Addendum
Hydrologic and Hydraulic Analyses
Double Diamond Ranch

Prepared For:
Double Diamond Ranch, LLC.

August 2000
Job No. 0028

ADDENDUM
HYDROLOGIC AND HYDRAULIC ANALYSES
WILBUR MAY BLVD. AND DOUBLE DIAMOND PARKWAY
DOUBLE DIAMOND RANCH

City of Reno, Nevada

PREPARED FOR:
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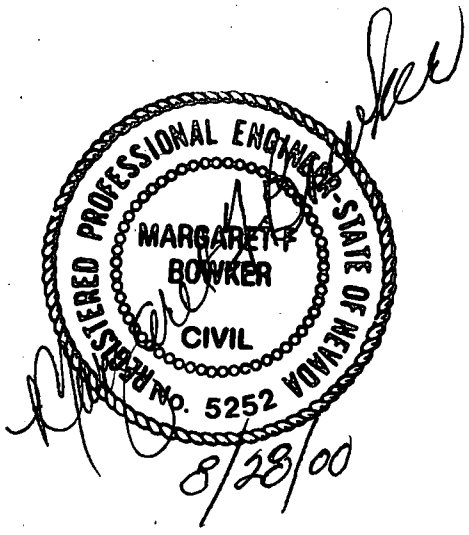
RENO, NEVADA 89511

Nimbus Job No. 01150-0028
April 2000
Revised August 2000



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1.0 INTRODUCTION

This report is an addendum to a report prepared by Nimbus Engineers titled *Hydrologic and Hydraulic Analysis, Wilbur May Blvd. and Double Diamond Pkwy., Double Diamond Ranch* (September 1998), hereinafter referred to as the original report. Specifics of the addendum are outlined below. A list of references are contained in the original report.

The Double Diamond Ranch is located in Reno, Nevada in the south Truckee Meadows. A vicinity map of the Double Diamond Ranch is shown in Figure 1. The area of the Double Diamond Ranch that is the subject of this addendum is shown in Sheets 1 and 2 of 2 of the hydraulic work map in Figure 2. The project area is described as: (1) a wetland bounded on the west by Double Diamond Villages 18 and 19, on the north by Wilbur May Boulevard, on the east by the Double Diamond Recreation Center and Village 20, and on the south by the Damonte Ranch subdivision; and (2) the Central Channel extending north from the culverts beneath Wilbur May Boulevard to a point just upstream of South Meadows Parkway (Figures 1 and 2). This addendum modifies the original hydrologic analysis (HEC-1) and hydraulic analysis (HEC-RAS).

The HEC-1 model was modified from the original analysis to reflect development in the Damonte Ranch because this development will affect peak flows through the Double Diamond Ranch (see Section 2.0). The contributing watershed for the present analysis lies upstream of South Meadows Parkway where it crosses the existing Central Channel and extends south to the constructed Whites Creek Branch 3 channel located along the south property boundary of the Damonte Ranch. This watershed was designated as W18RB in the Application for Conditional Letter of Map Revision (CLOMR) for Double Diamond Ranch (Nimbus, 1995). The subroutine of the CLOMR HEC-1 model that estimates runoff from W18RB, a subwatershed within the larger Whites Creek watershed, was used in the HEC-1 analysis that is part of the present report. The Branch 3 channel will convey flow from storms of magnitudes less than or equal to the 100-year event to Steamboat Creek. The channel will prevent flow from the Whites Creek watershed that is tributary to Branch 3 from discharging through the Damonte Ranch and the Double Diamond Ranch.

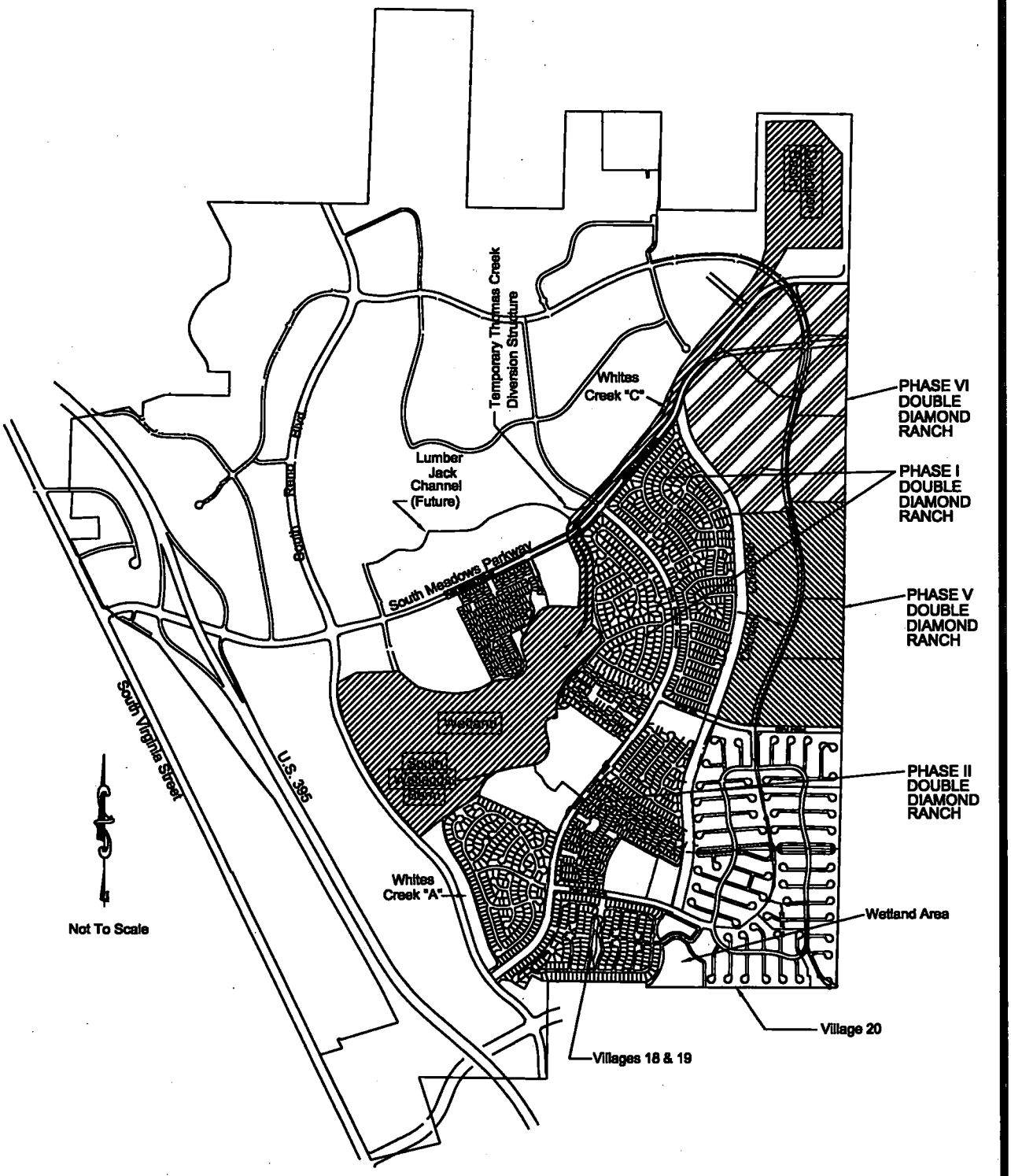

Figure 1
Vicinity Map

Nimbus Job #0028 *Date: August 2000*

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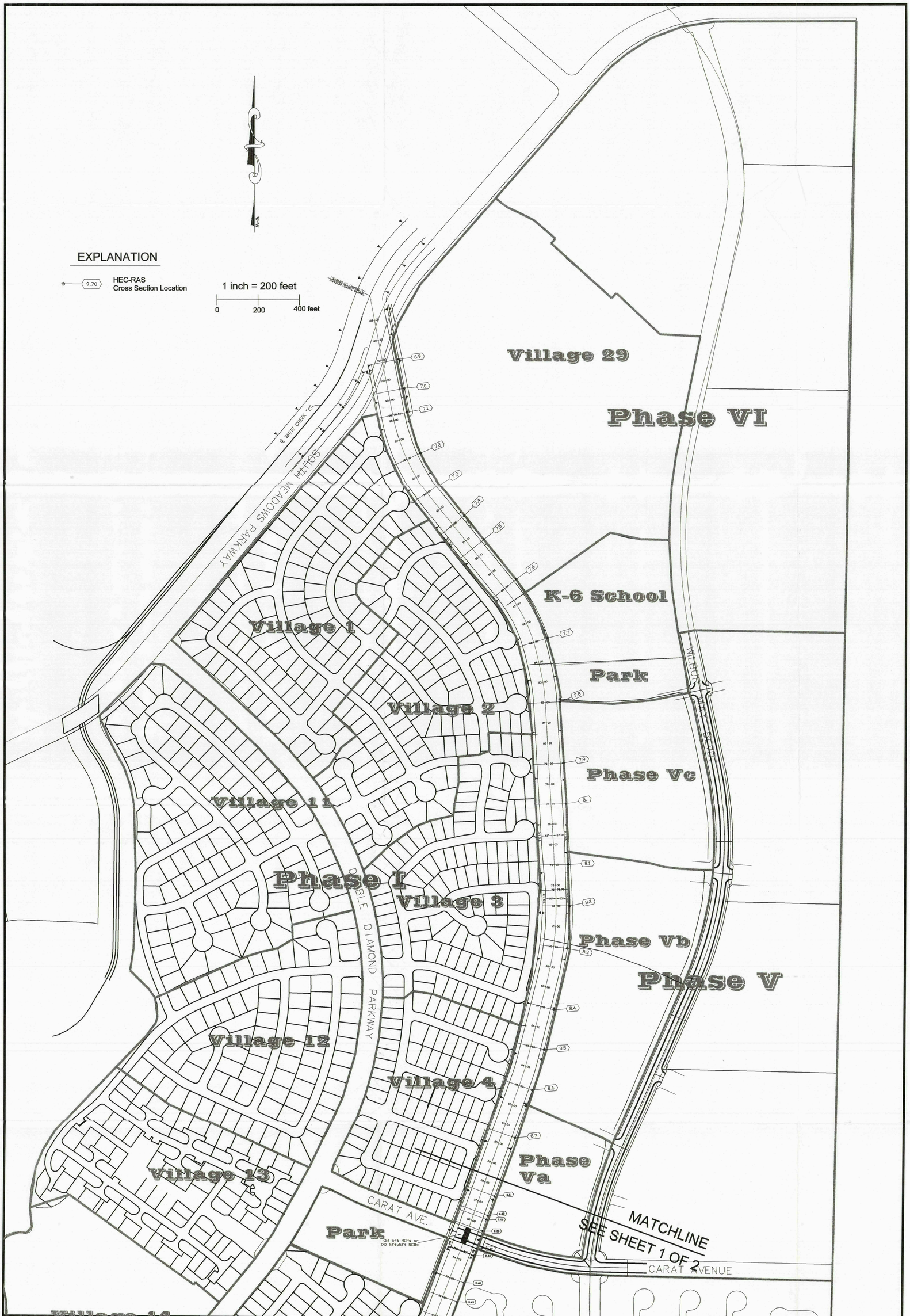
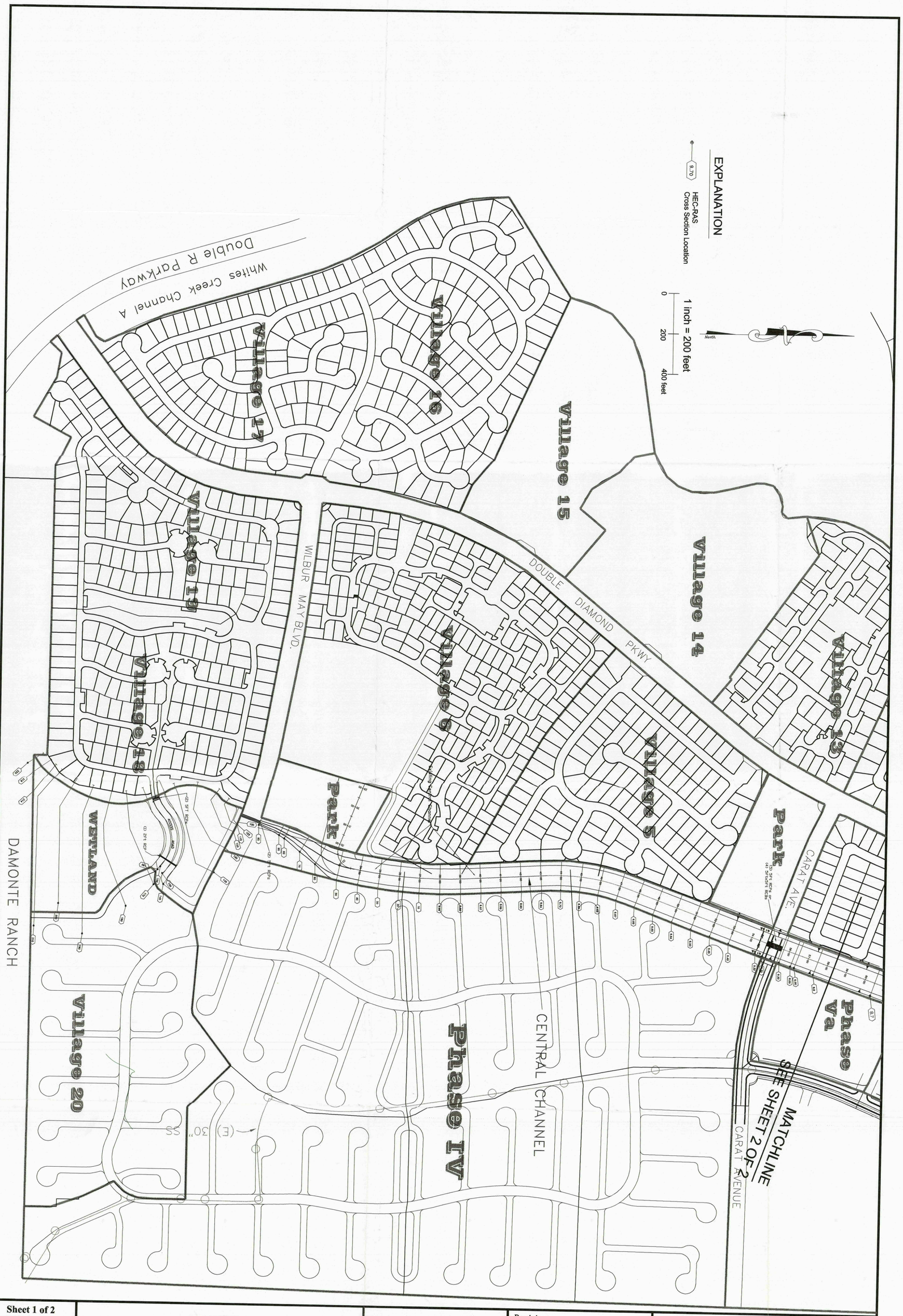


Sheet 2 of 2 Nimbus Job # 0028 Date: August 2000	**FIGURE 2** **HYDRAULIC WORKMAP - PROPOSED CONDITIONS** *Double Diamond Ranch* Reno — Washoe County — Nevada	Scale: 1" = 200" Contour Interval: 1ft File Name: 028hwm_new.dwg Drawn By: kk/ca Designed By: rj/ca	*Revisions:*	Nimbus Engineers 3785 Baker Ln., Suite 201 • Reno, NV 89509 Mail: P.O. Box 10220 • Reno, NV 89510 (775) 689-8630 • Fax (775) 689-8614 info@nimbusengineers.com



Sheet 1 of 2 Nimbus Job # 0028 Date: August 2000	**FIGURE 2** **HYDRAULIC WORKMAP - PROPOSED CONDITIONS** *Double Diamond Ranch* Reno — Washoe County — Nevada	Scale: 1" = 200" Contour Interval: 1ft File Name: 028hwm_new.dwg Drawn By: kk/ca Designed By: rj/ca	Revisions:	Nimbus Engineers 3785 Baker Ln., Suite 201 • Reno, NV 89509 Mail: P.O. Box 10220 • Reno, NV 89510 (775) 689-8630 • Fax (775) 689-8614 info@nimbusengineers.com

The original HEC-RAS model was developed using a single channel to convey runoff, resulting from the 100-year storm event, from the Damonte Ranch in a northern direction, past Villages 18 and 19, through culverts beneath Wilbur May Boulevard, to the beginning of the existing Central Channel. In this addendum, the revised HEC-RAS model simulates flow through a wetland located east of Villages 18 and 19, beneath Wilbur May Boulevard and future Carat Avenue through the Central Channel to South Meadows Parkway (see Section 3.0).

2.0 HYDROLOGIC ANALYSIS

The HEC-1 analysis in this addendum contains a revised estimate of the Soil Conservation Service (SCS) runoff curve number for the Damonte Ranch. The revised curve number reflects the impervious area within the proposed subdivision when development is completed. The Damonte Ranch is part of subwatershed W18RB within the larger Whites Creek watershed. In the original HEC-1 model, a curve number of 80 was used for W18RB. In the revised HEC-1 model, a curve number of 85 was used to reflect the higher runoff potential of the Damonte Ranch when development is completed.

The revised model contained five phases of development at Double Diamond: (1) Phase II which was modeled to include all of Villages 5 and 6 and portions of Villages 13, 14, and 15; (2) Phase III which include Villages 16, 17, 18, and 19; (3) Phase IV which included Villages 7, 8, 9, 20, 21, 22, and 23; (4) Phase I which included Villages 1, 2, 3, 4 and portions of Villages 11 and 12; and (5) portions of Phase V and VI. These development phases were included in the model in order to simulate runoff for final developed conditions and to allow adequate culvert capacity at Carat Avenue. Phase II development was based upon the Preliminary Storm Drainage Study, Phase II, Double Diamond Ranch, Villages 5, 6, 13, 14, & 15 by MacKay & Somps (1997) which also included storm-water discharge from Villages 16 and 17 via the parallel storm drains beneath Double Diamond Parkway labeled D10. Villages 7, 8, 9, 21, 22, and 23 (Phase IV) were modeled as one watershed discharging to the Central Channel because a detailed drainage plan was not available showing discharge points from each village to the Central Channel. Village 20 was modeled separately from the other Phase IV Villages and the flow was assumed to discharge to the wetland.

Phase I Villages 1, 2, 3, 4 and portions of Villages 11 and 12 were modeled as separate sub-basins discharging to the Central Channel at points below Carat Avenue. Phase V development contained three (3) sub-basins (Phase Va, b, and c; see Figure 2) that drain to the central channel. Phase VI development contains three (3) sub-basins that discharge to the Central Channel. Portions of Phases V and VI to the east of Wilbur May Boulevard will drain to a separate channel to the east and are

not part of this report.

The original report contains a more detailed discussion of the hydrologic variables used in the HEC-1 model. HEC-1 modeling results for the 100-year, 24-hour storm event are summarized in Table 1. Complete HEC-1 modeling results are contained in Appendix A.

Table 1. Peak Flows Computed by HEC-1 at Selected Points and Corresponding Peak Flow Inputs to HEC-RAS, Double Diamond Ranch, Reno Nevada.

Location	HEC-1 Computation Point	HEC-RAS Cross Section Number	Peak Flow (cubic feet per second)	
			HEC-1[1]	HEC-RAS[2]
Discharge Point from Wetland through Culverts at Wilbur May Boulevard into the Central Channel	CB WET	220	266	300
Flow from Central Channel Combined with Discharges from Phase IV Villages and Village 6 Discharge Point E14 at Approximately 650 feet North of Wilbur May Boulevard	C14	30	467	500
Flow in Central Channel combined with Flow from Storm Drain Discharge Points D10 and D12 Located Approximately 350 Feet South of Carat Avenue	C10PRK	9.5	591	650
Flow in Central Channel combined with discharge from Phase I Village 4 and Phase Va	CB1	8.6	600	650
Flow in Central Channel combined with discharge from Phase Vb	CB2	8.1	614	675
Flow in Central Channel combined with discharge from Phase I Village 3 and portions of Villages 11 and 12	CB3	8.1	625	675
Flow in Central Channel combined with discharge from Phase I Village 2 and Phase Vb	CB4	7.8	644	700
Flow in Central Channel combined with discharge from Phase VI Park	CB5	7.8	638	700
Flow in Central Channel combined with discharge from Phase VI K6-School	CB6	7.6	632	700
Flow in Central Channel combined with discharge from Phase I Village I and Phase VI Village 29	CB7	6.9	648	700

1. Peak flows calculated using the HEC-1 model and a precipitation depth 2.60 inches for the 100-year, 24-hour storm.

2. Peak flows were entered into the HEC-RAS model at the cross sections indicated. The flow rates remained at the rate listed above in the downstream direction until the flow was increased at a downstream cross section. For example, at the farthest upstream cross section (#220) the flow rate was held constant at 300 cubic feet per second (cfs) downstream to cross section 30 where the flow rate was increased to 500 cfs.

3.0 HYDRAULIC ANALYSIS

In the original hydraulic analysis, a HEC-RAS model was developed with a single channel (i.e., Phase 3 Central Channel) to convey the 100-year, 24-hour peak flow from subwatershed W18RB. A channel alignment was proposed from the southern property boundary of the Double Diamond Ranch northward, around Villages 18 and 19, through culverts beneath Wilbur May Boulevard, and finally northward to a point where the channel would join the existing Central Channel.

In the revised hydraulic analysis that is part of this addendum, a HEC-RAS model was developed through the wetland area located east of Villages 18 and 19, and along the Central Channel north of Wilbur May Boulevard to a point just upstream of South Meadows Parkway (Figures 1 and 2). Modeling results are contained in Appendix B. The 100-year, 24-hour storm event was modeled using peak flow rates that increased in a downstream direction from 300 cubic feet per second (cfs) through the wetland to 700 cfs upstream of South Meadows Parkway. Flow rates used in the HEC-RAS model were greater that those calculated by the HEC-1 model and are summarized in Table 1.

When the wetland area is completed, a low-flow channel capable of conveying the 2-year, 24-hour peak flow will meander through the wetland to maintain vegetation. Flows in excess of the 2-year, 24-hour storm will be conveyed to the channel over-bank area in the surrounding wetland. The conveyance capacity of the low-flow channel will be minimal and consequently the channel was not included in the revised HEC-RAS model. Each cross section within the wetland was modeled with a horizontal bottom. The elevations of the wetland bottom that were modeled will result in an excavation depth of approximately 5 to 6 feet below the existing land surface.

3.1 HEC-RAS Cross Sections

Cross-section locations modeled in HEC-RAS are shown on Figure 2. Cross sections 10 through 100 were taken from the original model for the channel from the upstream ends of the culverts beneath Wilbur May Boulevard, north, to the existing Central Channel. Cross sections 6.9 through

9.99 were added per the as-built plans for the Phase I Central Channel construction. Cross sections 105 through 220 were added in order to model the wetland from Wilbur May Boulevard to the northern property boundary of the Damonte Ranch.

Within the wetland area, additional cross sections were calculated by HEC-RAS using a program feature that interpolates cross sections. The interpolated cross sections are indicated by an asterisk next to the cross section number in the model output (Appendix B). The point where flow from the Damonte Ranch enters the wetland area (cross sections 220 through 214) was modeled as a trapezoidal channel with 3:1 side slopes and tops of the right banks set at the existing land surface elevation. This configuration reflects the grading plans south of the wetland area. The remaining cross sections in the wetland area were modeled across its entire width. Elevations at the ends of the cross-sections adjacent to Villages 18 and 19 (i.e., the western extent of cross sections 100 through 220) were set based upon the proposed grading plan for that area. Grading plans for Village 20, the recreation center, and the access road from Villages 18 and 19 to the recreation center, hereinafter known as the access road, have not been completed. Consequently, elevations at the eastern ends of cross sections were approximated. Side slopes of 3:1 were modeled at the western and eastern ends of the cross sections. The road deck elevation of the access road was approximated based upon the street improvement plan for Village 18.

The HEC-RAS modeling results demonstrate that the wetland, as modeled, has the capacity to convey 300 cfs because of the proposed excavation of the wetland below the existing grade. The Central Channel north of Wilbur May Boulevard will convey flow from the 100-year, 24-hour storm event provided that the culverts at Carat Avenue are sized properly (refer to Section 3.2). Cross-section and water-surface elevation data are summarized in Table 2.

Table 2. HEC-RAS Cross-Section Elevation Data, Double Diamond Ranch, Reno, Nevada.				
Cross Section #	Downstream Distance to Next Cross Section(feet)	Bottom Elevation (feet, msl)	Existing Wetland Elev.[1] (feet, msl)	100-Year Water-Surface Elev. (feet, msl)
220	50	4466.0	4469	4467.5
216	55	4465.6	4469	4466.8
214	40	4465.3	4468-70	4465.9
210	100	4465.0	4468-71	4465.3
200	100	4464.0	4468-71	4464.4
190	100	4463.0	4467-70	4463.3
180	100	4462.0	4467-68	4462.3
170	100	4457.0	4467	4461.3
160	20	4456.0	4466-67	4461.3
155	30	4455.9	4465-67	4461.0
150	40	4455.8	4465-67	4459.3
145	60	4455.6	4465-67	4459.6
140	100	4455.4	4464-65	4459.6
130	100	4454.9	4464-65	4459.6
120	60	4454.5	4463-64	4459.6
110	70	4454.3	4463-64	4459.6
105	25	4454.0	4463-64	4459.5
100	115	4453.8	4463	4459.2
95	110	4453.3	NA	4455.1
90	30	4453.14	NA	4455.0
80	100	4453.1	NA	4455.0
70	100	4453.0	NA	4454.7
60	100	4452.9	NA	4454.5
50	100	4452.8	NA	4454.4
40	100	4452.7	NA	4454.2
30	100	4452.3	NA	4453.9
20	100	4451.9	NA	4453.5
10	100	4451.5	NA	4453.1
9.99	100	4451.1	NA	4452.6
9.98	100	4450.7	NA	4452.3
9.97	100	4450.3	NA	4451.9
9.96	100	4449.9	NA	4451.5
9.95	100	4449.5	NA	4451.1
9.94	100	4449.1	NA	4450.7
9.70	100	4448.7	NA	4450.4
9.69	100	4448.3	NA	4450.1

Table 2. HEC-RAS Cross-Section Elevation Data, Double Diamond Ranch, Reno, Nevada.				
Cross Section #	Downstream Distance to Next Cross Section(feet)	Bottom Elevation (feet, msl)	Existing Wetland Elev.[1] (feet, msl)	100-Year Water-Surface Elev. (feet, msl)
9.68	100	4447.9	NA	4449.9
9.67	100	4447.5	NA	4449.8
9.66	100	4447.1	NA	4449.7
9.65	100	4446.7	NA	4449.6
9.64	100	4446.3	NA	4449.6
9.50	100	4445.9	NA	4449.6
9.45	100	4445.5	NA	4449.5
9.40	140	4445.1	NA	4449.5
9.32	40	4444.5	NA	4449.5
9.30	90	4444.4	NA	4449.1
9.2	80	4444.0	NA	4446.5
9.05	20	4443.7	NA	4445.5
9.0	100	4443.6	NA	4445.4
8.8	280	4443.2	NA	4445.0
8.7	250	4441.8	NA	4443.8
8.6	200	4440.9	NA	4442.9
8.5	200	4440.2	NA	4442.1
8.4	300	4439.4	NA	4441.2
8.3	200	4438.1	NA	4440.1
8.2	20	4437.4	NA	4439.3
8.1	300	4436.5	NA	4438.7
8	200	4435.8	NA	4438.0
7.9	300	4435.4	NA	4437.7
7.8	300	4434.8	NA	4437.1
7.7	300	4434.0	NA	4436.5
7.6	150	4433.6	NA	4435.7
7.5	150	4433.1	NA	4435.3
7.4	200	4432.3	NA	4435.1
7.3	200	4432.3	NA	4434.8
7.2	226	4431.7	NA	4434.5
7.1	119	4431.8	NA	4434.0
7	145	4431.3	NA	4433.8
6.9	0	4431.2	NA	4433.5

1. The wetland was modeled between cross sections 100 and 220. A trapezoidal channel was modeled downstream of Cross section 100.

Note: Elevation is in feet above mean sea level (msl).
NA= Not Applicable

3.2 Culverts

In the revised HEC-RAS model, culverts were modeled beneath the wetland access road, beneath Wilbur May Boulevard, and beneath Carat Avenue. The proposed culvert locations are shown in Figure 2.

Culverts were included beneath the proposed access road through the wetland at two locations. The multiple opening routine in HEC-RAS was used to model these culverts. Two 5-foot diameter reinforced concrete pipe (RCP) culverts and one 2-foot diameter RCP were modeled between cross sections 150 and 155. The invert elevations of the 5-foot diameter RCPs were set at 1-foot below the bottom of a proposed storm drain connecting to the RCPs beneath the access road (4455.8 feet, msl at road centerline). The invert elevation of the 2-foot diameter RCP was set at the same elevation as the 5-foot diameter RCPs. The 2-foot diameter culvert was intended to convey low-flows to the eastern portion of the wetland located north of the access road in order to maintain wetland vegetation.

In the original HEC-RAS model, two 5-foot diameter RCPs beneath Wilbur May Boulevard were included between cross sections 95 and 100. These same culverts were included in the revised model at the original invert elevation (4453.6 feet, msl at center line of road).

In developing the revised HEC-RAS model, the invert elevations of the RCPs beneath Wilbur May Boulevard and the access road were assumed to be fixed. Additionally, the invert elevation (4466 feet, msl) of the channel bottom (cross section 220) at the Damonte Ranch was obtained from Odyssey Engineering, Inc. This is the approximate elevation of the Damonte Channel as it exits the subdivision at the Damonte Ranch.

Two types of culverts were modeled beneath Carat Avenue between HEC-RAS cross sections 9.3 and 9.2. Both culvert types are modeled in the same HEC-RAS model using separate plan files for each culvert type (Appendix B). In the first model, five 5-foot diameter RCPs were modeled beneath

Carat Avenue. The water-surface elevations listed in Table 2 are based on this model. In the second model, four 5-foot wide by 5-foot high reinforced concrete box (RCB) culverts were modeled beneath Carat Avenue. The resulting water-surface elevations calculated by HEC-RAS were approximately the same as those listed in Table 2. Tabular output in Appendix B lists the water-surface elevations for both models. Either culvert configuration will allow approximately 1-foot of freeboard in the Central Channel at Carat Avenue.

3.3 Culvert Erosion Protection

Riprap erosion protection will be required downstream and upstream of the culverts beneath the wetland access road, Wilbur May Boulevard, and Carat Avenue. Design criteria for culvert outlet protection are specified in Section 807.3 and Figure 821 of the *Washoe County Hydrologic Criteria and Drainage Design Manual* (Washoe County, 1996) hereinafter referred to as the Washoe County Manual. The Washoe County Manual (Section 1102.3) requires riprap protection or an energy dissipator for velocities between 5 and 15 fps.

The 100-year, 24-hour storm peak flow that was calculated by the HEC-1 model was approximately 300 cfs through the wetland area. At the access road, the 5-foot diameter RCPs will convey approximately 280 cfs of the 300 cfs total. A flow velocity of 10.2 feet per second (fps) was calculated, by the HEC-RAS model, downstream of the 5-foot diameter RCPs at cross section 152 (Appendix B-Culvert Table). The following specifications for loose riprap were calculated based upon Section 807.3 of the Washoe County Manual. Downstream of the 5-foot diameter RCPs, a d_{50} of 12 inches (type-M riprap) will be required. Approximately 75 feet of riprap apron will be required downstream of the culvert. An apron width of approximately 45 feet will be required if a well-defined channel does exist downstream of the culvert. If a well-defined channel does exist, then the apron should extend across the channel bottom and up the side slopes extending at least 1 foot above the tail water elevation (4459.0 feet). The flow velocity calculated for the 2-foot diameter RCP beneath the access road was 7.0 fps with a 20 cfs discharge capacity of the total of 300 cfs (Appendix B- Culvert Table). The corresponding riprap protection downstream of the 2-foot RCP would require

a d_{50} of approximately 6 inches for loose riprap (type VL), and an apron of approximately 40 feet in length and 20 feet in width.

The exit velocity calculated by the HEC-RAS model for the two RCPs beneath Wilbur May Boulevard was 10.5 fps for the 300 cfs discharge at cross section 97 (Appendix B-Culvert Table). The following riprap specifications were calculated using procedures outlined in the Washoe County Manual. If loose riprap is selected to protect the channel downstream of the culverts at Wilbur May Boulevard, a mean particle size (d_{50}) of 12 inches (type-M riprap) will be required. Approximately 75 feet of riprap apron would be required along the length of the channel downstream of the culverts, across the channel bottom, and up the side slopes extending at least 1 foot above the tail water elevation (4456.7 feet).

The exit velocity calculated by the HEC-RAS model for the five proposed RCPs beneath Carat Avenue was 9.6 fps for the 650 cfs discharge at cross section 9.29 (Appendix B-Culvert Table). If loose riprap is selected to protect the channel downstream of the Carat Avenue culverts, a mean particle size (d_{50}) of 12 inches (type-M riprap) will be required. Approximately 70 feet of riprap apron would be required along the length of the channel downstream of the culverts, across the channel bottom, and up the side slopes extending at least 1 foot above the tail water elevation (4447.3 feet).

Equivalent riprap sizes described for the outlets of each culvert listed above will also be required at the culvert inlets, but the dimensions of the aprons will be less.

Upstream of the access road, between cross sections 180 and 170, a 5-foot hydraulic drop over a 100-foot length was included in the HEC-RAS model. This hydraulic drop was modeled to match the culvert inverts at the access road and to minimize wetland excavation upstream of the access road. The velocity of water through this hydraulic drop was calculated by HEC-RAS to be 4.6 fps (i.e, at interpolated cross section 179*) or less across the width of the wetland. The calculated water velocities through the wetland were relatively slow (approximately 0.2 to 2.0 fps) because of the

wide flow area at cross sections 160, and 190 through 210. The hydraulic drop resulted in a slight increase in water velocity between cross sections 180 and 170. Although the slope of the drop is 5 percent, the velocity is low because the flow velocity is distributed over the entire cross section rather than being confined to a narrow channel. Erosion protection will not be required through the hydraulic drop located between cross sections 180 and 170, because of the low water velocity. The wetland vegetation will provide adequate erosion protection at this location.

4.0 CONCLUSIONS

A potential design for the conveyance of storm-water discharge through the wetland area to the east of Double Diamond Ranch Villages 18 and 19 is presented in this addendum report. Using the HEC-RAS program, a hydraulic model of the wetland was developed to simulate a discharge of 300 cfs which exceeds the discharge from the 100-year, 24-hour event (268 cfs) estimated by the HEC-1 model. The wetland land-surface elevations and the culverts that were modeled will allow containment and conveyance of discharge from the 100-year, 24-hour storm event from the Damonte Ranch, through the wetland area, and to the existing Central Channel located north of the wetland.

The Central Channel will have the capacity to convey flow from the 100-year, 24 hour storm event downstream of the wetland, through proposed culverts beneath Carat Avenue, to a point just upstream of South Meadows Parkway. Flow through the channel will include final development along both sides of the channel downstream from Wilbur May Boulevard to South Meadows Parkway. The flow for final development calculated by the HEC-1 model was 591 cfs at just upstream of Carat Avenue. A flow rate of 650 cfs was modeled for the channel in the vicinity of Carat Avenue. The channel will convey 650 cfs with approximately 1-foot of free board provided that the culverts at Carat Avenue are sized properly (i.e., five, 5-foot diameter RCPs or four, 5-foot by 5-foot RCBs).

100-year, 24 hour flows for existing and proposed final development below Carat Avenue have a peak flow of 648 cfs at just upstream of South Meadows Parkway. Flows from contributing areas were added to the HEC-RAS model as outlined in Table 1. The Central Channel conveys the 100-year, 24 hour flows with greater than 1 foot of freeboard at all cross-sections

APPENDIX A

Hydrologic Analysis

HEC-1 Modeling Results

```
**************************************
*                                    *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1) *
*           MAY  1991                *
*         VERSION 4.0.1E             *
*    Lahey F77L-EM/32 version 5.01   *
*      Dodson & Associates, Inc.     *
* RUN DATE  08/24/00  TIME  15:35:17 *
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*                                    *
*  U.S. ARMY CORPS OF ENGINEERS      *
*  HYDROLOGIC ENGINEERING CENTER     *
*       609 SECOND STREET            *
*     DAVIS, CALIFORNIA 95616        *
*         (916) 551-1748             *
*                                    *
**************************************
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X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X               X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X               X
X     X  X        X     X         X
X     X  XXXXXXX   XXXXX          XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

          *Diagram
    1     ID   DOUBLE DIAMOND SUBDIVISION-PROJECT #0028
    2     ID   WHITES CREEK SUBBASIN W18RB-NORTH OF WHITES CREEK BRANCH #3 DIVERSION
    3     ID   ADD PHASE I, PHASE VI AND PHASE V TO CENTRAL CHANNEL
    4     ID   FROM CARAT AVE TO END OF CENTRAL CHANNEL
    5     ID   MODEL INCLUDES DOUBLE DIAMOND DEVELOPMENT PHASE I (PORTIONS OF VILLAGES 11 AN
    6     ID   , PHASE I(VILLAGES 1, 2, 3 AND 4), PHASE VI )PARK, K-6 SCHOOL, AND VILLAGE 29
    7     ID   AND PHASE V (VILLAGES 24 AND 25)
    8     ID   100-YEAR,24-HOUR MODEL
    9     ID   MODEL INCLUDES DOUBLE DIAMOND DEVELOPMENT PHASE II (VILLAGES 5 & 6 AND PARKS)
   10     ID   , PHASE III (VILLAGES 16, 17, 18, AND 19), AND PHASE IV (VILLAGES 7, 8, 9,
   11     ID   20, 21, 22, AND 23) PLUS WETLAND BETWEEN VILLAGES 18/19 & 20.
   12     ID   USE SUBBASIN AREAS FROM MACKAY & SOMPS
   13     ID   NIMBUS ENGINEERS, RENO, NEVADA
   14     ID   FILENAME: C:\HEC1\9908\028PHS5.DAT
   15     ID   MODELED BY CRA; 08/2000
   16     ID   MODEL MODIFIED FROM CARATDD.DAT (#9908) BY RJJ.
   17     IT       4  1AUG00    1200     300  2AUG00    1200    1900
   18     IO       3       0
   19     IN      15

   20     KK   W18RB WHITES CREEK SUBBASIN W18RB-NORTH BOUNDARY OF WHITES CK MEADOW SUBDIV.
   21     KM         DAMONTE RANCH NORTH OF WHITES CK. BRANCH #3 AND SOUTH OF DOUBLE DIAMOND
   22     BA  0.2344
   23     PB     2.6
   24     PC     0.0    .002    .005    .008    .011    .014    .017    .020    .023    .026
   25     PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
   26     PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
   27     PC    .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
   28     PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
   29     PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
   30     PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
   31     PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
   32     PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
   33     PC    .983    .986    .992    .995    .998   1.00
   34     LS              85
   35     UD    0.30
          *

   36     KK  V18-19 DOUBLE DIAMOND VILLAGES 18 & 19
   37     BA  0.0548
   38     LS              92
   39     UD    0.24
          *

   40     KK     V20 DOUBLE DIAMOND VILLAGE 20
   41     BA  0.0450
   42     LS              92
   43     UD    0.21
          *
```

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  44      KK     WET WETLANDS # 5 & #6 BETWEEN VILLAGES 18/19 AND VILLAGE 20
  45      BA  0.0153
  46      LS            .80
  47      UD    0.26
          *

  48      KK  CB WET COMBINE W18RB, V18-19, V20, & WET RUNOFF HYDROGRAPHS IN THE WETLAND
  49      KM         BETWEEN VILLAGES 18/19 AND VILLAGE 20
  50      HC       4
          *
          *

  51      KK   PH-IV PHASE IV DOUBLE DIAMOND DEVELOPMENT (VILLAGES 7,8,9,21,22,&23).
  52      KM         VILLAGE 20 WAS MODELED ABOVE WITH FLOW ENTERING THE WETLAND SOUTH
  53      KM         OF WILBUR MAY BLVD.  DETAILED DRAINAGE PLANS WERE NOT AVAILABLE
  54      KM         AND AS A RESULT THE PHASE IV VILLAGES LIST FOR PH-IV WERE COMBINED.
  55      KM         AS PLANS ARE DEVELOPED, THE VILLAGES CAN BE MODELED SEPARATELY.
  56      BA  0.1931
  57      LS             92
  58      UD    0.31
          *

  59      KK     E14 HYDROGRAPH FROM VILLAGE 6 DRAINAGE POINT E14
  60      KM   CALCULATE RUNOFF FROM SUBBASIN E14
  61      BA    .025
  62      LS             92
  63      UD    .225
          *

  64      KK     C14
  65      KM   COMBINE RUNOFF FROM E14 WITH CENTRAL CHANNEL FLOW (FLOW FROM RT1617 & PH-IV)
  66      HC       3
          *

  67      KK  E14-E1
  68      KM   ROUTE FLOW TO E1 ALONG CENTRAL CHANNEL
  69      RD     400    .004    .030            TRAP     100       3
          *

  70      KK      E1
  71      KM   CALCULATE RUNOFF FROM SUBBASIN E1-VILLAGE 5
  72      BA   .0058
  73      LS             92
  74      UD    .135
          *

  75      KK      C1
  76      KM   COMBINE RUNOFF FROM E1 WITH CENTRAL CHANNEL FLOW
  77      HC       2
          *
```

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  78      KK   E1-E2
  79      KM   ROUTE FLOW TO E2 ALONG CENTRAL CHANNEL
  80      RD     300    .004    .030            TRAP     100       3
          *

  81      KK      E2
  82      KM   CALCUALTE RUNOFF FROM SUBBASIN E2-VILLAGE 5
  83      BA    .003
  84      LS              92
  85      UD    .118
          *

  86      KK      C2
  87      KM   COMBINE RUNOFF FROM E2 WITH CENTRAL CHANNEL FLOW
  88      HC       2
          *

  89      KK   E2-E3
  90      KM   ROUTE FLOW TO E3 ALONG CENTRAL CHANNEL
  91      RD     300    .004    .030            TRAP     100       3
          *

  92      KK      E3
  93      KM   CALCULATE RUNOFF FROM SUBBASIN E3-VILLAGE 5
  94      BA   .0025
  95      LS              92
  96      UD    .119
          *

  97      KK      C3
  98      KM   COMBINE RUNOFF FROM E3 WITH CENTRAL CHANNEL FLOW
  99      HC       2
          *

 100      KK   E3-E4
 101      KM   ROUTE FLOW TO E4 ALONG CENTRAL CHANNEL
 102      RD     360    .004    .030            TRAP     100       3
          *

 103      KK      E4
 104      KM   CALCULATE RUNOFF FROM SUBBASIN E4-VILLAGE 5
 105      BA    .003
 106      LS              92
 107      UD    .113
          *

 108      KK      C4
 109      KM   COMBINE RUNOFF FROM E4 WITH CENTRAL CHANNEL FLOW
 110      HC       2
          *
```

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  111     KK     D10
  112     KM   CALCULATE RUNOFF FROM SUBBASIN D10
  113     KM   SUBBASIN D10 IS LOCATED ALONG DOUBLE DIAMOND PKWY.  THE AREA DRAINED IS
  114     KM   COMPRISED OF PORTIONS OF VILLAGES 5,6,13,14,15,16 & 17 THAT BORDER THE PKWY.
  115     KM   THE D10 SYSTEM IS A PARALLEL STORM DRAIN SYSTEM
  116     KM   ALONG DOUBLE DIAMOND PARKWAY THAT DRAINS TO AN OPEN
  117     KM   CHANNEL ALONG THE SOUTH EDGE OF THE PARK LOCATED IMMEDIATELY SOUTHEAST OF
  118     KM   THE INTERSECTION OF CARAT AV. AND DOUBLE DIAMOND PKWY.
  119     BA    .122
  120     LS              92
  121     UD    .277
          *

  122     KK     D12
  123     KM   CALCULATE RUNOFF FROM SUBBASIN D12-VILLAGE 5
  124     BA  0.0166
  125     LS              92
  126     UD   0.173
          *

  127     KK    PARK
  128     KM   CALCULATE RUNOFF FROM PARK JUST SOUTH OF CARAT AVE
  129     BA   .0078
  130     LS              80
  131     UD     .14
          *

  132     KK  C10PRK
  133     KM   COMBINE HYDROGRAPHS FROM PARK, D10, D12 AND CENTRAL CHANNEL
  134     HC       4
          *

  135     KK  PK-CAR
  136     KM   ROUTE FLOW TO STATION -62+20 ALONG CENTRAL CHANNEL
  137     RD     720    .004    .030            TRAP     100       3
          *

  138     KK    PhVa PHASE V SUB-BASIN a
  139     BA   0.011
  140     LS              92
  141     UD    0.16
          *

