.06
	8.73	7.80	0.09	0.25	0.68	7.94	0.26	0.09	0.02	0.03
	8.78	4.75	0.07	0.20	0.35	4.85	0.16	0.07	0.00	0.00
	8.83	2.90	0.05	0.15	0.16	2.97	0.10	0.05	0.00	0.43
	8.88	1.31	0.04	0.10	0.05	1.35	0.04	0.04	0.00	0.35
	8.93	0.37	0.02	0.05	0.01	0.38	0.01	0.02	0.00	0.25

USGS Colorado StreamStats

Streamstats Ungaged Site Report

Date: Tue Dec 21 2010 16:09:10 Mountain Standard Time
Site Location: Colorado
NAD27 Latitude: 39.3837 (39 23 01)
NAD27 Longitude: -107.4744 (-107 28 28)
NAD83 Latitude: 39.3837 (39 23 01)
NAD83 Longitude: -107.4750 (-107 28 30)
Drainage Area: 10.6 mi2

Peak-Flows Basin Characteristics

100% Mountain Region Peak Flow (10.6 mi2)

Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	10.6	1	1060
Mean Basin Slope from 10m DEM (percent)	22.2	7.6	60.2
Mean Annual Precipitation (inches)	32.45	18	47

Low-Flows Basin Characteristics

100% Mountain Region Min Flow (10.6 mi2)

Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	10.6	1	1060
Mean Annual Precipitation (inches)	32.40	18	47
Mean Basin Elevation (feet)	9190	8600	12000

Flow-Duration Basin Characteristics

100% Mountain Region Flow Duration (10.6 mi2)

Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	10.6	1	1060
Mean Annual Precipitation (inches)	32.37	18	47

Maximum-Flows Basin Characteristics

100% Mountain Region Max Flow (10.6 mi2)

Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	10.6	1	1060
Mean Annual Precipitation (inches)	32.37	18	47

Mean-Flows Basin Characteristics

100% Mountain Region Mean Flow (10.6 mi2)

Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	10.6	1	1060
Mean Annual Precipitation (inches)	32.37	18	47

Peak-Flows Streamflow Statistics

Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
PK2	142	49			
PK5	195	44			
PK10	230	41			

PK25	267	40			
PK50	313	39			
PK100	345	36			
PK200	370	36			
PK500	420	33			

Low-Flows Streamflow Statistics

Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
M7D2Y	0.49	89			
M7D10Y	0.25	150			
M7D50Y	0.36	130			

Flow-Duration Streamflow Statistics

Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
D10	42.2	19			
D25	10.6	29			
D50	3.67	29			
D75	1.99	39			
D90	1.17	72			

Maximum-Flows Streamflow Statistics

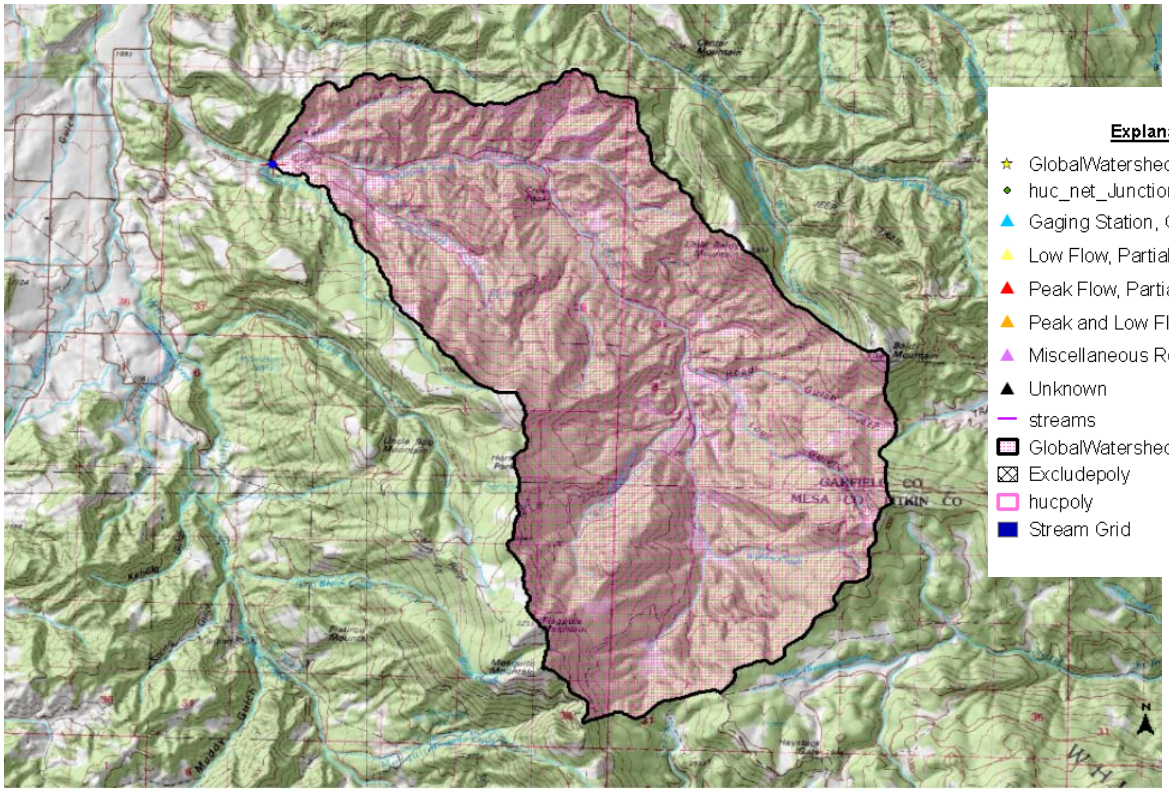
Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
V7D2Y	98.1	46			
V7D10Y	151	35			
V7D50Y	201	31			