  142     KK      V4 DOUBLE DIAMOND VILLAGE 4 OF PHASE I
  143     BA   0.026
  144     LS              86
  145     UD    0.16
          *
```

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  146     KK    CB 1 COMBINE PhVa AND V4 AT STATION ~62+20
  147     HC      3
          *

  148     KK   RT1-2
  149     KM   ROUTE TO CB 2 AT STATION ~74+65
  150     RD    1245    .004   0.04            TRAP     100       3
          *

  151     KK    PhVb DOUBLE DIAMOND PHASE V AREA PhVb
  152     BA   0.028
  153     LS             92
  154     UD    0.23
          *

  155     KK     CB2 COMBINE PvVb WITH CENTRAL CHANNEL FLOW AT STATION ~74+65
  156     HC      2
          *

  157     KK   RT2-3 ROUTE CB2 DOWN CENTRAL CHANNEL TO CB 3 AT STATON ~79+00
  158     RD     435  .00204    0.04            TRAP     100       3
          *

  159     KK     V12 PORTION OF VILLAGE 12 THAT DRAINS TO CENTRAL CHANNEL
  160     BA   0.015
  161     LS             86
  162     UD    0.16
          *

  163     KK     V11 PORTION OF VILLAGE 11 THAT DRAINS TO CENTRAL CHANNEL
  164     BA   0.008
  165     LS             86
  166     UD    0.12
          *

  167     KK      V3 PHASE I VILLAGE 3
  168     BA   0.026
  169     LS             86
  170     UD    0.19
          *

  171     KK     CB3  COMBINE PORTIONS OF VILLAGES 11&12 WITH VILLAGE 3 AT STA 79+00
  172     HC      4
          *

  173     KK   RT3-4
  174     KM   ROUTE CB3 DOWN CENTRAL CHANNEL TO CB4 AT STATION ~82+00
  175     RD     300 0.00204    0.04            TRAP     100       3
          *
```

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  176     KK    PhVc PHASE V SUB-AREA PhVc
  177     BA   0.022
  178     LS           92
  179     UD    0.19
          *

  180     KK      V2 VILLAGE 2 OF PHASE I
  181     BA    0.04
  182     LS             86
  183     UD    0.20
          *

  184     KK     CB4  COMBINE PhVc WITH VILLAGE 2
  185     HC       3
          *

  186     KK   RT4-5  ROUTE CB4 DOWN CENTRAL CHANNEL TO CB5 AT STATION -83+65
  187     RD     165 0.00204    0.04            TRAP     100       3
          *

  188     KK  PARKVI PHASE VI PARK
  189     BA   0.004
  190     LS             80
  191     UD    0.14
          *

  192     KK     CB5  COMBINE PHASE VI PARK WITH CENTRAL CHANNEL FLOW AT CB5
  193     HC       2
          *

  194     KK   RT5-6  ROUTE CB5 DOWN CENTRAL CHANNEL TO CB6 AT STATION -87+50
  195     RD     385 0.00204    0.04            TRAP     100       3
          *

  196     KK  K6SCHL  PHASE VI K-6 SCHOOL
  197     BA   0.013
  198     LS             85
  199     UD    0.15
          *

  200     KK     CB6  COMBINE K-6 SCHOOL WITH CENTRAL CHANNEL FLOW AT CB6
  201     HC       2
          *

  202     KK   RT6-7  ROUTE CB6 DOWN CENTRAL CHANNEL TO CB7 AT STATION -101+00
  203     KM          END OF CENTRAL CHANNEL
  204     RD    1350  .00204    0.04            TRAP     100       3
          *
```

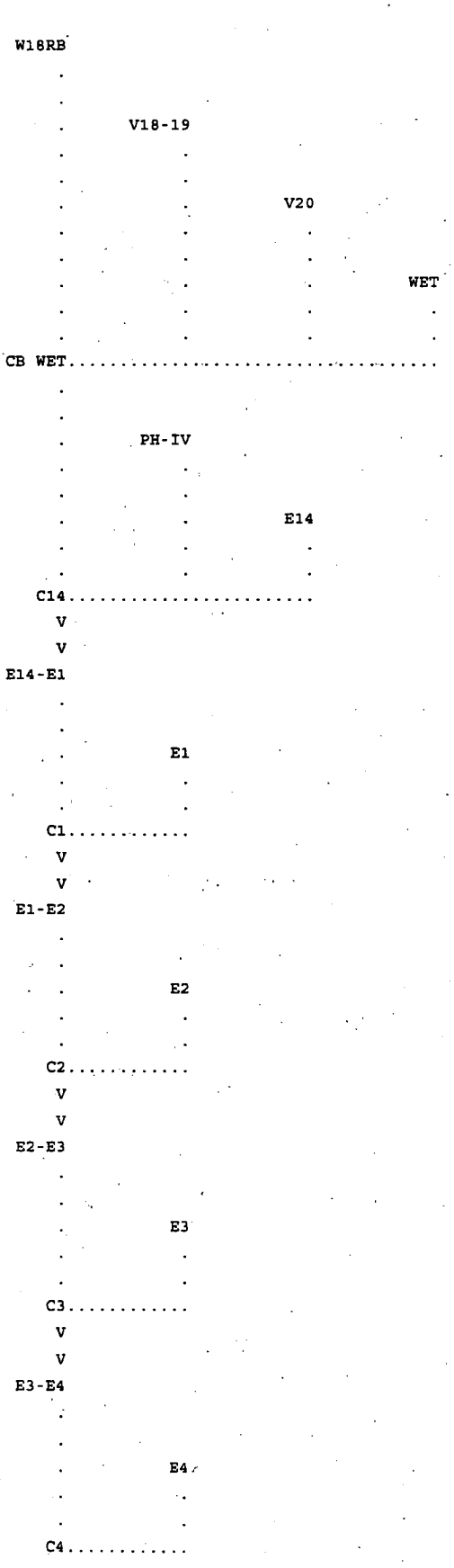
```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  205         KK      V1  PHASE I VILLAGE 1
  206         BA   0.037
  207         LS              86
  208         UD    0.21
              *
  209         KK     V29  PHASE VI VILLAGE 29
  210         BA   0.065
  211         LS              92
  212         UD    0.20
              *
  213         KK     CB7  COMBINATION POINT 7; END OF CENTRAL CHANNEL
  214         HC       3
              *
  215
  216         ZZ
```

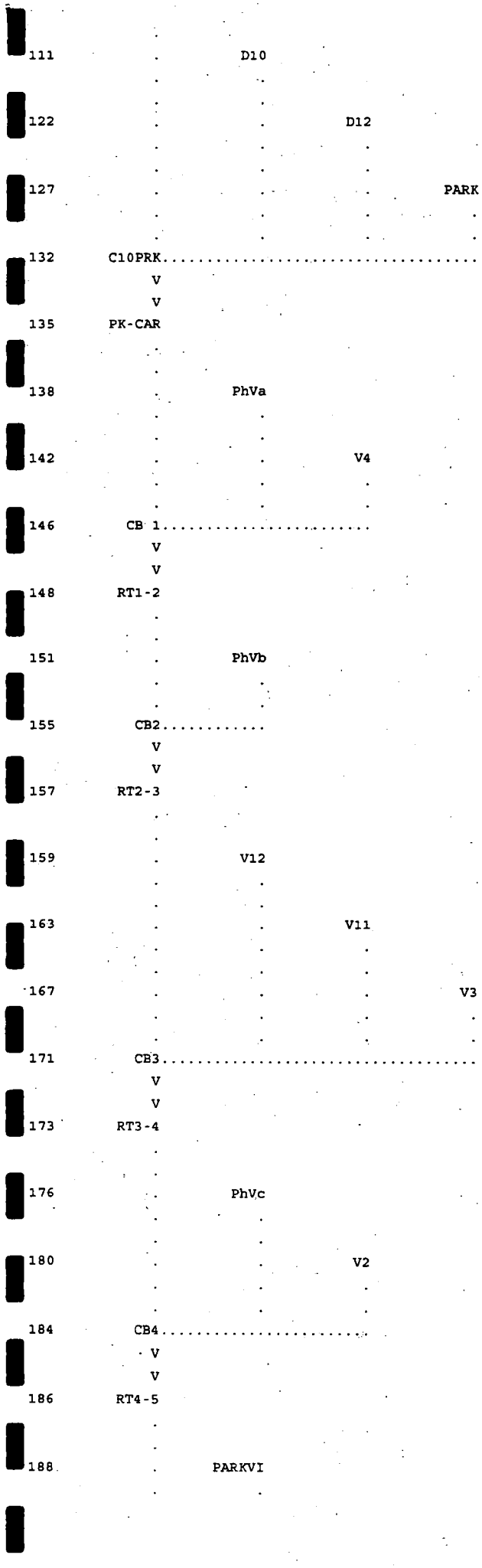
SCHEMATIC DIAGRAM OF STREAM NETWORK

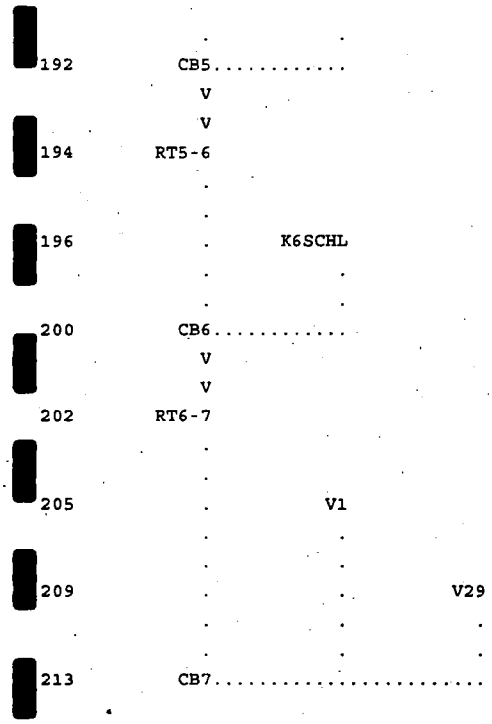
INPUT LINE NO.

(V) ROUTING (---->) DIVERSION OR PUMP FLOW

(.) CONNECTOR (<----) RETURN OF DIVERTED OR PUMPED FLOW




111
D10
122
D12
127
PARK
132
C10PRK
135
PK-CAR
138
PhVa
142
V4
146
CB 1
148
RT1-2
151
PhVb
155
CB2
157
RT2-3
159
V12
163
V11
167
V3
171
CB3
173
RT3-4
176
PhVc
180
V2
184
CB4
186
RT4-5
188
PARKVI



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
**************************************
*                                    *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1) *
*            MAY   1991              *
*          VERSION 4.0.1E            *
*    Lahey F77L-EM/32 version 5.01   *
*      Dodson & Associates, Inc.     *
* RUN DATE  08/24/00  TIME  15:35:17 *
**************************************
```

```
**************************************
*                                    *
*  U.S. ARMY CORPS OF ENGINEERS      *
*  HYDROLOGIC ENGINEERING CENTER     *
*       609 SECOND STREET            *
*     DAVIS, CALIFORNIA 95616        *
*         (916) 551-1748             *
*                                    *
**************************************
```

DOUBLE DIAMOND SUBDIVISION-PROJECT #0028
WHITES CREEK SUBBASIN W18RB-NORTH OF WHITES CREEK BRANCH #3 DIVERSION
ADD PHASE I, PHASE VI AND PHASE V TO CENTRAL CHANNEL
FROM CARAT AVE TO END OF CENTRAL CHANNEL
MODEL INCLUDES DOUBLE DIAMOND DEVELOPMENT PHASE I (PORTIONS OF VILLAGES 11 AN
, PHASE I(VILLAGES 1, 2, 3 AND 4), PHASE VI)PARK, K-6 SCHOOL, AND VILLAGE 29
AND PHASE V (VILLAGES 24 AND 25)
100-YEAR,24-HOUR MODEL
MODEL INCLUDES DOUBLE DIAMOND DEVELOPMENT PHASE II (VILLAGES 5 & 6 AND PARKS)
, PHASE III (VILLAGES 16, 17, 18, AND 19), AND PHASE IV (VILLAGES 7, 8, 9,
20, 21, 22, AND 23) PLUS WETLAND BETWEEN VILLAGES 18/19 & 20.
USE SUBBASIN AREAS FROM MACKAY & SOMPS
NIMBUS ENGINEERS, RENO, NEVADA
FILENAME: C:\HEC1\9908\028PHS5.DAT
MODELED BY CRA; 08/2000
MODEL MODIFIED FROM CARATDD.DAT (#9908) BY RJJ.

18 IO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA

NMIN	4	MINUTES IN COMPUTATION INTERVAL
IDATE	1AUG 0	STARTING DATE
ITIME	1200	STARTING TIME
NQ	361	NUMBER OF HYDROGRAPH ORDINATES
NDDATE	2AUG 0	ENDING DATE
NDTIME	1200	ENDING TIME
ICENT	19	CENTURY MARK

COMPUTATION INTERVAL 0.07 HOURS
TOTAL TIME BASE 24.00 HOURS

ENGLISH UNITS

DRAINAGE AREA	SQUARE MILES
PRECIPITATION DEPTH	INCHES
LENGTH, ELEVATION	FEET
FLOW	CUBIC FEET PER SECOND
STORAGE VOLUME	ACRE-FEET
SURFACE AREA	ACRES
TEMPERATURE	DEGREES FAHRENHEIT

** ***

```
**************
*            *
*     W18RB  *
*            *
**************
```

20 KK WHITES CREEK SUBBASIN W18RB-NORTH BOUNDARY OF WHITES CK MEADOW SUBDIV.

****

DAMONTE RANCH NORTH OF WHITES CK. BRANCH #3 AND SOUTH OF DOUBLE DIAMOND

19 IN TIME DATA FOR INPUT TIME SERIES

JXMIN	15	TIME INTERVAL IN MINUTES
JXDATE	1AUG 0	STARTING DATE
JXTIME	1200	STARTING TIME

SUBBASIN RUNOFF DATA

22 BA SUBBASIN CHARACTERISTICS

TAREA	0.23	SUBBASIN AREA

PRECIPITATION DATA

23 PB STORM 2.60 BASIN TOTAL PRECIPITATION

24 PI INCREMENTAL PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.02	0.03	0.03	0.03	0.06	0.07	0.07	0.07
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00			

34 LS SCS LOSS RATE

STRTL	0.35	INITIAL ABSTRACTION
CRVNBR	85.00	CURVE NUMBER
RTIMP	0.00	PERCENT IMPERVIOUS AREA

35 UD SCS DIMENSIONLESS UNITGRAPH

TLAG	0.30	LAG

***

UNIT HYDROGRAPH

```
                                                  24 END-OF-PERIOD ORDINATES
            34.        105.        225.        316.        340.        316.        265.        191.        133.         95.
            70.         50.         36.         26.         19.         14.         10.          7.          5.          4.
             3.          2.          1.          1.

   ***             ***             ***             ***             ***

                    HYDROGRAPH AT STATION    W18RB

  TOTAL RAINFALL =     2.60, TOTAL LOSS =     1.34, TOTAL EXCESS =     1.26

EAK FLOW      TIME                                 MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                         6-HR        24-HR       72-HR      24.00-HR
    157.      12.20          (CFS)          26.          8.          8.          8.
                           (INCHES)       1.024       1.255       1.255       1.255
                            (AC-FT)         13.         16.         16.         16.

                         CUMULATIVE AREA =     0.23 SQ MI


* *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


             **************
             *            *
36 KK        *   V18-19   *       DOUBLE DIAMOND VILLAGES 18 & 19
             *            *
             **************

                SUBBASIN RUNOFF DATA

37 BA             SUBBASIN CHARACTERISTICS
                        TAREA        0.05  SUBBASIN AREA

                  PRECIPITATION DATA

23 PB                   STORM        2.60  BASIN TOTAL PRECIPITATION

24 PI               INCREMENTAL PRECIPITATION PATTERN
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                        0.01      0.01      0.02      0.03      0.03      0.03      0.06      0.07      0.07      0.07
                        0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                        0.01      0.01      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
```

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          0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
          0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
          0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
          0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
          0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
          0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
          0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
          0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
          0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
          0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
          0.00      0.00      0.00      0.00      0.00      0.00      0.00

38 LS          SCS LOSS RATE
                     STRTL        0.17  INITIAL ABSTRACTION
                    CRVNBR       92.00  CURVE NUMBER
                     RTIMP        0.00  PERCENT IMPERVIOUS AREA

39 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG        0.24  LAG

                                                         ***

                                                   UNIT HYDROGRAPH
                                              20 END-OF-PERIOD ORDINATES
              14.       44.       83.       97.       89.       70.       44.       30.       20.       14.
               9.        6.        4.        3.        2.        1.        1.        1.        0.        0.

     ***            ***             ***             ***             ***

                          HYDROGRAPH AT STATION    V18-19

  TOTAL RAINFALL =     2.60, TOTAL LOSS =     0.81, TOTAL EXCESS =     1.79

PEAK FLOW      TIME                             MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                   6-HR        24-HR       72-HR     24.00-HR
     58.      12.13       (CFS)         8.           3.          3.           3.
                        (INCHES)     1.426        1.784       1.784        1.784
                         (AC-FT)        4.           5.          5.           5.

                         CUMULATIVE AREA =     0.05 SQ MI



*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
40 KK       *      V20   *     DOUBLE DIAMOND VILLAGE 20
            *            *
            **************

               SUBBASIN RUNOFF DATA

41 BA           SUBBASIN CHARACTERISTICS
                     TAREA        0.05  SUBBASIN AREA

                PRECIPITATION DATA

23 PB                STORM        2.60  BASIN TOTAL PRECIPITATION

24 PI             INCREMENTAL PRECIPITATION PATTERN
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
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0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.02	0.03	0.03	0.03	0.06	0.07	0.07	0.07
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00			

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42 LS          SCS LOSS RATE
                    STRTL         0.17  INITIAL ABSTRACTION
                    CRVNBR       92.00  CURVE NUMBER
                    RTIMP         0.00  PERCENT IMPERVIOUS AREA

43 UD          SCS DIMENSIONLESS UNITGRAPH
                    TLAG          0.21  LAG

                                                    ***

                                              UNIT HYDROGRAPH
                                          18 END-OF-PERIOD ORDINATES
          15.      50.      84.      88.      72.      46.      29.      19.      12.       8.
           5.       3.       2.       1.       1.       1.       0.       0.

  ***            ***            ***            ***            ***

                   HYDROGRAPH AT STATION      V20

 TOTAL RAINFALL =     2.60, TOTAL LOSS =     0.81, TOTAL EXCESS =     1.79

EAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
 (CFS)       (HR)                6-HR       24-HR       72-HR     24.00-HR
   50.      12.13      (CFS)       7.          2.          2.          2.
                     (INCHES)   1.426       1.784       1.784       1.784
                      (AC-FT)      3.          4.          4.          4.

                   CUMULATIVE AREA =     0.05 SQ MI
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          **************
          *            *
44 KK     *     WET    *      WETLANDS # 5 & #6 BETWEEN VILLAGES 18/19 AND VILLAGE 20
          *            *
          **************
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SUBBASIN RUNOFF DATA

45 BA SUBBASIN CHARACTERISTICS

TAREA	0.02	SUBBASIN AREA

PRECIPITATION DATA

23 PB	STORM	2.60	BASIN TOTAL PRECIPITATION

24 PI INCREMENTAL PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.02	0.03	0.03	0.03	0.06	0.07	0.07	0.07
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00			

46 LS SCS LOSS RATE

STRTL	0.50	INITIAL ABSTRACTION
CRVNBR	80.00	CURVE NUMBER
RTIMP	0.00	PERCENT IMPERVIOUS AREA

47 UD SCS DIMENSIONLESS UNITGRAPH

TLAG	0.26	LAG

***

UNIT HYDROGRAPH
21 END-OF-PERIOD ORDINATES

3.	10.	20.	25.	24.	20.	14.	10.	7.	5.
3.	2.	2.	1.	1.	1.	0.	0.	0.	0.
0.									

*** *** *** *** ***

HYDROGRAPH AT STATION WET

TOTAL RAINFALL = 2.60, TOTAL LOSS = 1.64, TOTAL EXCESS = 0.96

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	24.00-HR
8.	12.13	(CFS)	1.	0.	0.	0.
		(INCHES)	0.782	0.957	0.957	0.957
		(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.02 SQ MI

*** ***

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              **************
              *            *
48 KK         *   CB WET   *      COMBINE W18RB, V18-19, V20, & WET RUNOFF HYDROGRAPHS IN THE WETLAND
              *            *
              **************
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BETWEEN VILLAGES 18/19 AND VILLAGE 20

50 HC HYDROGRAPH COMBINATION
ICOMP 4 NUMBER OF HYDROGRAPHS TO COMBINE

***

*** *** *** *** ***

HYDROGRAPH AT STATION CB WET

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	24.00-HR
266.	12.13	(CFS)	42.	13.	13.	13.
		(INCHES)	1.125	1.393	1.393	1.393
		(AC-FT)	21.	26.	26.	26.

CUMULATIVE AREA = 0.35 SQ MI

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              **************
              *            *
51 KK         *   PH-IV    *      PHASE IV DOUBLE DIAMOND DEVELOPMENT (VILLAGES 7,8,9,21,22,&23).
              *            *
              **************
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VILLAGE 20 WAS MODELED ABOVE WITH FLOW ENTERING THE WETLAND SOUTH
OF WILBUR MAY BLVD. DETAILED DRAINAGE PLANS WERE NOT AVAILABLE
AND AS A RESULT THE PHASE IV VILLAGES LIST FOR PH-IV WERE COMBINED.
AS PLANS ARE DEVELOPED, THE VILLAGES CAN BE MODELED SEPARATELY.

SUBBASIN RUNOFF DATA

56 BA SUBBASIN CHARACTERISTICS

TAREA 0.19 SUBBASIN AREA

PRECIPITATION DATA

23 PB STORM 2.60 BASIN TOTAL PRECIPITATION

24 PI INCREMENTAL PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.02	0.03	0.03	0.03	0.06	0.07	0.07	0.07
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00			

57 LS SCS LOSS RATE

STRTL 0.17 INITIAL ABSTRACTION

CRVNBR 92.00 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

58 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.31 LAG

***

UNIT HYDROGRAPH

25 END-OF-PERIOD ORDINATES

26.	80.	170.	246.	271.	259.	221.	167.	116.	84.
63.	46.	33.	24.	18.	13.	9.	7.	5.	4.
3.	2.	1.	1.	0.					

*** *** *** *** ***

HYDROGRAPH AT STATION PH-IV

TOTAL RAINFALL = 2.60, TOTAL LOSS = 0.81, TOTAL EXCESS = 1.79

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	24.00-HR
180.	12.20	(CFS)	30.	9.	9.	9.
		(INCHES)	1.426	1.782	1.782	1.782
		(AC-FT)	15.	18.	18.	18.

CUMULATIVE AREA = 0.19 SQ MI

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          **************
          *            *
59 KK     *     E14    *      HYDROGRAPH FROM VILLAGE 6 DRAINAGE POINT E14
          *            *
          **************
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CALCULATE RUNOFF FROM SUBBASIN E14

SUBBASIN RUNOFF DATA

61 BA SUBBASIN CHARACTERISTICS

TAREA 0.03 SUBBASIN AREA

PRECIPITATION DATA

23 PB STORM 2.60 BASIN TOTAL PRECIPITATION

24 PI INCREMENTAL PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.02	0.03	0.03	0.03	0.06	0.07	0.07	0.07
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00			

62 LS SCS LOSS RATE

STRTL	0.17	INITIAL ABSTRACTION
CRVNBR	92.00	CURVE NUMBER
RTIMP	0.00	PERCENT IMPERVIOUS AREA

63 UD SCS DIMENSIONLESS UNITGRAPH

TLAG	0.22	LAG

***

UNIT HYDROGRAPH
19 END-OF-PERIOD ORDINATES

7.	23.	42.	47.	41.	29.	18.	12.	8.	5.
3.	2.	1.	1.	1.	0.	0.	0.	0.	

*** *** *** *** ***

HYDROGRAPH AT STATION E14

TOTAL RAINFALL = 2.60, TOTAL LOSS = 0.81, TOTAL EXCESS = 1.79

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	24.00-HR
27.	12.13	(CFS)	4.	1.	1.	1.
		(INCHES)	1.426	1.784	1.784	1.784
		(AC-FT)	2.	2.	2.	2.

CUMULATIVE AREA = 0.03 SQ MI

** ***

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**************
*            *
*       C14  *
*            *
**************
```

64 KK

COMBINE RUNOFF FROM E14 WITH CENTRAL CHANNEL FLOW (FLOW FROM RT1617 & PH-IV)

66 HC HYDROGRAPH COMBINATION

ICOMP	3	NUMBER OF HYDROGRAPHS TO COMBINE

***

*** *** *** *** ***

HYDROGRAPH AT STATION C14

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	24.00-HR
467.	12.13	(CFS)	76.	24.	24.	24.
		(INCHES)	1.240	1.543	1.543	1.543
		(AC-FT)	38.	47.	47.	47.

CUMULATIVE AREA = 0.57 SQ MI

*** ***

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              **************
              *            *
67 KK         *   E14-E1   *
              *            *
              **************
```

ROUTE FLOW TO E1 ALONG CENTRAL CHANNEL

HYDROGRAPH ROUTING DATA

69 RD MUSKINGUM-CUNGE CHANNEL ROUTING

L	400.	CHANNEL LENGTH
S	0.0040	SLOPE
N	0.030	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	100.00	BOTTOM WIDTH OR DIAMETER
Z	3.00	SIDE SLOPE

***

COMPUTED MUSKINGUM-CUNGE PARAMETERS

COMPUTATION TIME STEP

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.19	1.60	1.55	200.00	466.80	731.09	1.54	4.31

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.19	1.60	4.00		464.72	732.00	1.54	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4670E+02 EXCESS=0.0000E+00 OUTFLOW=0.4666E+02 BASIN STORAGE=0.8610E-01 PERCENT ERROR= -0.1

*** *** *** *** ***

HYDROGRAPH AT STATION E14-E1

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.00-HR
465.	12.20	(CFS)	76.	24.	24.	24.
		(INCHES)	1.239	1.541	1.541	1.541
		(AC-FT)	38.	47.	47.	47.

CUMULATIVE AREA = 0.57 SQ MI

*** ***

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              **************
              *            *
70 KK         *     E1     *
              *            *
              **************
```

CALCULATE RUNOFF FROM SUBBASIN E1-VILLAGE 5

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          SUBBASIN RUNOFF DATA

72 BA       SUBBASIN CHARACTERISTICS
                  TAREA          0.01  SUBBASIN AREA

            PRECIPITATION DATA

23 PB             STORM          2.60  BASIN TOTAL PRECIPITATION

24 PI         INCREMENTAL PRECIPITATION PATTERN
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                 0.01      0.01      0.02      0.03      0.03      0.03      0.06      0.07      0.07      0.07
                 0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                 0.01      0.01      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                 0.00      0.00      0.00      0.00      0.00      0.00      0.00

73 LS       SCS LOSS RATE
                  STRTL          0.17  INITIAL ABSTRACTION
                 CRVNBR         92.00  CURVE NUMBER
                  RTIMP          0.00  PERCENT IMPERVIOUS AREA

74 UD       SCS DIMENSIONLESS UNITGRAPH
                  TLAG           0.14  LAG

                                                   ***

                                              UNIT HYDROGRAPH
                                          12 END-OF-PERIOD ORDINATES
            5.        15.        16.        10.         5.         3.         1.         1.         0.         0.
            0.         0.

    ***            ***            ***            ***            ***

                  HYDROGRAPH AT STATION       E1
```

TOTAL RAINFALL = 2.60, TOTAL LOSS = 0.81, TOTAL EXCESS = 1.79

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.00-HR
8.	12.07	(CFS)	1.	0.	0.	0.
		(INCHES)	1.427	1.785	1.785	1.785
		(AC-FT)	0.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

** ***

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**************
*            *
*     C1     *
*            *
**************
```

75 KK

COMBINE RUNOFF FROM E1 WITH CENTRAL CHANNEL FLOW

77 HC HYDROGRAPH COMBINATION

ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

*** *** *** *** ***

HYDROGRAPH AT STATION C1

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.00-HR
469.	12.20	(CFS)	77.	24.	24.	24.
		(INCHES)	1.241	1.544	1.544	1.544
		(AC-FT)	38.	47.	47.	47.

CUMULATIVE AREA = 0.57 SQ MI

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**************
*            *
*   E1-E2    *
*            *
**************
```

78 KK

ROUTE FLOW TO E2 ALONG CENTRAL CHANNEL

HYDROGRAPH ROUTING DATA

80 RD MUSKINGUM-CUNGE CHANNEL ROUTING

L	300.	CHANNEL LENGTH
S	0.0040	SLOPE
N	0.030	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	100.00	BOTTOM WIDTH OR DIAMETER
Z	3.00	SIDE SLOPE

***

COMPUTED MUSKINGUM-CUNGE PARAMETERS

COMPUTATION TIME STEP

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.19	1.60	1.16	300.00	465.88	732.63	1.54	4.32

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.19	1.60	4.00		465.24	732.00	1.54	

NTINUITY SUMMARY (AC-FT) - INFLOW=0.4722E+02 EXCESS=0.0000E+00 OUTFLOW=0.4720E+02 BASIN STORAGE=0.6902E-01 PERCENT ERROR= -0.1

*** *** *** *** ***

HYDROGRAPH AT STATION E1-E2

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.00-HR
465.	12.20	(CFS)	77.	24.	24.	24.
		(INCHES)	1.242	1.544	1.544	1.544
		(AC-FT)	38.	47.	47.	47.

CUMULATIVE AREA = 0.57 SQ MI

*** ***

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              **************
              *            *
81 KK         *     E2     *
              *            *
              **************
```

CALCUALTE RUNOFF FROM SUBBASIN E2-VILLAGE 5

SUBBASIN RUNOFF DATA

83 BA SUBBASIN CHARACTERISTICS

TAREA 0.00 SUBBASIN AREA

PRECIPITATION DATA

23 PB STORM 2.60 BASIN TOTAL PRECIPITATION

24 PI INCREMENTAL PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.02	0.03	0.03	0.03	0.06	0.07	0.07	0.07
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00			

84 LS SCS LOSS RATE

STRTL	0.17	INITIAL ABSTRACTION
CRVNBR	92.00	CURVE NUMBER
RTIMP	0.00	PERCENT IMPERVIOUS AREA

85 UD SCS DIMENSIONLESS UNITGRAPH

TLAG	0.12	LAG

***

UNIT HYDROGRAPH
11 END-OF-PERIOD ORDINATES

4.	9.	8.	4.	2.	1.	0.	0.	0.	0.
0.									

*** *** *** *** ***

HYDROGRAPH AT STATION E2

TOTAL RAINFALL = 2.60, TOTAL LOSS = 0.81, TOTAL EXCESS = 1.79

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	24.00-HR
4.	12.00	(CFS)	0.	0.	0.	0.
		(INCHES)	1.427	1.786	1.786	1.786
		(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 0.00 SQ MI

*** ***

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          **************
          *            *
86 KK     *      C2    *
          *            *
          **************
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COMBINE RUNOFF FROM E2 WITH CENTRAL CHANNEL FLOW

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88 HC          HYDROGRAPH COMBINATION
                    ICOMP            2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

   ***              ***              ***              ***              ***

                      HYDROGRAPH AT STATION       C2

EAK FLOW      TIME                              MAXIMUM AVERAGE FLOW
 (CFS)        (HR)                     6-HR         24-HR        72-HR      24.00-HR
   467.      12.20          (CFS)        77.           24.          24.          24.
                         (INCHES)     1.242         1.545        1.545        1.545
                          (AC-FT)       38.           47.          47.          47.

                      CUMULATIVE AREA =     0.58 SQ MI

* *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

           **************
           *            *
89 KK      *    E2-E3   *
           *            *
           **************
                        ROUTE FLOW TO E3 ALONG CENTRAL CHANNEL

             HYDROGRAPH ROUTING DATA

91 RD          MUSKINGUM-CUNGE CHANNEL ROUTING
                        L          300.  CHANNEL LENGTH
                        S        0.0040  SLOPE
                        N         0.030  CHANNEL ROUGHNESS COEFFICIENT
                       CA          0.00  CONTRIBUTING AREA
                    SHAPE          TRAP  CHANNEL SHAPE
                       WD        100.00  BOTTOM WIDTH OR DIAMETER
                        Z          3.00  SIDE SLOPE

                                                                  ***
                                   COMPUTED MUSKINGUM-CUNGE PARAMETERS
                                         COMPUTATION TIME STEP
                 ELEMENT     ALPHA        M          DT          DX        PEAK     TIME TO      VOLUME     MAXIMUM
                                                                                      PEAK                  CELERITY
                                                    (MIN)        (FT)      (CFS)     (MIN)        (IN)       (FPS)

                   MAIN       0.19       1.60       1.16      300.00     463.23    732.45        1.54       4.31

                                          INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                   MAIN       0.19       1.60       4.00                 461.44    732.00        1.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4749E+02 EXCESS=0.0000E+00 OUTFLOW=0.4747E+02 BASIN STORAGE=0.7183E-01 PERCENT ERROR=  -0.1

   ***              ***              ***              ***              ***

                      HYDROGRAPH AT STATION     E2-E3
```

AK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.00-HR
461.	12.20	(CFS)	77.	24.	24.	24.
		(INCHES)	1.243	1.544	1.544	1.544
		(AC-FT)	38.	47.	47.	47.

CUMULATIVE AREA = 0.58 SQ MI

*** ***

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          **************
          *            *
92 KK     *      E3    *
          *            *
          **************
```

CALCULATE RUNOFF FROM SUBBASIN E3-VILLAGE 5

SUBBASIN RUNOFF DATA

94 BA SUBBASIN CHARACTERISTICS

TAREA 0.00 SUBBASIN AREA

PRECIPITATION DATA

23 PB STORM 2.60 BASIN TOTAL PRECIPITATION

24 PI INCREMENTAL PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.02	0.03	0.03	0.03	0.06	0.07	0.07	0.07
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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                0.00     0.00     0.00     0.00     0.00     0.00     0.00

95 LS          SCS LOSS RATE
                  STRTL        0.17  INITIAL ABSTRACTION
                  CRVNBR      92.00  CURVE NUMBER
                  RTIMP        0.00  PERCENT IMPERVIOUS AREA

96 UD          SCS DIMENSIONLESS UNITGRAPH
                  TLAG         0.12  LAG

                                                        ***

                                                UNIT HYDROGRAPH
                                           11 END-OF-PERIOD ORDINATES
          3.        8.        7.        3.        2.        1.        0.        0.        0.        0.
          0.

    ***             ***              ***              ***              ***

                    HYDROGRAPH AT STATION        E3

  TOTAL RAINFALL =    2.60, TOTAL LOSS =    0.81, TOTAL EXCESS =    1.79

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                6-HR         24-HR        72-HR      24.00-HR
      3.     12.00      (CFS)       0.            0.           0.           0.
                      (INCHES)   1.427         1.786        1.786        1.786
                       (AC-FT)      0.            0.           0.           0.

                    CUMULATIVE AREA =     0.00 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
97 KK     *      C3    *
          *            *
          **************
                      COMBINE RUNOFF FROM E3 WITH CENTRAL CHANNEL FLOW

99 HC          HYDROGRAPH COMBINATION
                  ICOMP            2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                        ***

    ***             ***              ***              ***              ***

                    HYDROGRAPH AT STATION        C3

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                6-HR         24-HR        72-HR      24.00-HR
    463.     12.20      (CFS)      77.           24.          24.          24.
                      (INCHES)   1.243         1.545        1.545        1.545
                       (AC-FT)     38.           48.          48.          48.

                    CUMULATIVE AREA =     0.58 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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              **************
              *            *
00 KK         *    E3-E4   *
              *            *
              **************
                          ROUTE FLOW TO E4 ALONG CENTRAL CHANNEL

            HYDROGRAPH ROUTING DATA

02 RD         MUSKINGUM-CUNGE CHANNEL ROUTING
                          L          360.  CHANNEL LENGTH
                          S        0.0040  SLOPE
                          N         0.030  CHANNEL ROUGHNESS COEFFICIENT
                         CA          0.00  CONTRIBUTING AREA
                      SHAPE          TRAP  CHANNEL SHAPE
                         WD        100.00  BOTTOM WIDTH OR DIAMETER
                          Z          3.00  SIDE SLOPE

                                                    ***

                                   COMPUTED MUSKINGUM-CUNGE PARAMETERS
                                         COMPUTATION TIME STEP
                ELEMENT    ALPHA       M         DT        DX       PEAK   TIME TO     VOLUME    MAXIMUM
                                                                            PEAK                 CELERITY
                                                (MIN)     (FT)     (CFS)   (MIN)       (IN)      (FPS)

                 MAIN       0.19      1.60       1.40    360.00   460.01   733.94      1.54       4.30

                                        INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                 MAIN       0.19      1.60       4.00              454.28   736.00      1.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4772E+02 EXCESS=0.0000E+00 OUTFLOW=0.4769E+02 BASIN STORAGE=0.8885E-01 PERCENT ERROR=  -0.1


     ***             ***             ***             ***             ***

                         HYDROGRAPH AT STATION    E3-E4

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                 6-HR        24-HR       72-HR      24.00-HR
    454.      12.27      (CFS)       77.          24.         24.          24.
                       (INCHES)    1.243        1.545       1.545        1.545
                        (AC-FT)      38.          48.         48.          48.

                        CUMULATIVE AREA =     0.58 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

              **************
              *            *
03 KK         *      E4    *
              *            *
              **************
                          CALCULATE RUNOFF FROM SUBBASIN E4-VILLAGE 5

            SUBBASIN RUNOFF DATA
```

05 BA SUBBASIN CHARACTERISTICS

TAREA 0.00 SUBBASIN AREA

PRECIPITATION DATA

23 PB STORM 2.60 BASIN TOTAL PRECIPITATION

24 PI INCREMENTAL PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.02	0.03	0.03	0.03	0.06	0.07	0.07	0.07
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00			

06 LS SCS LOSS RATE

STRTL 0.17 INITIAL ABSTRACTION

CRVNBR 92.00 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

107 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.11 LAG

***

UNIT HYDROGRAPH

10 END-OF-PERIOD ORDINATES

4.	10.	8.	4.	2.	1.	0.	0.	0.	0.

*** *** *** *** ***

HYDROGRAPH AT STATION E4

TOTAL RAINFALL = 2.60, TOTAL LOSS = 0.81, TOTAL EXCESS = 1.79

PEAK FLOW TIME MAXIMUM AVERAGE FLOW

```
 (CFS)      (HR)                    6-HR        24-HR       72-HR     24.00-HR
    4.      12.00       (CFS)        0.           0.          0.           0.
                      (INCHES)     1.427        1.786       1.786        1.786
                       (AC-FT)       0.           0.          0.           0.

                       CUMULATIVE AREA =     0.00 SQ MI



* *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
08 KK       *      C4    *
            *            *
            **************
                          COMBINE RUNOFF FROM E4 WITH CENTRAL CHANNEL FLOW

110 HC          HYDROGRAPH COMBINATION
                     ICOMP            2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                 ***

    ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION        C4

EAK FLOW     TIME                            MAXIMUM AVERAGE FLOW
 (CFS)       (HR)                   6-HR        24-HR       72-HR     24.00-HR
   455.     12.27       (CFS)        78.          24.         24.          24.
                      (INCHES)     1.244        1.546       1.546        1.546
                       (AC-FT)       39.          48.         48.          48.

                       CUMULATIVE AREA =     0.58 SQ MI



* *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
11 KK       *     D10    *
            *            *
            **************
                          CALCULATE RUNOFF FROM SUBBASIN D10
                          SUBBASIN D10 IS LOCATED ALONG DOUBLE DIAMOND PKWY.  THE AREA DRAINED IS
                          COMPRISED OF PORTIONS OF VILLAGES 5,6,13,14,15,16 & 17 THAT BORDER THE PKWY.
                          THE D10 SYSTEM IS A PARALLEL STORM DRAIN SYSTEM
                          ALONG DOUBLE DIAMOND PARKWAY THAT DRAINS TO AN OPEN
                          CHANNEL ALONG THE SOUTH EDGE OF THE PARK LOCATED IMMEDIATELY SOUTHEAST OF
                          THE INTERSECTION OF CARAT AV. AND DOUBLE DIAMOND PKWY.

               SUBBASIN RUNOFF DATA

119 BA           SUBBASIN CHARACTERISTICS
                      TAREA          0.12  SUBBASIN AREA

                 PRECIPITATION DATA

23 PB                 STORM          2.60  BASIN TOTAL PRECIPITATION

 24 PI              INCREMENTAL PRECIPITATION PATTERN
```

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.02	0.03	0.03	0.03	0.06	0.07	0.07	0.07
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00			

120 LS SCS LOSS RATE

STRTL	0.17	INITIAL ABSTRACTION
CRVNBR	92.00	CURVE NUMBER
RTIMP	0.00	PERCENT IMPERVIOUS AREA

121 UD SCS DIMENSIONLESS UNITGRAPH

TLAG	0.28	LAG

***

UNIT HYDROGRAPH

23 END-OF-PERIOD ORDINATES

22.	68.	139.	183.	189.	165.	128.	85.	60.	43.
30.	21.	15.	10.	7.	5.	4.	3.	2.	1.
1.	1.	0.							

*** *** *** *** ***

HYDROGRAPH AT STATION D10

TOTAL RAINFALL = 2.60, TOTAL LOSS = 0.81, TOTAL EXCESS = 1.79

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	24.00-HR
119.	12.13	(CFS)	19.	6.	6.	6.
		(INCHES)	1.426	1.783	1.783	1.783
		(AC-FT)	9.	12.	12.	12.

CUMULATIVE AREA = 0.12 SQ MI

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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

              **************
              *            *
122 KK        *    D12     *
              *            *
              **************
                           CALCULATE RUNOFF FROM SUBBASIN D12-VILLAGE 5

                SUBBASIN RUNOFF DATA

124 BA            SUBBASIN CHARACTERISTICS
                        TAREA       0.02  SUBBASIN AREA

                  PRECIPITATION DATA

23 PB                   STORM       2.60  BASIN TOTAL PRECIPITATION

24 PI               INCREMENTAL PRECIPITATION PATTERN
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                      0.01      0.01      0.02      0.03      0.03      0.03      0.06      0.07      0.07      0.07
                      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                      0.01      0.01      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00

125 LS            SCS LOSS RATE
                       STRTL        0.17  INITIAL ABSTRACTION
                      CRVNBR       92.00  CURVE NUMBER
                       RTIMP        0.00  PERCENT IMPERVIOUS AREA
```

```
26 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG        0.17  LAG

                                                                 ***

                                                           UNIT HYDROGRAPH
                                                      15 END-OF-PERIOD ORDINATES
               8.        29.        39.        34.        21.        12.         7.         4.         3.         1.
               1.         1.         0.         0.         0.

    ***             ***             ***             ***             ***

                       HYDROGRAPH AT STATION      D12

  TOTAL RAINFALL =     2.60, TOTAL LOSS =     0.81, TOTAL EXCESS =     1.79

PEAK FLOW      TIME                              MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                      6-HR        24-HR       72-HR      24.00-HR
     20.      12.07        (CFS)           3.           1.          1.           1.
                          (INCHES)       1.427        1.785       1.785        1.785
                          (AC-FT)          1.           2.          2.           2.

                      CUMULATIVE AREA =     0.02 SQ MI

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
127 KK      *     PARK   *
            *            *
            **************
                         CALCULATE RUNOFF FROM PARK JUST SOUTH OF CARAT AVE

              SUBBASIN RUNOFF DATA

129 BA          SUBBASIN CHARACTERISTICS
                     TAREA        0.01  SUBBASIN AREA

                PRECIPITATION DATA

23 PB                STORM        2.60  BASIN TOTAL PRECIPITATION

24 PI             INCREMENTAL PRECIPITATION PATTERN
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                    0.01      0.01      0.02      0.03      0.03      0.03      0.06      0.07      0.07      0.07
                    0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
```

0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00			

```
130 LS          SCS LOSS RATE
                     STRTL        0.50  INITIAL ABSTRACTION
                    CRVNBR       80.00  CURVE NUMBER
                     RTIMP        0.00  PERCENT IMPERVIOUS AREA

131 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG        0.14  LAG

                                                              ***

                                                         UNIT HYDROGRAPH
                                                    12 END-OF-PERIOD ORDINATES
               6.       20.       21.       14.        7.        4.        2.        1.        1.        0.
               0.        0.

       ***            ***            ***            ***            ***

                         HYDROGRAPH AT STATION      PARK

   TOTAL RAINFALL =     2.60, TOTAL LOSS =     1.64, TOTAL EXCESS =     0.96

 PEAK FLOW     TIME                         MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                  6-HR       24-HR       72-HR     24.00-HR
       6.     12.07       (CFS)        1.          0.          0.           0.
                       (INCHES)     0.783       0.958       0.958        0.958
                        (AC-FT)        0.          0.          0.           0.

                        CUMULATIVE AREA =     0.01 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
132 KK    *   C10PRK   *
          *            *
          **************
                         COMBINE HYDROGRAPHS FROM PARK, D10, D12 AND CENTRAL CHANNEL

134 HC          HYDROGRAPH COMBINATION
                     ICOMP             4  NUMBER OF HYDROGRAPHS TO COMBINE

                                                              ***

       ***            ***            ***            ***            ***
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HYDROGRAPH AT STATION C10PRK

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.00-HR
591.	12.20	(CFS)	100.	31.	31.	31.
		(INCHES)	1.273	1.585	1.585	1.585
		(AC-FT)	49.	62.	62.	62.

CUMULATIVE AREA = 0.73 SQ MI

* ***

****
* *
35 KK * PK-CAR *
* *
****

ROUTE FLOW TO STATION -62+20 ALONG CENTRAL CHANNEL

HYDROGRAPH ROUTING DATA

37 RD MUSKINGUM-CUNGE CHANNEL ROUTING

L	720.	CHANNEL LENGTH
S	0.0040	SLOPE
N	0.030	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	100.00	BOTTOM WIDTH OR DIAMETER
Z	3.00	SIDE SLOPE

***

COMPUTED MUSKINGUM-CUNGE PARAMETERS
COMPUTATION TIME STEP

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.19	1.60	2.55	360.00	582.78	733.40	1.58	4.71

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.19	1.60	4.00		581.98	736.00	1.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6156E+02 EXCESS=0.0000E+00 OUTFLOW=0.6145E+02 BASIN STORAGE=0.2145E+00 PERCENT ERROR= -0.2

*** *** *** *** ***

HYDROGRAPH AT STATION PK-CAR

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.00-HR
582.	12.27	(CFS)	100.	31.	31.	31.
		(INCHES)	1.273	1.582	1.582	1.582
		(AC-FT)	49.	61.	61.	61.

CUMULATIVE AREA = 0.73 SQ MI

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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

              ***************
              *             *
138 KK        *    PhVa     *      PHASE V SUB-BASIN a
              *             *
              ***************

                 SUBBASIN RUNOFF DATA

139 BA             SUBBASIN CHARACTERISTICS
                         TAREA        0.01  SUBBASIN AREA

                   PRECIPITATION DATA

 23 PB                   STORM        2.60  BASIN TOTAL PRECIPITATION

 24 PI                 INCREMENTAL PRECIPITATION PATTERN
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                       0.01      0.01      0.02      0.03      0.03      0.03      0.06      0.07      0.07      0.07
                       0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                       0.01      0.01      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00

140 LS             SCS LOSS RATE
                        STRTL         0.17  INITIAL ABSTRACTION
                       CRVNBR        92.00  CURVE NUMBER
                        RTIMP         0.00  PERCENT IMPERVIOUS AREA

141 UD             SCS DIMENSIONLESS UNITGRAPH
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TLAG 0.16 LAG

***

UNIT HYDROGRAPH
14 END-OF-PERIOD ORDINATES

7.	22.	27.	22.	12.	7.	4.	2.	1.	1.
0.	0.	0.	0.						

*** *** *** *** ***

HYDROGRAPH AT STATION PhVa

TOTAL RAINFALL = 2.60, TOTAL LOSS = 0.81, TOTAL EXCESS = 1.79

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	24.00-HR
14.	12.07	(CFS)	2.	1.	1.	1.
		(INCHES)	1.427	1.785	1.785	1.785
		(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

*** ***

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         **************
         *            *
142 KK   *      V4    *    DOUBLE DIAMOND VILLAGE 4 OF PHASE I
         *            *
         **************
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SUBBASIN RUNOFF DATA

143 BA SUBBASIN CHARACTERISTICS
TAREA 0.03 SUBBASIN AREA

PRECIPITATION DATA

23 PB STORM 2.60 BASIN TOTAL PRECIPITATION

24 PI INCREMENTAL PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.02	0.03	0.03	0.03	0.06	0.07	0.07	0.07
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00			

144 LS SCS LOSS RATE

STRTL 0.33 INITIAL ABSTRACTION
CRVNBR 86.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

45 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.16 LAG

***

UNIT HYDROGRAPH
14 END-OF-PERIOD ORDINATES

16.	52.	65.	52.	29.	17.	9.	5.	3.	2.
1.	1.	0.	0.						

*** *** *** *** ***

HYDROGRAPH AT STATION V4

TOTAL RAINFALL = 2.60, TOTAL LOSS = 1.27, TOTAL EXCESS = 1.33

EAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	24.00-HR
25.	12.07	(CFS)	3.	1.	1.	1.
		(INCHES)	1.078	1.325	1.325	1.325
		(AC-FT)	1.	2.	2.	2.

CUMULATIVE AREA = 0.03 SQ MI

* ***

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        **************
        *            *
146 KK  *    CB 1    *     COMBINE PhVa AND V4 AT STATION ~62+20
        *            *
        **************
```

147 HC HYDROGRAPH COMBINATION

ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

***

*** *** *** *** ***

HYDROGRAPH AT STATION CB 1

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.00-HR
600.	12.27	(CFS)	104.	32.	32.	32.
		(INCHES)	1.268	1.576	1.576	1.576
		(AC-FT)	52.	64.	64.	64.

CUMULATIVE AREA = 0.77 SQ MI

* ***

148 KK

****
* *
* RT1-2 *
* *
****

ROUTE TO CB 2 AT STATION -74+65

HYDROGRAPH ROUTING DATA

150 RD MUSKINGUM-CUNGE CHANNEL ROUTING

L	1245.	CHANNEL LENGTH
S	0.0040	SLOPE
N	0.040	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	100.00	BOTTOM WIDTH OR DIAMETER
Z	3.00	SIDE SLOPE

***

COMPUTED MUSKINGUM-CUNGE PARAMETERS

COMPUTATION TIME STEP

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.14	1.60	4.00	622.50	596.04	740.00	1.57	3.96

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.14	1.60	4.00		596.04	740.00	1.57

ONTINUITY SUMMARY (AC-FT) - INFLOW=0.6437E+02 EXCESS=0.0000E+00 OUTFLOW=0.6416E+02 BASIN STORAGE=0.4964E+00 PERCENT ERROR= -0.4

*** *** *** *** ***

HYDROGRAPH AT STATION RT1-2

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.00-HR
596.	12.33	(CFS)	104.	32.	32.	32.
		(INCHES)	1.268	1.571	1.571	1.571
		(AC-FT)	52.	64.	64.	64.

CUMULATIVE AREA = 0.77 SQ MI

*** ***

151 KK — PhVb — DOUBLE DIAMOND PHASE V AREA PhVb

SUBBASIN RUNOFF DATA

152 BA SUBBASIN CHARACTERISTICS

TAREA 0.03 SUBBASIN AREA

PRECIPITATION DATA

23 PB STORM 2.60 BASIN TOTAL PRECIPITATION

24 PI INCREMENTAL PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.02	0.03	0.03	0.03	0.06	0.07	0.07	0.07
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00			

153 LS SCS LOSS RATE

STRTL 0.17 INITIAL ABSTRACTION

CRVNBR 92.00 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

154 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.23 LAG

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                                        UNIT HYDROGRAPH
                                    19 END-OF-PERIOD ORDINATES
          8.       25.       46.       51.       45.       34.       21.       14.        9.        6.
          4.        3.        2.        1.        1.        1.        0.        0.        0.

   ***             ***             ***             ***             ***

                     HYDROGRAPH AT STATION     PhVb

  TOTAL RAINFALL =    2.60, TOTAL LOSS =    0.81, TOTAL EXCESS =    1.79

PEAK FLOW     TIME                           MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR       24-HR       72-HR     24.00-HR
     30.     12.13        (CFS)       4.          1.          1.          1.
                        (INCHES)    1.426       1.784       1.784       1.784
                         (AC-FT)      2.          3.          3.          3.

                        CUMULATIVE AREA =     0.03 SQ MI

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

              **************
              *            *
155 KK        *      CB2   *     COMBINE PvVb WITH CENTRAL CHANNEL FLOW AT STATION ~74+65
              *            *
              **************

156 HC           HYDROGRAPH COMBINATION
                       ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                 ***

   ***             ***             ***             ***             ***

                     HYDROGRAPH AT STATION      CB2

PEAK FLOW     TIME                           MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR       24-HR       72-HR     24.00-HR
    614.     12.33        (CFS)      109.         34.         34.         34.
                        (INCHES)    1.273       1.578       1.578       1.578
                         (AC-FT)     54.          67.         67.         67.

                        CUMULATIVE AREA =     0.79 SQ MI

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

              **************
              *            *
157 KK        *    RT2-3   *     ROUTE CB2 DOWN CENTRAL CHANNEL TO CB 3 AT STATON ~79+00
              *            *
              **************

                HYDROGRAPH ROUTING DATA

158 RD            MUSKINGUM-CUNGE CHANNEL ROUTING
                           L        435.  CHANNEL LENGTH
                           S      0.0020  SLOPE
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            N       0.040  CHANNEL ROUGHNESS COEFFICIENT
           CA        0.00  CONTRIBUTING AREA
        SHAPE        TRAP  CHANNEL SHAPE
           WD      100.00  BOTTOM WIDTH OR DIAMETER
            Z        3.00  SIDE SLOPE

                                                   ***

                          COMPUTED MUSKINGUM-CUNGE PARAMETERS
                                 COMPUTATION TIME STEP
        ELEMENT   ALPHA       M         DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                     PEAK                CELERITY
                                      (MIN)      (FT)     (CFS)     (MIN)       (IN)      (FPS)

          MAIN     0.10      1.60      2.24     435.00    608.42    739.63      1.57       3.23


                               INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

          MAIN     0.10      1.60      4.00               607.60    740.00      1.58

ONTINUITY SUMMARY (AC-FT) - INFLOW=0.6678E+02 EXCESS=0.0000E+00 OUTFLOW=0.6666E+02 BASIN STORAGE=0.2318E+00 PERCENT ERROR=  -0.2


    ***            ***            ***            ***            ***

             HYDROGRAPH AT STATION    RT2-3

PEAK FLOW      TIME                       MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                 6-HR      24-HR      72-HR     24.00-HR
    608.      12.33      (CFS)      109.        34.        34.         34.
                       (INCHES)    1.272      1.576      1.576       1.576
                        (AC-FT)      54.        67.        67.         67.

              CUMULATIVE AREA =     0.79 SQ MI


** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
159 KK    *     V12    *     PORTION OF VILLAGE 12 THAT DRAINS TO CENTRAL CHANNEL
          *            *
          **************

             SUBBASIN RUNOFF DATA

160 BA         SUBBASIN CHARACTERISTICS
                     TAREA       0.01  SUBBASIN AREA

               PRECIPITATION DATA

 23 PB               STORM       2.60  BASIN TOTAL PRECIPITATION

 24 PI            INCREMENTAL PRECIPITATION PATTERN
                      0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                      0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                      0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                      0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                      0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                      0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
```

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.02	0.03	0.03	0.03	0.06	0.07	0.07	0.07
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00			

161 LS SCS LOSS RATE

STRTL	0.33	INITIAL ABSTRACTION
CRVNBR	86.00	CURVE NUMBER
RTIMP	0.00	PERCENT IMPERVIOUS AREA

62 UD SCS DIMENSIONLESS UNITGRAPH

TLAG	0.16	LAG

***

UNIT HYDROGRAPH
14 END-OF-PERIOD ORDINATES

9.	30.	37.	30.	17.	10.	5.	3.	2.	1.
1.	0.	0.	0.						

*** *** *** *** ***

HYDROGRAPH AT STATION V12

TOTAL RAINFALL = 2.60, TOTAL LOSS = 1.27, TOTAL EXCESS = 1.33

EAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.00-HR
14.	12.07	(CFS)	2.	1.	1.	1.
		(INCHES)	1.078	1.325	1.325	1.325
		(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

*** ***

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              **************
              *            *
163 KK        *     V11    *      PORTION OF VILLAGE 11 THAT DRAINS TO CENTRAL CHANNEL
              *            *
              **************

                 SUBBASIN RUNOFF DATA

164 BA             SUBBASIN CHARACTERISTICS
                         TAREA         0.01  SUBBASIN AREA

                   PRECIPITATION DATA

 23 PB                   STORM         2.60  BASIN TOTAL PRECIPITATION

 24 PI               INCREMENTAL PRECIPITATION PATTERN
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                        0.01      0.01      0.02      0.03      0.03      0.03      0.06      0.07      0.07      0.07
                        0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                        0.01      0.01      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00

165 LS             SCS LOSS RATE
                         STRTL         0.33  INITIAL ABSTRACTION
                        CRVNBR        86.00  CURVE NUMBER
                         RTIMP         0.00  PERCENT IMPERVIOUS AREA

166 UD             SCS DIMENSIONLESS UNITGRAPH
                          TLAG         0.12  LAG

                                                          ***

                                                       UNIT HYDROGRAPH
                                                  11 END-OF-PERIOD ORDINATES
                  9.        25.        22.        11.         6.         3.         1.         1.         0.         0.
```

```
            0.

    ***            ***            ***            ***            ***

                    HYDROGRAPH AT STATION     V11

   TOTAL RAINFALL =    2.60, TOTAL LOSS =    1.27, TOTAL EXCESS =    1.33

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                   6-HR        24-HR       72-HR    24.00-HR
        8.    12.07      (CFS)          1.          0.          0.          0.
                        (INCHES)     1.078       1.325       1.325       1.325
                         (AC-FT)        0.          1.          1.          1.

                       CUMULATIVE AREA =     0.01 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 167 KK     *      V3    *     PHASE I VILLAGE 3
            *            *
            **************

              SUBBASIN RUNOFF DATA

 168 BA         SUBBASIN CHARACTERISTICS
                      TAREA        0.03  SUBBASIN AREA

                PRECIPITATION DATA

  23 PB               STORM        2.60  BASIN TOTAL PRECIPITATION

  24 PI           INCREMENTAL PRECIPITATION PATTERN
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                       0.01      0.01      0.02      0.03      0.03      0.03      0.06      0.07      0.07      0.07
                       0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                       0.01      0.01      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
```

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              0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
              0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
              0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
              0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
              0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
              0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
              0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
              0.00      0.00      0.00      0.00      0.00      0.00      0.00

169 LS         SCS LOSS RATE
                    STRTL        0.33  INITIAL ABSTRACTION
                    CRVNBR      86.00  CURVE NUMBER
                    RTIMP        0.00  PERCENT IMPERVIOUS AREA

170 UD         SCS DIMENSIONLESS UNITGRAPH
                    TLAG         0.19  LAG

                                                                  ***

                                                         UNIT HYDROGRAPH
                                                    16 END-OF-PERIOD ORDINATES
           11.       37.       55.       52.       39.       22.       14.        8.        5.        3.
            2.        1.        1.        0.        0.        0.

    ***              ***              ***              ***              ***

                          HYDROGRAPH AT STATION       V3

  TOTAL RAINFALL =     2.60, TOTAL LOSS =     1.27, TOTAL EXCESS =     1.33

 PEAK FLOW     TIME                            MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                   6-HR        24-HR       72-HR     24.00-HR
      23.     12.07       (CFS)         3.           1.          1.           1.
                        (INCHES)     1.078        1.325       1.325        1.325
                         (AC-FT)        1.           2.          2.           2.

                         CUMULATIVE AREA =      0.03 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
171 KK      *      CB3   *       COMBINE PORTIONS OF VILLAGES 11&12 WITH VILLAGE 3 AT STA 79+00
            *            *
            **************

172 HC         HYDROGRAPH COMBINATION
                    ICOMP            4   NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

    ***              ***              ***              ***              ***

                          HYDROGRAPH AT STATION      CB3

 PEAK FLOW     TIME                            MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                   6-HR        24-HR       72-HR     24.00-HR
     625.     12.33       (CFS)       114.          35.         35.          35.
                        (INCHES)     1.260        1.561       1.561        1.561
                         (AC-FT)       57.          70.         70.          70.

                         CUMULATIVE AREA =      0.84 SQ MI
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* *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
173 KK    *    RT3-4   *
          *            *
          **************
                  ROUTE CB3 DOWN CENTRAL CHANNEL TO CB4 AT STATION -82+00

          HYDROGRAPH ROUTING DATA

175 RD      MUSKINGUM-CUNGE CHANNEL ROUTING
                  L        300.   CHANNEL LENGTH
                  S      0.0020   SLOPE
                  N       0.040   CHANNEL ROUGHNESS COEFFICIENT
                 CA        0.00   CONTRIBUTING AREA
              SHAPE        TRAP   CHANNEL SHAPE
                 WD      100.00   BOTTOM WIDTH OR DIAMETER
                  Z        3.00   SIDE SLOPE

                                                  ***
                       COMPUTED MUSKINGUM-CUNGE PARAMETERS
                            COMPUTATION TIME STEP
   ELEMENT    ALPHA       M        DT        DX       PEAK    TIME TO    VOLUME   MAXIMUM
                                                                PEAK               CELERITY
                                  (MIN)      (FT)     (CFS)    (MIN)      (IN)     (FPS)

    MAIN       0.10     1.60      1.53     300.00    616.91    741.33     1.56      3.26


                     INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL


    MAIN       0.10     1.60      4.00               615.65    740.00     1.56


NTINUITY SUMMARY (AC-FT) - INFLOW=0.7013E+02 EXCESS=0.0000E+00 OUTFLOW=0.7005E+02 BASIN STORAGE=0.1661E+00 PERCENT ERROR=  -0.1


    ***          ***           ***           ***           ***

               HYDROGRAPH AT STATION    RT3-4

EAK FLOW     TIME                           MAXIMUM AVERAGE FLOW
 (CFS)       (HR)                  6-HR        24-HR      72-HR     24.00-HR
  616.      12.33       (CFS)      114.         35.        35.         35.
                      (INCHES)    1.260       1.559      1.559       1.559
                       (AC-FT)      57.         70.        70.         70.

               CUMULATIVE AREA =    0.84 SQ MI


* *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
176 KK    *    PhVc    *    PHASE V SUB-AREA PhVc
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*   *
****

SUBBASIN RUNOFF DATA

177 BA SUBBASIN CHARACTERISTICS
TAREA 0.02 SUBBASIN AREA

PRECIPITATION DATA

23 PB STORM 2.60 BASIN TOTAL PRECIPITATION

24 PI INCREMENTAL PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.02	0.03	0.03	0.03	0.06	0.07	0.07	0.07
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00			

178 LS SCS LOSS RATE
STRTL 0.17 INITIAL ABSTRACTION
CRVNBR 92.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

79 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.19 LAG

***

UNIT HYDROGRAPH
16 END-OF-PERIOD ORDINATES

9.	31.	47.	44.	33.	19.	12.	7.	4.	3.
2.	1.	1.	0.	0.	0.				

***   ***   ***   ***   ***

HYDROGRAPH AT STATION PhVc

TOTAL RAINFALL = 2.60, TOTAL LOSS = 0.81, TOTAL EXCESS = 1.79

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	24.00-HR
26.	12.07	(CFS)	3.	1.	1.	1.
		(INCHES)	1.427	1.785	1.785	1.785
		(AC-FT)	2.	2.	2.	2.

CUMULATIVE AREA = 0.02 SQ MI

*** ***

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              **************
              *            *
180 KK        *     V2     *     VILLAGE 2 OF PHASE I
              *            *
              **************
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SUBBASIN RUNOFF DATA

181 BA SUBBASIN CHARACTERISTICS
TAREA 0.04 SUBBASIN AREA

PRECIPITATION DATA

23 PB STORM 2.60 BASIN TOTAL PRECIPITATION

24 PI INCREMENTAL PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.02	0.03	0.03	0.03	0.06	0.07	0.07	0.07
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
        0.00      0.00      0.00      0.00      0.00      0.00      0.00

182 LS          SCS LOSS RATE
                 STRTL        0.33  INITIAL ABSTRACTION
                CRVNBR       86.00  CURVE NUMBER
                 RTIMP        0.00  PERCENT IMPERVIOUS AREA

183 UD          SCS DIMENSIONLESS UNITGRAPH
                  TLAG        0.20  LAG

                                                             ***

                                                      UNIT HYDROGRAPH
                                                 17 END-OF-PERIOD ORDINATES
           15.        50.        80.        80.        62.        37.        23.        15.         9.         6.
            4.         2.         1.         1.         1.         0.         0.

    ***             ***             ***             ***             ***

                   HYDROGRAPH AT STATION        V2

  TOTAL RAINFALL =     2.60, TOTAL LOSS =     1.27, TOTAL EXCESS =     1.33

PEAK FLOW      TIME                         MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                 6-HR         24-HR        72-HR     24.00-HR
     34.      12.07       (CFS)        5.            1.           1.           1.
                       (INCHES)     1.078         1.324        1.324        1.324
                        (AC-FT)        2.            3.           3.           3.

                   CUMULATIVE AREA =     0.04 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

           **************
           *            *
184 KK     *     CB4    *       COMBINE PhVc WITH VILLAGE 2
           *            *
           **************

185 HC          HYDROGRAPH COMBINATION
                 ICOMP             3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                             ***

    ***             ***             ***             ***             ***

                   HYDROGRAPH AT STATION       CB4

PEAK FLOW      TIME                         MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                 6-HR         24-HR        72-HR     24.00-HR
    644.      12.33       (CFS)      122.           38.          38.          38.
                       (INCHES)     1.255         1.554        1.554        1.554
                        (AC-FT)       61.           75.          75.          75.

                   CUMULATIVE AREA =     0.90 SQ MI
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
186 KK    *   RT4-5    *      ROUTE CB4 DOWN CENTRAL CHANNEL TO CB5 AT STATION ~83+65
          *            *
          **************

            HYDROGRAPH ROUTING DATA

187 RD        MUSKINGUM-CUNGE CHANNEL ROUTING
                     L        165.  CHANNEL LENGTH
                     S      0.0020  SLOPE
                     N       0.040  CHANNEL ROUGHNESS COEFFICIENT
                    CA        0.00  CONTRIBUTING AREA
                 SHAPE        TRAP  CHANNEL SHAPE
                    WD      100.00  BOTTOM WIDTH OR DIAMETER
                     Z        3.00  SIDE SLOPE

                                                ***
                          COMPUTED MUSKINGUM-CUNGE PARAMETERS
                               COMPUTATION TIME STEP
               ELEMENT   ALPHA      M       DT       DX       PEAK    TIME TO    VOLUME   MAXIMUM
                                                                       PEAK               CELERITY
                                          (MIN)     (FT)     (CFS)    (MIN)      (IN)      (FPS)

                 MAIN     0.10     1.60     0.84   165.00    638.21   740.67     1.55      3.29


                               INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL


                 MAIN     0.10     1.60     4.00             637.12   740.00     1.55

ONTINUITY SUMMARY (AC-FT) - INFLOW=0.7497E+02 EXCESS=0.0000E+00 OUTFLOW=0.7491E+02 BASIN STORAGE=0.9472E-01 PERCENT ERROR=  -0.1


     ***           ***           ***           ***           ***

                  HYDROGRAPH AT STATION    RT4-5

PEAK FLOW    TIME                          MAXIMUM AVERAGE FLOW
  (CFS)      (HR)                 6-HR        24-HR       72-HR      24.00-HR
   637.     12.33      (CFS)      122.          38.         38.          38.
                     (INCHES)    1.255        1.553       1.553        1.553
                      (AC-FT)      61.          75.         75.          75.

                  CUMULATIVE AREA =    0.90 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
188 KK    *   PARKVI   *      PHASE VI PARK
          *            *
          **************

            SUBBASIN RUNOFF DATA
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189 BA          SUBBASIN CHARACTERISTICS
                      TAREA         0.00  SUBBASIN AREA

                PRECIPITATION DATA

 23 PB                STORM         2.60  BASIN TOTAL PRECIPITATION

 24 PI            INCREMENTAL PRECIPITATION PATTERN
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                     0.01      0.01      0.02      0.03      0.03      0.03      0.06      0.07      0.07      0.07
                     0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                     0.01      0.01      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00

190 LS          SCS LOSS RATE
                      STRTL         0.50  INITIAL ABSTRACTION
                     CRVNBR        80.00  CURVE NUMBER
                      RTIMP         0.00  PERCENT IMPERVIOUS AREA

191 UD          SCS DIMENSIONLESS UNITGRAPH
                       TLAG         0.14  LAG

                                                   ***

                                              UNIT HYDROGRAPH
                                         12 END-OF-PERIOD ORDINATES
                3.        10.        11.         7.         4.         2.         1.         1.         0.         0.
                0.         0.

      ***            ***            ***            ***            ***

                      HYDROGRAPH AT STATION    PARKVI

  TOTAL RAINFALL =     2.60, TOTAL LOSS =     1.64, TOTAL EXCESS =     0.96
```

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.00-HR
3.	12.07	(CFS)	0.	0.	0.	0.
		(INCHES)	0.783	0.958	0.958	0.958
		(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 0.00 SQ MI

*** ***

192 KK * CB5 * COMBINE PHASE VI PARK WITH CENTRAL CHANNEL FLOW AT CB5

193 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

*** *** *** *** ***

HYDROGRAPH AT STATION CB5

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.00-HR
638.	12.33	(CFS)	122.	38.	38.	38.
		(INCHES)	1.253	1.551	1.551	1.551
		(AC-FT)	61.	75.	75.	75.

CUMULATIVE AREA = 0.91 SQ MI

*** ***

194 KK * RT5-6 * ROUTE CB5 DOWN CENTRAL CHANNEL TO CB6 AT STATION ~87+50

HYDROGRAPH ROUTING DATA

195 RD MUSKINGUM-CUNGE CHANNEL ROUTING

L	385.	CHANNEL LENGTH
S	0.0020	SLOPE
N	0.040	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	100.00	BOTTOM WIDTH OR DIAMETER
Z	3.00	SIDE SLOPE

***

COMPUTED MUSKINGUM-CUNGE PARAMETERS
COMPUTATION TIME STEP

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY

```
                                        (MIN)       (FT)      (CFS)      (MIN)       (IN)       (FPS)

          MAIN       0.10       1.60       1.95     385.00     630.78     742.81      1.55       3.28

                              INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

          MAIN       0.10       1.60       4.00                628.54     744.00      1.55

ONTINUITY SUMMARY (AC-FT) - INFLOW=0.7511E+02 EXCESS=0.0000E+00 OUTFLOW=0.7499E+02 BASIN STORAGE=0.2302E+00 PERCENT ERROR=  -0.2


    ***             ***             ***             ***             ***

                    HYDROGRAPH AT STATION    RT5-6

PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                    6-HR         24-HR         72-HR       24.00-HR
    629.      12.40        (CFS)      122.           38.           38.           38.
                        (INCHES)     1.252         1.548         1.548         1.548
                         (AC-FT)       61.           75.           75.           75.

                    CUMULATIVE AREA =     0.91 SQ MI


** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
196 KK      *   K6SCHL   *       PHASE VI K-6 SCHOOL
            *            *
            **************

               SUBBASIN RUNOFF DATA

197 BA           SUBBASIN CHARACTERISTICS
                       TAREA          0.01  SUBBASIN AREA

                 PRECIPITATION DATA

 23 PB                 STORM          2.60  BASIN TOTAL PRECIPITATION

 24 PI             INCREMENTAL PRECIPITATION PATTERN
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                       0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
```

0.01	0.01	0.02	0.03	0.03	0.03	0.06	0.07	0.07	0.07
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00			

```
198 LS        SCS LOSS RATE
                 STRTL        0.35  INITIAL ABSTRACTION
                 CRVNBR      85.00  CURVE NUMBER
                 RTIMP        0.00  PERCENT IMPERVIOUS AREA

199 UD        SCS DIMENSIONLESS UNITGRAPH
                 TLAG         0.15  LAG
```

***

UNIT HYDROGRAPH
13 END-OF-PERIOD ORDINATES

9.	29.	34.	25.	13.	7.	4.	2.	1.	1.
0.	0.	0.							

***   ***   ***   ***   ***

HYDROGRAPH AT STATION K6SCHL

TOTAL RAINFALL = 2.60, TOTAL LOSS = 1.34, TOTAL EXCESS = 1.26

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.00-HR
12.	12.07	(CFS)	1.	0.	0.	0.
		(INCHES)	1.025	1.258	1.258	1.258
		(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

*** ***

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          **************
          *            *
200 KK    *     CB6    *        COMBINE K-6 SCHOOL WITH CENTRAL CHANNEL FLOW AT CB6
          *            *
          **************

201 HC        HYDROGRAPH COMBINATION
                 ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
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***

***   ***   ***   ***   ***

HYDROGRAPH AT STATION CB6

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.00-HR
632.	12.40	(CFS)	124.	38.	38.	38.
		(INCHES)	1.249	1.544	1.544	1.544
		(AC-FT)	61.	76.	76.	76.

CUMULATIVE AREA = 0.92 SQ MI

*** ***

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          **************
          *            *
202 KK    *    RT6-7   *     ROUTE CB6 DOWN CENTRAL CHANNEL TO CB7 AT STATION ~101+00
          *            *
          **************
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END OF CENTRAL CHANNEL

HYDROGRAPH ROUTING DATA

204 RD MUSKINGUM-CUNGE CHANNEL ROUTING

L	1350.	CHANNEL LENGTH
S	0.0020	SLOPE
N	0.040	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	100.00	BOTTOM WIDTH OR DIAMETER
Z	3.00	SIDE SLOPE

***

COMPUTED MUSKINGUM-CUNGE PARAMETERS

COMPUTATION TIME STEP

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.10	1.60	4.00	675.00	615.61	748.00	1.54	3.27

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)
MAIN	0.10	1.60	4.00		615.61	748.00	1.54

ONTINUITY SUMMARY (AC-FT) - INFLOW=0.7592E+02 EXCESS=0.0000E+00 OUTFLOW=0.7549E+02 BASIN STORAGE=0.8553E+00 PERCENT ERROR= -0.6

***   ***   ***   ***   ***

HYDROGRAPH AT STATION RT6-7

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.00-HR
616.	12.47	(CFS)	124.	38.	38.	38.
		(INCHES)	1.247	1.535	1.535	1.535
		(AC-FT)	61.	75.	75.	75.

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                     CUMULATIVE AREA =     0.92 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


              **************
              *            *
205 KK        *     V1     *       PHASE I VILLAGE 1
              *            *
              **************

                SUBBASIN RUNOFF DATA

206 BA            SUBBASIN CHARACTERISTICS
                        TAREA         0.04  SUBBASIN AREA

                  PRECIPITATION DATA

 23 PB                  STORM         2.60  BASIN TOTAL PRECIPITATION

 24 PI              INCREMENTAL PRECIPITATION PATTERN
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                      0.01      0.01      0.02      0.03      0.03      0.03      0.06      0.07      0.07      0.07
                      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                      0.01      0.01      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00

207 LS            SCS LOSS RATE
                        STRTL         0.33  INITIAL ABSTRACTION
                       CRVNBR        86.00  CURVE NUMBER
                        RTIMP         0.00  PERCENT IMPERVIOUS AREA
```

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08 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG          0.21   LAG

                                                          ***

                                                     UNIT HYDROGRAPH
                                                18 END-OF-PERIOD ORDINATES
            12.        41.        69.        73.        59.        38.        24.        15.        10.         6.
             4.         3.         2.         1.         1.         0.         0.         0.

    ***             ***             ***             ***             ***

                       HYDROGRAPH AT STATION        V1

  TOTAL RAINFALL =     2.60, TOTAL LOSS =     1.27, TOTAL EXCESS =     1.33

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                6-HR        24-HR        72-HR      24.00-HR
     31.      12.13      (CFS)       4.           1.           1.           1.
                       (INCHES)  1.078        1.324        1.324        1.324
                        (AC-FT)      2.           3.           3.           3.

                      CUMULATIVE AREA =     0.04 SQ MI



*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
209 KK      *     V29    *       PHASE VI VILLAGE 29
            *            *
            **************

               SUBBASIN RUNOFF DATA

 10 BA           SUBBASIN CHARACTERISTICS
                     TAREA          0.06   SUBBASIN AREA

                 PRECIPITATION DATA

 23 PB               STORM          2.60   BASIN TOTAL PRECIPITATION

 24 PI             INCREMENTAL PRECIPITATION PATTERN
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                      0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                      0.01      0.01      0.02      0.03      0.03      0.03      0.06      0.07      0.07      0.07
                      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                      0.01      0.01      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
```

```
             0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
             0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
             0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
             0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
             0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
             0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
             0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
             0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
             0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
             0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
             0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
             0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
             0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
             0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
             0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
             0.00      0.00      0.00      0.00      0.00      0.00      0.00

211 LS          SCS LOSS RATE
                      STRTL        0.17  INITIAL ABSTRACTION
                     CRVNBR       92.00  CURVE NUMBER
                      RTIMP        0.00  PERCENT IMPERVIOUS AREA

 12 UD          SCS DIMENSIONLESS UNITGRAPH
                       TLAG        0.20  LAG

                                                        ***

                                                  UNIT HYDROGRAPH
                                            17 END-OF-PERIOD ORDINATES
            24.        82.       130.       130.       101.        61.        38.        24.        15.        10.
             6.         4.         2.         1.         1.         1.         0.

     ***              ***              ***              ***              ***

                       HYDROGRAPH AT STATION      V29

  TOTAL RAINFALL =     2.60, TOTAL LOSS =     0.81, TOTAL EXCESS =     1.79

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR        24-HR       72-HR     24.00-HR
     74.      12.07       (CFS)        10.           3.          3.          3.
                        (INCHES)     1.427        1.785       1.785       1.785
                         (AC-FT)        5.           6.          6.          6.

                       CUMULATIVE AREA =     0.06 SQ MI



*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
213 KK    *      CB7   *        COMBINATION POINT 7; END OF CENTRAL CHANNEL
          *            *
          **************

*** HEC-1 ERROR 1 *** INVALID CARD IDENTIFICATION CODE OR CARD OUT OF SEQUENCE
   CARD NO.  215

214 HC          HYDROGRAPH COMBINATION
                      ICOMP            3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                        ***
```

*** *** *** *** ***

HYDROGRAPH AT STATION CB7.

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.00-HR
648.	12.47	(CFS)	138.	42.	42.	42.
		(INCHES)	1.250	1.543	1.543	1.543
		(AC-FT)	68.	84.	84.	84.

CUMULATIVE AREA = 1.02 SQ MI

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	W18RB	157.	12.20	26.	8.	8.	0.23		
HYDROGRAPH AT	V18-19	58.	12.13	8.	3.	3.	0.05		
HYDROGRAPH AT	V20	50.	12.13	7.	2.	2.	0.05		
HYDROGRAPH AT	WET	8.	12.13	1.	0.	0.	0.02		
4 COMBINED AT	CB WET	266.	12.13	42.	13.	13.	0.35		
HYDROGRAPH AT	PH-IV	180.	12.20	30.	9.	9.	0.19		
HYDROGRAPH AT	E14	27.	12.13	4.	1.	1.	0.03		
3 COMBINED AT	C14	467.	12.13	76.	24.	24.	0.57		
ROUTED TO	E14-E1	465.	12.20	76.	24.	24.	0.57		
HYDROGRAPH AT	E1	8.	12.07	1.	0.	0.	0.01		
2 COMBINED AT	C1	469.	12.20	77.	24.	24.	0.57		
ROUTED TO	E1-E2	465.	12.20	77.	24.	24.	0.57		
HYDROGRAPH AT	E2	4.	12.00	0.	0.	0.	0.00		
2 COMBINED AT	C2	467.	12.20	77.	24.	24.	0.58		
ROUTED TO	E2-E3	461.	12.20	77.	24.	24.	0.58		
HYDROGRAPH AT	E3	3.	12.00	0.	0.	0.	0.00		
2 COMBINED AT	C3	463.	12.20	77.	24.	24.	0.58		
ROUTED TO	E3-E4	454.	12.27	77.	24.	24.	0.58		
HYDROGRAPH AT	E4	4.	12.00	0.	0.	0.	0.00		
2 COMBINED AT	C4	455.	12.27	78.	24.	24.	0.58		
HYDROGRAPH AT	D10	119.	12.13	19.	6.	6.	0.12		
HYDROGRAPH AT	D12	20.	12.07	3.	1.	1.	0.02		
HYDROGRAPH AT	PARK	6.	12.07	1.	0.	0.	0.01		
4 COMBINED AT	C10PRK	591.	12.20	100.	31.	31.	0.73		
ROUTED TO	PK-CAR	582.	12.27	100.	31.	31.	0.73		
HYDROGRAPH AT	PhVa	14.	12.07	2.	1.	1.	0.01		
HYDROGRAPH AT	V4	25.	12.07	3.	1.	1.	0.03		
3 COMBINED AT	CB 1	600.	12.27	104.	32.	32.	0.77		
ROUTED TO	RT1-2	596.	12.33	104.	32.	32.	0.77		

HYDROGRAPH AT	PhVb	30.	12.13	4.	1.	1.	0.03
2 COMBINED AT	CB2	614.	12.33	109.	34.	34.	0.79
ROUTED TO	RT2-3	608.	12.33	109.	34.	34.	0.79
HYDROGRAPH AT	V12	14.	12.07	2.	1.	1.	0.01
HYDROGRAPH AT	V11	8.	12.07	1.	0.	0.	0.01
HYDROGRAPH AT	V3	23.	12.07	3.	1.	1.	0.03
4 COMBINED AT	CB3	625.	12.33	114.	35.	35.	0.84
ROUTED TO	RT3-4	616.	12.33	114.	35.	35.	0.84
HYDROGRAPH AT	PhVc	26.	12.07	3.	1.	1.	0.02
HYDROGRAPH AT	V2	34.	12.07	5.	1.	1.	0.04
3 COMBINED AT	CB4	644.	12.33	122.	38.	38.	0.90
ROUTED TO	RT4-5	637.	12.33	122.	38.	38.	0.90
HYDROGRAPH AT	PARKVI	3.	12.07	0.	0.	0.	0.00
2 COMBINED AT	CB5	638.	12.33	122.	38.	38.	0.91
ROUTED TO	RT5-6	629.	12.40	122.	38.	38.	0.91
HYDROGRAPH AT	K6SCHL	12.	12.07	1.	0.	0.	0.01
2 COMBINED AT	CB6	632.	12.40	124.	38.	38.	0.92
ROUTED TO	RT6-7	616.	12.47	124.	38.	38.	0.92
HYDROGRAPH AT	V1	31.	12.13	4.	1.	1.	0.04
HYDROGRAPH AT	V29	74.	12.07	10.	3.	3.	0.06
3 COMBINED AT	CB7	648.	12.47	138.	42.	42.	1.02

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
E14-E1	MANE	1.55	466.80	731.09	1.54	4.00	464.72	732.00	1.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4670E+02 EXCESS=0.0000E+00 OUTFLOW=0.4666E+02 BASIN STORAGE=0.8610E-01 PERCENT ERROR= -0.1

E1-E2	MANE	1.16	465.88	732.63	1.54	4.00	465.24	732.00	1.54

NTINUITY SUMMARY (AC-FT) - INFLOW=0.4722E+02 EXCESS=0.0000E+00 OUTFLOW=0.4720E+02 BASIN STORAGE=0.6902E-01 PERCENT ERROR= -0.1

E2-E3	MANE	1.16	463.23	732.45	1.54	4.00	461.44	732.00	1.54

NTINUITY SUMMARY (AC-FT) - INFLOW=0.4749E+02 EXCESS=0.0000E+00 OUTFLOW=0.4747E+02 BASIN STORAGE=0.7183E-01 PERCENT ERROR= -0.1

E3-E4	MANE	1.40	460.01	733.94	1.54	4.00	454.28	736.00	1.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4772E+02 EXCESS=0.0000E+00 OUTFLOW=0.4769E+02 BASIN STORAGE=0.8885E-01 PERCENT ERROR= -0.1

PK-CAR	MANE	2.55	582.78	733.40	1.58	4.00	581.98	736.00	1.58

NTINUITY SUMMARY (AC-FT) - INFLOW=0.6156E+02 EXCESS=0.0000E+00 OUTFLOW=0.6145E+02 BASIN STORAGE=0.2145E+00 PERCENT ERROR= -0.2

RT1-2	MANE	4.00	596.04	740.00	1.57	4.00	596.04	740.00	1.57

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6437E+02 EXCESS=0.0000E+00 OUTFLOW=0.6416E+02 BASIN STORAGE=0.4964E+00 PERCENT ERROR= -0.4

RT2-3	MANE	2.24	608.42	739.63	1.57	4.00	607.60	740.00	1.58

NTINUITY SUMMARY (AC-FT) - INFLOW=0.6678E+02 EXCESS=0.0000E+00 OUTFLOW=0.6666E+02 BASIN STORAGE=0.2318E+00 PERCENT ERROR= -0.2

RT3-4	MANE	1.53	616.91	741.33	1.56	4.00	615.65	740.00	1.56

NTINUITY SUMMARY (AC-FT) - INFLOW=0.7013E+02 EXCESS=0.0000E+00 OUTFLOW=0.7005E+02 BASIN STORAGE=0.1661E+00 PERCENT ERROR= -0.1

RT4-5	MANE	0.84	638.21	740.67	1.55	4.00	637.12	740.00	1.55

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7497E+02 EXCESS=0.0000E+00 OUTFLOW=0.7491E+02 BASIN STORAGE=0.9472E-01 PERCENT ERROR= -0.1

RT5-6	MANE	1.95	630.78	742.81	1.55	4.00	628.54	744.00	1.55

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7511E+02 EXCESS=0.0000E+00 OUTFLOW=0.7499E+02 BASIN STORAGE=0.2302E+00 PERCENT ERROR= -0.2

RT6-7	MANE	4.00	615.61	748.00	1.54	4.00	615.61	748.00	1.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7592E+02 EXCESS=0.0000E+00 OUTFLOW=0.7549E+02 BASIN STORAGE=0.8553E+00 PERCENT ERROR= -0.6

*** 1 ERROR(S) DETECTED BY HEC-1 ***

APPENDIX B

Hydraulic Analysis

HEC-RAS Modeling Results

Evaluate Whites Crk Central Channel through Carat Ave with 5, 5 ft diameter RCP culverts or
4-4'x5' RCB's at Carat Ave.