Mean-Flows Streamflow Statistics

Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
Q1	2.32	24			
Q2	2.14	26			
Q3	2.3	24			
Q4	4.96	19			
Q5	34.5	21			
Q6	70.2	21			
Q7	26.8	56			
Q8	10.6	61			
Q9	6.19	32			
QA	14.9	11			
Q10	4.95	19			
Q11	3.57	21			
Q12	2.63	21			

USGS Colorado StreamStats

StreamStats Print Page



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USGS Colorado StreamStats

Streamstats Ungaged Site Report

Date: Tue Dec 21 2010 16:14:52 Mountain Standard Time
Site Location: Colorado
NAD27 Latitude: 39.4340 (39 26 02)
NAD27 Longitude: -107.5792 (-107 34 45)
NAD83 Latitude: 39.4340 (39 26 02)
NAD83 Longitude: -107.5798 (-107 34 47)
Drainage Area: 42.1 mi2

Peak-Flows Basin Characteristics

86% Mountain Region Peak Flow (36.1 mi2)

Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	42.1	1	1060
Mean Basin Slope from 10m DEM (percent)	27.1	7.6	60.2
Mean Annual Precipitation (inches)	28.09	18	47

14% Northwest Region Peak Flow (5.96 mi2)

Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	42.1	1	5250
Percent above 7500 ft (percent)	86.1	0	99
Mean Annual Precipitation (inches)	28.09	8	49

Low-Flows Basin Characteristics

86% Mountain Region Min Flow (36.1 mi2)

Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	42.1	1	1060
Mean Annual Precipitation (inches)	28.07	18	47
Mean Basin Elevation (feet)	8540 (below min value 8600)	8600	12000

14% Northwest Region Min Flow (5.96 mi2)

Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	42.1	5	5250
Mean Basin Elevation (feet)	8540	6880	10480

Warning: Some parameters are outside the suggested range. Estimates will be extrapolations with unknown errors.

Flow-Duration Basin Characteristics

86% Mountain Region Flow Duration (36.1 mi2)

Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	42.1	1	1060
Mean Annual Precipitation (inches)	28.04	18	47

14% Northwest Region Flow Duration (5.96 mi2)

Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	42.1	1	5250
Mean Annual Precipitation (inches)	28.04	8	49

Maximum-Flows Basin Characteristics

86% Mountain Region Max Flow (36.1 mi2)

Parameter	Value	Regression Equation Valid Range	
		Min	Max

Drainage Area (square miles)	42.1	1	1060
Mean Annual Precipitation (inches)	28.09	18	47

14% Northwest Region Max Flow (5.96 mi2)

Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	42.1	5	5250
Mean Annual Precipitation (inches)	28.09	8	49
Percent above 7500 ft (percent)	86.1	0	99

Mean-Flows Basin Characteristics

86% Mountain Region Mean Flow (36.1 mi2)

Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	42.1	1	1060
Mean Annual Precipitation (inches)	28.04	18	47

14% Northwest Region Mean Flow (5.96 mi2)

Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	42.1	1	5250
Mean Annual Precipitation (inches)	28.04	8	49

Peak-Flows Streamflow Statistics Area-Averaged

Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record
PK2	308	58	
PK5	439	50	
PK10	529	46	
PK25	624	45	
PK50	740	44	
PK100	831	42	
PK200	905	42	
PK500	1040	40	

Peak-Flows Streamflow Statistics Mountain Region Peak Flow

Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
PK2	318	49			
PK5	446	44			
PK10	534	41			
PK25	620	40			
PK50	737	39			
PK100	820	36			
PK200	890	36			
PK500	1020	33			

Peak-Flows Streamflow Statistics Northwest Region Peak Flow

Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
PK2	244	110			
PK5	392	88			
PK10	491	79			
PK25	642	74			

PK50	755	74			
PK100	892	75			
PK200	991	76			
PK500	1200	79			

Low-Flows Streamflow Statistics Area-Averaged

Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record
M7D2Y	1.34		
M7D10Y	0.62		
M7D50Y	1.02		

Low-Flows Streamflow Statistics Mountain Region Min Flow

Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
M7D2Y	1.26				
M7D10Y	0.57				
M7D50Y	1.07				

Low-Flows Streamflow Statistics Northwest Region Min Flow

Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
M7D2Y	1.87	210			
M7D10Y	0.95	280			
M7D50Y	0.69	340			

Flow-Duration Streamflow Statistics Area-Averaged

Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record
D10	98.1	24	
D25	28.3	33	
D50	10.9	34	
D75	6.19	46	
D90	3.97	93	

Flow-Duration Streamflow Statistics Mountain Region Flow Duration

Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
D10	105	19			
D25	30.1	29			
D50	11.4	29			
D75	6.56	39			
D90	4.25	72			

Flow-Duration Streamflow Statistics Northwest Region Flow Duration

Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
D10	58.4	52			
D25	17	56			
D50	7.27	66			
D75	3.89	91			
D90	2.24	220			

Maximum-Flows Streamflow Statistics Area-Averaged

Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record
V7D2Y	213	52	
V7D10Y	362	38	
V7D50Y	504	34	

Maximum-Flows Streamflow Statistics Mountain Region Max Flow

Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
V7D2Y	226	46			
V7D10Y	379	35			
V7D50Y	518	31			

Maximum-Flows Streamflow Statistics Northwest Region Max Flow

Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
V7D2Y	133	86			
V7D10Y	256	59			
V7D50Y	417	51			

Mean-Flows Streamflow Statistics Area-Averaged

Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record
Q1	7.37	30	
Q2	6.94	30	
Q3	8.01	27	
Q4	19.2	26	
Q5	101	25	
Q6	158	27	
Q7	57.3	55	
Q8	24.6	63	
Q9	16.4	41	
QA	37.1	14	
Q10	13.6	28	
Q11	10.2	27	
Q12	8.05	27	

Mean-Flows Streamflow Statistics Mountain Region Mean Flow

Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
Q1	7.61	24			
Q2	7.08	26			
Q3	8.07	24			
Q4	18.9	19			
Q5	103	21			
Q6	175	21			
Q7	62	56			
Q8	26	61			
Q9	16.9	32			
QA	39.3	11			
	14.2				

Q10		19			
Q11	10.7	21			
Q12	8.4	21			

Mean-Flows Streamflow Statistics Northwest Region Mean Flow

Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
Q1	5.86	66			
Q2	6.06	56			
Q3	7.55	43			
Q4	21.1	66			
Q5	87.4	47			
Q6	59.5	61			
Q7	28.3	52			
Q8	15.9	78			
Q9	13.1	99			
QA	23.4	29			
Q10	9.94	85			
Q11	7.36	66			
Q12	5.88	61			

WEST DIVIDE WATER CONSERVANCY DISTRICT

ALSBURY DAM

AT

RESERVOIR PARK

DEDICATED JULY 14, 2001

SAMUEL B. POTTER, PRESIDENT
KELLY COUEY, VICE PRESIDENT
WILLIAM M. ZILM, SECRETARY
LAVERNE STARBUCK, TREASURER
ROBERT J. ZANELLA, DIRECTOR

RUSSELL L. GEORGE, GENERAL COUNSEL
EDWARD J. CURRIER, PROJECT ENGINEER
BOGUE CONSTRUCTION, INC.
J.W. SQUIRES CONSTRUCTION COMPANY

PAST DIRECTORS INVOLVED WITH THE PROJECT

LARRY S. AXTHELM
CARL BERNKLAU
LEONARD CHRISTENSEN
GREGORY DURRETT
JOHN MARTIN
JOE MAUTZ, JR.
HAROLD B. SHAEFFER


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