NIMBUS ENGINEERS
Job No. 0028
Adapted from model ddcarat1.prj, ddcarat3.prj and additional sections added from as-built LOMR model 508as-cc.dat
Modified 08/17/00
by: CRA

Summary or Project: Double Diamond Central Channel
Project: 028DDPhaseV.prj
Project Title: Double Diamond Central Channel
Project Directory: m:\jobs\0028\hydro\ras\Phase V\

Project Plans

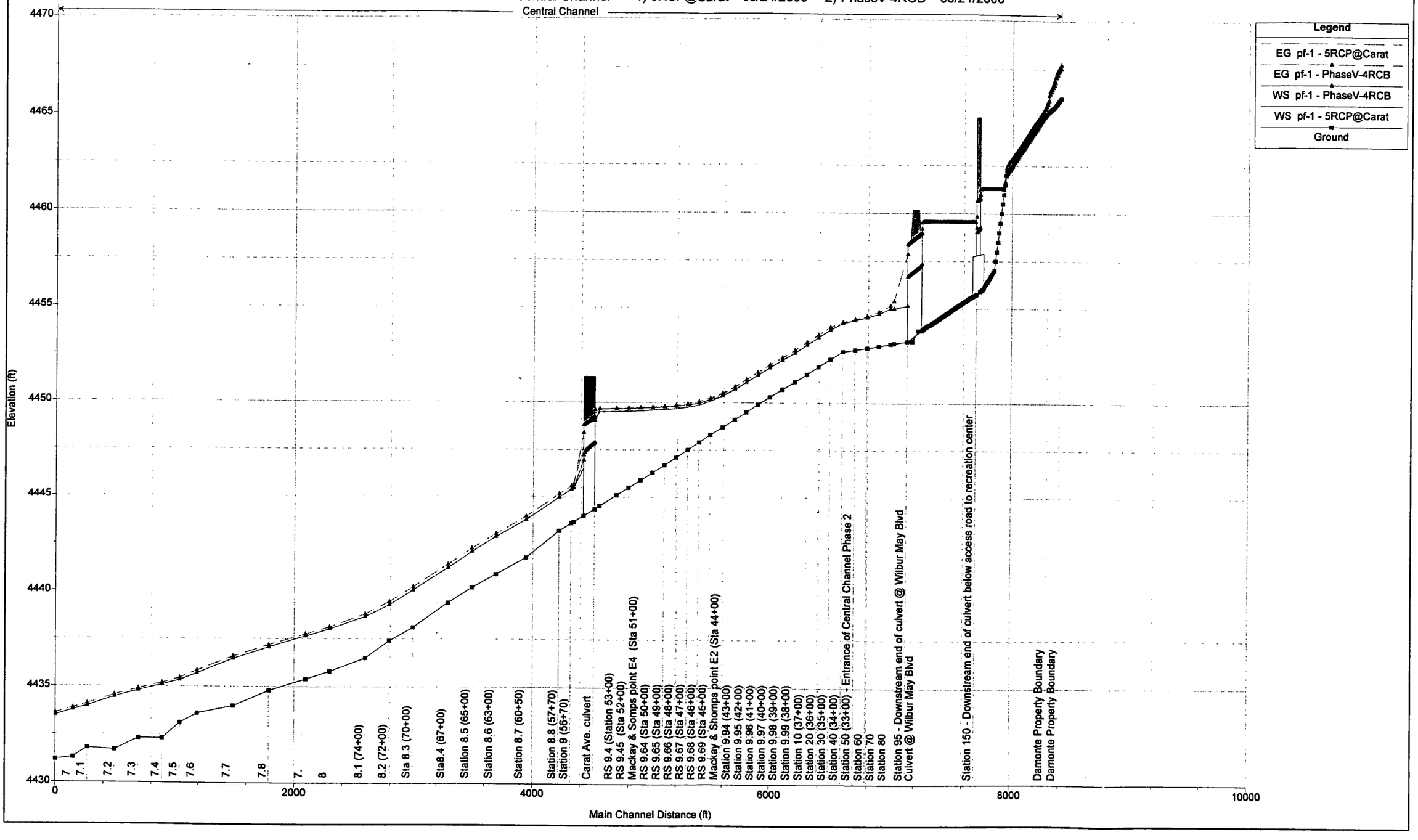
Plan
Title: Central Chan. w/ 4 RCB's @ Carat Av.
Short ID: 4RCB@Carat
File: m:\jobs\0028\hydro\ras\Phase V\028DDPhaseV.p02
Geometry:
Title:Central Channel w/ 4 RCB's @ Carat Ave
File:m:\jobs\0028\hydro\ras\Phase V\028DDPhaseV.g01
Flow:
Title:Wetland 300 base + 400 upstr.of Carat
File:m:\jobs\0028\hydro\ras\Phase V\028DDPhaseV.f01

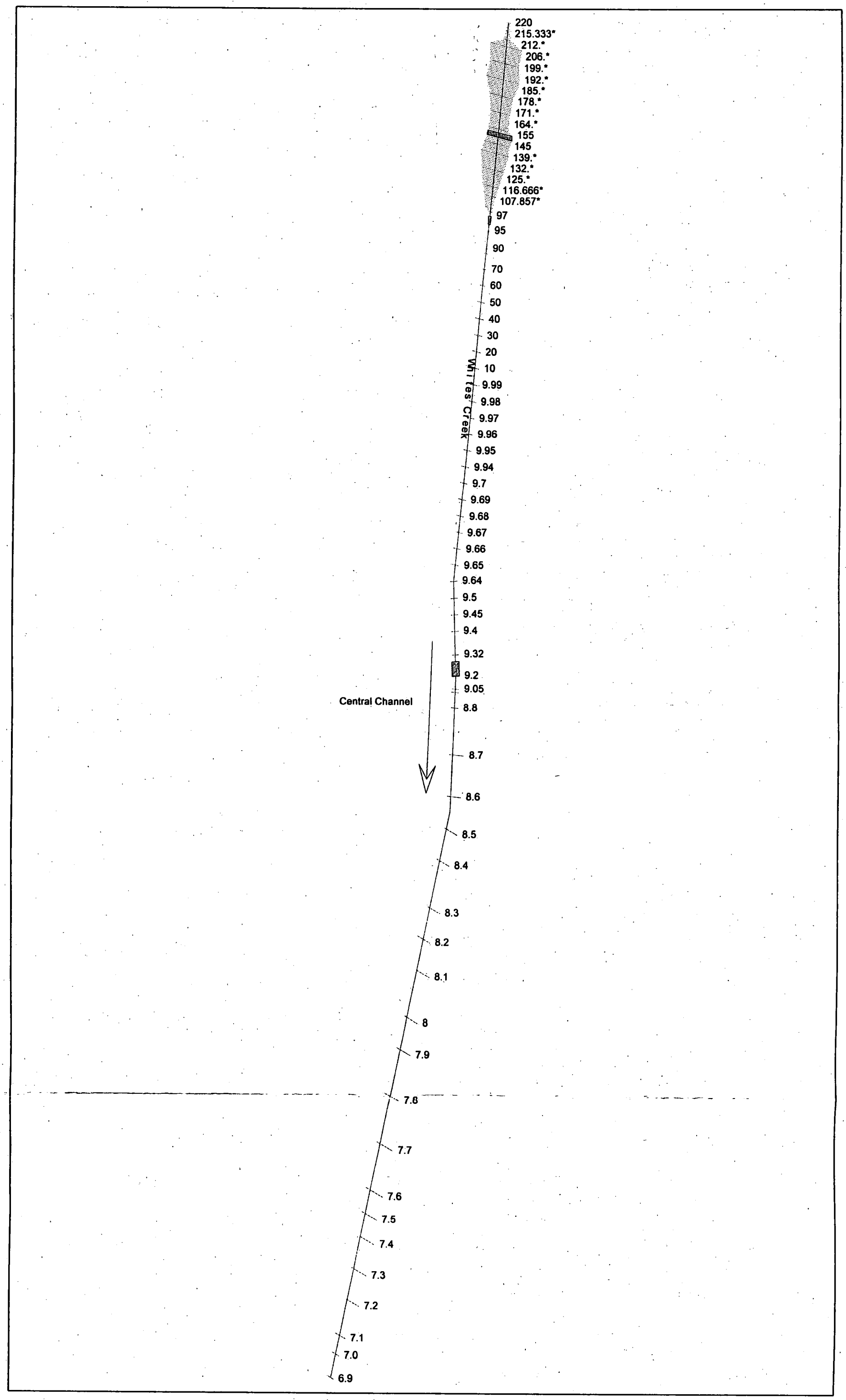
Plan (current)
Title: Central Chan. w/ 5 RCP's @ Carat Av.
Short ID: 5RCP@Carat
File: m:\jobs\0028\hydro\ras\Phase V\028DDPhaseV.p01
Geometry:
Title:Central Chan. w/ 5 RCP culverts @ Carat Av.
File:m:\jobs\0028\hydro\ras\Phase V\028DDPhaseV.g02
Flow:
Title:Wetland 300 base + 400 upstr.of Carat
File:m:\jobs\0028\hydro\ras\Phase V\028DDPhaseV.f01

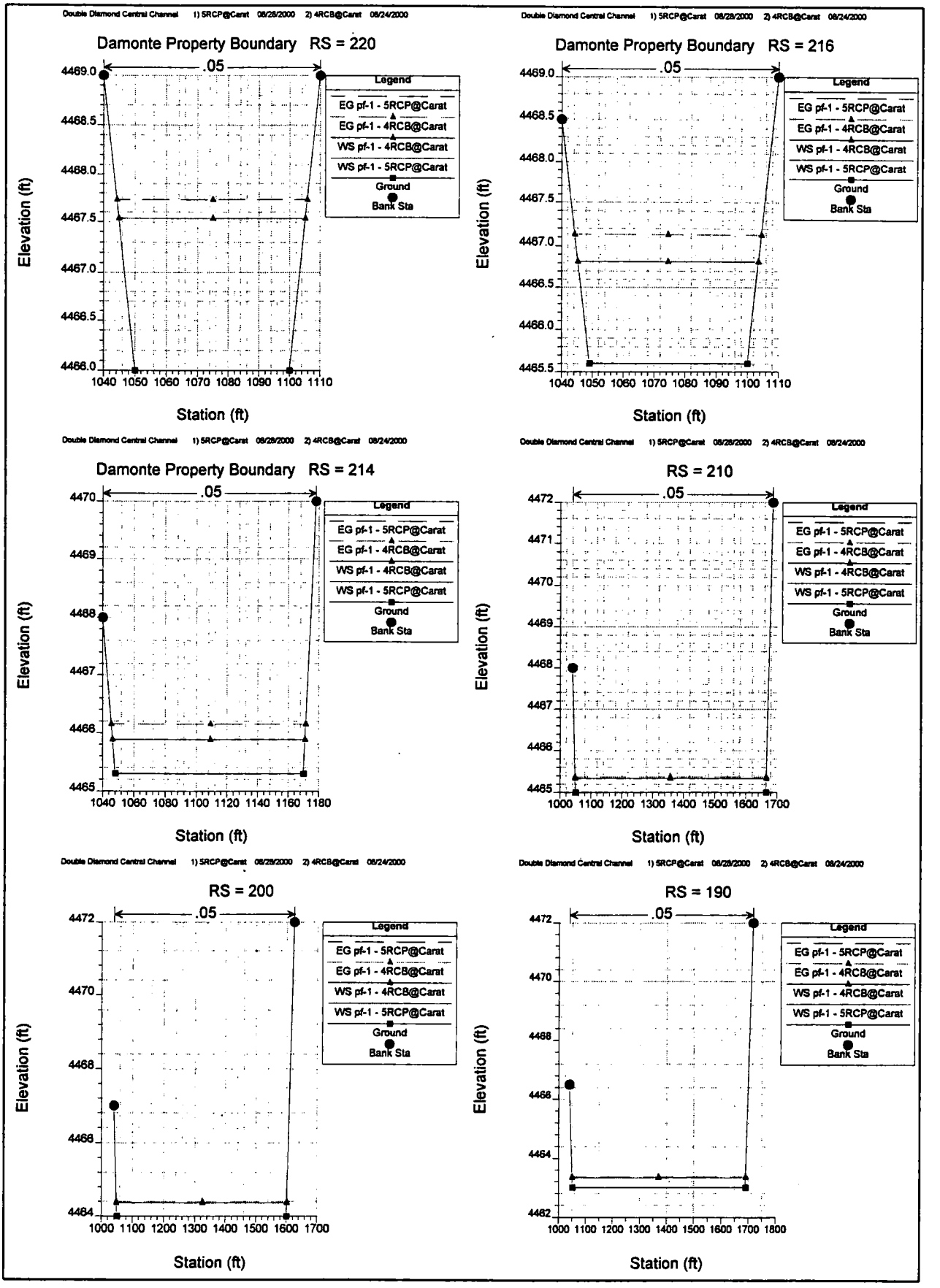
Current Plan Statistics

Number of:
Cross Sections = 166
User Input XSs = 69
Interpolated = 97
Culverts = 2
Bridges = 0
Mulitple Openings = 1
Inline Weirs = 0

Double Diamond Central Channel 1) 5RCP@Carat 08/24/2000 2) PhaseV-4RCB 08/21/2000

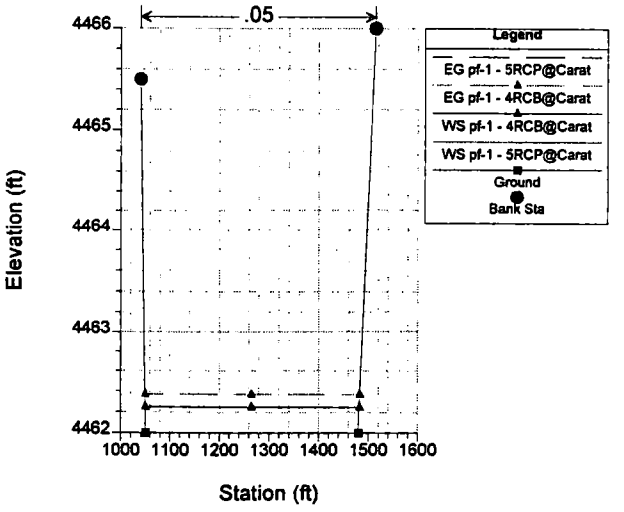



220
215.333*
212.*
206.*
199.*
192.*
185.*
178.*
171.*
164.*
155
145
139.*
132.*
125.*
116.666*
107.857*
97
95
90
70
60
50
40
30
20
10
9.99
9.98
9.97
9.96
9.95
9.94
9.7
9.69
9.68
9.67
9.66
9.65
9.64
9.5
9.45
9.4
9.32
9.2
9.05
8.8
8.7
8.6
8.5
8.4
8.3
8.2
8.1
8
7.9
7.8
7.7
7.6
7.5
7.4
7.3
7.2
7.1
7.0
6.9
Wiles Creek
Central Channel


Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
Damonte Property Boundary RS = 220
.05
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
Damonte Property Boundary RS = 216
.05
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
Damonte Property Boundary RS = 214
.05
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
RS = 210
.05
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
RS = 200
.05
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
RS = 190
.05
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)

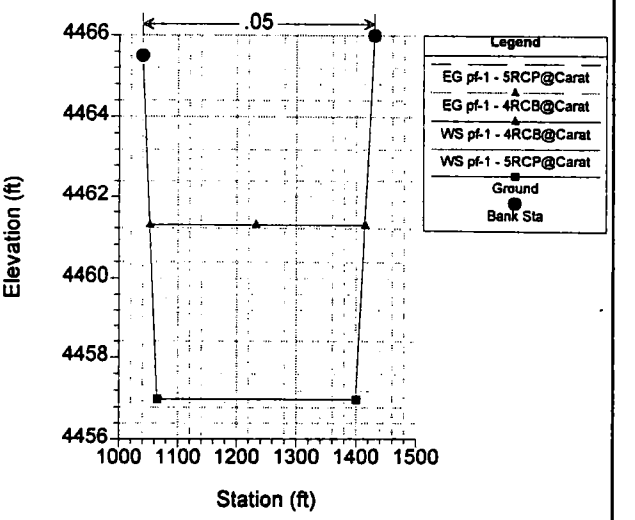
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

RS = 180



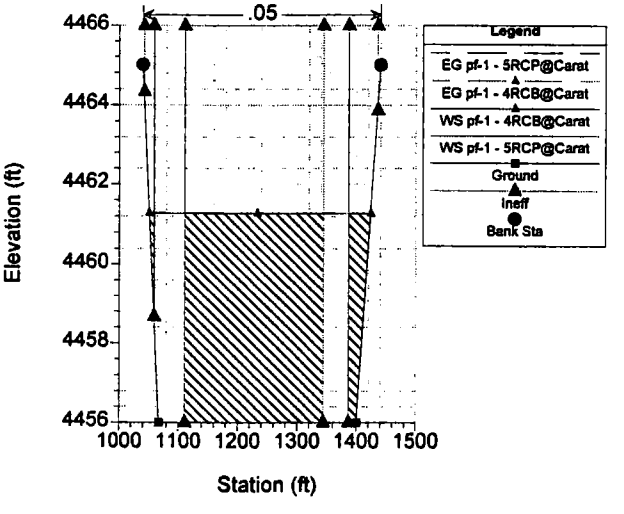
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

RS = 170



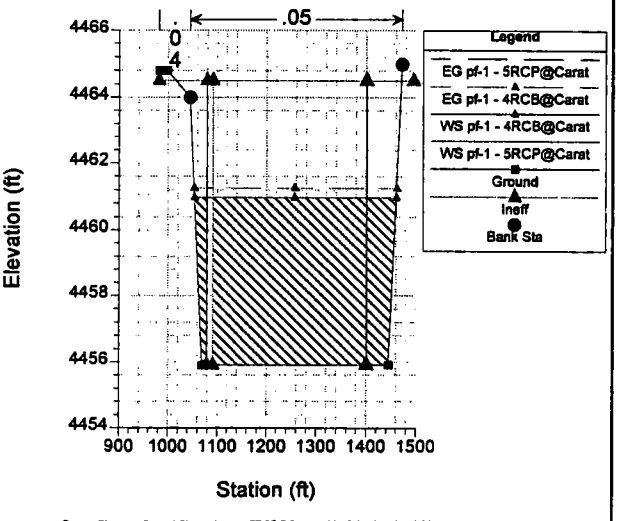
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

RS = 160



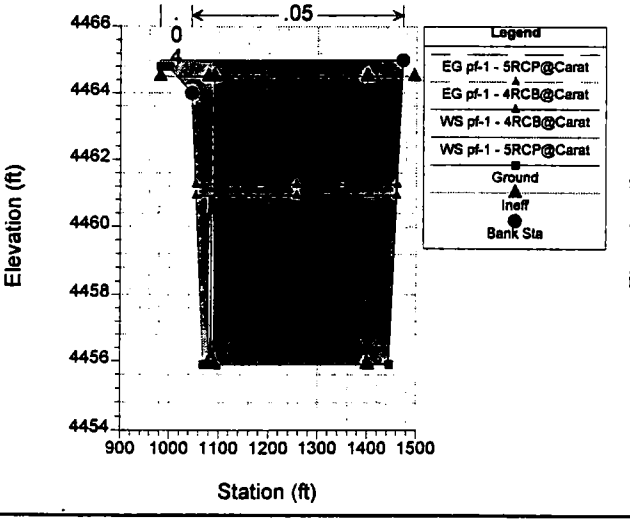
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

Station 155 - Upstream end of culvert be RS = 155



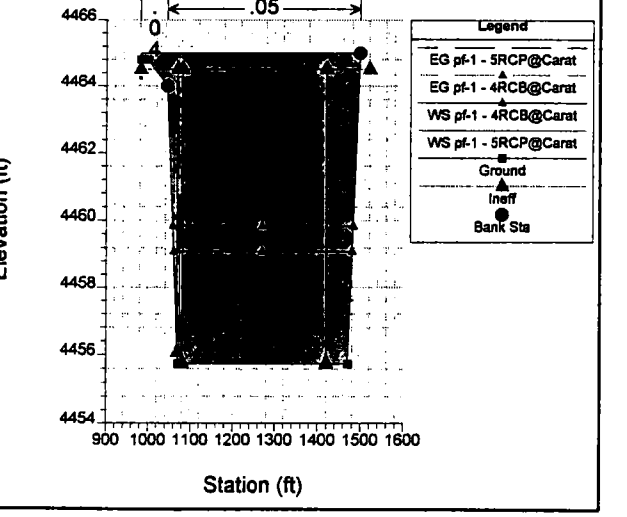
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

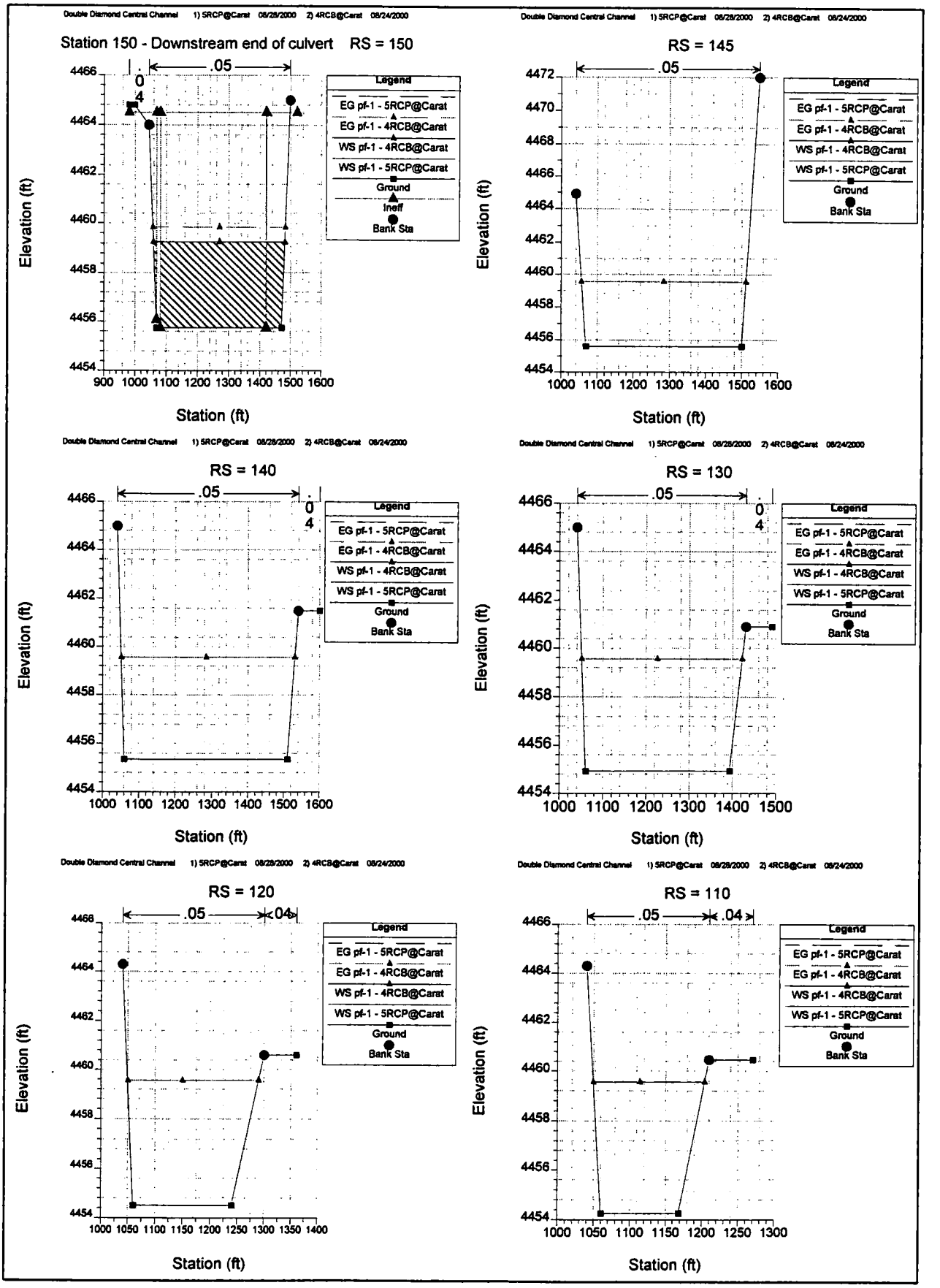
RS = 152



Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

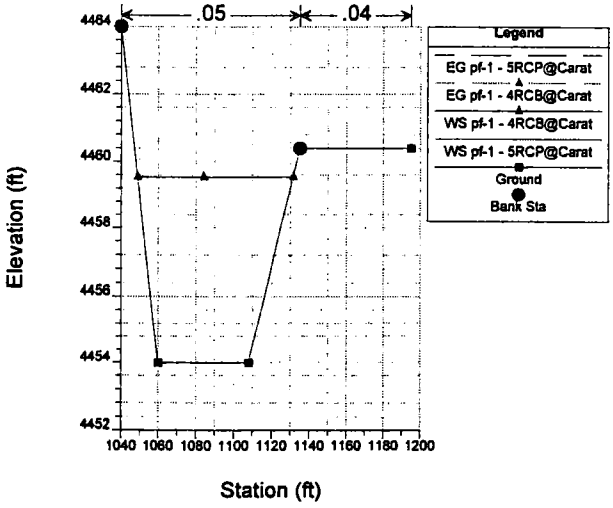
RS = 152




Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
Station 150 - Downstream end of culvert RS = 150
.05
.04
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
RS = 145
RS = 140
RS = 130
RS = 120
RS = 110

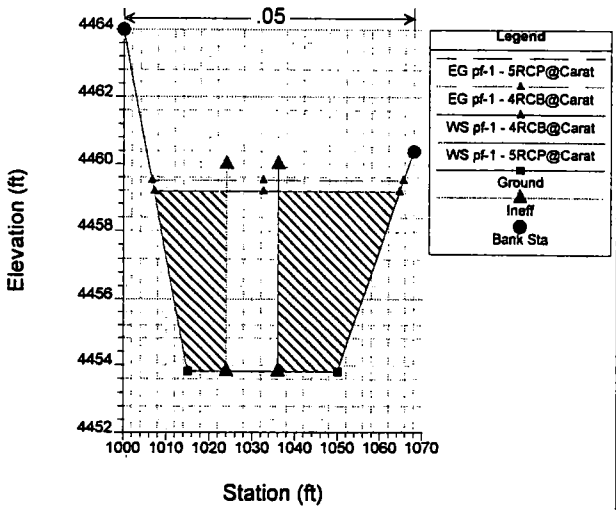
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

RS = 105



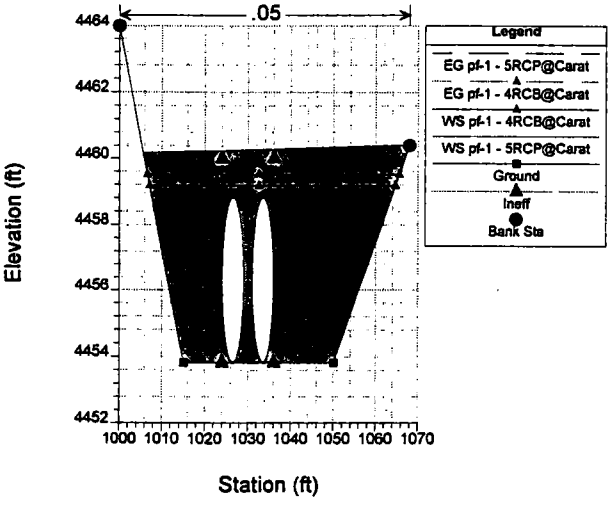
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

Station 100 - Upstream end of culvert @ RS = 100



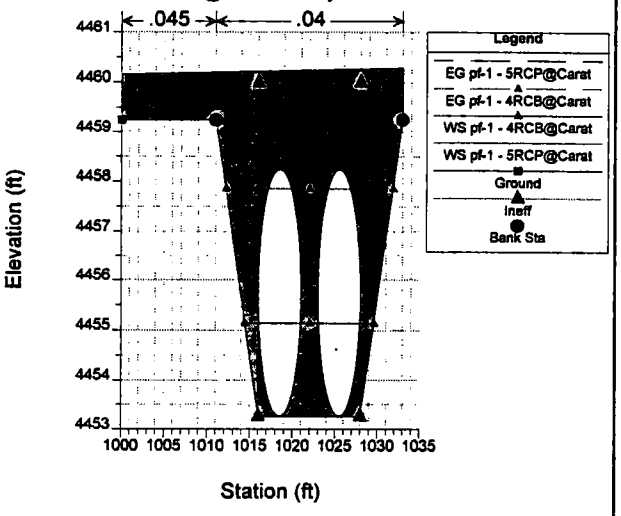
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

Culvert @ Wilbur May Blvd RS = 97



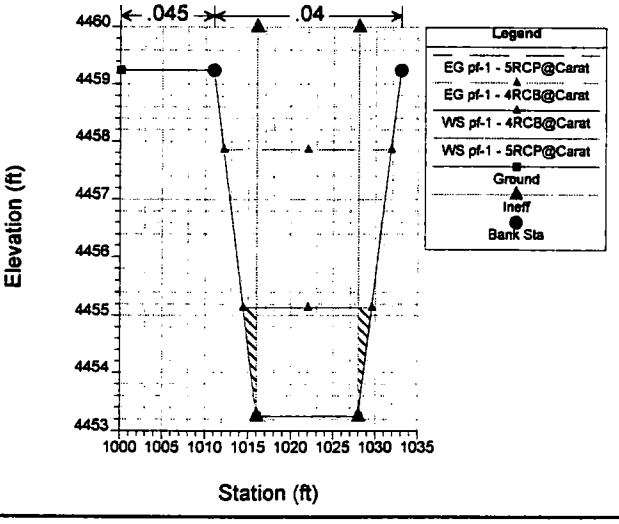
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

Culvert @ Wilbur May Blvd RS = 97



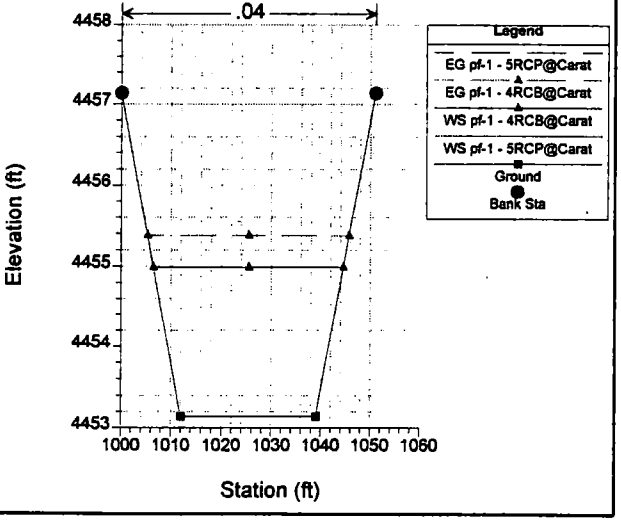
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

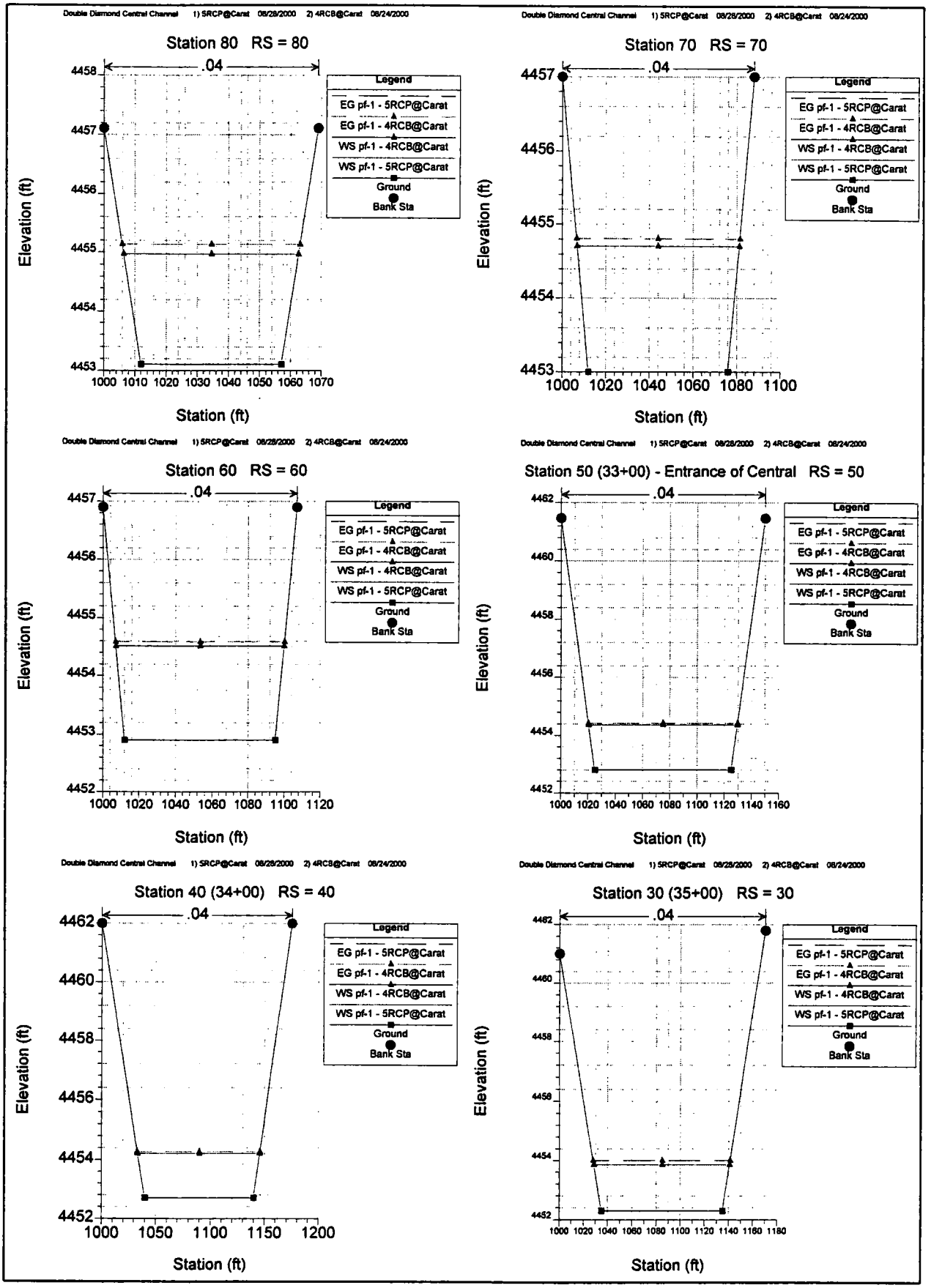
Station 95 - Downstream end of culvert @ RS = 95



Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

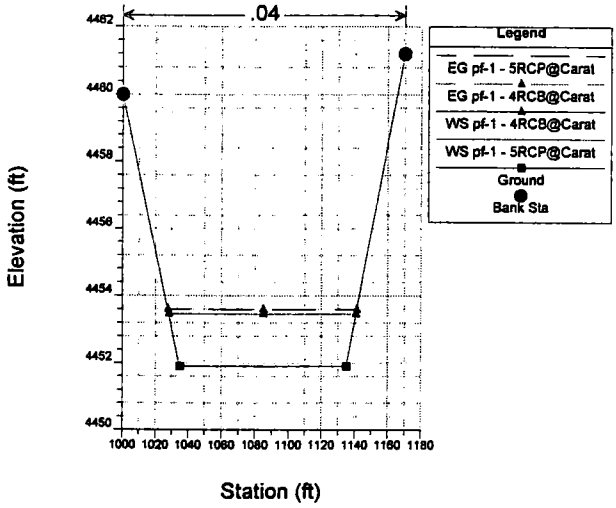
Station 90 RS = 90




Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
Station 80 RS = 80
.04
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
Station 70 RS = 70
.04
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
Station 60 RS = 60
.04
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
Station 50 (33+00) - Entrance of Central RS = 50
.04
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
Station 40 (34+00) RS = 40
.04
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
Station 30 (35+00) RS = 30
.04
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)

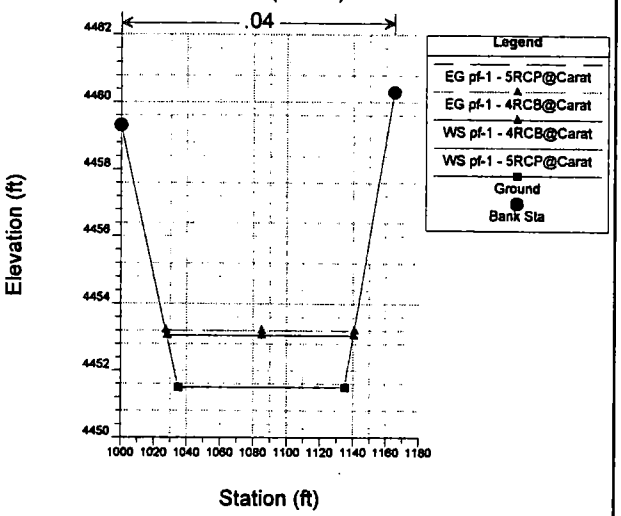
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

Station 20 (36+00) RS = 20



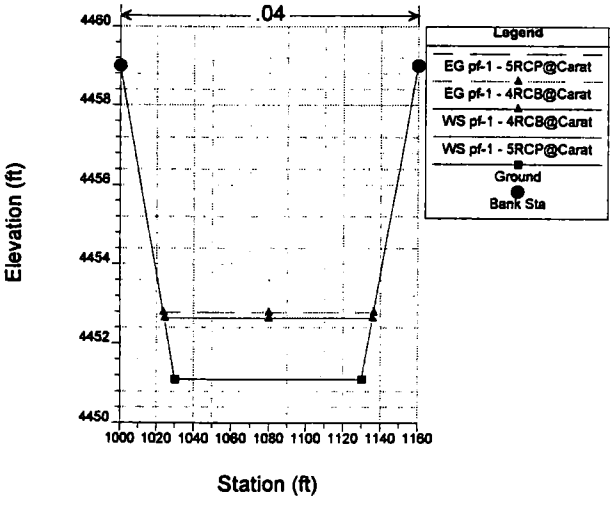
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

Station 10 (37+00) RS = 10



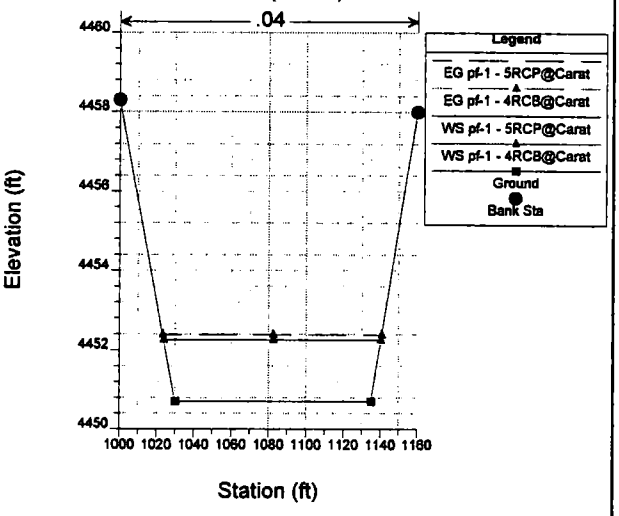
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

Station 9.99 (38+00) RS = 9.99



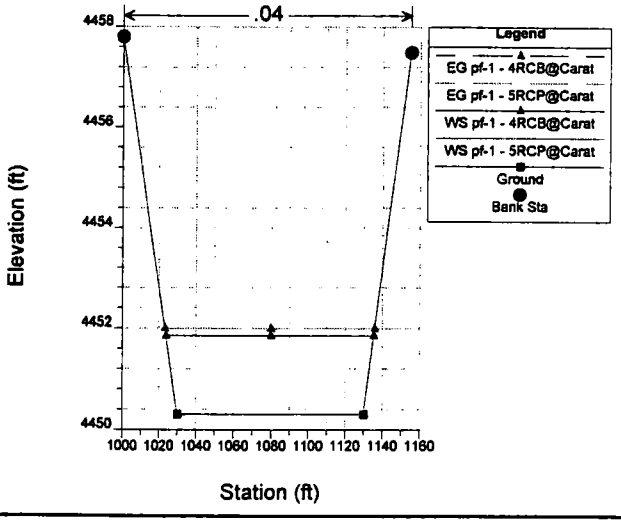
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

Station 9.98 (39+00) RS = 9.98



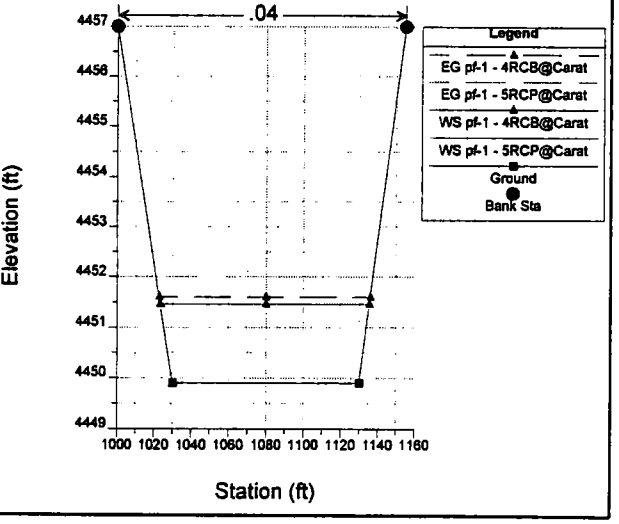
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

Station 9.97 (40+00) RS = 9.97



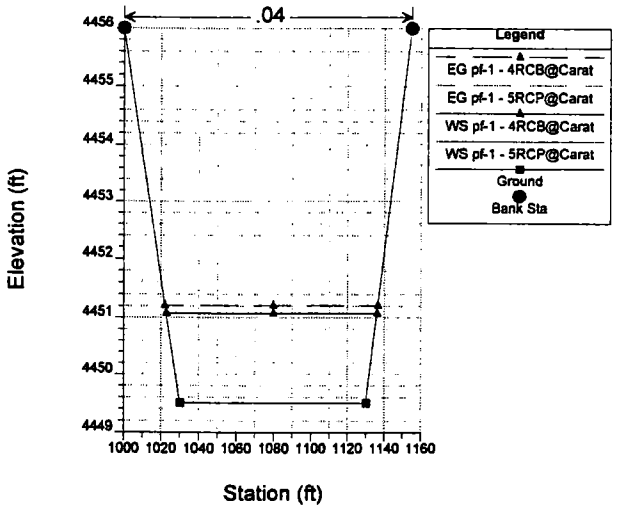
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

Station 9.96 (41+00) RS = 9.96



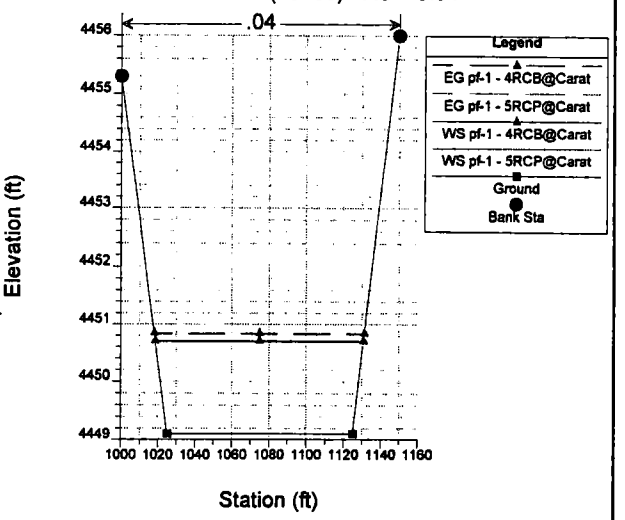
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

Station 9.95 (42+00) RS = 9.95



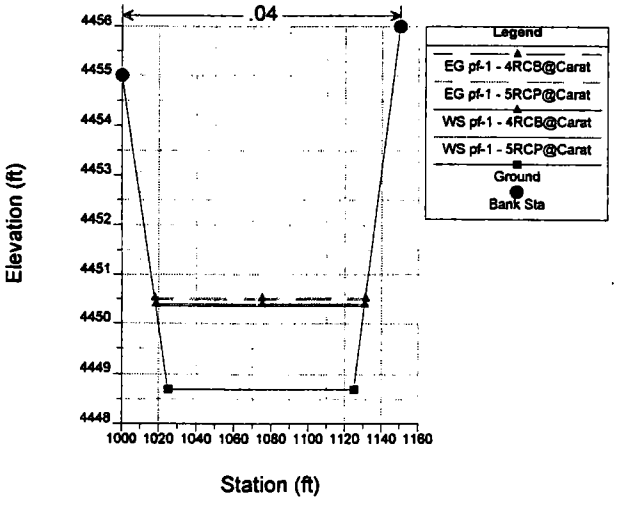
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

Station 9.94 (43+00) RS = 9.94



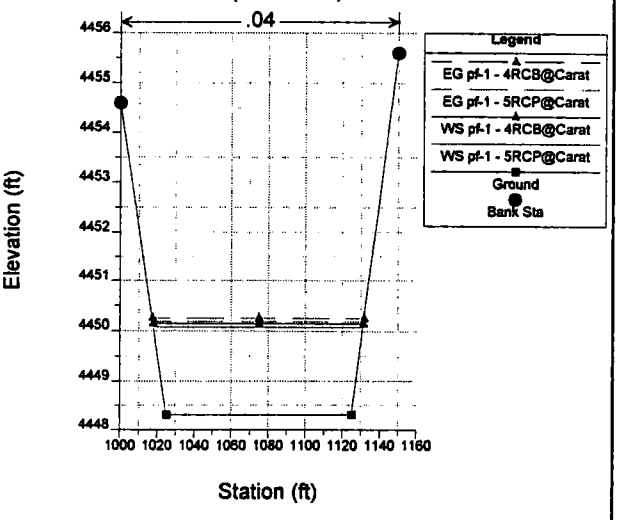
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

Mackay & Shomps point E2 (Sta 44+00) RS = 9.7



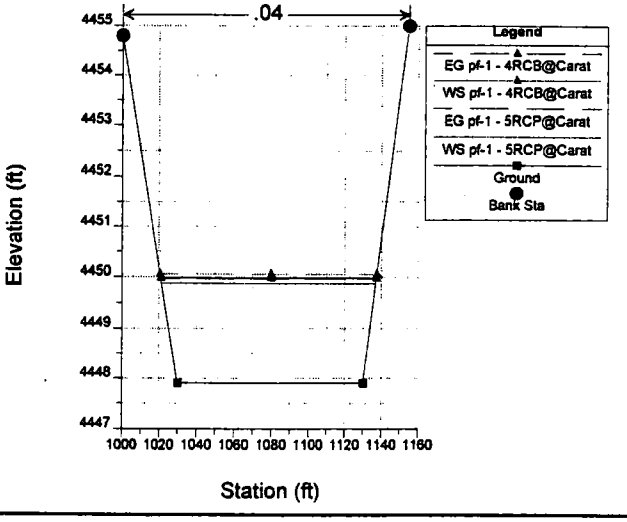
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

RS 9.69 (Sta 45+00) RS = 9.69



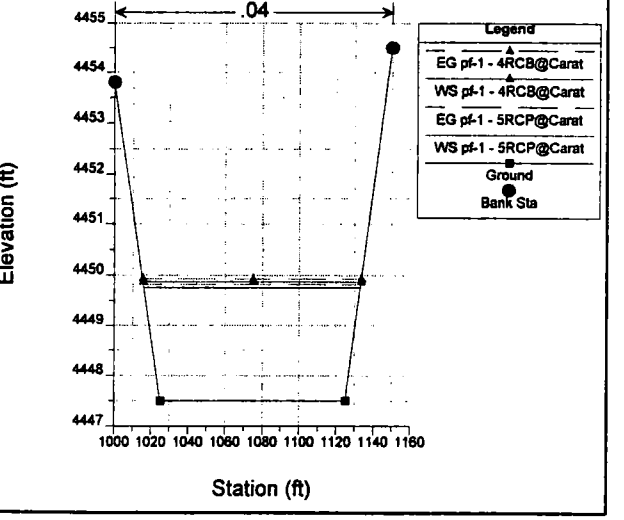
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

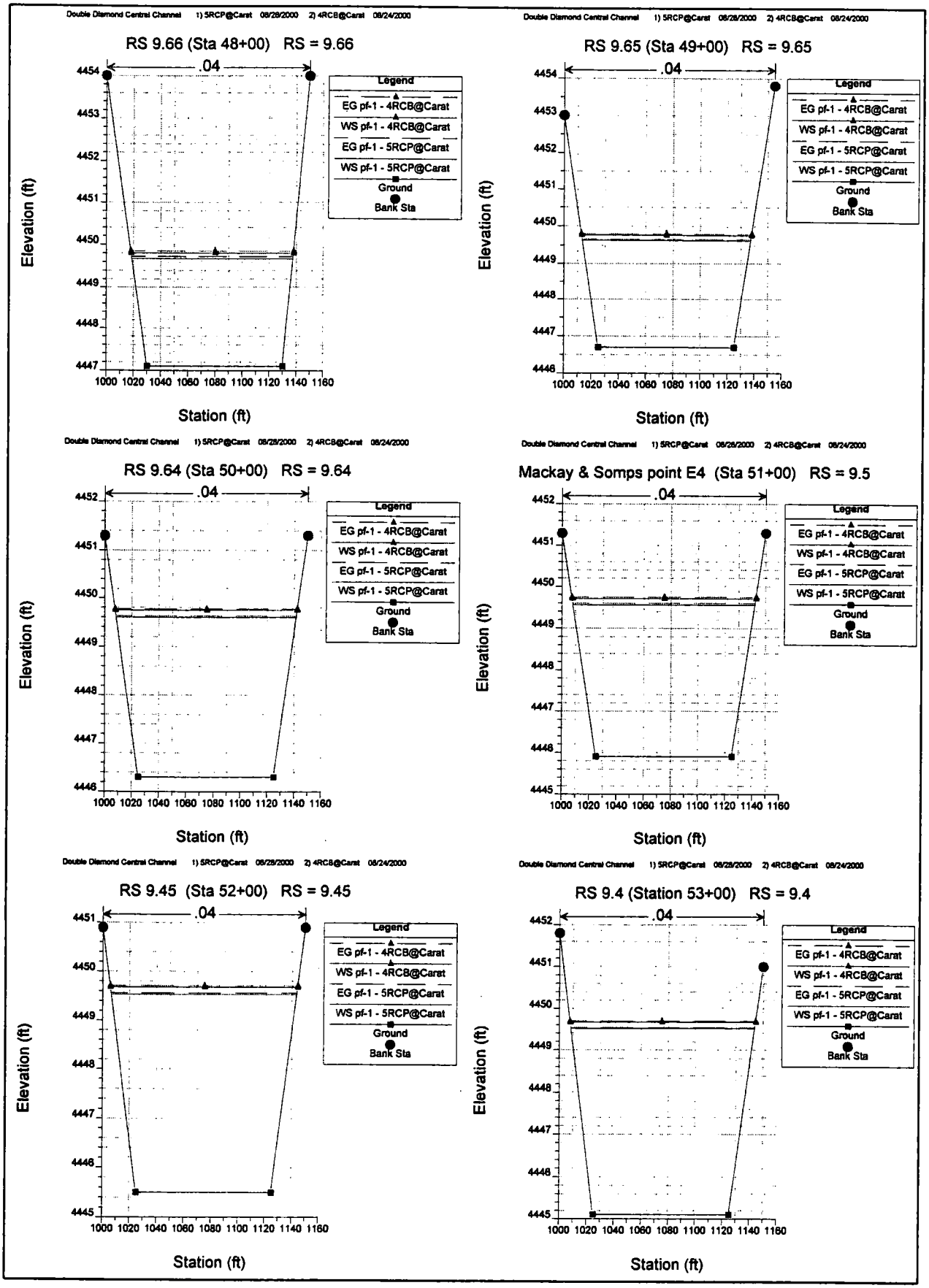
RS 9.68 (Sta 46+00) RS = 9.68



Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

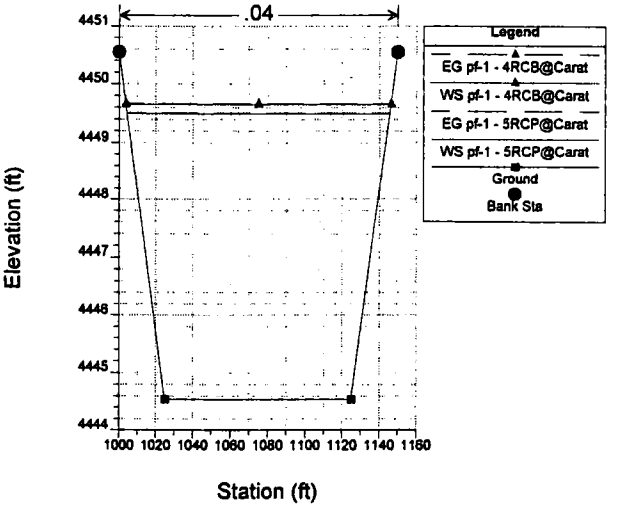
RS 9.67 (Sta 47+00) RS = 9.67




Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
RS 9.66 (Sta 48+00) RS = 9.66
.04
Legend
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
EG pf-1 - 5RCP@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
RS 9.65 (Sta 49+00) RS = 9.65
.04
Legend
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
EG pf-1 - 5RCP@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
RS 9.64 (Sta 50+00) RS = 9.64
.04
Legend
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
EG pf-1 - 5RCP@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
Mackay & Somps point E4 (Sta 51+00) RS = 9.5
.04
Legend
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
EG pf-1 - 5RCP@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
RS 9.45 (Sta 52+00) RS = 9.45
.04
Legend
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
EG pf-1 - 5RCP@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
RS 9.4 (Station 53+00) RS = 9.4
.04
Legend
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
EG pf-1 - 5RCP@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)

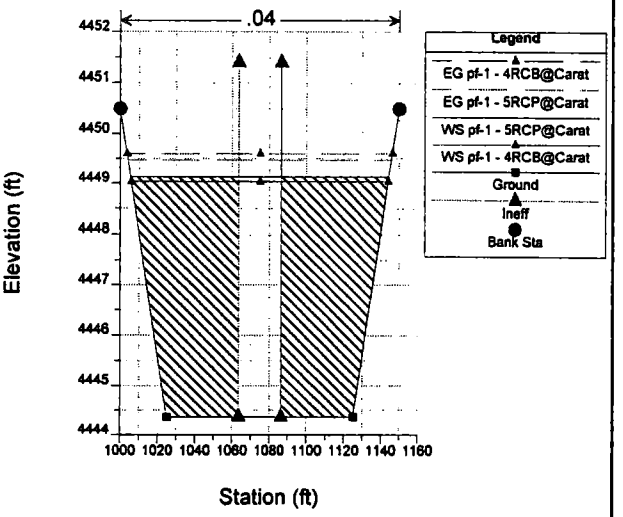
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

Station 9.32 (54+40) RS = 9.32



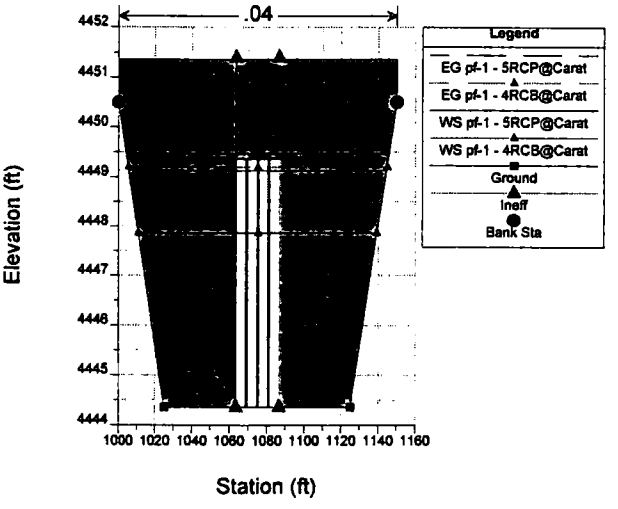
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

RS 9.3 (Station 54+80) Carat Ave Culvert RS = 9.3



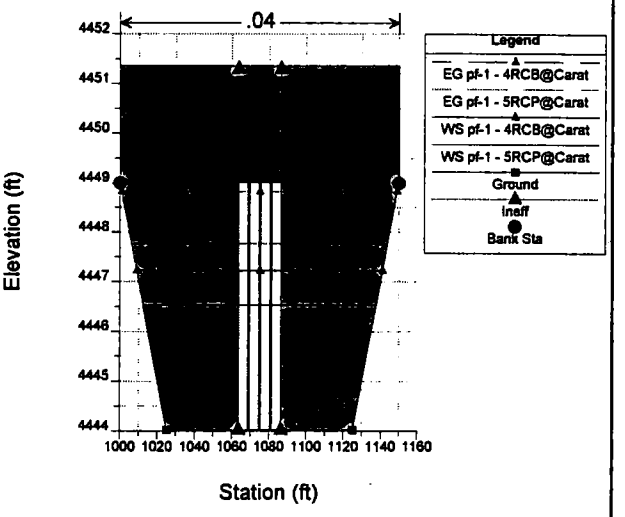
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

Carat Ave. culvert RS = 9.29



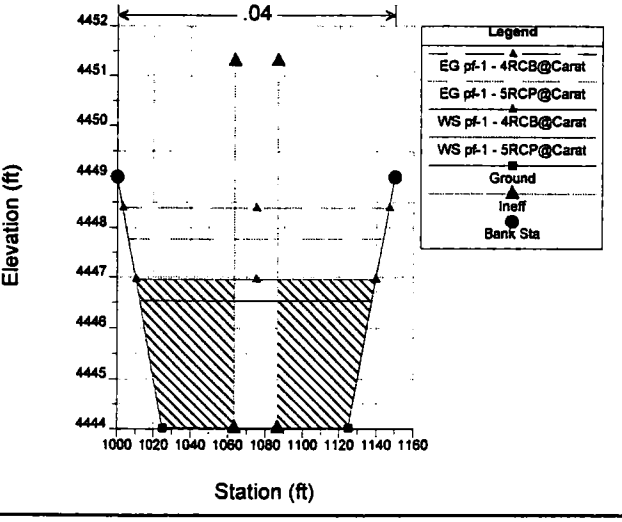
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

Carat Ave. culvert RS = 9.29



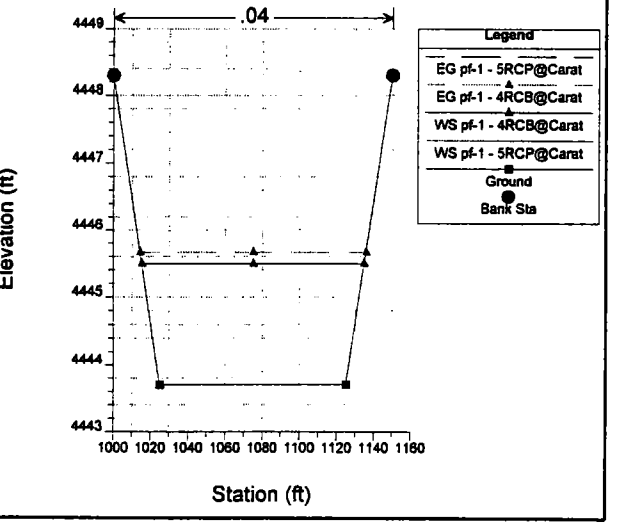
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

RS 9.2 (Station 55+70) Carat Ave Culvert RS = 9.2



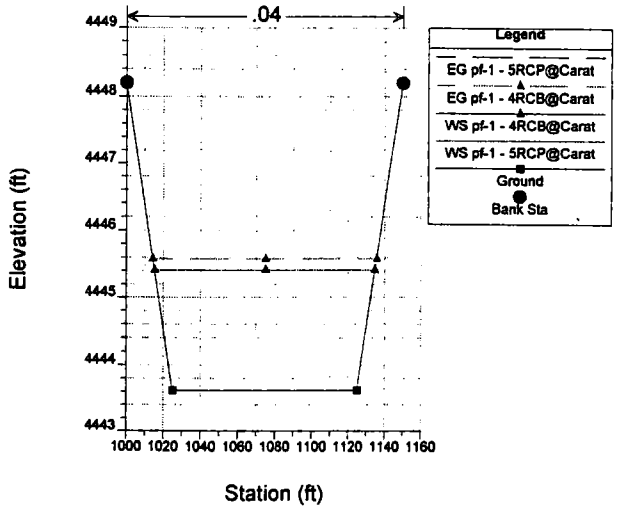
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

Station 9.05 (56+50) RS = 9.05



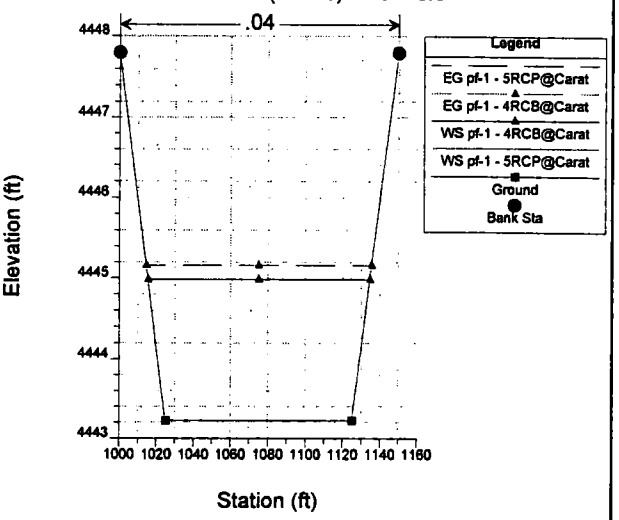
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

Station 9 (56+70) RS = 9



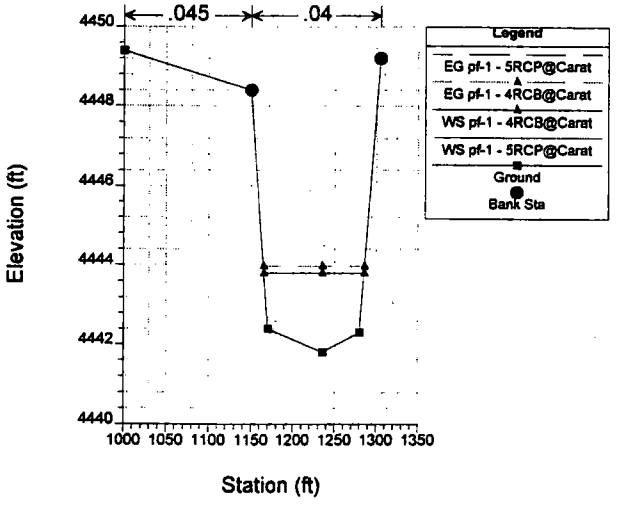
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

Station 8.8 (57+70) RS = 8.8



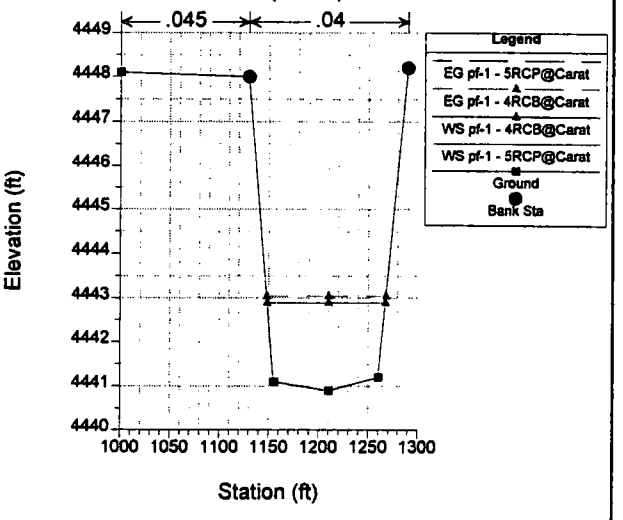
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

Station 8.7 (60+50) RS = 8.7



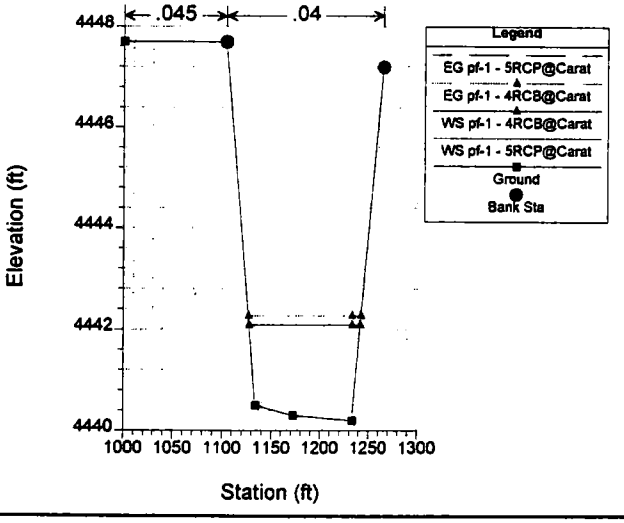
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

Station 8.6 (63+00) RS = 8.6



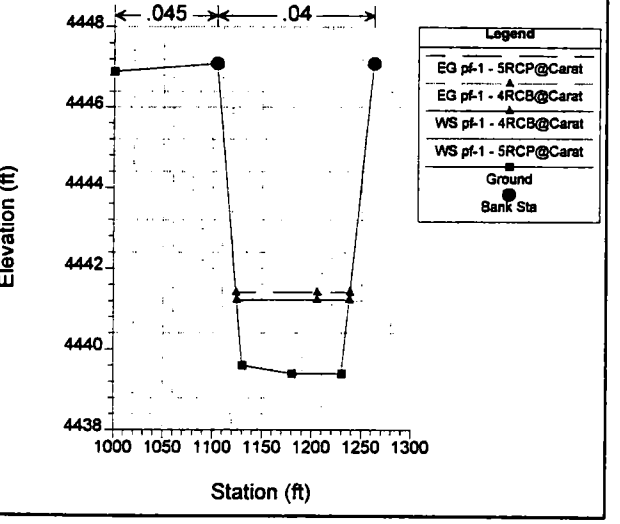
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

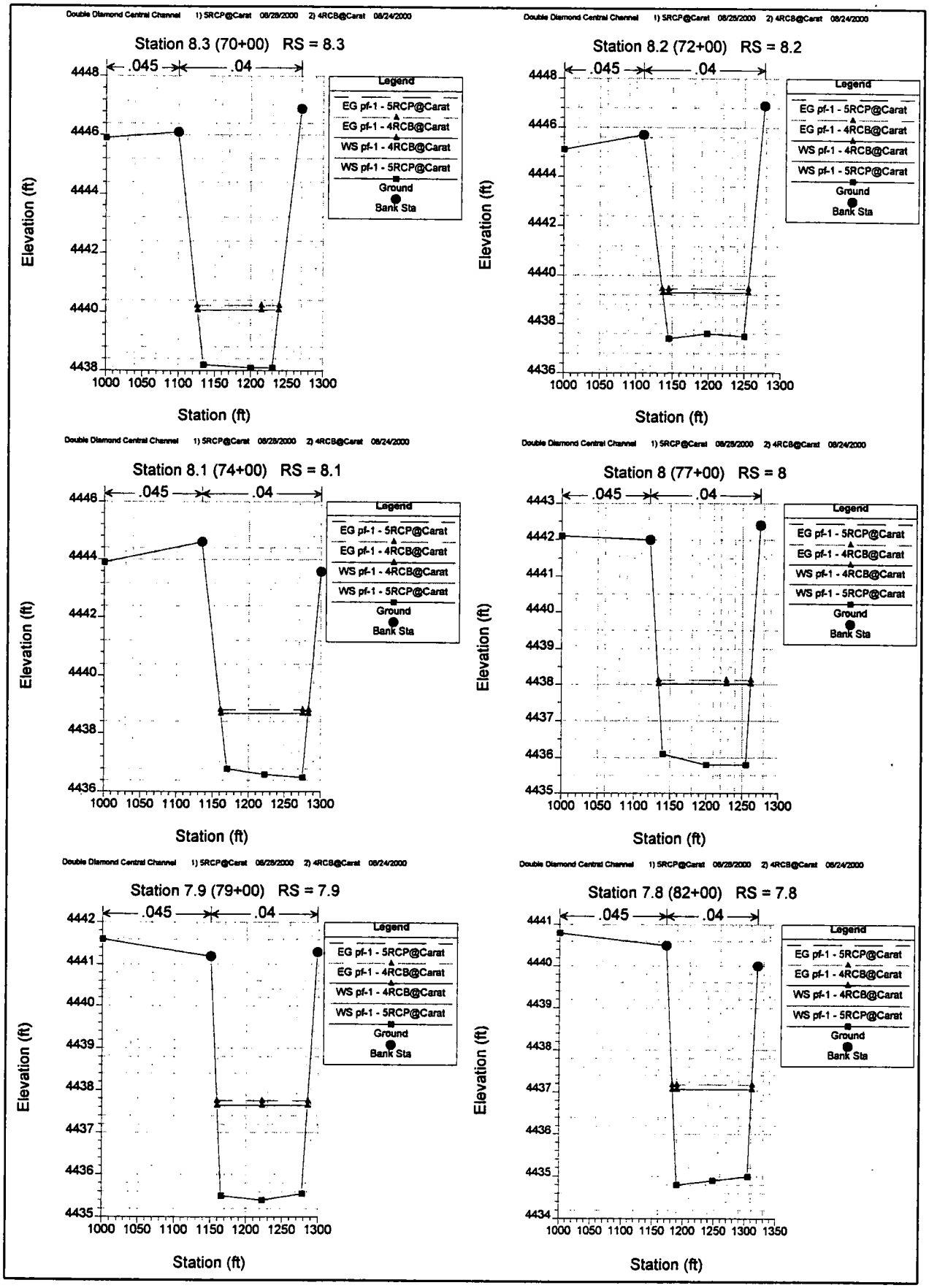
Station 8.5 (65+00) RS = 8.5

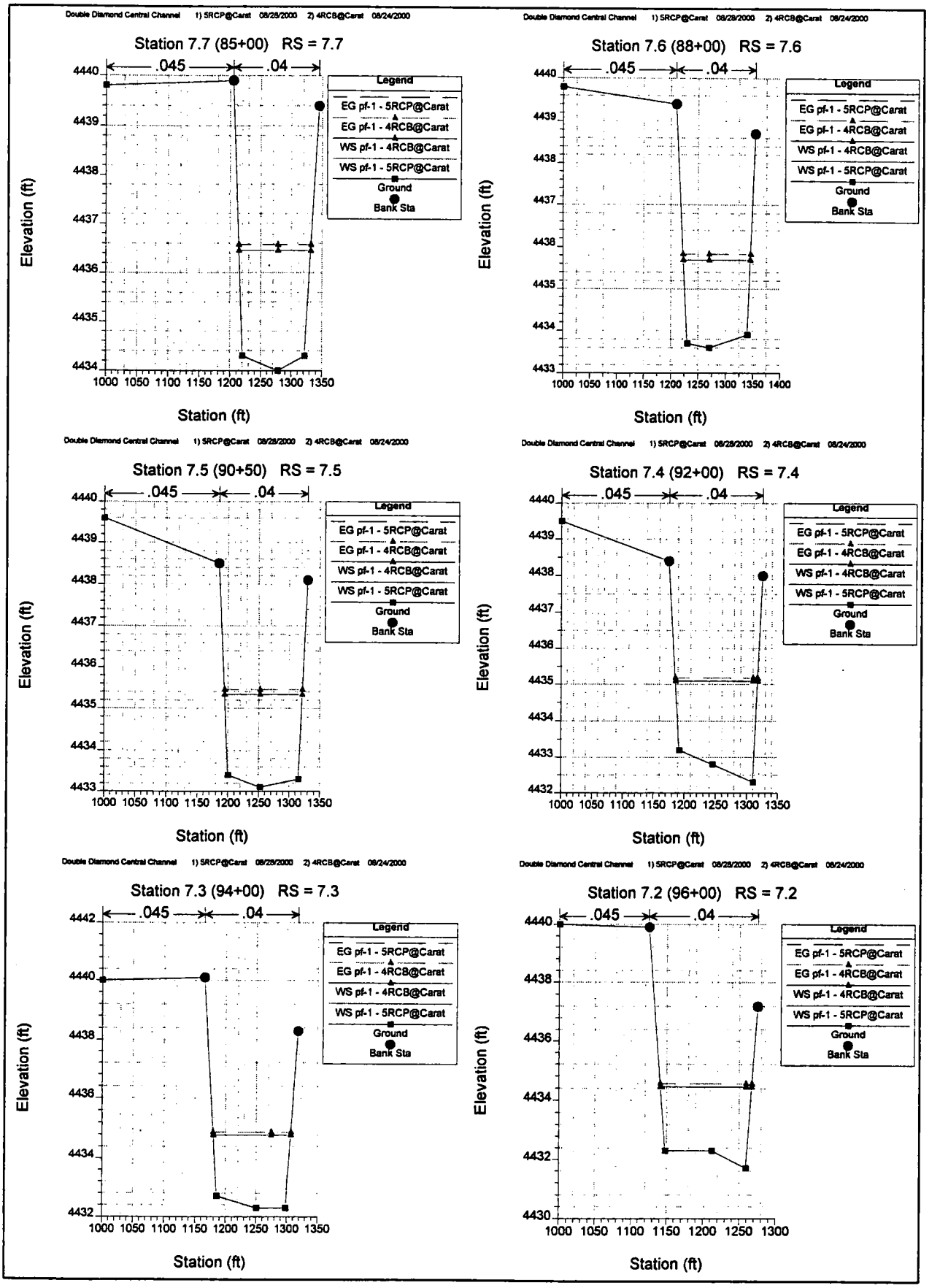


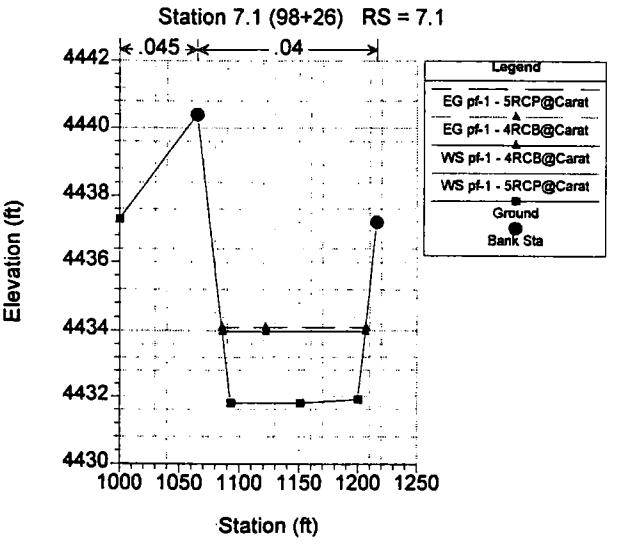
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000

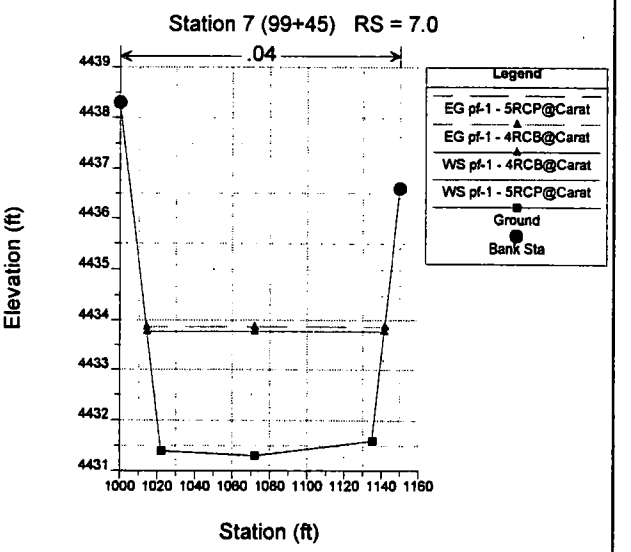
Station 8.4 (67+00) RS = 8.4

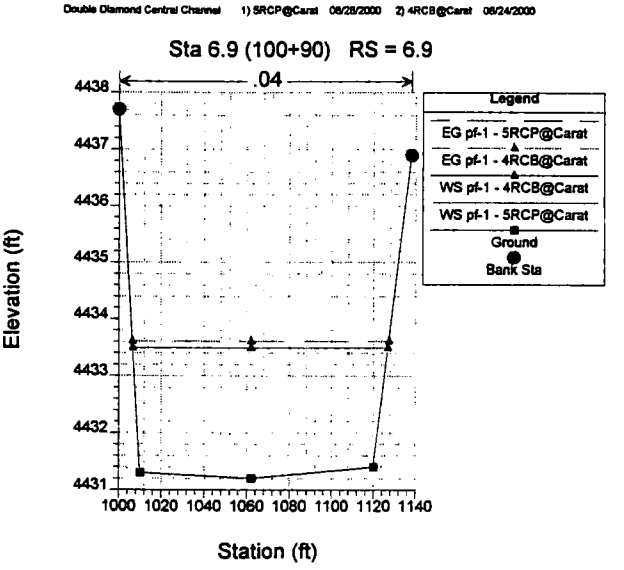



Double Diamond Central Channel 1) 5RCP@Carat 08/29/2000 2) 4RCB@Carat 08/24/2000
Station 8.3 (70+00) RS = 8.3
.045
.04
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)
Double Diamond Central Channel 1) 5RCP@Carat 08/29/2000 2) 4RCB@Carat 08/24/2000
Station 8.2 (72+00) RS = 8.2
.045
.04
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)
Double Diamond Central Channel 1) 5RCP@Carat 08/29/2000 2) 4RCB@Carat 08/24/2000
Station 8.1 (74+00) RS = 8.1
.045
.04
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)
Double Diamond Central Channel 1) 5RCP@Carat 08/29/2000 2) 4RCB@Carat 08/24/2000
Station 8 (77+00) RS = 8
.045
.04
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)
Double Diamond Central Channel 1) 5RCP@Carat 08/29/2000 2) 4RCB@Carat 08/24/2000
Station 7.9 (79+00) RS = 7.9
.045
.04
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)
Double Diamond Central Channel 1) 5RCP@Carat 08/29/2000 2) 4RCB@Carat 08/24/2000
Station 7.8 (82+00) RS = 7.8
.045
.04
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)


Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
Station 7.7 (85+00) RS = 7.7
.045
.04
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
Station 7.6 (88+00) RS = 7.6
.045
.04
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
Station 7.5 (90+50) RS = 7.5
.045
.04
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
Station 7.4 (92+00) RS = 7.4
.045
.04
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
Station 7.3 (94+00) RS = 7.3
.045
.04
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)
Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
Station 7.2 (96+00) RS = 7.2
.045
.04
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta
Elevation (ft)
Station (ft)


Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
Station 7.1 (98+26) RS = 7.1
.045
.04
Elevation (ft)
Station (ft)
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta


Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
Station 7 (99+45) RS = 7.0
.04
Elevation (ft)
Station (ft)
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta

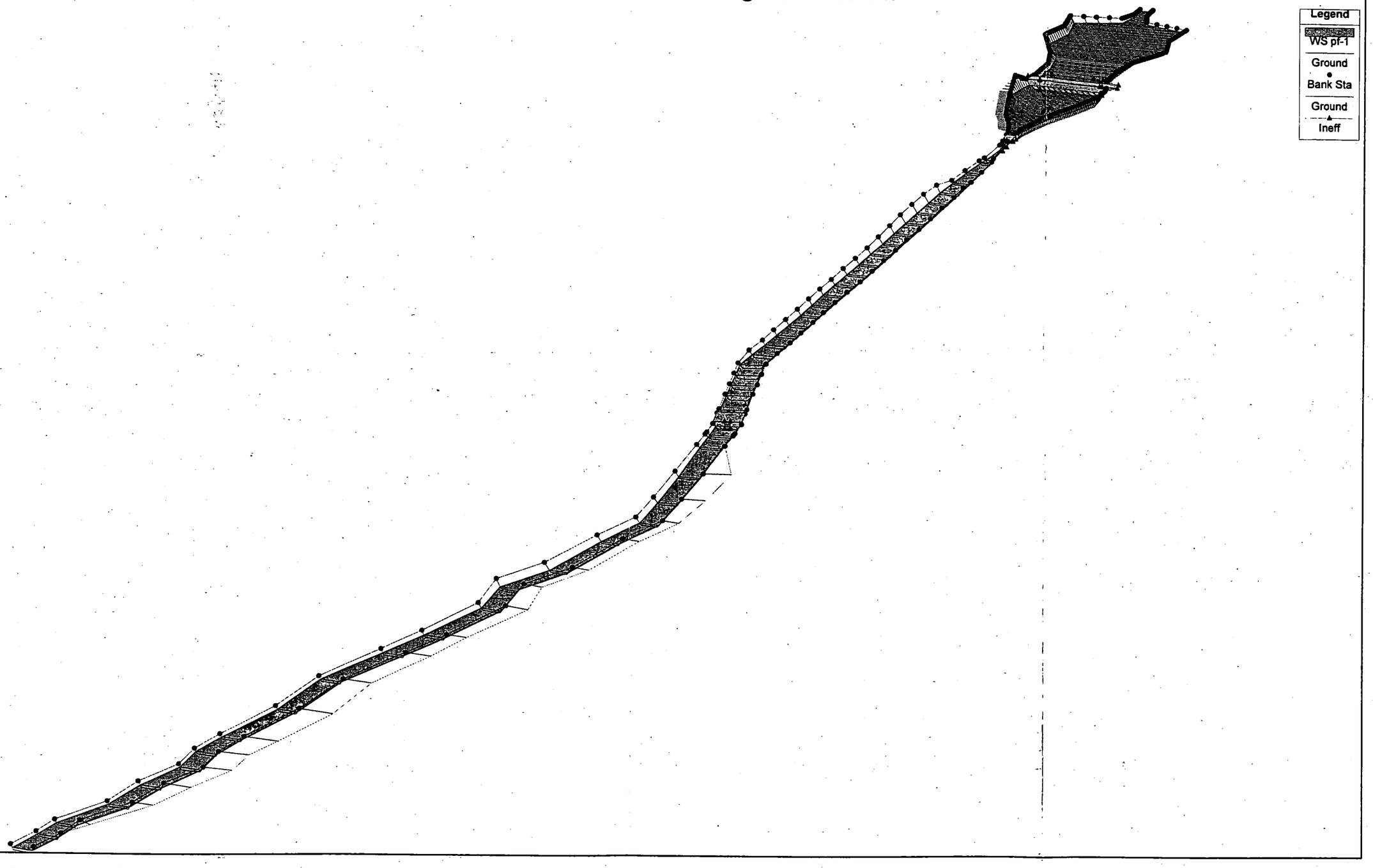

Double Diamond Central Channel 1) 5RCP@Carat 08/28/2000 2) 4RCB@Carat 08/24/2000
Sta 6.9 (100+90) RS = 6.9
.04
Elevation (ft)
Station (ft)
Legend
EG pf-1 - 5RCP@Carat
EG pf-1 - 4RCB@Carat
WS pf-1 - 4RCB@Carat
WS pf-1 - 5RCP@Carat
Ground
Bank Sta

Option #1:

Five, 5-foot Diameter RCP Culverts

at Carat Avenue

Double Diamond Central Channel Central Chan. w/ 5 RCP's @ Carat Av. 08/24/2000



HEC-RAS Plan: 5RCP@Carat River: Whites Creek Reach: Central Channel

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Central Channel	220	300.00	4466.00	4467.53	4467.01	4467.73	0.009187	3.55	84.47	60.22	0.53
Central Channel	219.2*	300.00	4465.92	4467.44		4467.64	0.009489	3.59	83.59	60.11	0.54
Central Channel	218.4*	300.00	4465.84	4467.33		4467.54	0.009914	3.64	82.43	59.97	0.55
Central Channel	217.6*	300.00	4465.76	4467.22		4467.43	0.010735	3.73	80.37	59.75	0.57
Central Channel	216.8*	300.00	4465.68	4467.08		4467.31	0.012353	3.90	76.86	59.40	0.60
Central Channel	216	300.00	4465.60	4466.82		4467.13	0.019582	4.51	66.45	58.35	0.75
Central Channel	215.666*	300.00	4465.55	4466.69		4466.93	0.016414	4.00	75.04	59.36	0.68
Central Channel	215.333*	300.00	4465.50	4466.57		4466.77	0.014466	3.63	82.71	60.52	0.63
Central Channel	215.*	300.00	4465.45	4466.45		4466.63	0.013234	3.35	89.49	91.78	0.60
Central Channel	214.666*	300.00	4465.40	4466.35		4466.50	0.012517	3.15	95.31	103.10	0.58
Central Channel	214.333*	300.00	4465.35	4466.24		4466.38	0.012310	3.00	99.87	114.48	0.57
Central Channel	214	300.00	4465.30	4465.89	4465.87	4466.15	0.040588	4.15	72.22	124.73	0.96
Central Channel	213.*	300.00	4465.22	4465.71		4465.81	0.018375	2.49	120.49	247.79	0.63
Central Channel	212.*	300.00	4465.15	4465.57		4465.63	0.013831	1.95	154.15	370.85	0.53
Central Channel	211.*	300.00	4465.08	4465.44		4465.49	0.012195	1.67	179.52	493.94	0.49
Central Channel	210	300.00	4465.00	4465.34		4465.37	0.009827	1.43	209.37	617.15	0.43
Central Channel	209.*	300.00	4464.90	4465.24		4465.27	0.009802	1.44	208.65	610.67	0.43
Central Channel	208.*	300.00	4464.80	4465.14		4465.18	0.009780	1.44	207.90	604.18	0.43
Central Channel	207.*	300.00	4464.70	4465.05		4465.08	0.009808	1.45	206.83	597.70	0.43
Central Channel	206.*	300.00	4464.60	4464.95		4464.98	0.009793	1.46	206.02	591.21	0.43
Central Channel	205.*	300.00	4464.50	4464.85		4464.89	0.009738	1.46	205.46	584.73	0.43
Central Channel	204.*	300.00	4464.40	4464.75		4464.79	0.009732	1.47	204.59	578.25	0.43
Central Channel	203.*	300.00	4464.30	4464.66		4464.69	0.009686	1.47	203.96	571.76	0.43
Central Channel	202.*	300.00	4464.20	4464.56		4464.59	0.009732	1.48	202.74	565.28	0.44
Central Channel	201.*	300.00	4464.10	4464.46		4464.50	0.009782	1.49	201.49	558.79	0.44
Central Channel	200	300.00	4464.00	4464.36		4464.39	0.010244	1.52	197.80	552.27	0.45
Central Channel	199.*	300.00	4463.90	4464.26		4464.29	0.010242	1.51	199.07	561.14	0.45
Central Channel	198.*	300.00	4463.80	4464.15		4464.19	0.010201	1.50	200.56	570.02	0.44
Central Channel	197.*	300.00	4463.70	4464.05		4464.08	0.010216	1.49	201.72	578.89	0.44
Central Channel	196.*	300.00	4463.60	4463.95		4463.98	0.010238	1.48	202.82	587.76	0.44
Central Channel	195.*	300.00	4463.50	4463.84		4463.88	0.010220	1.47	204.14	596.64	0.44
Central Channel	194.*	300.00	4463.40	4463.74		4463.77	0.010209	1.46	205.42	605.51	0.44
Central Channel	193.*	300.00	4463.30	4463.64		4463.67	0.010156	1.45	206.94	614.39	0.44
Central Channel	192.*	300.00	4463.20	4463.53		4463.57	0.010208	1.44	207.82	623.26	0.44
Central Channel	191.*	300.00	4463.10	4463.43		4463.46	0.010217	1.44	208.94	632.14	0.44
Central Channel	190	300.00	4463.00	4463.34		4463.37	0.009416	1.39	215.32	641.07	0.42
Central Channel	189.*	300.00	4462.90	4463.24		4463.27	0.009368	1.41	212.82	620.20	0.42
Central Channel	188.*	300.00	4462.80	4463.15		4463.18	0.009227	1.42	210.88	599.37	0.42
Central Channel	187.*	300.00	4462.70	4463.06		4463.09	0.009089	1.44	208.87	578.56	0.42
Central Channel	186.*	300.00	4462.60	4462.97		4463.00	0.009035	1.45	206.20	557.76	0.42
Central Channel	185.*	300.00	4462.50	4462.88		4462.91	0.008948	1.47	203.69	537.01	0.42
Central Channel	184.*	300.00	4462.40	4462.79		4462.82	0.008907	1.49	200.78	516.29	0.42
Central Channel	183.*	300.00	4462.30	4462.70		4462.74	0.008807	1.51	198.20	495.64	0.42
Central Channel	182.*	300.00	4462.20	4462.61		4462.65	0.008796	1.54	194.94	475.05	0.42
Central Channel	181.*	300.00	4462.10	4462.52		4462.58	0.008840	1.57	191.24	454.54	0.43
Central Channel	180	300.00	4462.00	4462.25	4462.25	4462.37	0.058383	2.82	106.36	431.94	1.00
Central Channel	179.*	300.00	4461.50	4461.65	4461.75	4461.98	0.290332	4.61	65.08	421.27	2.07
Central Channel	178.*	300.00	4461.00	4461.25	4461.25	4461.38	0.084300	2.96	101.45	412.63	1.05
Central Channel	177.*	300.00	4460.50	4461.28	4460.76	4461.29	0.001443	0.95	315.51	407.92	0.19
Central Channel	176.*	300.00	4460.00	4461.28		4461.29	0.000289	0.59	508.28	402.31	0.09
Central Channel	175.*	300.00	4459.50	4461.28		4461.28	0.000101	0.43	692.94	396.25	0.06
Central Channel	174.*	300.00	4459.00	4461.28		4461.28	0.000046	0.35	869.46	389.83	0.04
Central Channel	173.*	300.00	4458.50	4461.28		4461.28	0.000025	0.29	1037.70	383.14	0.03
Central Channel	172.*	300.00	4458.00	4461.28		4461.28	0.000015	0.25	1197.52	376.22	0.02
Central Channel	171.*	300.00	4457.50	4461.28		4461.28	0.000010	0.22	1348.82	369.12	0.02
Central Channel	170	300.00	4457.00	4461.28		4461.28	0.000007	0.20	1491.55	361.88	0.02
Central Channel	169.*	300.00	4456.90	4461.28		4461.28	0.000006	0.20	1528.05	362.80	0.02
Central Channel	168.*	300.00	4456.80	4461.28		4461.28	0.000006	0.19	1564.68	363.77	0.02
Central Channel	167.*	300.00	4456.70	4461.28		4461.28	0.000006	0.19	1601.26	364.75	0.02
Central Channel	166.*	300.00	4456.60	4461.28		4461.28	0.000005	0.18	1638.15	365.76	0.02
Central Channel	165.*	300.00	4456.50	4461.28		4461.28	0.000005	0.18	1675.17	366.80	0.01
Central Channel	164.*	300.00	4456.40	4461.28		4461.28	0.000004	0.18	1712.34	367.85	0.01
Central Channel	163.*	300.00	4456.30	4461.28		4461.28	0.000004	0.17	1749.65	368.94	0.01
Central Channel	162.*	300.00	4456.20	4461.28		4461.28	0.000004	0.17	1788.93	370.04	0.01
Central Channel	161.*	300.00	4456.10	4461.28		4461.28	0.000004	0.16	1824.53	371.16	0.01
Central Channel	160	300.00	4456.00	4461.27	4456.72	4461.28	0.000049	0.62	485.17	372.27	0.05
Central Channel	157.5*	300.00	4455.95	4461.28		4461.28	0.000003	0.15	1983.70	390.11	0.01
Central Channel	155.*	300.00	4455.90	4460.97	4458.32	4461.26	0.002317	4.22	71.03	406.09	0.33
Central Channel	152	Mult Open									
Central Channel	150	300.00	4455.75	4459.26	4458.18	4459.84	0.008024	6.12	49.01	421.27	0.58
Central Channel	148.75*	300.00	4455.71	4459.55		4459.55	0.000007	0.19	1612.19	431.18	0.02
Central Channel	147.5*	300.00	4455.67	4459.55		4459.55	0.000006	0.18	1660.41	439.37	0.02
Central Channel	146.25*	300.00	4455.64	4459.55		4459.55	0.000006	0.18	1704.74	447.52	0.02
Central Channel	145	300.00	4455.60	4459.55		4459.55	0.000006	0.17	1754.18	455.71	0.02
Central Channel	144.166*	300.00	4455.56	4459.55		4459.55	0.000005	0.17	1784.17	458.83	0.02

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Central Channel	143.333*	300.00	4455.52	4459.55		4459.55	0.000005	0.17	1814.72	462.11	0.01
Central Channel	142.5*	300.00	4455.48	4459.55		4459.55	0.000005	0.16	1845.94	465.59	0.01
Central Channel	141.666*	300.00	4455.43	4459.55		4459.55	0.000005	0.16	1882.64	469.44	0.01
Central Channel	140.833*	300.00	4455.39	4459.55		4459.55	0.000004	0.16	1916.28	473.82	0.01
Central Channel	140	300.00	4455.35	4459.55		4459.55	0.000004	0.15	1952.33	479.21	0.01
Central Channel	139.*	300.00	4455.31	4459.55		4459.55	0.000004	0.16	1922.99	468.30	0.01
Central Channel	138.*	300.00	4455.27	4459.55		4459.55	0.000004	0.16	1892.78	457.41	0.01
Central Channel	137.*	300.00	4455.22	4459.55		4459.55	0.000004	0.16	1865.93	446.56	0.01
Central Channel	136.*	300.00	4455.18	4459.55		4459.55	0.000004	0.16	1833.85	435.69	0.01
Central Channel	135.*	300.00	4455.14	4459.55		4459.55	0.000005	0.17	1800.89	424.84	0.01
Central Channel	134.*	300.00	4455.10	4459.55		4459.55	0.000005	0.17	1767.07	414.00	0.01
Central Channel	133.*	300.00	4455.06	4459.55		4459.55	0.000005	0.17	1732.37	403.18	0.01
Central Channel	132.*	300.00	4455.01	4459.55		4459.55	0.000005	0.18	1700.70	392.40	0.01
Central Channel	131.*	300.00	4454.97	4459.55		4459.55	0.000005	0.18	1663.98	381.61	0.02
Central Channel	130	300.00	4454.93	4459.55		4459.55	0.000005	0.18	1626.57	370.83	0.02
Central Channel	129.*	300.00	4454.89	4459.55		4459.55	0.000006	0.19	1574.22	357.63	0.02
Central Channel	128.*	300.00	4454.84	4459.55		4459.55	0.000006	0.20	1524.18	344.48	0.02
Central Channel	127.*	300.00	4454.80	4459.55		4459.55	0.000007	0.20	1469.52	331.33	0.02
Central Channel	126.*	300.00	4454.76	4459.55		4459.55	0.000007	0.21	1413.79	318.20	0.02
Central Channel	125.*	300.00	4454.71	4459.55		4459.55	0.000008	0.22	1359.78	305.13	0.02
Central Channel	124.*	300.00	4454.67	4459.55		4459.55	0.000008	0.23	1301.74	292.05	0.02
Central Channel	123.*	300.00	4454.63	4459.55		4459.55	0.000009	0.24	1242.64	279.00	0.02
Central Channel	122.*	300.00	4454.59	4459.55		4459.55	0.000010	0.25	1182.45	265.96	0.02
Central Channel	121.*	300.00	4454.54	4459.55		4459.55	0.000011	0.27	1123.45	252.99	0.02
Central Channel	120	300.00	4454.50	4459.55		4459.55	0.000013	0.28	1060.98	240.00	0.02
Central Channel	118.333*	300.00	4454.46	4459.55		4459.55	0.000014	0.30	1002.81	225.78	0.03
Central Channel	116.666*	300.00	4454.42	4459.55		4459.55	0.000016	0.32	943.33	211.60	0.03
Central Channel	115.*	300.00	4454.38	4459.55		4459.55	0.000018	0.34	882.72	197.32	0.03
Central Channel	113.333*	300.00	4454.33	4459.55		4459.55	0.000021	0.36	822.67	183.10	0.03
Central Channel	111.666*	300.00	4454.29	4459.55		4459.55	0.000024	0.39	759.54	168.76	0.03
Central Channel	110.*	300.00	4454.25	4459.55		4459.55	0.000029	0.43	695.46	154.45	0.04
Central Channel	109.285*	300.00	4454.21	4459.55		4459.55	0.000033	0.46	650.39	144.21	0.04
Central Channel	108.571*	300.00	4454.17	4459.55		4459.55	0.000038	0.50	604.42	133.92	0.04
Central Channel	107.857*	300.00	4454.13	4459.55		4459.55	0.000045	0.54	557.83	123.66	0.04
Central Channel	107.142*	300.00	4454.10	4459.55		4459.55	0.000054	0.59	509.36	113.37	0.05
Central Channel	106.428*	300.00	4454.06	4459.54		4459.55	0.000067	0.65	461.30	103.10	0.05
Central Channel	105.714*	300.00	4454.02	4459.54		4459.55	0.000084	0.73	412.29	92.77	0.06
Central Channel	105.*	300.00	4453.98	4459.54		4459.55	0.000111	0.83	362.58	82.47	0.07
Central Channel	103.333*	300.00	4453.93	4459.54		4459.55	0.000132	0.90	331.63	74.66	0.08
Central Channel	101.666*	300.00	4453.88	4459.53		4459.55	0.000160	1.00	299.97	66.84	0.08
Central Channel	100	300.00	4453.83	4459.17	4456.51	4459.51	0.002659	4.68	64.08	57.51	0.36
Central Channel	97	Culvert									
Central Channel	95	300.00	4453.25	4455.14	4455.93	4457.86	0.054386	13.24	22.66	15.15	0.36
Central Channel	90	300.00	4453.14	4454.99	4454.61	4455.37	0.010019	4.99	60.13	38.09	0.70
Central Channel	80	300.00	4453.11	4454.97		4455.13	0.003724	3.18	94.35	58.19	0.43
Central Channel	70	300.00	4453.00	4454.71		4454.81	0.002534	2.54	118.25	74.26	0.35
Central Channel	60	300.00	4452.90	4454.52		4454.59	0.001841	2.11	142.12	92.71	0.30
Central Channel	50	300.00	4452.80	4454.37		4454.42	0.001417	1.83	163.98	109.05	0.26
Central Channel	40	300.00	4452.70	4454.22		4454.27	0.001561	1.86	161.04	112.24	0.27
Central Channel	30	500.00	4452.30	4453.85		4454.00	0.004009	3.04	164.73	111.98	0.44
Central Channel	20	500.00	4451.90	4453.45		4453.60	0.003995	3.03	165.24	112.57	0.44
Central Channel	10	500.00	4451.50	4453.05		4453.19	0.004039	3.04	164.52	112.24	0.44
Central Channel	9.99	500.00	4451.10	4452.63		4452.78	0.004214	3.08	162.08	111.63	0.45
Central Channel	9.98	500.00	4450.70	4452.25		4452.38	0.003879	2.91	171.70	116.43	0.42
Central Channel	9.97	500.00	4450.30	4451.88		4452.00	0.004003	3.04	164.61	111.62	0.44
Central Channel	9.96	500.00	4449.90	4451.48		4451.60	0.003979	3.03	165.16	112.07	0.44
Central Channel	9.95	500.00	4449.50	4451.07		4451.21	0.003877	2.99	167.13	113.28	0.43
Central Channel	9.94	500.00	4449.10	4450.69		4450.83	0.003696	2.96	168.93	112.19	0.43
Central Channel	9.7	500.00	4448.70	4450.35		4450.48	0.003274	2.85	175.22	112.21	0.40
Central Channel	9.69	500.00	4448.30	4450.08		4450.18	0.002582	2.64	189.25	113.13	0.36
Central Channel	9.68	500.00	4447.90	4449.88		4449.97	0.001760	2.34	213.85	115.60	0.30
Central Channel	9.67	500.00	4447.50	4449.76		4449.82	0.001137	2.04	244.83	117.01	0.25
Central Channel	9.66	500.00	4447.10	4449.68		4449.73	0.000725	1.77	281.90	118.68	0.20
Central Channel	9.65	500.00	4446.70	4449.63		4449.67	0.000483	1.52	328.13	124.01	0.17
Central Channel	9.64	500.00	4446.30	4449.60		4449.63	0.000300	1.30	384.49	133.00	0.13
Central Channel	9.5	650.00	4445.90	4449.56		4449.59	0.000359	1.52	427.52	133.85	0.15
Central Channel	9.45	650.00	4445.50	4449.53		4449.56	0.000256	1.36	478.36	137.33	0.13
Central Channel	9.4	650.00	4445.10	4449.51		4449.54	0.000191	1.25	518.77	135.18	0.11
Central Channel	9.32	650.00	4444.54	4449.49		4449.51	0.000127	1.09	597.58	141.22	0.09
Central Channel	9.3	650.00	4444.36	4449.12	4446.85	4449.47	0.002001	4.70	138.16	138.80	0.38
Central Channel	9.29	Culvert									
Central Channel	9.2	650.00	4444.02	4446.53	4446.53	4447.77	0.016858	8.92	72.90	125.24	0.99
Central Channel	9.05	650.00	4443.70	4445.49	4444.77	4445.66	0.004085	3.30	196.71	119.49	0.45
Central Channel	9	650.00	4443.62	4445.41		4445.58	0.004099	3.31	196.55	119.55	0.45
Central Channel	8.8	650.00	4443.22	4444.98		4445.16	0.004348	3.37	192.88	119.21	0.47

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Central Channel	8.7	650.00	4441.80	4443.80		4443.97	0.004110	3.30	196.82	120.11	0.45
Central Channel	8.6	650.00	4440.90	4442.89		4443.04	0.003394	3.13	207.48	118.70	0.42
Central Channel	8.5	650.00	4440.20	4442.09		4442.27	0.004310	3.42	190.21	114.29	0.47
Central Channel	8.4	650.00	4439.40	4441.23		4441.41	0.004328	3.43	189.35	113.24	0.47
Central Channel	8.3	650.00	4438.10	4440.05		4440.22	0.003666	3.28	198.13	112.05	0.43
Central Channel	8.2	650.00	4437.40	4439.28		4439.45	0.004017	3.30	197.02	118.26	0.45
Central Channel	8.1	675.00	4436.50	4438.67		4438.80	0.002629	2.92	230.99	121.04	0.37
Central Channel	8	675.00	4435.80	4438.02		4438.13	0.001914	2.60	259.59	127.59	0.32
Central Channel	7.9	675.00	4435.40	4437.65		4437.75	0.001862	2.59	260.40	125.94	0.32
Central Channel	7.8	700.00	4434.80	4437.07		4437.18	0.001970	2.66	263.65	128.35	0.33
Central Channel	7.7	700.00	4434.00	4436.45		4436.57	0.002060	2.79	251.08	117.45	0.34
Central Channel	7.6	700.00	4433.60	4435.69		4435.84	0.002936	3.05	229.58	122.59	0.39
Central Channel	7.5	700.00	4433.10	4435.33		4435.45	0.002178	2.75	254.78	127.04	0.34
Central Channel	7.4	700.00	4432.30	4435.09		4435.18	0.001452	2.40	291.82	131.51	0.28
Central Channel	7.3	700.00	4432.30	4434.79		4434.88	0.001512	2.46	284.25	126.93	0.29
Central Channel	7.2	700.00	4431.70	4434.45		4434.56	0.001747	2.58	271.03	125.52	0.31
Central Channel	7.1	700.00	4431.80	4433.97		4434.10	0.002343	2.87	243.92	120.32	0.36
Central Channel	7.0	700.00	4431.30	4433.77		4433.87	0.001531	2.47	283.25	127.07	0.29
Central Channel	6.9	700.00	4431.20	4433.49	4432.34	4433.61	0.002040	2.75	254.48	120.27	0.33

CROSS-SECTION TABLES

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 220 Profile: pf-1

E.G. Elev (ft)	4467.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.		0.050	
W.S. Elev (ft)	4467.53	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	4467.01	Flow Area (sq ft)		84.47	
E.G. Slope (ft/ft)	0.009187	Area (sq ft)		84.47	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	60.22	Top Width (ft)		60.22	
Vel Total (ft/s)	3.55	Avg. Vel. (ft/s)		3.55	
Max Chl Dpth (ft)	1.53	Hydr. Depth (ft)		1.40	
Conv. Total (cfs)	3129.9	Conv. (cfs)		3129.9	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		60.67	
Min Ch El (ft)	4466.00	Shear (lb/sq ft)		0.80	
Alpha	1.00	Stream Power (lb/ft s)		2.84	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)		62.08	
C & E Loss (ft)	0.00	Cum SA (acres)		29.27	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 216 Profile: pf-1

E.G. Elev (ft)	4467.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.		0.050	
W.S. Elev (ft)	4466.82	Reach Len. (ft)	7.50	9.17	16.67
Crit W.S. (ft)		Flow Area (sq ft)		66.45	
E.G. Slope (ft/ft)	0.019582	Area (sq ft)		66.45	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	58.35	Top Width (ft)		58.35	
Vel Total (ft/s)	4.51	Avg. Vel. (ft/s)		4.51	
Max Chl Dpth (ft)	1.22	Hydr. Depth (ft)		1.14	
Conv. Total (cfs)	2143.8	Conv. (cfs)		2143.8	
Length Wtd. (ft)	9.17	Wetted Per. (ft)		58.74	
Min Ch El (ft)	4465.60	Shear (lb/sq ft)		1.38	
Alpha	1.00	Stream Power (lb/ft s)		6.24	
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)		61.99	
C & E Loss (ft)	0.03	Cum SA (acres)		29.20	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 214 Profile: pf-1

E.G. Elev (ft)	4466.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.050	
W.S. Elev (ft)	4465.89	Reach Len. (ft)	10.00	10.00	131.24
Crit W.S. (ft)	4465.87	Flow Area (sq ft)		72.22	
E.G. Slope (ft/ft)	0.040588	Area (sq ft)		72.22	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	124.73	Top Width (ft)		124.73	
Vel Total (ft/s)	4.15	Avg. Vel. (ft/s)		4.15	
Max Chl Dpth (ft)	0.59	Hydr. Depth (ft)		0.58	

Plan: SRCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 214 Profile: pf-1 (Continued)

Conv. Total (cfs)	1489.1	Conv. (cfs)		1489.1	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		124.99	
Min Ch El (ft)	4465.30	Shear (lb/sq ft)		1.46	
Alpha	1.00	Stream Power (lb/ft s)		6.08	
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)		61.88	
C & E Loss (ft)	0.08	Cum SA (acres)		29.08	

Errors Warnings and Notes

Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
	than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 210 Profile: pf-1

E.G. Elev (ft)	4465.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.		0.050	
W.S. Elev (ft)	4465.34	Reach Len. (ft)	9.50	10.00	9.50
Crit W.S. (ft)		Flow Area (sq ft)		209.37	
E.G. Slope (ft/ft)	0.009827	Area (sq ft)		209.37	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	617.15	Top Width (ft)		617.15	
Vel Total (ft/s)	1.43	Avg. Vel. (ft/s)		1.43	
Max Chl Dpth (ft)	0.34	Hydr. Depth (ft)		0.34	
Conv. Total (cfs)	3026.2	Conv. (cfs)		3026.2	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		617.26	
Min Ch El (ft)	4465.00	Shear (lb/sq ft)		0.21	
Alpha	1.00	Stream Power (lb/ft s)		0.30	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)		61.75	
C & E Loss (ft)	0.00	Cum SA (acres)		28.74	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 200 Profile: pf-1

E.G. Elev (ft)	4464.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.		0.050	
W.S. Elev (ft)	4464.36	Reach Len. (ft)	9.50	10.00	20.00
Crit W.S. (ft)		Flow Area (sq ft)		197.80	
E.G. Slope (ft/ft)	0.010244	Area (sq ft)		197.80	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	552.27	Top Width (ft)		552.27	
Vel Total (ft/s)	1.52	Avg. Vel. (ft/s)		1.52	
Max Chl Dpth (ft)	0.36	Hydr. Depth (ft)		0.36	
Conv. Total (cfs)	2964.1	Conv. (cfs)		2964.1	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		552.38	
Min Ch El (ft)	4464.00	Shear (lb/sq ft)		0.23	
Alpha	1.00	Stream Power (lb/ft s)		0.35	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)		61.28	

Plan: SRCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 200 Profile: pf-1 (Continued)

C & E Loss (ft)	0.00	Cum SA (acres)		27.40	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 190 Profile: pf-1

E.G. Elev (ft)	4463.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.		0.050	
W.S. Elev (ft)	4463.34	Reach Len. (ft)	9.50	10.00	29.00
Crit W.S. (ft)		Flow Area (sq ft)		215.32	
E.G. Slope (ft/ft)	0.009416	Area (sq ft)		215.32	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	641.07	Top Width (ft)		641.07	
Vel Total (ft/s)	1.39	Avg. Vel. (ft/s)		1.39	
Max Chl Dpth (ft)	0.34	Hydr. Depth (ft)		0.34	
Conv. Total (cfs)	3091.7	Conv. (cfs)		3091.7	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		641.17	
Min Ch El (ft)	4463.00	Shear (lb/sq ft)		0.20	
Alpha	1.00	Stream Power (lb/ft s)		0.28	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)		60.81	
C & E Loss (ft)	0.00	Cum SA (acres)		26.03	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 180 Profile: pf-1

E.G. Elev (ft)	4462.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.		0.050	
W.S. Elev (ft)	4462.25	Reach Len. (ft)	9.00	10.00	16.50
Crit W.S. (ft)	4462.25	Flow Area (sq ft)		106.36	
E.G. Slope (ft/ft)	0.058383	Area (sq ft)		106.36	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	431.94	Top Width (ft)		431.94	
Vel Total (ft/s)	2.82	Avg. Vel. (ft/s)		2.82	
Max Chl Dpth (ft)	0.25	Hydr. Depth (ft)		0.25	
Conv. Total (cfs)	1241.6	Conv. (cfs)		1241.6	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		431.99	
Min Ch El (ft)	4462.00	Shear (lb/sq ft)		0.90	
Alpha	1.00	Stream Power (lb/ft s)		2.53	
Frctn Loss (ft)		Cum Volume (acre-ft)		60.35	
C & E Loss (ft)		Cum SA (acres)		24.80	

Errors Warnings and Notes

Warning:	The energy equation could not be balanced within the specified number of iterations. The
	program used critical depth for the water surface and continued on with the calculations.

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 170 Profile: pf-1

E.G. Elev (ft)	4461.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.050	
W.S. Elev (ft)	4461.28	Reach Len. (ft)	9.50	10.00	3.00
Crit W.S. (ft)		Flow Area (sq ft)		1491.55	
E.G. Slope (ft/ft)	0.000007	Area (sq ft)		1491.55	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	361.86	Top Width (ft)		361.86	
Vel Total (ft/s)	0.20	Avg. Vel. (ft/s)		0.20	
Max Chl Dpth (ft)	4.28	Hydr. Depth (ft)		4.12	
Conv. Total (cfs)	113673.3	Conv. (cfs)		113673.3	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		363.20	
Min Ch El (ft)	4457.00	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)		0.00	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		58.76	
C & E Loss (ft)	0.00	Cum SA (acres)		23.89	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 160 Profile: pf-1

E.G. Elev (ft)	4461.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.		0.050	
W.S. Elev (ft)	4461.27	Reach Len. (ft)	12.50	10.00	17.50
Crit W.S. (ft)	4456.72	Flow Area (sq ft)		485.17	
E.G. Slope (ft/ft)	0.000049	Area (sq ft)		1860.11	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	372.27	Top Width (ft)		372.27	
Vel Total (ft/s)	0.62	Avg. Vel. (ft/s)		0.62	
Max Chl Dpth (ft)	5.27	Hydr. Depth (ft)		5.16	
Conv. Total (cfs)	42931.3	Conv. (cfs)		42931.3	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		94.43	
Min Ch El (ft)	4456.00	Shear (lb/sq ft)		0.02	
Alpha	1.00	Stream Power (lb/ft s)		0.01	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		54.91	
C & E Loss (ft)	0.00	Cum SA (acres)		23.05	

Errors Warnings and Notes

Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
	than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 155 Profile: pf-1

E.G. Elev (ft)	4461.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.		0.050	
W.S. Elev (ft)	4460.97	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	4458.32	Flow Area (sq ft)		71.03	
E.G. Slope (ft/ft)	0.002317	Area (sq ft)		1984.05	

Plan: SRCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 155 Profile: pf-1 (Continued)

Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	406.09	Top Width (ft)		406.09	
Vel Total (ft/s)	4.22	Avg. Vel. (ft/s)		4.22	
Max Chl Dpth (ft)	5.07	Hydr. Depth (ft)		5.07	
Conv. Total (cfs)	6233.0	Conv. (cfs)		6233.0	
Length Wtd. (ft)	30.00	Wetted Per. (ft)		14.00	
Min Ch El (ft)	4455.90	Shear (lb/sq ft)		0.73	
Alpha	1.00	Stream Power (lb/ft s)		3.10	
Frctn Loss (ft)		Cum Volume (acre-ft)		54.02	
C & E Loss (ft)		Cum SA (acres)		22.87	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 150 Profile: pf-1

E.G. Elev (ft)	4459.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.58	Wt. n-Val.		0.050	
W.S. Elev (ft)	4459.26	Reach Len. (ft)	8.76	10.00	11.24
Crit W.S. (ft)	4458.18	Flow Area (sq ft)		49.01	
E.G. Slope (ft/ft)	0.008024	Area (sq ft)		1442.24	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	421.27	Top Width (ft)		421.27	
Vel Total (ft/s)	6.12	Avg. Vel. (ft/s)		6.12	
Max Chl Dpth (ft)	3.51	Hydr. Depth (ft)		3.50	
Conv. Total (cfs)	3349.1	Conv. (cfs)		3349.1	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		14.05	
Min Ch El (ft)	4455.75	Shear (lb/sq ft)		1.75	
Alpha	1.00	Stream Power (lb/ft s)		10.69	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		52.84	
C & E Loss (ft)	0.29	Cum SA (acres)		22.58	

Errors Warnings and Notes

Warning:	The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
	additional cross sections.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
	than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 145 Profile: pf-1

E.G. Elev (ft)	4459.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.050	
W.S. Elev (ft)	4459.55	Reach Len. (ft)	10.00	10.00	58.34
Crit W.S. (ft)		Flow Area (sq ft)		1754.18	
E.G. Slope (ft/ft)	0.000006	Area (sq ft)		1754.18	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	455.71	Top Width (ft)		455.71	
Vel Total (ft/s)	0.17	Avg. Vel. (ft/s)		0.17	

Plan: SRCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 145 Profile: pf-1 (Continued)

Max Chl Dpth (ft)	3.95	Hydr. Depth (ft)		3.85	
Conv. Total (cfs)	127803.4	Conv. (cfs)		127803.4	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		456.99	
Min Ch El (ft)	4455.60	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)		0.00	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		51.33	
C & E Loss (ft)	0.00	Cum SA (acres)		22.18	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 140 Profile: pf-1

E.G. Elev (ft)	4459.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.050	
W.S. Elev (ft)	4459.55	Reach Len. (ft)	11.40	10.00	13.50
Crit W.S. (ft)		Flow Area (sq ft)		1952.33	
E.G. Slope (ft/ft)	0.000004	Area (sq ft)		1952.33	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	479.21	Top Width (ft)		479.21	
Vel Total (ft/s)	0.15	Avg. Vel. (ft/s)		0.15	
Max Chl Dpth (ft)	4.20	Hydr. Depth (ft)		4.07	
Conv. Total (cfs)	147716.7	Conv. (cfs)		147716.7	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		480.59	
Min Ch El (ft)	4455.35	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)		0.00	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		48.78	
C & E Loss (ft)	0.00	Cum SA (acres)		21.54	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 130 Profile: pf-1

E.G. Elev (ft)	4459.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.050	
W.S. Elev (ft)	4459.55	Reach Len. (ft)	11.30	10.00	9.00
Crit W.S. (ft)		Flow Area (sq ft)		1626.57	
E.G. Slope (ft/ft)	0.000005	Area (sq ft)		1626.57	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	370.83	Top Width (ft)		370.83	
Vel Total (ft/s)	0.18	Avg. Vel. (ft/s)		0.18	
Max Chl Dpth (ft)	4.62	Hydr. Depth (ft)		4.39	
Conv. Total (cfs)	129187.6	Conv. (cfs)		129187.6	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		372.30	
Min Ch El (ft)	4454.93	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)		0.00	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		44.65	
C & E Loss (ft)	0.00	Cum SA (acres)		20.56	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 120 Profile: pf-1

E.G. Elev (ft)	4459.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.050	
W.S. Elev (ft)	4459.55	Reach Len. (ft)	10.84	10.00	6.34
Crit W.S. (ft)		Flow Area (sq ft)		1060.98	
E.G. Slope (ft/ft)	0.000013	Area (sq ft)		1060.98	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	240.00	Top Width (ft)		240.00	
Vel Total (ft/s)	0.28	Avg. Vel. (ft/s)		0.28	
Max Chl Dpth (ft)	5.05	Hydr. Depth (ft)		4.42	
Conv. Total (cfs)	84594.6	Conv. (cfs)		84594.6	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		241.43	
Min Ch El (ft)	4454.50	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)		0.00	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		41.55	
C & E Loss (ft)	0.00	Cum SA (acres)		19.86	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 110 Profile: pf-1

E.G. Elev (ft)	4459.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.050	
W.S. Elev (ft)	4459.55	Reach Len. (ft)	8.58	10.00	1.86
Crit W.S. (ft)		Flow Area (sq ft)		695.46	
E.G. Slope (ft/ft)	0.000029	Area (sq ft)		695.46	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	154.45	Top Width (ft)		154.45	
Vel Total (ft/s)	0.43	Avg. Vel. (ft/s)		0.43	
Max Chl Dpth (ft)	5.30	Hydr. Depth (ft)		4.50	
Conv. Total (cfs)	55961.6	Conv. (cfs)		55961.6	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		156.09	
Min Ch El (ft)	4454.25	Shear (lb/sq ft)		0.01	
Alpha	1.00	Stream Power (lb/ft s)		0.00	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		40.33	
C & E Loss (ft)	0.00	Cum SA (acres)		19.59	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 105 Profile: pf-1

E.G. Elev (ft)	4459.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.		0.050	
W.S. Elev (ft)	4459.54	Reach Len. (ft)	8.33	8.33	0.00
Crit W.S. (ft)		Flow Area (sq ft)		362.58	
E.G. Slope (ft/ft)	0.000111	Area (sq ft)		362.58	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	82.47	Top Width (ft)		82.47	
Vel Total (ft/s)	0.83	Avg. Vel. (ft/s)		0.83	
Max Chl Dpth (ft)	5.56	Hydr. Depth (ft)		4.40	

Plan: SRCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 105 Profile: pf-1 (Continued)

Conv. Total (cfs)	28467.6	Conv. (cfs)		28467.6	
Length Wtd. (ft)	8.33	Wetted Per. (ft)		84.44	
Min Ch El (ft)	4453.98	Shear (lb/sq ft)		0.03	
Alpha	1.00	Stream Power (lb/ft s)		0.02	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		39.48	
C & E Loss (ft)	0.00	Cum SA (acres)		19.40	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 100 Profile: pf-1

E.G. Elev (ft)	4459.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	Wt. n-Val.		0.050	
W.S. Elev (ft)	4459.17	Reach Len. (ft)	115.00	115.00	115.00
Crit W.S. (ft)	4456.51	Flow Area (sq ft)		64.08	
E.G. Slope (ft/ft)	0.002659	Area (sq ft)		246.98	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	57.51	Top Width (ft)		57.51	
Vel Total (ft/s)	4.68	Avg. Vel. (ft/s)		4.68	
Max Chl Dpth (ft)	5.34	Hydr. Depth (ft)		5.34	
Conv. Total (cfs)	5817.7	Conv. (cfs)		5817.7	
Length Wtd. (ft)	115.00	Wetted Per. (ft)		12.00	
Min Ch El (ft)	4453.83	Shear (lb/sq ft)		0.89	
Alpha	1.00	Stream Power (lb/ft s)		4.15	
Frctn Loss (ft)		Cum Volume (acre-ft)		39.30	
C & E Loss (ft)		Cum SA (acres)		19.36	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 95 Profile: pf-1

E.G. Elev (ft)	4457.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.72	Wt. n-Val.		0.040	
W.S. Elev (ft)	4455.14	Reach Len. (ft)	110.00	110.00	110.00
Crit W.S. (ft)	4455.93	Flow Area (sq ft)		22.66	
E.G. Slope (ft/ft)	0.054386	Area (sq ft)		25.64	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	15.15	Top Width (ft)		15.15	
Vel Total (ft/s)	13.24	Avg. Vel. (ft/s)		13.24	
Max Chl Dpth (ft)	1.89	Hydr. Depth (ft)		1.89	
Conv. Total (cfs)	1286.4	Conv. (cfs)		1286.4	
Length Wtd. (ft)	110.00	Wetted Per. (ft)		12.00	
Min Ch El (ft)	4453.25	Shear (lb/sq ft)		6.41	
Alpha	1.00	Stream Power (lb/ft s)		84.88	
Frctn Loss (ft)		Cum Volume (acre-ft)		38.94	
C & E Loss (ft)		Cum SA (acres)		19.26	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 90 Profile: pf-1

E.G. Elev (ft)	4455.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.		0.040	
W.S. Elev (ft)	4454.99	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	4454.61	Flow Area (sq ft)		60.13	
E.G. Slope (ft/ft)	0.010019	Area (sq ft)		60.13	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	38.09	Top Width (ft)		38.09	
Vel Total (ft/s)	4.99	Avg. Vel. (ft/s)		4.99	
Max Chl Dpth (ft)	1.85	Hydr. Depth (ft)		1.58	
Conv. Total (cfs)	2997.1	Conv. (cfs)		2997.1	
Length Wtd. (ft)	30.00	Wetted Per. (ft)		38.69	
Min Ch El (ft)	4453.14	Shear (lb/sq ft)		0.97	
Alpha	1.00	Stream Power (lb/ft s)		4.85	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)		38.83	
C & E Loss (ft)	0.07	Cum SA (acres)		19.19	

Errors Warnings and Notes

Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
	than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note:	Hydraulic jump has occurred between this cross section and the previous upstream section.

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 80 Profile: pf-1

E.G. Elev (ft)	4455.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.		0.040	
W.S. Elev (ft)	4454.97	Reach Len. (ft)	103.00	100.00	95.00
Crit W.S. (ft)		Flow Area (sq ft)		94.35	
E.G. Slope (ft/ft)	0.003724	Area (sq ft)		94.35	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	56.19	Top Width (ft)		56.19	
Vel Total (ft/s)	3.18	Avg. Vel. (ft/s)		3.18	
Max Chl Dpth (ft)	1.86	Hydr. Depth (ft)		1.68	
Conv. Total (cfs)	4915.9	Conv. (cfs)		4915.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		56.79	
Min Ch El (ft)	4453.11	Shear (lb/sq ft)		0.39	
Alpha	1.00	Stream Power (lb/ft s)		1.23	
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)		38.78	
C & E Loss (ft)	0.02	Cum SA (acres)		19.16	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 70 Profile: pf-1

E.G. Elev (ft)	4454.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.		0.040	
W.S. Elev (ft)	4454.71	Reach Len. (ft)	97.00	100.00	102.00
Crit W.S. (ft)		Flow Area (sq ft)		118.25	

Plan: SRCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 70 Profile: pf-1 (Continued)

E.G. Slope (ft/ft)	0.002534	Area (sq ft)		118.25	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	74.26	Top Width (ft)		74.26	
Vel Total (ft/s)	2.54	Avg. Vel. (ft/s)		2.54	
Max Chl Dpth (ft)	1.71	Hydr. Depth (ft)		1.59	
Conv. Total (cfs)	5959.9	Conv. (cfs)		5959.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		74.82	
Min Ch El (ft)	4453.00	Shear (lb/sq ft)		0.25	
Alpha	1.00	Stream Power (lb/ft s)		0.63	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)		38.53	
C & E Loss (ft)	0.01	Cum SA (acres)		19.01	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 60 Profile: pf-1

E.G. Elev (ft)	4454.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.		0.040	
W.S. Elev (ft)	4454.52	Reach Len. (ft)	87.00	100.00	118.00
Crit W.S. (ft)		Flow Area (sq ft)		142.12	
E.G. Slope (ft/ft)	0.001841	Area (sq ft)		142.12	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	92.71	Top Width (ft)		92.71	
Vel Total (ft/s)	2.11	Avg. Vel. (ft/s)		2.11	
Max Chl Dpth (ft)	1.62	Hydr. Depth (ft)		1.53	
Conv. Total (cfs)	6992.6	Conv. (cfs)		6992.6	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		93.23	
Min Ch El (ft)	4452.90	Shear (lb/sq ft)		0.18	
Alpha	1.00	Stream Power (lb/ft s)		0.37	
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)		38.23	
C & E Loss (ft)	0.01	Cum SA (acres)		18.82	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 50 Profile: pf-1

E.G. Elev (ft)	4454.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.		0.040	
W.S. Elev (ft)	4454.37	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		163.98	
E.G. Slope (ft/ft)	0.001417	Area (sq ft)		163.98	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	109.05	Top Width (ft)		109.05	
Vel Total (ft/s)	1.83	Avg. Vel. (ft/s)		1.83	
Max Chl Dpth (ft)	1.57	Hydr. Depth (ft)		1.50	
Conv. Total (cfs)	7969.9	Conv. (cfs)		7969.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		109.58	
Min Ch El (ft)	4452.80	Shear (lb/sq ft)		0.13	
Alpha	1.00	Stream Power (lb/ft s)		0.24	

Plan: SRCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 50 Profile: pf-1 (Continued)

Frctn Loss (ft)	0.15	Cum Volume (acre-ft)		37.88	
C & E Loss (ft)	0.00	Cum SA (acres)		18.59	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 40 Profile: pf-1

E.G. Elev (ft)	4454.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.		0.040	
W.S. Elev (ft)	4454.22	Reach Len. (ft)	98.00	100.00	102.00
Crit W.S. (ft)		Flow Area (sq ft)		161.04	
E.G. Slope (ft/ft)	0.001561	Area (sq ft)		161.04	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	112.24	Top Width (ft)		112.24	
Vel Total (ft/s)	1.86	Avg. Vel. (ft/s)		1.86	
Max Chl Dpth (ft)	1.52	Hydr. Depth (ft)		1.43	
Conv. Total (cfs)	7593.8	Conv. (cfs)		7593.8	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.61	
Min Ch El (ft)	4452.70	Shear (lb/sq ft)		0.14	
Alpha	1.00	Stream Power (lb/ft s)		0.26	
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)		37.51	
C & E Loss (ft)	0.01	Cum SA (acres)		18.33	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 30 Profile: pf-1

E.G. Elev (ft)	4454.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.040	
W.S. Elev (ft)	4453.85	Reach Len. (ft)	97.00	100.00	103.00
Crit W.S. (ft)		Flow Area (sq ft)		164.73	
E.G. Slope (ft/ft)	0.004009	Area (sq ft)		164.73	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	111.98	Top Width (ft)		111.98	
Vel Total (ft/s)	3.04	Avg. Vel. (ft/s)		3.04	
Max Chl Dpth (ft)	1.55	Hydr. Depth (ft)		1.47	
Conv. Total (cfs)	7896.5	Conv. (cfs)		7896.5	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.38	
Min Ch El (ft)	4452.30	Shear (lb/sq ft)		0.37	
Alpha	1.00	Stream Power (lb/ft s)		1.11	
Frctn Loss (ft)	0.40	Cum Volume (acre-ft)		37.14	
C & E Loss (ft)	0.00	Cum SA (acres)		18.08	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 20 Profile: pf-1

E.G. Elev (ft)	4453.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.040	
W.S. Elev (ft)	4453.45	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		165.24	
E.G. Slope (ft/ft)	0.003995	Area (sq ft)		165.24	

Plan: SRCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 20 Profile: pf-1 (Continued)

Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	112.57	Top Width (ft)		112.57	
Vel Total (ft/s)	3.03	Avg. Vel. (ft/s)		3.03	
Max Chl Dpth (ft)	1.55	Hydr. Depth (ft)		1.47	
Conv. Total (cfs)	7910.4	Conv. (cfs)		7910.4	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.95	
Min Ch El (ft)	4451.90	Shear (lb/sq ft)		0.36	
Alpha	1.00	Stream Power (lb/ft s)		1.10	
Frctn Loss (ft)	0.40	Cum Volume (acre-ft)		36.76	
C & E Loss (ft)	0.00	Cum SA (acres)		17.82	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 10 Profile: pf-1

E.G. Elev (ft)	4453.19	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.040	
W.S. Elev (ft)	4453.05	Reach Len (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		164.52	
E.G. Slope (ft/ft)	0.004039	Area (sq ft)		164.52	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	112.24	Top Width (ft)		112.24	
Vel Total (ft/s)	3.04	Avg. Vel. (ft/s)		3.04	
Max Chl Dpth (ft)	1.55	Hydr. Depth (ft)		1.47	
Conv. Total (cfs)	7867.6	Conv. (cfs)		7867.6	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.64	
Min Ch El (ft)	4451.50	Shear (lb/sq ft)		0.37	
Alpha	1.00	Stream Power (lb/ft s)		1.12	
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)		36.38	
C & E Loss (ft)	0.00	Cum SA (acres)		17.56	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.99 Profile: pf-1

E.G. Elev (ft)	4452.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.		0.040	
W.S. Elev (ft)	4452.63	Reach Len (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		162.08	
E.G. Slope (ft/ft)	0.004214	Area (sq ft)		162.08	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	111.63	Top Width (ft)		111.63	
Vel Total (ft/s)	3.08	Avg. Vel. (ft/s)		3.08	
Max Chl Dpth (ft)	1.53	Hydr. Depth (ft)		1.45	
Conv. Total (cfs)	7702.1	Conv. (cfs)		7702.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.03	
Min Ch El (ft)	4451.10	Shear (lb/sq ft)		0.38	
Alpha	1.00	Stream Power (lb/ft s)		1.17	
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)		36.00	

Plan: SRCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.99 Profile: pf-1 (Continued)

C & E Loss (ft)	0.00	Cum SA (acres)		17.30	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.98 Profile: pf-1

E.G. Elev (ft)	4452.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.		0.040	
W.S. Elev (ft)	4452.25	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		171.70	
E.G. Slope (ft/ft)	0.003679	Area (sq ft)		171.70	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	116.43	Top Width (ft)		116.43	
Vel Total (ft/s)	2.91	Avg. Vel. (ft/s)		2.91	
Max Chl Dpth (ft)	1.55	Hydr. Depth (ft)		1.47	
Conv. Total (cfs)	8243.8	Conv. (cfs)		8243.8	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		116.85	
Min Ch El (ft)	4450.70	Shear (lb/sq ft)		0.34	
Alpha	1.00	Stream Power (lb/ft s)		0.98	
Frctn Loss (ft)	0.38	Cum Volume (acre-ft)		35.62	
C & E Loss (ft)	0.00	Cum SA (acres)		17.04	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.97 Profile: pf-1

E.G. Elev (ft)	4452.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.040	
W.S. Elev (ft)	4451.86	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		164.61	
E.G. Slope (ft/ft)	0.004003	Area (sq ft)		164.61	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	111.62	Top Width (ft)		111.62	
Vel Total (ft/s)	3.04	Avg. Vel. (ft/s)		3.04	
Max Chl Dpth (ft)	1.56	Hydr. Depth (ft)		1.47	
Conv. Total (cfs)	7902.9	Conv. (cfs)		7902.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.04	
Min Ch El (ft)	4450.30	Shear (lb/sq ft)		0.37	
Alpha	1.00	Stream Power (lb/ft s)		1.12	
Frctn Loss (ft)	0.40	Cum Volume (acre-ft)		35.23	
C & E Loss (ft)	0.00	Cum SA (acres)		16.78	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.96 Profile: pf-1

E.G. Elev (ft)	4451.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.040	
W.S. Elev (ft)	4451.46	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		165.16	
E.G. Slope (ft/ft)	0.003979	Area (sq ft)		165.16	
Q Total (cfs)	500.00	Flow (cfs)		500.00	

Plan: SRCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.96 Profile: pf-1 (Continued)

Top Width (ft)	112.07	Top Width (ft)		112.07	
Vel Total (ft/s)	3.03	Avg. Vel. (ft/s)		3.03	
Max Chl Dpth (ft)	1.56	Hydr. Depth (ft)		1.47	
Conv. Total (cfs)	7926.7	Conv. (cfs)		7926.7	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.46	
Min Ch El (ft)	4449.90	Shear (lb/sq ft)		0.36	
Alpha	1.00	Stream Power (lb/ft s)		1.10	
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)		34.86	
C & E Loss (ft)	0.00	Cum SA (acres)		16.52	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.95 Profile: pf-1

E.G. Elev (ft)	4451.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.040	
W.S. Elev (ft)	4451.07	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		167.13	
E.G. Slope (ft/ft)	0.003877	Area (sq ft)		167.13	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	113.26	Top Width (ft)		113.26	
Vel Total (ft/s)	2.99	Avg. Vel. (ft/s)		2.99	
Max Chl Dpth (ft)	1.57	Hydr. Depth (ft)		1.48	
Conv. Total (cfs)	8029.8	Conv. (cfs)		8029.8	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		113.63	
Min Ch El (ft)	4449.50	Shear (lb/sq ft)		0.36	
Alpha	1.00	Stream Power (lb/ft s)		1.07	
Frctn Loss (ft)	0.38	Cum Volume (acre-ft)		34.47	
C & E Loss (ft)	0.00	Cum SA (acres)		16.27	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.94 Profile: pf-1

E.G. Elev (ft)	4450.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.040	
W.S. Elev (ft)	4450.69	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		168.93	
E.G. Slope (ft/ft)	0.003696	Area (sq ft)		168.93	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	112.19	Top Width (ft)		112.19	
Vel Total (ft/s)	2.96	Avg. Vel. (ft/s)		2.96	
Max Chl Dpth (ft)	1.59	Hydr. Depth (ft)		1.51	
Conv. Total (cfs)	8224.4	Conv. (cfs)		8224.4	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.60	
Min Ch El (ft)	4449.10	Shear (lb/sq ft)		0.35	
Alpha	1.00	Stream Power (lb/ft s)		1.02	
Frctn Loss (ft)	0.35	Cum Volume (acre-ft)		34.09	
C & E Loss (ft)	0.00	Cum SA (acres)		16.01	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.7 Profile: pf-1

E.G. Elev (ft)	4450.48	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.		0.040	
W.S. Elev (ft)	4450.35	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		175.22	
E.G. Slope (ft/ft)	0.003274	Area (sq ft)		175.22	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	112.21	Top Width (ft)		112.21	
Vel Total (ft/s)	2.85	Avg. Vel. (ft/s)		2.85	
Max Chl Dpth (ft)	1.65	Hydr. Depth (ft)		1.56	
Conv. Total (cfs)	8738.0	Conv. (cfs)		8738.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.65	
Min Ch El (ft)	4448.70	Shear (lb/sq ft)		0.32	
Alpha	1.00	Stream Power (lb/ft s)		0.91	
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)		33.69	
C & E Loss (ft)	0.01	Cum SA (acres)		15.75	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.69 Profile: pf-1

E.G. Elev (ft)	4450.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.		0.040	
W.S. Elev (ft)	4450.08	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		189.25	
E.G. Slope (ft/ft)	0.002562	Area (sq ft)		189.25	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	113.13	Top Width (ft)		113.13	
Vel Total (ft/s)	2.64	Avg. Vel. (ft/s)		2.64	
Max Chl Dpth (ft)	1.78	Hydr. Depth (ft)		1.67	
Conv. Total (cfs)	9879.1	Conv. (cfs)		9879.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		113.60	
Min Ch El (ft)	4448.30	Shear (lb/sq ft)		0.27	
Alpha	1.00	Stream Power (lb/ft s)		0.70	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)		33.27	
C & E Loss (ft)	0.01	Cum SA (acres)		15.49	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.68 Profile: pf-1

E.G. Elev (ft)	4449.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.040	
W.S. Elev (ft)	4449.88	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		213.65	
E.G. Slope (ft/ft)	0.001760	Area (sq ft)		213.65	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	115.60	Top Width (ft)		115.60	
Vel Total (ft/s)	2.34	Avg. Vel. (ft/s)		2.34	
Max Chl Dpth (ft)	1.98	Hydr. Depth (ft)		1.85	

Plan: SRCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.68 Profile: pf-1 (Continued)

Conv. Total (cfs)	11918.5	Conv. (cfs)		11918.5	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		116.10	
Min Ch El (ft)	4447.90	Shear (lb/sq ft)		0.20	
Alpha	1.00	Stream Power (lb/ft s)		0.47	
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)		32.81	
C & E Loss (ft)	0.01	Cum SA (acres)		15.23	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.67 Profile: pf-1

E.G. Elev (ft)	4449.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.		0.040	
W.S. Elev (ft)	4449.76	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		244.83	
E.G. Slope (ft/ft)	0.001137	Area (sq ft)		244.83	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	117.01	Top Width (ft)		117.01	
Vel Total (ft/s)	2.04	Avg. Vel. (ft/s)		2.04	
Max Chl Dpth (ft)	2.26	Hydr. Depth (ft)		2.09	
Conv. Total (cfs)	14828.3	Conv. (cfs)		14828.3	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		117.60	
Min Ch El (ft)	4447.50	Shear (lb/sq ft)		0.15	
Alpha	1.00	Stream Power (lb/ft s)		0.30	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)		32.29	
C & E Loss (ft)	0.00	Cum SA (acres)		14.96	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.66 Profile: pf-1

E.G. Elev (ft)	4449.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.		0.040	
W.S. Elev (ft)	4449.68	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		281.90	
E.G. Slope (ft/ft)	0.000725	Area (sq ft)		281.90	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	118.68	Top Width (ft)		118.68	
Vel Total (ft/s)	1.77	Avg. Vel. (ft/s)		1.77	
Max Chl Dpth (ft)	2.58	Hydr. Depth (ft)		2.38	
Conv. Total (cfs)	18566.4	Conv. (cfs)		18566.4	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		119.41	
Min Ch El (ft)	4447.10	Shear (lb/sq ft)		0.11	
Alpha	1.00	Stream Power (lb/ft s)		0.19	
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		31.68	
C & E Loss (ft)	0.00	Cum SA (acres)		14.69	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.65 Profile: pf-1

E.G. Elev (ft)	4449.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.		0.040	
W.S. Elev (ft)	4449.63	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		328.13	
E.G. Slope (ft/ft)	0.000463	Area (sq ft)		328.13	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	124.01	Top Width (ft)		124.01	
Vel Total (ft/s)	1.52	Avg. Vel. (ft/s)		1.52	
Max Chl Dpth (ft)	2.93	Hydr. Depth (ft)		2.65	
Conv. Total (cfs)	23231.8	Conv. (cfs)		23231.8	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		124.71	
Min Ch El (ft)	4446.70	Shear (lb/sq ft)		0.08	
Alpha	1.00	Stream Power (lb/ft s)		0.12	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		30.98	
C & E Loss (ft)	0.00	Cum SA (acres)		14.41	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.64 Profile: pf-1

E.G. Elev (ft)	4449.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.		0.040	
W.S. Elev (ft)	4449.60	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		384.49	
E.G. Slope (ft/ft)	0.000300	Area (sq ft)		384.49	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	133.00	Top Width (ft)		133.00	
Vel Total (ft/s)	1.30	Avg. Vel. (ft/s)		1.30	
Max Chl Dpth (ft)	3.30	Hydr. Depth (ft)		2.89	
Conv. Total (cfs)	28890.0	Conv. (cfs)		28890.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		133.66	
Min Ch El (ft)	4446.30	Shear (lb/sq ft)		0.05	
Alpha	1.00	Stream Power (lb/ft s)		0.07	
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		30.16	
C & E Loss (ft)	0.00	Cum SA (acres)		14.12	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.5 Profile: pf-1

E.G. Elev (ft)	4449.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.		0.040	
W.S. Elev (ft)	4449.56	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		427.52	
E.G. Slope (ft/ft)	0.000359	Area (sq ft)		427.52	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	133.85	Top Width (ft)		133.85	
Vel Total (ft/s)	1.52	Avg. Vel. (ft/s)		1.52	
Max Chl Dpth (ft)	3.66	Hydr. Depth (ft)		3.19	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.5 Profile: pf-1 (Continued)

Conv. Total (cfs)	34309.6	Conv. (cfs)		34309.6	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		134.64	
Min Ch El (ft)	4445.90	Shear (lbs/sq ft)		0.07	
Alpha	1.00	Stream Power (lb/ft s)		0.11	
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		29.23	
C & E Loss (ft)	0.00	Cum SA (acres)		13.81	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.45 Profile: pf-1

E.G. Elev (ft)	4449.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.		0.040	
W.S. Elev (ft)	4449.53	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		478.36	
E.G. Slope (ft/ft)	0.000256	Area (sq ft)		478.36	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	137.33	Top Width (ft)		137.33	
Vel Total (ft/s)	1.36	Avg. Vel. (ft/s)		1.36	
Max Chl Dpth (ft)	4.03	Hydr. Depth (ft)		3.48	
Conv. Total (cfs)	40664.6	Conv. (cfs)		40664.6	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		138.19	
Min Ch El (ft)	4445.50	Shear (lbs/sq ft)		0.06	
Alpha	1.00	Stream Power (lb/ft s)		0.08	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		28.19	
C & E Loss (ft)	0.00	Cum SA (acres)		13.50	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.4 Profile: pf-1

E.G. Elev (ft)	4449.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.		0.040	
W.S. Elev (ft)	4449.51	Reach Len. (ft)	140.00	140.00	140.00
Crit W.S. (ft)		Flow Area (sq ft)		518.77	
E.G. Slope (ft/ft)	0.000191	Area (sq ft)		518.77	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	135.16	Top Width (ft)		135.16	
Vel Total (ft/s)	1.25	Avg. Vel. (ft/s)		1.25	
Max Chl Dpth (ft)	4.41	Hydr. Depth (ft)		3.84	
Conv. Total (cfs)	46989.4	Conv. (cfs)		46989.4	
Length Wtd. (ft)	140.00	Wetted Per. (ft)		136.25	
Min Ch El (ft)	4445.10	Shear (lbs/sq ft)		0.05	
Alpha	1.00	Stream Power (lb/ft s)		0.06	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		27.05	
C & E Loss (ft)	0.00	Cum SA (acres)		13.19	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.32 Profile: pf-1

E.G. Elev (ft)	4449.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.		0.040	
W.S. Elev (ft)	4449.49	Reach Len. (ft)	40.00	40.00	40.00
Crit W.S. (ft)		Flow Area (sq ft)		597.58	
E.G. Slope (ft/ft)	0.000127	Area (sq ft)		597.58	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	141.22	Top Width (ft)		141.22	
Vel Total (ft/s)	1.09	Avg. Vel. (ft/s)		1.09	
Max Chl Dpth (ft)	4.95	Hydr. Depth (ft)		4.23	
Conv. Total (cfs)	57755.4	Conv. (cfs)		57755.4	
Length Wtd. (ft)	40.00	Wetted Per. (ft)		142.40	
Min Ch El (ft)	4444.54	Shear (lb/sq ft)		0.03	
Alpha	1.00	Stream Power (lb/ft s)		0.04	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		25.25	
C & E Loss (ft)	0.03	Cum SA (acres)		12.74	

Errors Warnings and Notes

Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
	than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.3 Profile: pf-1

E.G. Elev (ft)	4449.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	Wt. n-Val.		0.040	
W.S. Elev (ft)	4449.12	Reach Len. (ft)	90.00	90.00	90.00
Crit W.S. (ft)	4446.85	Flow Area (sq ft)		138.16	
E.G. Slope (ft/ft)	0.002001	Area (sq ft)		568.83	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	138.80	Top Width (ft)		138.80	
Vel Total (ft/s)	4.70	Avg. Vel. (ft/s)		4.70	
Max Chl Dpth (ft)	4.76	Hydr. Depth (ft)		4.76	
Conv. Total (cfs)	14531.5	Conv. (cfs)		14531.5	
Length Wtd. (ft)	90.00	Wetted Per. (ft)		29.00	
Min Ch El (ft)	4444.36	Shear (lb/sq ft)		0.60	
Alpha	1.00	Stream Power (lb/ft s)		2.80	
Frctn Loss (ft)		Cum Volume (acre-ft)		24.72	
C & E Loss (ft)		Cum SA (acres)		12.61	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.2 Profile: pf-1

E.G. Elev (ft)	4447.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.23	Wt. n-Val.		0.040	
W.S. Elev (ft)	4446.53	Reach Len. (ft)	80.00	80.00	80.00
Crit W.S. (ft)	4446.53	Flow Area (sq ft)		72.90	
E.G. Slope (ft/ft)	0.016858	Area (sq ft)		283.09	

Plan: SRCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.2 Profile: pf-1 (Continued)

Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	125.24	Top Width (ft)		125.24	
Vel Total (ft/s)	8.92	Avg. Vel. (ft/s)		8.92	
Max Chl Dpth (ft)	2.51	Hydr. Depth (ft)		2.51	
Conv. Total (cfs)	5006.3	Conv. (cfs)		5006.3	
Length Wtd. (ft)	80.00	Wetted Per. (ft)		29.00	
Min Ch El (ft)	4444.02	Shear (lb/sq ft)		2.65	
Alpha	1.00	Stream Power (lb/ft s)		23.59	
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)		23.84	
C & E Loss (ft)	0.53	Cum SA (acres)		12.34	

Errors Warnings and Notes

Warning:	The energy equation could not be balanced within the specified number of iterations. The
	program used critical depth for the water surface and continued on with the calculations.
Warning:	The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
	additional cross sections.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
	than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
	section. This may indicate the need for additional cross sections.
Warning:	During the standard step iterations, when the assumed water surface was set equal to critical
	depth, the calculated water surface came back below critical depth. This indicates that there
	is not a valid subcritical answer. The program defaulted to critical depth.

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.05 Profile: pf-1

E.G. Elev (ft)	4445.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.		0.040	
W.S. Elev (ft)	4445.49	Reach Len. (ft)	20.00	20.00	20.00
Crit W.S. (ft)	4444.77	Flow Area (sq ft)		196.71	
E.G. Slope (ft/ft)	0.004085	Area (sq ft)		196.71	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	119.49	Top Width (ft)		119.49	
Vel Total (ft/s)	3.30	Avg. Vel. (ft/s)		3.30	
Max Chl Dpth (ft)	1.79	Hydr. Depth (ft)		1.65	
Conv. Total (cfs)	10169.9	Conv. (cfs)		10169.9	
Length Wtd. (ft)	20.00	Wetted Per. (ft)		119.81	
Min Ch El (ft)	4443.70	Shear (lb/sq ft)		0.42	
Alpha	1.00	Stream Power (lb/ft s)		1.38	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		23.40	
C & E Loss (ft)	0.00	Cum SA (acres)		12.12	

Errors Warnings and Notes

Note:	Hydraulic jump has occurred between this cross section and the previous upstream section.

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9 Profile: pf-1

E.G. Elev (ft)	4445.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.		0.040	
W.S. Elev (ft)	4445.41	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		196.55	
E.G. Slope (ft/ft)	0.004099	Area (sq ft)		196.55	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	119.55	Top Width (ft)		119.55	
Vel Total (ft/s)	3.31	Avg. Vel. (ft/s)		3.31	
Max Chl Dpth (ft)	1.79	Hydr. Depth (ft)		1.64	
Conv. Total (cfs)	10152.8	Conv. (cfs)		10152.8	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		119.87	
Min Ch El (ft)	4443.62	Shear (lb/sq ft)		0.42	
Alpha	1.00	Stream Power (lb/ft s)		1.39	
Frctn Loss (ft)	0.42	Cum Volume (acre-ft)		23.31	
C & E Loss (ft)	0.00	Cum SA (acres)		12.06	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 8.8 Profile: pf-1

E.G. Elev (ft)	4445.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.		0.040	
W.S. Elev (ft)	4444.98	Reach Len. (ft)	280.00	280.00	280.00
Crit W.S. (ft)		Flow Area (sq ft)		192.88	
E.G. Slope (ft/ft)	0.004348	Area (sq ft)		192.88	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	119.21	Top Width (ft)		119.21	
Vel Total (ft/s)	3.37	Avg. Vel. (ft/s)		3.37	
Max Chl Dpth (ft)	1.76	Hydr. Depth (ft)		1.62	
Conv. Total (cfs)	9857.4	Conv. (cfs)		9857.4	
Length Wtd. (ft)	280.00	Wetted Per. (ft)		119.53	
Min Ch El (ft)	4443.22	Shear (lb/sq ft)		0.44	
Alpha	1.00	Stream Power (lb/ft s)		1.48	
Frctn Loss (ft)	1.18	Cum Volume (acre-ft)		22.86	
C & E Loss (ft)	0.00	Cum SA (acres)		11.79	

Errors Warnings and Notes

Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
	section. This may indicate the need for additional cross sections.

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 8.7 Profile: pf-1

E.G. Elev (ft)	4443.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.		0.040	
W.S. Elev (ft)	4443.80	Reach Len. (ft)	250.00	250.00	250.00
Crit W.S. (ft)		Flow Area (sq ft)		196.82	
E.G. Slope (ft/ft)	0.004110	Area (sq ft)		196.82	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 8.7 Profile: pf-1 (Continued)

Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	120.11	Top Width (ft)		120.11	
Vel Total (ft/s)	3.30	Avg. Vel. (ft/s)		3.30	
Max Chl Dpth (ft)	2.00	Hydr. Depth (ft)		1.64	
Conv. Total (cfs)	10139.2	Conv. (cfs)		10139.2	
Length Wtd. (ft)	250.00	Wetted Per. (ft)		120.53	
Min Ch El (ft)	4441.80	Shear (lb/sq ft)		0.42	
Alpha	1.00	Stream Power (lb/ft s)		1.38	
Frctn Loss (ft)	0.93	Cum Volume (acre-ft)		21.61	
C & E Loss (ft)	0.00	Cum SA (acres)		11.02	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 8.6 Profile: pf-1

E.G. Elev (ft)	4443.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.		0.040	
W.S. Elev (ft)	4442.89	Reach Len. (ft)	198.00	200.00	202.00
Crit W.S. (ft)		Flow Area (sq ft)		207.48	
E.G. Slope (ft/ft)	0.003394	Area (sq ft)		207.48	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	118.70	Top Width (ft)		118.70	
Vel Total (ft/s)	3.13	Avg. Vel. (ft/s)		3.13	
Max Chl Dpth (ft)	1.99	Hydr. Depth (ft)		1.75	
Conv. Total (cfs)	11156.5	Conv. (cfs)		11156.5	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		119.14	
Min Ch El (ft)	4440.90	Shear (lb/sq ft)		0.37	
Alpha	1.00	Stream Power (lb/ft s)		1.16	
Frctn Loss (ft)	0.76	Cum Volume (acre-ft)		20.45	
C & E Loss (ft)	0.00	Cum SA (acres)		10.33	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 8.5 Profile: pf-1

E.G. Elev (ft)	4442.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.		0.040	
W.S. Elev (ft)	4442.09	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)		Flow Area (sq ft)		190.21	
E.G. Slope (ft/ft)	0.004310	Area (sq ft)		190.21	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	114.29	Top Width (ft)		114.29	
Vel Total (ft/s)	3.42	Avg. Vel. (ft/s)		3.42	
Max Chl Dpth (ft)	1.89	Hydr. Depth (ft)		1.66	
Conv. Total (cfs)	9900.6	Conv. (cfs)		9900.6	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		114.68	
Min Ch El (ft)	4440.20	Shear (lb/sq ft)		0.45	
Alpha	1.00	Stream Power (lb/ft s)		1.53	
Frctn Loss (ft)	0.86	Cum Volume (acre-ft)		19.53	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 8.5 Profile: pf-1 (Continued)

C & E Loss (ft)	0.00	Com SA (acres)		9.80	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 8.4 Profile: pf-1

E.G. Elev (ft)	4441.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.		0.040	
W.S. Elev (ft)	4441.23	Reach Len. (ft)	295.00	300.00	305.00
Crit W.S. (ft)		Flow Area (sq ft)		189.35	
E.G. Slope (ft/ft)	0.004326	Area (sq ft)		189.35	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	113.24	Top Width (ft)		113.24	
Vel Total (ft/s)	3.43	Avg. Vel. (ft/s)		3.43	
Max Chl Dpth (ft)	1.83	Hydr. Depth (ft)		1.67	
Conv. Total (cfs)	9882.9	Conv. (cfs)		9882.9	
Length Wtd. (ft)	300.00	Wetted Per. (ft)		113.69	
Min Ch El (ft)	4439.40	Shear (lb/sq ft)		0.45	
Alpha	1.00	Stream Power (lb/ft s)		1.54	
Frctn Loss (ft)	1.19	Cum Volume (acre-ft)		18.66	
C & E Loss (ft)	0.00	Cum SA (acres)		9.28	

Errors Warnings and Notes

Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
	section. This may indicate the need for additional cross sections.

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 8.3 Profile: pf-1

E.G. Elev (ft)	4440.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.		0.040	
W.S. Elev (ft)	4440.05	Reach Len. (ft)	185.00	200.00	215.00
Crit W.S. (ft)		Flow Area (sq ft)		198.13	
E.G. Slope (ft/ft)	0.003666	Area (sq ft)		198.13	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	112.05	Top Width (ft)		112.05	
Vel Total (ft/s)	3.28	Avg. Vel. (ft/s)		3.28	
Max Chl Dpth (ft)	1.95	Hydr. Depth (ft)		1.77	
Conv. Total (cfs)	10735.8	Conv. (cfs)		10735.8	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		112.47	
Min Ch El (ft)	4438.10	Shear (lb/sq ft)		0.40	
Alpha	1.00	Stream Power (lb/ft s)		1.32	
Frctn Loss (ft)	0.76	Cum Volume (acre-ft)		17.33	
C & E Loss (ft)	0.00	Cum SA (acres)		8.50	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 8.2 Profile: pf-1

E.G. Elev (ft)	4439.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.		0.040	
W.S. Elev (ft)	4439.28	Reach Len. (ft)	195.00	200.00	202.00
Crit W.S. (ft)		Flow Area (sq ft)		197.02	
E.G. Slope (ft/ft)	0.004017	Area (sq ft)		197.02	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	118.26	Top Width (ft)		118.26	
Vel Total (ft/s)	3.30	Avg. Vel. (ft/s)		3.30	
Max Chl Dpth (ft)	1.88	Hydr. Depth (ft)		1.67	
Conv. Total (cfs)	10255.8	Conv. (cfs)		10255.8	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		118.78	
Min Ch El (ft)	4437.40	Shear (lb/sq ft)		0.42	
Alpha	1.00	Stream Power (lb/ft s)		1.37	
Frctn Loss (ft)	0.64	Cum Volume (acre-ft)		16.42	
C & E Loss (ft)	0.01	Cum SA (acres)		7.97	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 8.1 Profile: pf-1

E.G. Elev (ft)	4438.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.		0.040	
W.S. Elev (ft)	4438.67	Reach Len. (ft)	303.00	300.00	300.00
Crit W.S. (ft)		Flow Area (sq ft)		230.99	
E.G. Slope (ft/ft)	0.002629	Area (sq ft)		230.99	
Q Total (cfs)	675.00	Flow (cfs)		675.00	
Top Width (ft)	121.04	Top Width (ft)		121.04	
Vel Total (ft/s)	2.92	Avg. Vel. (ft/s)		2.92	
Max Chl Dpth (ft)	2.17	Hydr. Depth (ft)		1.91	
Conv. Total (cfs)	13165.1	Conv. (cfs)		13165.1	
Length Wtd. (ft)	300.00	Wetted Per. (ft)		121.54	
Min Ch El (ft)	4436.50	Shear (lb/sq ft)		0.31	
Alpha	1.00	Stream Power (lb/ft s)		0.91	
Frctn Loss (ft)	0.67	Cum Volume (acre-ft)		15.44	
C & E Loss (ft)	0.01	Cum SA (acres)		7.42	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 8 Profile: pf-1

E.G. Elev (ft)	4438.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.		0.040	
W.S. Elev (ft)	4438.02	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)		Flow Area (sq ft)		259.59	
E.G. Slope (ft/ft)	0.001914	Area (sq ft)		259.59	
Q Total (cfs)	675.00	Flow (cfs)		675.00	
Top Width (ft)	127.59	Top Width (ft)		127.59	
Vel Total (ft/s)	2.60	Avg. Vel. (ft/s)		2.60	
Max Chl Dpth (ft)	2.22	Hydr. Depth (ft)		2.03	

Plan: SRCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 8 Profile: pf-1 (Continued)

Conv. Total (cfs)	15430.1	Conv. (cfs)		15430.1	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		128.26	
Min Ch El (ft)	4435.80	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		0.63	
Frctn Loss (ft)	0.38	Cum Volume (acre-ft)		13.75	
C & E Loss (ft)	0.00	Cum SA (acres)		6.57	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 7.9 Profile: pf-1

E.G. Elev (ft)	4437.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.		0.040	
W.S. Elev (ft)	4437.65	Reach Len. (ft)	300.00	300.00	300.00
Crit W.S. (ft)		Flow Area (sq ft)		260.40	
E.G. Slope (ft/ft)	0.001862	Area (sq ft)		260.40	
Q Total (cfs)	675.00	Flow (cfs)		675.00	
Top Width (ft)	125.94	Top Width (ft)		125.94	
Vel Total (ft/s)	2.59	Avg. Vel. (ft/s)		2.59	
Max Chl Dpth (ft)	2.25	Hydr. Depth (ft)		2.07	
Conv. Total (cfs)	15643.0	Conv. (cfs)		15643.0	
Length Wtd. (ft)	300.00	Wetted Per. (ft)		126.62	
Min Ch El (ft)	4435.40	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		0.62	
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)		12.56	
C & E Loss (ft)	0.00	Cum SA (acres)		5.98	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 7.8 Profile: pf-1

E.G. Elev (ft)	4437.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.		0.040	
W.S. Elev (ft)	4437.07	Reach Len. (ft)	295.00	300.00	310.00
Crit W.S. (ft)		Flow Area (sq ft)		263.65	
E.G. Slope (ft/ft)	0.001970	Area (sq ft)		263.65	
Q Total (cfs)	700.00	Flow (cfs)		700.00	
Top Width (ft)	128.35	Top Width (ft)		128.35	
Vel Total (ft/s)	2.66	Avg. Vel. (ft/s)		2.66	
Max Chl Dpth (ft)	2.27	Hydr. Depth (ft)		2.05	
Conv. Total (cfs)	15770.3	Conv. (cfs)		15770.3	
Length Wtd. (ft)	300.00	Wetted Per. (ft)		129.04	
Min Ch El (ft)	4434.80	Shear (lb/sq ft)		0.25	
Alpha	1.00	Stream Power (lb/ft s)		0.67	
Frctn Loss (ft)	0.60	Cum Volume (acre-ft)		10.75	
C & E Loss (ft)	0.00	Cum SA (acres)		5.11	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 7.7 Profile: pf-1

E.G. Elev (ft)	4436.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.		0.040	
W.S. Elev (ft)	4436.45	Reach Len. (ft)	270.00	300.00	325.00
Crit W.S. (ft)		Flow Area (sq ft)		251.08	
E.G. Slope (ft/ft)	0.002060	Area (sq ft)		251.08	
Q Total (cfs)	700.00	Flow (cfs)		700.00	
Top Width (ft)	117.45	Top Width (ft)		117.45	
Vel Total (ft/s)	2.79	Avg. Vel. (ft/s)		2.79	
Max Chl Dpth (ft)	2.45	Hydr. Depth (ft)		2.14	
Conv. Total (cfs)	15423.5	Conv. (cfs)		15423.5	
Length Wtd. (ft)	300.00	Wetted Per. (ft)		118.07	
Min Ch El (ft)	4434.00	Shear (lb/sq ft)		0.27	
Alpha	1.00	Stream Power (lb/ft s)		0.76	
Frctn Loss (ft)	0.73	Cum Volume (acre-ft)		8.98	
C & E Loss (ft)	0.00	Cum SA (acres)		4.26	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 7.6 Profile: pf-1

E.G. Elev (ft)	4435.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.040	
W.S. Elev (ft)	4435.69	Reach Len. (ft)	248.00	150.00	152.00
Crit W.S. (ft)		Flow Area (sq ft)		229.58	
E.G. Slope (ft/ft)	0.002936	Area (sq ft)		229.58	
Q Total (cfs)	700.00	Flow (cfs)		700.00	
Top Width (ft)	122.59	Top Width (ft)		122.59	
Vel Total (ft/s)	3.05	Avg. Vel. (ft/s)		3.05	
Max Chl Dpth (ft)	2.09	Hydr. Depth (ft)		1.87	
Conv. Total (cfs)	12918.4	Conv. (cfs)		12918.4	
Length Wtd. (ft)	150.00	Wetted Per. (ft)		123.15	
Min Ch El (ft)	4433.60	Shear (lb/sq ft)		0.34	
Alpha	1.00	Stream Power (lb/ft s)		1.04	
Frctn Loss (ft)	0.38	Cum Volume (acre-ft)		7.32	
C & E Loss (ft)	0.01	Cum SA (acres)		3.44	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 7.5 Profile: pf-1

E.G. Elev (ft)	4435.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.		0.040	
W.S. Elev (ft)	4435.33	Reach Len. (ft)	150.00	150.00	150.00
Crit W.S. (ft)		Flow Area (sq ft)		254.78	
E.G. Slope (ft/ft)	0.002178	Area (sq ft)		254.78	
Q Total (cfs)	700.00	Flow (cfs)		700.00	
Top Width (ft)	127.04	Top Width (ft)		127.04	
Vel Total (ft/s)	2.75	Avg. Vel. (ft/s)		2.75	
Max Chl Dpth (ft)	2.23	Hydr. Depth (ft)		2.01	

Plan: SRCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 7.5 Profile: pf-1 (Continued)

Conv. Total (cfs)	15000.8	Conv. (cfs)		15000.8	
Length Wtd. (ft)	150.00	Wetted Per. (ft)		127.68	
Min Ch El (ft)	4433.10	Shear (lb/sq ft)		0.27	
Alpha	1.00	Stream Power (lb/ft s)		0.75	
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)		6.49	
C & E Loss (ft)	0.01	Cum SA (acres)		3.01	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 7.4 Profile: pf-1

E.G. Elev (ft)	4435.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.040	
W.S. Elev (ft)	4435.09	Reach Len. (ft)	202.00	200.00	195.00
Crit W.S. (ft)		Flow Area (sq ft)		291.82	
E.G. Slope (ft/ft)	0.001452	Area (sq ft)		291.82	
Q Total (cfs)	700.00	Flow (cfs)		700.00	
Top Width (ft)	131.51	Top Width (ft)		131.51	
Vel Total (ft/s)	2.40	Avg. Vel. (ft/s)		2.40	
Max Chl Dpth (ft)	2.79	Hydr. Depth (ft)		2.22	
Conv. Total (cfs)	18367.4	Conv. (cfs)		18367.4	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		132.31	
Min Ch El (ft)	4432.30	Shear (lb/sq ft)		0.20	
Alpha	1.00	Stream Power (lb/ft s)		0.48	
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)		5.55	
C & E Loss (ft)	0.00	Cum SA (acres)		2.56	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 7.3 Profile: pf-1

E.G. Elev (ft)	4434.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.040	
W.S. Elev (ft)	4434.79	Reach Len. (ft)	215.00	200.00	185.00
Crit W.S. (ft)		Flow Area (sq ft)		284.25	
E.G. Slope (ft/ft)	0.001512	Area (sq ft)		284.25	
Q Total (cfs)	700.00	Flow (cfs)		700.00	
Top Width (ft)	126.93	Top Width (ft)		126.93	
Vel Total (ft/s)	2.46	Avg. Vel. (ft/s)		2.46	
Max Chl Dpth (ft)	2.49	Hydr. Depth (ft)		2.24	
Conv. Total (cfs)	18004.1	Conv. (cfs)		18004.1	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		127.67	
Min Ch El (ft)	4432.30	Shear (lb/sq ft)		0.21	
Alpha	1.00	Stream Power (lb/ft s)		0.52	
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)		4.23	
C & E Loss (ft)	0.00	Cum SA (acres)		1.97	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 7.2 Profile: pf-1

E.G. Elev (ft)	4434.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.		0.040	
W.S. Elev (ft)	4434.45	Reach Len. (ft)	245.00	226.00	215.00
Crit W.S. (ft)		Flow Area (sq ft)		271.03	
E.G. Slope (ft/ft)	0.001747	Area (sq ft)		271.03	
Q Total (cfs)	700.00	Flow (cfs)		700.00	
Top Width (ft)	125.52	Top Width (ft)		125.52	
Vel Total (ft/s)	2.58	Avg. Vel. (ft/s)		2.58	
Max Chl Dpth (ft)	2.75	Hydr. Depth (ft)		2.16	
Conv. Total (cfs)	16747.6	Conv. (cfs)		16747.6	
Length Wtd. (ft)	226.00	Wetted Per. (ft)		126.33	
Min Ch El (ft)	4431.70	Shear (lb/sq ft)		0.23	
Alpha	1.00	Stream Power (lb/ft s)		0.60	
Frctn Loss (ft)	0.46	Cum Volume (acre-ft)		2.95	
C & E Loss (ft)	0.00	Cum SA (acres)		1.39	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 7.1 Profile: pf-1

E.G. Elev (ft)	4434.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.		0.040	
W.S. Elev (ft)	4433.97	Reach Len. (ft)	125.00	119.00	119.00
Crit W.S. (ft)		Flow Area (sq ft)		243.92	
E.G. Slope (ft/ft)	0.002343	Area (sq ft)		243.92	
Q Total (cfs)	700.00	Flow (cfs)		700.00	
Top Width (ft)	120.32	Top Width (ft)		120.32	
Vel Total (ft/s)	2.87	Avg. Vel. (ft/s)		2.87	
Max Chl Dpth (ft)	2.17	Hydr. Depth (ft)		2.03	
Conv. Total (cfs)	14461.5	Conv. (cfs)		14461.5	
Length Wtd. (ft)	119.00	Wetted Per. (ft)		120.98	
Min Ch El (ft)	4431.80	Shear (lb/sq ft)		0.29	
Alpha	1.00	Stream Power (lb/ft s)		0.85	
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)		1.62	
C & E Loss (ft)	0.01	Cum SA (acres)		0.75	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 7.0 Profile: pf-1

E.G. Elev (ft)	4433.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.040	
W.S. Elev (ft)	4433.77	Reach Len. (ft)	145.00	145.00	150.00
Crit W.S. (ft)		Flow Area (sq ft)		283.25	
E.G. Slope (ft/ft)	0.001531	Area (sq ft)		283.25	
Q Total (cfs)	700.00	Flow (cfs)		700.00	
Top Width (ft)	127.07	Top Width (ft)		127.07	
Vel Total (ft/s)	2.47	Avg. Vel. (ft/s)		2.47	
Max Chl Dpth (ft)	2.47	Hydr. Depth (ft)		2.23	

Plan: SRCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 7.0 Profile: pf-1 (Continued)

Conv. Total (cfs)	17888.4	Conv. (cfs)		17888.4	
Length Wtd. (ft)	145.00	Wetted Per. (ft)		127.79	
Min Ch El (ft)	4431.30	Shear (lb/sq ft)		0.21	
Alpha	1.00	Stream Power (lb/ft s)		0.52	
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)		0.89	
C & E Loss (ft)	0.00	Cum SA (acres)		0.41	

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 6.9 Profile: pf-1

E.G. Elev (ft)	4433.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.		0.040	
W.S. Elev (ft)	4433.49	Reach Len. (ft)			
Crit W.S. (ft)	4432.34	Flow Area (sq ft)		254.48	
E.G. Slope (ft/ft)	0.002040	Area (sq ft)		254.48	
Q Total (cfs)	700.00	Flow (cfs)		700.00	
Top Width (ft)	120.27	Top Width (ft)		120.27	
Vel Total (ft/s)	2.75	Avg. Vel. (ft/s)		2.75	
Max Chl Dpth (ft)	2.29	Hydr. Depth (ft)		2.12	
Conv. Total (cfs)	15499.2	Conv. (cfs)		15499.2	
Length Wtd. (ft)		Wetted Per. (ft)		121.22	
Min Ch El (ft)	4431.20	Shear (lb/sq ft)		0.27	
Alpha	1.00	Stream Power (lb/ft s)		0.74	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

HEC-RAS Plan: 5RCP@Carat River: Whites Creek Reach: Central Channel

Culvert Summary

Reach	River Sta	E.G. US.	W.S. US.	E.G. IC	E.G. OC	Min Top Rd	Culv Q	Q Weir	Delta WS	Culv Vel In	Culv Vel Out
		(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(ft)	(ft/s)	(ft/s)
Central Channel	152	Culv Grp #1	4461.26	4460.93	4461.26	4461.23	4465.00	277.89		1.85	9.85	10.20
Central Channel	152	Culv Grp #2	4461.26	4461.19	4458.85	4461.26	4465.00	22.11		1.47	7.04	7.04
Central Channel	97	W.May-5RCPs	4459.51	4459.17	4459.51	4459.43	4460.20	300.00		4.03	10.18	10.48
Central Channel	8.29	Carat-5RCPs	4449.47	4449.12	4449.47	4449.45	4451.36	650.00		2.59	9.08	9.58

CULVERT TABLES

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 152 Pr

Culv Q (cfs)	277.89	Culv Vel In (ft/s)	9.85
# Barrels	2	Culv Vel Out (ft/s)	10.20
Q Barrel (cfs)	138.94	Culv Inv El Up (ft)	4455.90
E.G. US. (ft)	4461.26	Culv Inv El Dn (ft)	4455.75
W.S. US. (ft)	4460.93	Culv Friction Ls (ft)	0.14
Delta EG (ft)	1.42	Culv Exit Loss (ft)	0.80
Delta WS (ft)	1.85	Culv Entr Loss (ft)	0.48
E.G. IC (ft)	4461.26	Q Weir (cfs)	
E.G. OC (ft)	4461.23	Weir Sta Lft (ft)	
Culvert Control	Inlet	Weir Sta Rgt (ft)	
Culv WS In (ft)	4459.28	Weir Submerg	
Culv WS Out (ft)	4459.02	Weir Max Depth (ft)	
Culv Nml Depth (ft)	3.25	Weir Avg Depth (ft)	
Culv Crt Depth (ft)	3.38	Weir Flow Area (sq ft)	
Culv Ful Lngh (ft)		Min Top Rdwy (ft)	4465.00

Errors Warnings and Notes

Note:	The flow in the culvert is entirely supercritical.

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 152 Pr

Culv Q (cfs)	277.89	Culv Vel In (ft/s)	9.85
# Barrels	2	Culv Vel Out (ft/s)	10.20
Q Barrel (cfs)	138.94	Culv Inv El Up (ft)	4455.90
E.G. US. (ft)	4461.26	Culv Inv El Dn (ft)	4455.75
W.S. US. (ft)	4460.93	Culv Friction Ls (ft)	0.14
Delta EG (ft)	1.42	Culv Exit Loss (ft)	0.80
Delta WS (ft)	1.85	Culv Entr Loss (ft)	0.48
E.G. IC (ft)	4461.26	Q Weir (cfs)	
E.G. OC (ft)	4461.23	Weir Sta Lft (ft)	
Culvert Control	Inlet	Weir Sta Rgt (ft)	
Culv WS In (ft)	4459.28	Weir Submerg	

Plan: SRCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 152 Profile: pf 1 Culvert ID: Wetl-5'RCPs Culv: Wetl-5'RCPs (Continued)

Culv WS Out (ft)	4459.02	Weir Max Depth (ft)	
Culv Nml Depth (ft)	3.25	Weir Avg Depth (ft)	
Culv Crt Depth (ft)	3.38	Weir Flow Area (sq ft)	
Culv Ful Lngh (ft)		Min Top RdWy (ft)	4465.00

Errors Warnings and Notes

Note:	The flow in the culvert is entirely supercritical.

Plan: 5RCP@Carat River: Whites Creek Reach:Central Channel Riv Sta: 152 Pr

Culv Q (cfs)	277.89	Culv Vel Up (ft/s)	9.85
# Barrels	2	Culv Vel Dn (ft/s)	10.20
Q Barrel (cfs)	138.94	Culv Inv El Up (ft)	4455.90
E.G. US. (ft)	4461.26	Culv Inv El Dn (ft)	4455.75
W.S. US. (ft)	4460.93	Culv Frict Ls (ft)	0.14
Delta EG (ft)	1.42	Culv Exit Loss (ft)	0.80
Delta WS (ft)	1.85	Culv Entr Loss (ft)	0.48
E.G. IC (ft)	4461.26	Q Weir (cfs)	
E.G. OC (ft)	4461.23	Weir Sta Lft (ft)	
Culvert Control	Inlet	Weir Sta Rgt (ft)	
Culv WS In (ft)	4459.28	Weir Submerg	
Culv WS Out (ft)	4459.02	Weir Max Depth (ft)	
Culv Nml Depth (ft)	3.25	Weir Avg Depth (ft)	
Culv Crt Depth (ft)	3.38	Weir Flow Area (sq ft)	
Culv Ful Lngh (ft)		Min Top RdWy (ft)	4465.00

Errors Warnings and Notes

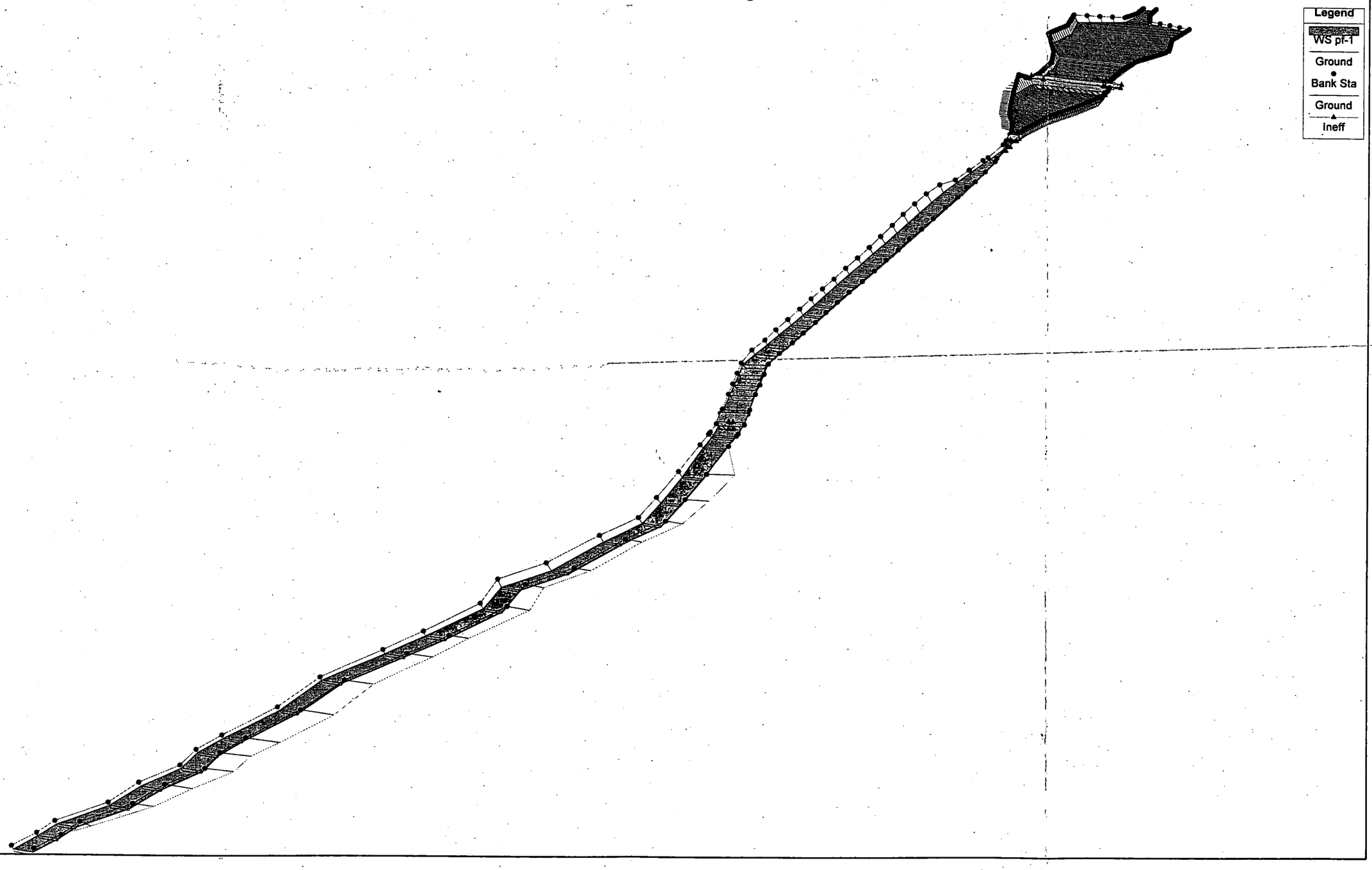
Note:	The flow in the culvert is entirely supercritical.

Option #2:

Four, 5-foot by 5-foot RCB Culverts

at Carat Avenue

Double Diamond Central Channel Central Chan. w/ 4 RCB's @ Carat Av. 08/24/2000



HEC-RAS Plan: 4RCB@Carat River: Whites Creek Reach: Central Channel

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Central Channel	220	300.00	4466.00	4467.53	4467.01	4467.73	0.009187	3.55	84.47	60.22	0.53
Central Channel	219.2*	300.00	4465.92	4467.44		4467.64	0.009489	3.59	83.59	60.11	0.54
Central Channel	218.4*	300.00	4465.84	4467.33		4467.54	0.009914	3.64	82.43	59.97	0.55
Central Channel	217.6*	300.00	4465.76	4467.22		4467.43	0.010735	3.73	80.37	59.75	0.57
Central Channel	216.8*	300.00	4465.68	4467.08		4467.31	0.012353	3.90	76.86	59.40	0.60
Central Channel	216	300.00	4465.60	4466.82		4467.13	0.019582	4.51	66.45	58.35	0.75
Central Channel	215.666*	300.00	4465.55	4466.69		4466.93	0.016414	4.00	75.04	69.36	0.68
Central Channel	215.333*	300.00	4465.50	4466.57		4466.77	0.014466	3.63	82.71	80.52	0.63
Central Channel	215.*	300.00	4465.45	4466.45		4466.63	0.013234	3.35	89.49	91.78	0.60
Central Channel	214.666*	300.00	4465.40	4466.35		4466.50	0.012517	3.15	95.31	103.10	0.58
Central Channel	214.333*	300.00	4465.35	4466.24		4466.38	0.012310	3.00	99.87	114.48	0.57
Central Channel	214	300.00	4465.30	4465.89	4465.87	4466.15	0.040588	4.15	72.22	124.73	0.96
Central Channel	213.*	300.00	4465.22	4465.71		4465.81	0.018375	2.49	120.49	247.79	0.63
Central Channel	212.*	300.00	4465.15	4465.57		4465.63	0.013831	1.95	154.15	370.85	0.53
Central Channel	211.*	300.00	4465.08	4465.44		4465.49	0.012195	1.67	179.52	493.94	0.49
Central Channel	210	300.00	4465.00	4465.34		4465.37	0.009827	1.43	209.37	617.15	0.43
Central Channel	209.*	300.00	4464.90	4465.24		4465.27	0.009802	1.44	208.65	610.67	0.43
Central Channel	208.*	300.00	4464.80	4465.14		4465.18	0.009780	1.44	207.90	604.18	0.43
Central Channel	207.*	300.00	4464.70	4465.05		4465.08	0.009808	1.45	206.83	597.70	0.43
Central Channel	206.*	300.00	4464.60	4464.95		4464.98	0.009793	1.46	206.02	591.21	0.43
Central Channel	205.*	300.00	4464.50	4464.85		4464.89	0.009738	1.46	205.46	584.73	0.43
Central Channel	204.*	300.00	4464.40	4464.75		4464.79	0.009732	1.47	204.59	578.25	0.43
Central Channel	203.*	300.00	4464.30	4464.66		4464.69	0.009688	1.47	203.98	571.76	0.43
Central Channel	202.*	300.00	4464.20	4464.56		4464.59	0.009732	1.48	202.74	565.28	0.44
Central Channel	201.*	300.00	4464.10	4464.46		4464.50	0.009782	1.49	201.49	558.79	0.44
Central Channel	200	300.00	4464.00	4464.38		4464.39	0.010244	1.52	197.80	552.27	0.45
Central Channel	199.*	300.00	4463.90	4464.28		4464.29	0.010242	1.51	199.07	561.14	0.45
Central Channel	198.*	300.00	4463.80	4464.15		4464.19	0.010201	1.50	200.56	570.02	0.44
Central Channel	197.*	300.00	4463.70	4464.05		4464.08	0.010216	1.49	201.72	578.89	0.44
Central Channel	196.*	300.00	4463.60	4463.95		4463.98	0.010238	1.48	202.82	587.76	0.44
Central Channel	195.*	300.00	4463.50	4463.84		4463.88	0.010220	1.47	204.14	596.64	0.44
Central Channel	194.*	300.00	4463.40	4463.74		4463.77	0.010209	1.48	205.42	605.51	0.44
Central Channel	193.*	300.00	4463.30	4463.64		4463.67	0.010156	1.45	206.94	614.39	0.44
Central Channel	192.*	300.00	4463.20	4463.53		4463.57	0.010208	1.44	207.82	623.26	0.44
Central Channel	191.*	300.00	4463.10	4463.43		4463.46	0.010217	1.44	208.94	632.14	0.44
Central Channel	190	300.00	4463.00	4463.34		4463.37	0.009416	1.39	215.32	641.07	0.42
Central Channel	189.*	300.00	4462.90	4463.24		4463.27	0.009388	1.41	212.82	620.20	0.42
Central Channel	188.*	300.00	4462.80	4463.15		4463.18	0.009227	1.42	210.88	599.37	0.42
Central Channel	187.*	300.00	4462.70	4463.06		4463.09	0.009089	1.44	208.87	578.56	0.42
Central Channel	186.*	300.00	4462.60	4462.97		4463.00	0.009035	1.45	208.20	557.76	0.42
Central Channel	185.*	300.00	4462.50	4462.88		4462.91	0.008948	1.47	203.69	537.01	0.42
Central Channel	184.*	300.00	4462.40	4462.79		4462.82	0.008907	1.49	200.78	516.29	0.42
Central Channel	183.*	300.00	4462.30	4462.70		4462.74	0.008807	1.51	198.20	495.64	0.42
Central Channel	182.*	300.00	4462.20	4462.61		4462.65	0.008796	1.54	194.94	475.05	0.42
Central Channel	181.*	300.00	4462.10	4462.52		4462.56	0.008840	1.57	191.24	454.54	0.43
Central Channel	180	300.00	4462.00	4462.25	4462.25	4462.37	0.058383	2.82	106.36	431.94	1.00
Central Channel	179.*	300.00	4461.50	4461.85	4461.75	4461.98	0.290332	4.61	65.08	421.27	2.07
Central Channel	178.*	300.00	4461.00	4461.25	4461.25	4461.38	0.064300	2.96	101.45	412.63	1.05
Central Channel	177.*	300.00	4460.50	4461.28	4460.78	4461.29	0.001443	0.95	315.51	407.92	0.19
Central Channel	176.*	300.00	4460.00	4461.28		4461.29	0.000289	0.59	508.28	402.31	0.09
Central Channel	175.*	300.00	4459.50	4461.28		4461.28	0.000101	0.43	692.94	396.25	0.06
Central Channel	174.*	300.00	4459.00	4461.28		4461.28	0.000048	0.35	869.48	389.83	0.04
Central Channel	173.*	300.00	4458.50	4461.28		4461.28	0.000025	0.29	1037.70	383.14	0.03
Central Channel	172.*	300.00	4458.00	4461.28		4461.28	0.000015	0.25	1197.52	376.22	0.02
Central Channel	171.*	300.00	4457.50	4461.28		4461.28	0.000010	0.22	1348.82	369.12	0.02
Central Channel	170	300.00	4457.00	4461.28		4461.28	0.000007	0.20	1491.55	361.88	0.02
Central Channel	169.*	300.00	4456.90	4461.28		4461.28	0.000006	0.20	1528.05	362.80	0.02
Central Channel	168.*	300.00	4456.80	4461.28		4461.28	0.000006	0.19	1564.68	363.77	0.02
Central Channel	167.*	300.00	4456.70	4461.28		4461.28	0.000006	0.19	1601.26	364.75	0.02
Central Channel	166.*	300.00	4456.60	4461.28		4461.28	0.000005	0.18	1638.15	365.76	0.02
Central Channel	165.*	300.00	4456.50	4461.28		4461.28	0.000005	0.18	1675.17	366.80	0.01
Central Channel	164.*	300.00	4456.40	4461.28		4461.28	0.000004	0.18	1712.34	367.85	0.01
Central Channel	163.*	300.00	4456.30	4461.28		4461.28	0.000004	0.17	1749.65	368.94	0.01
Central Channel	162.*	300.00	4456.20	4461.28		4461.28	0.000004	0.17	1786.93	370.04	0.01
Central Channel	161.*	300.00	4456.10	4461.28		4461.28	0.000004	0.16	1824.53	371.16	0.01
Central Channel	160	300.00	4456.00	4461.27	4456.72	4461.28	0.000049	0.62	485.17	372.27	0.05
Central Channel	157.5*	300.00	4455.95	4461.28		4461.28	0.000003	0.15	1983.70	390.11	0.01
Central Channel	155	300.00	4455.90	4460.97	4458.32	4461.26	0.002317	4.22	71.03	406.09	0.33
Central Channel	152	Mult Open									
Central Channel	150	300.00	4455.75	4459.26	4458.18	4459.84	0.008024	6.12	49.01	421.27	0.58
Central Channel	148.75*	300.00	4455.71	4459.55		4459.55	0.000007	0.19	1612.19	431.18	0.02
Central Channel	147.5*	300.00	4455.67	4459.55		4459.55	0.000006	0.18	1660.41	439.37	0.02
Central Channel	146.25*	300.00	4455.64	4459.55		4459.55	0.000006	0.18	1704.74	447.52	0.02
Central Channel	145	300.00	4455.60	4459.55		4459.55	0.000006	0.17	1754.18	455.71	0.02
Central Channel	144.166*	300.00	4455.58	4459.55		4459.55	0.000005	0.17	1784.17	458.83	0.02
Central Channel	143.333*	300.00	4455.52	4459.55		4459.55	0.000005	0.17	1814.72	462.11	0.01

HEC-RAS Plan: URCR@Canal River: White Creek Reach: Central Channel (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Central Channel	142.5	300.00	4455.48	4459.55		4459.55	0.000005	0.16	1845.94	465.59	0.01
Central Channel	141.6667	300.00	4455.43	4459.55		4459.55	0.000005	0.16	1882.64	469.44	0.01
Central Channel	140.8333	300.00	4455.39	4459.55		4459.55	0.000004	0.16	1916.28	473.82	0.01
Central Channel	140	300.00	4455.35	4459.55		4459.55	0.000004	0.15	1952.33	479.21	0.01
Central Channel	139.2	300.00	4455.31	4459.55		4459.55	0.000004	0.16	1922.99	468.30	0.01
Central Channel	138.5	300.00	4455.27	4459.55		4459.55	0.000004	0.16	1892.76	457.41	0.01
Central Channel	137.5	300.00	4455.22	4459.55		4459.55	0.000004	0.16	1865.93	446.56	0.01
Central Channel	136.7	300.00	4455.18	4459.55		4459.55	0.000004	0.16	1833.85	435.69	0.01
Central Channel	136	300.00	4455.14	4459.55		4459.55	0.000005	0.17	1800.89	424.84	0.01
Central Channel	134.5	300.00	4455.10	4459.55		4459.55	0.000005	0.17	1767.07	414.00	0.01
Central Channel	133.5	300.00	4455.06	4459.55		4459.55	0.000005	0.17	1732.37	403.18	0.01
Central Channel	132.5	300.00	4455.01	4459.55		4459.55	0.000005	0.18	1700.70	392.40	0.01
Central Channel	131.5	300.00	4454.97	4459.55		4459.55	0.000005	0.18	1663.98	381.61	0.02
Central Channel	130.5	300.00	4454.93	4459.55		4459.55	0.000005	0.18	1626.57	370.83	0.02
Central Channel	129.5	300.00	4454.89	4459.55		4459.55	0.000006	0.19	1574.22	357.63	0.02
Central Channel	128.5	300.00	4454.84	4459.55		4459.55	0.000006	0.20	1524.18	344.48	0.02
Central Channel	127.5	300.00	4454.80	4459.55		4459.55	0.000007	0.20	1469.52	331.33	0.02
Central Channel	126.5	300.00	4454.76	4459.55		4459.55	0.000007	0.21	1413.79	318.20	0.02
Central Channel	125.5	300.00	4454.71	4459.55		4459.55	0.000008	0.22	1359.78	305.13	0.02
Central Channel	124.5	300.00	4454.67	4459.55		4459.55	0.000008	0.23	1301.74	292.05	0.02
Central Channel	123.5	300.00	4454.63	4459.55		4459.55	0.000009	0.24	1242.64	279.00	0.02
Central Channel	122.5	300.00	4454.59	4459.55		4459.55	0.000010	0.25	1182.45	265.96	0.02
Central Channel	121.5	300.00	4454.54	4459.55		4459.55	0.000011	0.27	1123.45	252.99	0.02
Central Channel	120.5	300.00	4454.50	4459.55		4459.55	0.000013	0.28	1060.98	240.00	0.02
Central Channel	119.333	300.00	4454.46	4459.55		4459.55	0.000014	0.30	1002.61	225.78	0.03
Central Channel	118.666	300.00	4454.42	4459.55		4459.55	0.000016	0.32	943.33	211.80	0.03
Central Channel	118	300.00	4454.38	4459.55		4459.55	0.000018	0.34	882.72	197.32	0.03
Central Channel	117.333	300.00	4454.33	4459.55		4459.55	0.000021	0.36	822.67	183.10	0.03
Central Channel	116.666	300.00	4454.29	4459.55		4459.55	0.000024	0.39	759.54	168.76	0.03
Central Channel	116	300.00	4454.25	4459.55		4459.55	0.000029	0.43	695.46	154.45	0.04
Central Channel	115.285	300.00	4454.21	4459.55		4459.55	0.000033	0.46	650.39	144.21	0.04
Central Channel	114.571	300.00	4454.17	4459.55		4459.55	0.000038	0.50	604.42	133.92	0.04
Central Channel	113.857	300.00	4454.13	4459.55		4459.55	0.000045	0.54	557.83	123.68	0.04
Central Channel	113.142	300.00	4454.10	4459.55		4459.55	0.000054	0.59	509.36	113.37	0.05
Central Channel	112.428	300.00	4454.06	4459.54		4459.55	0.000067	0.65	461.30	103.10	0.05
Central Channel	111.714	300.00	4454.02	4459.54		4459.55	0.000084	0.73	412.29	92.77	0.06
Central Channel	111	300.00	4453.98	4459.54		4459.55	0.000111	0.83	362.58	82.47	0.07
Central Channel	110.333	300.00	4453.93	4459.54		4459.55	0.000132	0.90	331.63	74.68	0.08
Central Channel	109.666	300.00	4453.88	4459.53		4459.55	0.000160	1.00	299.97	66.84	0.08
Central Channel	109	300.00	4453.83	4459.17	4456.51	4459.51	0.002859	4.68	64.08	57.51	0.36
Central Channel	97	Culvert									
Central Channel	96	300.00	4453.25	4455.14	4455.93	4457.86	0.054386	13.24	22.66	15.15	0.38
Central Channel	95	300.00	4453.14	4454.99	4454.61	4455.37	0.010019	4.99	60.13	38.09	0.70
Central Channel	94	300.00	4453.11	4454.97		4455.13	0.003724	3.18	94.35	56.19	0.43
Central Channel	93	300.00	4453.00	4454.71		4454.81	0.002534	2.54	118.25	74.26	0.35
Central Channel	92	300.00	4452.90	4454.52		4454.59	0.001841	2.11	142.12	92.71	0.30
Central Channel	91	300.00	4452.80	4454.37		4454.42	0.001417	1.83	163.98	109.05	0.26
Central Channel	90	300.00	4452.70	4454.22		4454.27	0.001561	1.86	161.04	112.24	0.27
Central Channel	89	500.00	4452.30	4453.85		4454.00	0.004009	3.04	164.73	111.98	0.44
Central Channel	88	500.00	4451.90	4453.45		4453.60	0.003995	3.03	165.24	112.57	0.44
Central Channel	87	500.00	4451.50	4453.05		4453.19	0.004039	3.04	164.52	112.24	0.44
Central Channel	86	500.00	4451.10	4452.63		4452.78	0.004214	3.08	162.08	111.83	0.45
Central Channel	85	500.00	4450.70	4452.25		4452.38	0.003883	2.91	171.84	116.43	0.42
Central Channel	84	500.00	4450.30	4451.88		4452.00	0.003999	3.04	164.66	111.63	0.44
Central Channel	83	500.00	4449.90	4451.48		4451.60	0.003962	3.02	165.38	112.08	0.44
Central Channel	82	500.00	4449.50	4451.07		4451.21	0.003825	2.98	167.85	113.32	0.43
Central Channel	81	500.00	4449.10	4450.71		4450.84	0.003565	2.93	170.85	112.32	0.42
Central Channel	80	500.00	4448.70	4450.39		4450.51	0.003029	2.78	179.55	112.49	0.39
Central Channel	79	500.00	4448.30	4450.15		4450.25	0.002251	2.54	197.11	113.64	0.34
Central Channel	78	500.00	4447.90	4449.98		4450.08	0.001494	2.22	225.03	116.37	0.28
Central Channel	77	500.00	4447.50	4449.88		4449.93	0.000955	1.93	258.76	117.91	0.23
Central Channel	76	500.00	4447.10	4449.81		4449.85	0.000612	1.68	297.55	119.63	0.19
Central Channel	75	500.00	4446.70	4449.77		4449.80	0.000395	1.45	345.47	125.15	0.15
Central Channel	74	500.00	4446.30	4449.74		4449.77	0.000258	1.24	403.89	134.44	0.13
Central Channel	73	650.00	4445.90	4449.71		4449.74	0.000312	1.45	447.55	135.23	0.14
Central Channel	72	650.00	4445.50	4449.68		4449.71	0.000225	1.30	499.32	138.73	0.12
Central Channel	71	650.00	4445.10	4449.67		4449.69	0.000170	1.20	539.72	136.39	0.11
Central Channel	70	650.00	4444.54	4449.65		4449.67	0.000114	1.05	619.74	142.52	0.09
Central Channel	69	650.00	4444.38	4449.03	4447.27	4449.60	0.003395	6.05	107.45	138.04	0.49
Central Channel	68	Culvert									
Central Channel	67	650.00	4444.02	4446.95	4446.95	4448.39	0.016005	9.63	67.48	129.46	0.99
Central Channel	66	650.00	4443.70	4445.49	4444.77	4445.66	0.004085	3.30	196.71	119.49	0.45
Central Channel	65	650.00	4443.62	4445.41		4445.58	0.004089	3.31	196.55	119.55	0.45
Central Channel	64	650.00	4443.22	4444.98		4445.16	0.004348	3.37	192.88	119.21	0.47
Central Channel	63	650.00	4441.80	4443.80		4443.97	0.004110	3.30	196.82	120.11	0.45
Central Channel	62	650.00	4440.90	4442.89		4443.04	0.003394	3.13	207.48	118.70	0.42

HEC-RAS Plan: URCR@Canal River: White Creek Reach: Central Channel (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Central Channel	8.5	650.00	4440.20	4442.09		4442.27	0.004310	3.42	190.21	114.29	0.47
Central Channel	8.4	650.00	4439.40	4441.23		4441.41	0.004326	3.43	189.35	113.24	0.47
Central Channel	8.3	650.00	4438.10	4440.05		4440.22	0.003666	3.28	198.13	112.05	0.43
Central Channel	8.2	650.00	4437.40	4439.28		4439.45	0.004017	3.30	197.02	118.26	0.45
Central Channel	8.1	675.00	4436.50	4438.67		4438.80	0.002629	2.92	230.99	121.04	0.37
Central Channel	8	675.00	4435.80	4438.02		4438.13	0.001914	2.60	259.59	127.59	0.32
Central Channel	7.9	675.00	4435.40	4437.65		4437.75	0.001862	2.59	260.40	125.94	0.32
Central Channel	7.8	700.00	4434.80	4437.07		4437.18	0.001970	2.66	263.65	128.35	0.33
Central Channel	7.7	700.00	4434.00	4436.45		4436.57	0.002060	2.79	251.08	117.45	0.34
Central Channel	7.6	700.00	4433.60	4435.69		4435.84	0.002936	3.05	229.58	122.59	0.39
Central Channel	7.5	700.00	4433.10	4435.33		4435.45	0.002178	2.75	254.78	127.04	0.34
Central Channel	7.4	700.00	4432.30	4435.09		4435.18	0.001452	2.40	291.82	131.51	0.28
Central Channel	7.3	700.00	4432.30	4434.79		4434.88	0.001512	2.46	284.25	126.93	0.29
Central Channel	7.2	700.00	4431.70	4434.45		4434.56	0.001747	2.58	271.03	125.52	0.31
Central Channel	7.1	700.00	4431.80	4433.97		4434.10	0.002343	2.87	243.92	120.32	0.36
Central Channel	7.0	700.00	4431.30	4433.77		4433.87	0.001531	2.47	283.25	127.07	0.29
Central Channel	6.9	700.00	4431.20	4433.49	4432.34	4433.61	0.002040	2.75	254.48	120.27	0.33

CROSS-SECTION TABLES

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 220 Profile: pf-1

E.G. Elev (ft)	4467.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.		0.050	
W.S. Elev (ft)	4467.53	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	4467.01	Flow Area (sq ft)		84.47	
E.G. Slope (ft/ft)	0.009187	Area (sq ft)		84.47	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	60.22	Top Width (ft)		60.22	
Vel Total (ft/s)	3.55	Avg. Vel. (ft/s)		3.55	
Max Chl Dpth (ft)	1.53	Hydr. Depth (ft)		1.40	
Conv. Total (cfs)	3129.9	Conv. (cfs)		3129.9	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		60.67	
Min Ch El (ft)	4466.00	Shear (lb/sq ft)		0.80	
Alpha	1.00	Stream Power (lb/ft s)		2.84	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)		62.58	
C & E Loss (ft)	0.00	Cum SA (acres)		29.30	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 216 Profile: pf-1

E.G. Elev (ft)	4467.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.		0.050	
W.S. Elev (ft)	4466.82	Reach Len. (ft)	7.50	9.17	16.67
Crit W.S. (ft)		Flow Area (sq ft)		66.45	
E.G. Slope (ft/ft)	0.019582	Area (sq ft)		66.45	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	58.35	Top Width (ft)		58.35	
Vel Total (ft/s)	4.51	Avg. Vel. (ft/s)		4.51	
Max Chl Dpth (ft)	1.22	Hydr. Depth (ft)		1.14	
Conv. Total (cfs)	2143.8	Conv. (cfs)		2143.8	
Length Wtd. (ft)	9.17	Wetted Per. (ft)		58.74	
Min Ch El (ft)	4465.60	Shear (lb/sq ft)		1.38	
Alpha	1.00	Stream Power (lb/ft s)		6.24	
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)		62.49	
C & E Loss (ft)	0.03	Cum SA (acres)		29.23	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 214 Profile: pf-1

E.G. Elev (ft)	4466.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.050	
W.S. Elev (ft)	4465.89	Reach Len. (ft)	10.00	10.00	131.24
Crit W.S. (ft)	4465.87	Flow Area (sq ft)		72.22	
E.G. Slope (ft/ft)	0.040588	Area (sq ft)		72.22	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	124.73	Top Width (ft)		124.73	
Vel Total (ft/s)	4.15	Avg. Vel. (ft/s)		4.15	
Max Chl Dpth (ft)	0.59	Hydr. Depth (ft)		0.58	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 214 Profile: pf-1 (Continued)

Conv. Total (cfs)	1489.1	Conv. (cfs)		1489.1	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		124.99	
Min Ch El (ft)	4465.30	Shear (lb/sq ft)		1.46	
Alpha	1.00	Stream Power (lb/ft s)		6.08	
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)		62.38	
C & E Loss (ft)	0.08	Cum SA (acres)		29.12	

Errors Warnings and Notes

Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
	than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 210 Profile: pf-1

E.G. Elev (ft)	4465.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.		0.050	
W.S. Elev (ft)	4465.34	Reach Len. (ft)	9.50	10.00	9.50
Crit W.S. (ft)		Flow Area (sq ft)		209.37	
E.G. Slope (ft/ft)	0.009827	Area (sq ft)		209.37	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	617.15	Top Width (ft)		617.15	
Vel Total (ft/s)	1.43	Avg. Vel. (ft/s)		1.43	
Max Chl Dpth (ft)	0.34	Hydr. Depth (ft)		0.34	
Conv. Total (cfs)	3026.2	Conv. (cfs)		3026.2	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		617.26	
Min Ch El (ft)	4465.00	Shear (lb/sq ft)		0.21	
Alpha	1.00	Stream Power (lb/ft s)		0.30	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)		62.24	
C & E Loss (ft)	0.00	Cum SA (acres)		28.77	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 200 Profile: pf-1

E.G. Elev (ft)	4464.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.		0.050	
W.S. Elev (ft)	4464.36	Reach Len. (ft)	9.50	10.00	20.00
Crit W.S. (ft)		Flow Area (sq ft)		197.80	
E.G. Slope (ft/ft)	0.010244	Area (sq ft)		197.80	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	552.27	Top Width (ft)		552.27	
Vel Total (ft/s)	1.52	Avg. Vel. (ft/s)		1.52	
Max Chl Dpth (ft)	0.36	Hydr. Depth (ft)		0.36	
Conv. Total (cfs)	2964.1	Conv. (cfs)		2964.1	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		552.38	
Min Ch El (ft)	4464.00	Shear (lb/sq ft)		0.23	
Alpha	1.00	Stream Power (lb/ft s)		0.35	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)		61.77	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 200 Profile: pf-1 (Continued)

C & E Loss (ft)	0.00	Cum SA (acres)		27.83	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 190 Profile: pf-1

E.G. Elev (ft)	4463.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.		0.050	
W.S. Elev (ft)	4463.34	Reach Len. (ft)	9.50	10.00	29.00
Crit W.S. (ft)		Flow Area (sq ft)		215.32	
E.G. Slope (ft/ft)	0.009416	Area (sq ft)		215.32	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	641.07	Top Width (ft)		641.07	
Vel Total (ft/s)	1.39	Avg. Vel. (ft/s)		1.39	
Max Chl Dpth (ft)	0.34	Hydr. Depth (ft)		0.34	
Conv. Total (cfs)	3091.7	Conv. (cfs)		3091.7	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		641.17	
Min Ch El (ft)	4463.00	Shear (lb/sq ft)		0.20	
Alpha	1.00	Stream Power (lb/ft s)		0.28	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)		61.30	
C & E Loss (ft)	0.00	Cum SA (acres)		26.06	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 180 Profile: pf-1

E.G. Elev (ft)	4462.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.		0.050	
W.S. Elev (ft)	4462.25	Reach Len. (ft)	9.00	10.00	16.50
Crit W.S. (ft)	4462.25	Flow Area (sq ft)		106.36	
E.G. Slope (ft/ft)	0.058383	Area (sq ft)		106.36	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	431.94	Top Width (ft)		431.94	
Vel Total (ft/s)	2.82	Avg. Vel. (ft/s)		2.82	
Max Chl Dpth (ft)	0.25	Hydr. Depth (ft)		0.25	
Conv. Total (cfs)	1241.6	Conv. (cfs)		1241.6	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		431.99	
Min Ch El (ft)	4462.00	Shear (lb/sq ft)		0.90	
Alpha	1.00	Stream Power (lb/ft s)		2.53	
Frctn Loss (ft)		Cum Volume (acre-ft)		60.95	
C & E Loss (ft)		Cum SA (acres)		24.83	

Errors Warnings and Notes

Warning:	The energy equation could not be balanced within the specified number of iterations. The
	program used critical depth for the water surface and continued on with the calculations.

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 170 Profile: pf-1

E.G. Elev (ft)	4461.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.050	
W.S. Elev (ft)	4461.28	Reach Len. (ft)	9.50	10.00	3.00
Crit W.S. (ft)		Flow Area (sq ft)		1491.55	
E.G. Slope (ft/ft)	0.000007	Area (sq ft)		1491.55	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	361.86	Top Width (ft)		361.86	
Vel Total (ft/s)	0.20	Avg. Vel. (ft/s)		0.20	
Max Chl Dpth (ft)	4.28	Hydr. Depth (ft)		4.12	
Conv. Total (cfs)	113673.3	Conv. (cfs)		113673.3	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		363.20	
Min Ch El (ft)	4457.00	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)		0.00	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		59.25	
C & E Loss (ft)	0.00	Cum SA (acres)		23.92	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 160 Profile: pf-1

E.G. Elev (ft)	4461.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.		0.050	
W.S. Elev (ft)	4461.27	Reach Len. (ft)	12.50	10.00	17.50
Crit W.S. (ft)	4456.72	Flow Area (sq ft)		485.17	
E.G. Slope (ft/ft)	0.000049	Area (sq ft)		1860.11	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	372.27	Top Width (ft)		372.27	
Vel Total (ft/s)	0.62	Avg. Vel. (ft/s)		0.62	
Max Chl Dpth (ft)	5.27	Hydr. Depth (ft)		5.16	
Conv. Total (cfs)	42931.3	Conv. (cfs)		42931.3	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		94.43	
Min Ch El (ft)	4456.00	Shear (lb/sq ft)		0.02	
Alpha	1.00	Stream Power (lb/ft s)		0.01	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		55.41	
C & E Loss (ft)	0.00	Cum SA (acres)		23.08	

Errors Warnings and Notes

Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
	than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 155 Profile: pf-1

E.G. Elev (ft)	4461.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.		0.050	
W.S. Elev (ft)	4460.97	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	4458.32	Flow Area (sq ft)		71.03	
E.G. Slope (ft/ft)	0.002317	Area (sq ft)		1984.05	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 155 Profile: pf-1 (Continued)

Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	406.09	Top Width (ft)		406.09	
Vel Total (ft/s)	4.22	Avg. Vel. (ft/s)		4.22	
Max Chl Dpth (ft)	5.07	Hydr. Depth (ft)		5.07	
Conv. Total (cfs)	6233.0	Conv. (cfs)		6233.0	
Length Wtd. (ft)	30.00	Wetted Per. (ft)		14.00	
Min Ch El (ft)	4455.90	Shear (lb/sq ft)		0.73	
Alpha	1.00	Stream Power (lb/ft s)		3.10	
Frctn Loss (ft)		Cum Volume (acre-ft)		54.51	
C & E Loss (ft)		Cum SA (acres)		22.90	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 150 Profile: pf-1

E.G. Elev (ft)	4459.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.58	Wt. n-Val.		0.050	
W.S. Elev (ft)	4459.26	Reach Len. (ft)	8.76	10.00	11.24
Crit W.S. (ft)	4458.18	Flow Area (sq ft)		49.01	
E.G. Slope (ft/ft)	0.008024	Area (sq ft)		1442.24	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	421.27	Top Width (ft)		421.27	
Vel Total (ft/s)	6.12	Avg. Vel. (ft/s)		6.12	
Max Chl Dpth (ft)	3.51	Hydr. Depth (ft)		3.50	
Conv. Total (cfs)	3349.1	Conv. (cfs)		3349.1	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		14.05	
Min Ch El (ft)	4455.75	Shear (lb/sq ft)		1.75	
Alpha	1.00	Stream Power (lb/ft s)		10.69	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		53.33	
C & E Loss (ft)	0.29	Cum SA (acres)		22.62	

Errors Warnings and Notes

Warning:	The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
	additional cross sections.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
	than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 145 Profile: pf-1

E.G. Elev (ft)	4459.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.050	
W.S. Elev (ft)	4459.55	Reach Len. (ft)	10.00	10.00	58.34
Crit W.S. (ft)		Flow Area (sq ft)		1754.18	
E.G. Slope (ft/ft)	0.000006	Area (sq ft)		1754.18	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	455.71	Top Width (ft)		455.71	
Vel Total (ft/s)	0.17	Avg. Vel. (ft/s)		0.17	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 145 Profile: pf-1 (Continued)

Max Chl Dpth (ft)	3.95	Hydr. Depth (ft)		3.85	
Conv. Total (cfs)	127803.4	Conv. (cfs)		127803.4	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		456.99	
Min Ch El (ft)	4455.60	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)		0.00	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		51.82	
C & E Loss (ft)	0.00	Cum SA (acres)		22.21	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 140 Profile: pf-1

E.G. Elev (ft)	4459.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.050	
W.S. Elev (ft)	4459.55	Reach Len. (ft)	11.40	10.00	13.50
Crit W.S. (ft)		Flow Area (sq ft)		1952.33	
E.G. Slope (ft/ft)	0.000004	Area (sq ft)		1952.33	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	479.21	Top Width (ft)		479.21	
Vel Total (ft/s)	0.15	Avg. Vel. (ft/s)		0.15	
Max Chl Dpth (ft)	4.20	Hydr. Depth (ft)		4.07	
Conv. Total (cfs)	147716.7	Conv. (cfs)		147716.7	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		480.59	
Min Ch El (ft)	4455.35	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)		0.00	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		49.27	
C & E Loss (ft)	0.00	Cum SA (acres)		21.57	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 130 Profile: pf-1

E.G. Elev (ft)	4459.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.050	
W.S. Elev (ft)	4459.55	Reach Len. (ft)	11.30	10.00	9.00
Crit W.S. (ft)		Flow Area (sq ft)		1626.57	
E.G. Slope (ft/ft)	0.000005	Area (sq ft)		1626.57	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	370.83	Top Width (ft)		370.83	
Vel Total (ft/s)	0.18	Avg. Vel. (ft/s)		0.18	
Max Chl Dpth (ft)	4.62	Hydr. Depth (ft)		4.39	
Conv. Total (cfs)	129187.6	Conv. (cfs)		129187.6	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		372.30	
Min Ch El (ft)	4454.93	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)		0.00	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		45.15	
C & E Loss (ft)	0.00	Cum SA (acres)		20.59	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 120 Profile: pf-1

E.G. Elev (ft)	4459.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.050	
W.S. Elev (ft)	4459.55	Reach Len. (ft)	10.84	10.00	6.34
Crit W.S. (ft)		Flow Area (sq ft)		1060.98	
E.G. Slope (ft/ft)	0.000013	Area (sq ft)		1060.98	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	240.00	Top Width (ft)		240.00	
Vel Total (ft/s)	0.28	Avg. Vel. (ft/s)		0.28	
Max Chl Dpth (ft)	5.05	Hydr. Depth (ft)		4.42	
Conv. Total (cfs)	84594.6	Conv. (cfs)		84594.6	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		241.43	
Min Ch El (ft)	4454.50	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)		0.00	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		42.04	
C & E Loss (ft)	0.00	Cum SA (acres)		19.89	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 110 Profile: pf-1

E.G. Elev (ft)	4459.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.050	
W.S. Elev (ft)	4459.55	Reach Len. (ft)	8.58	10.00	1.86
Crit W.S. (ft)		Flow Area (sq ft)		695.46	
E.G. Slope (ft/ft)	0.000029	Area (sq ft)		695.46	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	154.45	Top Width (ft)		154.45	
Vel Total (ft/s)	0.43	Avg. Vel. (ft/s)		0.43	
Max Chl Dpth (ft)	5.30	Hydr. Depth (ft)		4.50	
Conv. Total (cfs)	55961.6	Conv. (cfs)		55961.6	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		156.09	
Min Ch El (ft)	4454.25	Shear (lb/sq ft)		0.01	
Alpha	1.00	Stream Power (lb/ft s)		0.00	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		40.83	
C & E Loss (ft)	0.00	Cum SA (acres)		19.62	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 105 Profile: pf-1

E.G. Elev (ft)	4459.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.		0.050	
W.S. Elev (ft)	4459.54	Reach Len. (ft)	8.33	8.33	0.00
Crit W.S. (ft)		Flow Area (sq ft)		362.58	
E.G. Slope (ft/ft)	0.000111	Area (sq ft)		362.58	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	82.47	Top Width (ft)		82.47	
Vel Total (ft/s)	0.83	Avg. Vel. (ft/s)		0.83	
Max Chl Dpth (ft)	5.56	Hydr. Depth (ft)		4.40	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 105 Profile: pf-1 (Continued)

Conv. Total (cfs)	28467.6	Conv. (cfs)		28467.6	
Length Wtd. (ft)	8.33	Wetted Per. (ft)		84.44	
Min Ch El (ft)	4453.98	Shear (lb/sq ft)		0.03	
Alpha	1.00	Stream Power (lb/ft s)		0.02	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		39.47	
C & E Loss (ft)	0.00	Cum SA (acres)		19.43	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 100 Profile: pf-1

E.G. Elev (ft)	4459.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	Wt. n-Val.		0.050	
W.S. Elev (ft)	4459.17	Reach Len. (ft)	115.00	115.00	115.00
Crit W.S. (ft)	4456.51	Flow Area (sq ft)		64.08	
E.G. Slope (ft/ft)	0.002659	Area (sq ft)		246.98	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	57.51	Top Width (ft)		57.51	
Vel Total (ft/s)	4.68	Avg. Vel. (ft/s)		4.68	
Max Chl Dpth (ft)	5.34	Hydr. Depth (ft)		5.34	
Conv. Total (cfs)	5817.7	Conv. (cfs)		5817.7	
Length Wtd. (ft)	115.00	Wetted Per. (ft)		12.00	
Min Ch El (ft)	4453.83	Shear (lb/sq ft)		0.89	
Alpha	1.00	Stream Power (lb/ft s)		4.15	
Frctn Loss (ft)		Cum Volume (acre-ft)		39.79	
C & E Loss (ft)		Cum SA (acres)		19.39	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 95 Profile: pf-1

E.G. Elev (ft)	4457.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.72	Wt. n-Val.		0.040	
W.S. Elev (ft)	4455.14	Reach Len. (ft)	110.00	110.00	110.00
Crit W.S. (ft)	4455.93	Flow Area (sq ft)		22.66	
E.G. Slope (ft/ft)	0.054386	Area (sq ft)		25.64	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	15.15	Top Width (ft)		15.15	
Vel Total (ft/s)	13.24	Avg. Vel. (ft/s)		13.24	
Max Chl Dpth (ft)	1.89	Hydr. Depth (ft)		1.89	
Conv. Total (cfs)	1286.4	Conv. (cfs)		1286.4	
Length Wtd. (ft)	110.00	Wetted Per. (ft)		12.00	
Min Ch El (ft)	4453.25	Shear (lb/sq ft)		6.41	
Alpha	1.00	Stream Power (lb/ft s)		84.88	
Frctn Loss (ft)		Cum Volume (acre-ft)		39.43	
C & E Loss (ft)		Cum SA (acres)		19.30	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 90 Profile: pf-1

E.G. Elev (ft)	4455.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.		0.040	
W.S. Elev (ft)	4454.99	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	4454.61	Flow Area (sq ft)		60.13	
E.G. Slope (ft/ft)	0.010019	Area (sq ft)		60.13	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	38.09	Top Width (ft)		38.09	
Vel Total (ft/s)	4.99	Avg. Vel. (ft/s)		4.99	
Max Chl Dpth (ft)	1.85	Hydr. Depth (ft)		1.58	
Conv. Total (cfs)	2997.1	Conv. (cfs)		2997.1	
Length Wtd. (ft)	30.00	Wetted Per. (ft)		38.69	
Min Ch El (ft)	4453.14	Shear (lb/sq ft)		0.97	
Alpha	1.00	Stream Power (lb/ft s)		4.85	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)		39.33	
C & E Loss (ft)	0.07	Cum SA (acres)		19.23	

Errors Warnings and Notes

Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
	than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note:	Hydraulic jump has occurred between this cross section and the previous upstream section.

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 80 Profile: pf-1

E.G. Elev (ft)	4455.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.		0.040	
W.S. Elev (ft)	4454.97	Reach Len. (ft)	103.00	100.00	95.00
Crit W.S. (ft)		Flow Area (sq ft)		94.35	
E.G. Slope (ft/ft)	0.003724	Area (sq ft)		94.35	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	56.19	Top Width (ft)		56.19	
Vel Total (ft/s)	3.18	Avg. Vel. (ft/s)		3.18	
Max Chl Dpth (ft)	1.86	Hydr. Depth (ft)		1.68	
Conv. Total (cfs)	4915.9	Conv. (cfs)		4915.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		56.79	
Min Ch El (ft)	4453.11	Shear (lb/sq ft)		0.39	
Alpha	1.00	Stream Power (lb/ft s)		1.23	
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)		39.27	
C & E Loss (ft)	0.02	Cum SA (acres)		19.20	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 70 Profile: pf-1

E.G. Elev (ft)	4454.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.		0.040	
W.S. Elev (ft)	4454.71	Reach Len. (ft)	97.00	100.00	102.00
Crit W.S. (ft)		Flow Area (sq ft)		118.25	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 70 Profile: pf-1 (Continued)

E.G. Slope (ft/ft)	0.002534	Area (sq ft)		118.25	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	74.26	Top Width (ft)		74.26	
Vel Total (ft/s)	2.54	Avg. Vel. (ft/s)		2.54	
Max Chl Dpth (ft)	1.71	Hydr. Depth (ft)		1.59	
Conv. Total (cfs)	5959.9	Conv. (cfs)		5959.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		74.82	
Min Ch El (ft)	4453.00	Shear (lb/sq ft)		0.25	
Alpha	1.00	Stream Power (lb/ft s)		0.63	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)		39.03	
C & E Loss (ft)	0.01	Cum SA (acres)		19.05	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 60 Profile: pf-1

E.G. Elev (ft)	4454.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.		0.040	
W.S. Elev (ft)	4454.52	Reach Len. (ft)	87.00	100.00	118.00
Crit W.S. (ft)		Flow Area (sq ft)		142.12	
E.G. Slope (ft/ft)	0.001841	Area (sq ft)		142.12	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	92.71	Top Width (ft)		92.71	
Vel Total (ft/s)	2.11	Avg. Vel. (ft/s)		2.11	
Max Chl Dpth (ft)	1.62	Hydr. Depth (ft)		1.53	
Conv. Total (cfs)	6992.6	Conv. (cfs)		6992.6	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		93.23	
Min Ch El (ft)	4452.90	Shear (lb/sq ft)		0.18	
Alpha	1.00	Stream Power (lb/ft s)		0.37	
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)		38.73	
C & E Loss (ft)	0.01	Cum SA (acres)		18.85	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 50 Profile: pf-1

E.G. Elev (ft)	4454.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.		0.040	
W.S. Elev (ft)	4454.37	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		163.98	
E.G. Slope (ft/ft)	0.001417	Area (sq ft)		163.98	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	109.05	Top Width (ft)		109.05	
Vel Total (ft/s)	1.83	Avg. Vel. (ft/s)		1.83	
Max Chl Dpth (ft)	1.57	Hydr. Depth (ft)		1.50	
Conv. Total (cfs)	7969.9	Conv. (cfs)		7969.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		109.58	
Min Ch El (ft)	4452.80	Shear (lb/sq ft)		0.13	
Alpha	1.00	Stream Power (lb/ft s)		0.24	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 50 Profile: pf-1 (Continued)

Frctn Loss (ft)	0.15	Cum Volume (acre-ft)		39.38	
C & E Loss (ft)	0.00	Cum SA (acres)		18.62	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 40 Profile: pf-1

E.G. Elev (ft)	4454.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.		0.040	
W.S. Elev (ft)	4454.22	Reach Len. (ft)	98.00	100.00	102.00
Crit W.S. (ft)		Flow Area (sq ft)		161.04	
E.G. Slope (ft/ft)	0.001561	Area (sq ft)		161.04	
Q Total (cfs)	300.00	Flow (cfs)		300.00	
Top Width (ft)	112.24	Top Width (ft)		112.24	
Vel Total (ft/s)	1.86	Avg. Vel. (ft/s)		1.86	
Max Chl Dpth (ft)	1.52	Hydr. Depth (ft)		1.43	
Conv. Total (cfs)	7593.8	Conv. (cfs)		7593.8	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.61	
Min Ch El (ft)	4452.70	Shear (lb/sq ft)		0.14	
Alpha	1.00	Stream Power (lb/ft s)		0.26	
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)		38.00	
C & E Loss (ft)	0.01	Cum SA (acres)		18.37	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 30 Profile: pf-1

E.G. Elev (ft)	4454.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.040	
W.S. Elev (ft)	4453.85	Reach Len. (ft)	97.00	100.00	103.00
Crit W.S. (ft)		Flow Area (sq ft)		164.73	
E.G. Slope (ft/ft)	0.004009	Area (sq ft)		164.73	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	111.98	Top Width (ft)		111.98	
Vel Total (ft/s)	3.04	Avg. Vel. (ft/s)		3.04	
Max Chl Dpth (ft)	1.55	Hydr. Depth (ft)		1.47	
Conv. Total (cfs)	7896.5	Conv. (cfs)		7896.5	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.38	
Min Ch El (ft)	4452.30	Shear (lb/sq ft)		0.37	
Alpha	1.00	Stream Power (lb/ft s)		1.11	
Frctn Loss (ft)	0.40	Cum Volume (acre-ft)		37.63	
C & E Loss (ft)	0.00	Cum SA (acres)		18.11	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 20 Profile: pf-1

E.G. Elev (ft)	4453.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.040	
W.S. Elev (ft)	4453.45	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		165.24	
E.G. Slope (ft/ft)	0.003995	Area (sq ft)		165.24	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 20 Profile: pf-1 (Continued)

Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	112.57	Top Width (ft)		112.57	
Vel Total (ft/s)	3.03	Avg. Vel. (ft/s)		3.03	
Max Chl Dpth (ft)	1.55	Hydr. Depth (ft)		1.47	
Conv. Total (cfs)	7910.4	Conv. (cfs)		7910.4	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.95	
Min Ch El (ft)	4451.90	Shear (lb/sq ft)		0.36	
Alpha	1.00	Stream Power (lb/ft s)		1.10	
Frctn Loss (ft)	0.40	Cum Volume (acre-ft)		37.25	
C & E Loss (ft)	0.00	Cum SA (acres)		17.85	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 10 Profile: pf-1

E.G. Elev (ft)	4453.19	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.040	
W.S. Elev (ft)	4453.05	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		164.52	
E.G. Slope (ft/ft)	0.004039	Area (sq ft)		164.52	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	112.24	Top Width (ft)		112.24	
Vel Total (ft/s)	3.04	Avg. Vel. (ft/s)		3.04	
Max Chl Dpth (ft)	1.55	Hydr. Depth (ft)		1.47	
Conv. Total (cfs)	7867.6	Conv. (cfs)		7867.6	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.64	
Min Ch El (ft)	4451.50	Shear (lb/sq ft)		0.37	
Alpha	1.00	Stream Power (lb/ft s)		1.12	
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)		36.87	
C & E Loss (ft)	0.00	Cum SA (acres)		17.60	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.99 Profile: pf-1

E.G. Elev (ft)	4452.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.		0.040	
W.S. Elev (ft)	4452.63	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		162.08	
E.G. Slope (ft/ft)	0.004214	Area (sq ft)		162.08	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	111.63	Top Width (ft)		111.63	
Vel Total (ft/s)	3.08	Avg. Vel. (ft/s)		3.08	
Max Chl Dpth (ft)	1.53	Hydr. Depth (ft)		1.45	
Conv. Total (cfs)	7702.1	Conv. (cfs)		7702.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.03	
Min Ch El (ft)	4451.10	Shear (lb/sq ft)		0.38	
Alpha	1.00	Stream Power (lb/ft s)		1.17	
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)		36.50	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.99 Profile: pf-1 (Continued)

C & E Loss (ft)	0.00	Cum SA (acres)		17.34	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.98 Profile: pf-1

E.G. Elev (ft)	4452.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.		0.040	
W.S. Elev (ft)	4452.25	Reach Len (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		171.64	
E.G. Slope (ft/ft)	0.003683	Area (sq ft)		171.64	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	116.43	Top Width (ft)		116.43	
Vel Total (ft/s)	2.91	Avg. Vel. (ft/s)		2.91	
Max Chl Dpth (ft)	1.55	Hydr. Depth (ft)		1.47	
Conv. Total (cfs)	8239.4	Conv. (cfs)		8239.4	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		116.84	
Min Ch El (ft)	4450.70	Shear (lb/sq ft)		0.34	
Alpha	1.00	Stream Power (lb/ft s)		0.98	
Frctn Loss (ft)	0.38	Cum Volume (acre-ft)		36.12	
C & E Loss (ft)	0.00	Cum SA (acres)		17.08	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.97 Profile: pf-1

E.G. Elev (ft)	4452.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.040	
W.S. Elev (ft)	4451.86	Reach Len (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		164.66	
E.G. Slope (ft/ft)	0.003999	Area (sq ft)		164.66	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	111.63	Top Width (ft)		111.63	
Vel Total (ft/s)	3.04	Avg. Vel. (ft/s)		3.04	
Max Chl Dpth (ft)	1.56	Hydr. Depth (ft)		1.48	
Conv. Total (cfs)	7907.0	Conv. (cfs)		7907.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.04	
Min Ch El (ft)	4450.30	Shear (lb/sq ft)		0.37	
Alpha	1.00	Stream Power (lb/ft s)		1.11	
Frctn Loss (ft)	0.40	Cum Volume (acre-ft)		35.73	
C & E Loss (ft)	0.00	Cum SA (acres)		16.81	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.96 Profile: pf-1

E.G. Elev (ft)	4451.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.040	
W.S. Elev (ft)	4451.46	Reach Len (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		165.38	
E.G. Slope (ft/ft)	0.003962	Area (sq ft)		165.38	
Q Total (cfs)	500.00	Flow (cfs)		500.00	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.96 Profile: pf-1 (Continued)

Top Width (ft)	112.08	Top Width (ft)		112.08	
Vel Total (ft/s)	3.02	Avg. Vel. (ft/s)		3.02	
Max Chl Dpth (ft)	1.56	Hydr. Depth (ft)		1.48	
Conv. Total (cfs)	7943.5	Conv. (cfs)		7943.5	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.48	
Min Ch El (ft)	4449.90	Shear (lb/sq ft)		0.36	
Alpha	1.00	Stream Power (lb/ft s)		1.10	
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)		35.35	
C & E Loss (ft)	0.00	Cum SA (acres)		16.56	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.95 Profile: pf-1

E.G. Elev (ft)	4451.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.040	
W.S. Elev (ft)	4451.07	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		167.85	
E.G. Slope (ft/ft)	0.003825	Area (sq ft)		167.85	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	113.32	Top Width (ft)		113.32	
Vel Total (ft/s)	2.98	Avg. Vel. (ft/s)		2.98	
Max Chl Dpth (ft)	1.57	Hydr. Depth (ft)		1.48	
Conv. Total (cfs)	8084.8	Conv. (cfs)		8084.8	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		113.69	
Min Ch El (ft)	4449.50	Shear (lb/sq ft)		0.35	
Alpha	1.00	Stream Power (lb/ft s)		1.05	
Frctn Loss (ft)	0.37	Cum Volume (acre-ft)		34.97	
C & E Loss (ft)	0.00	Cum SA (acres)		16.30	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.94 Profile: pf-1

E.G. Elev (ft)	4450.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.		0.040	
W.S. Elev (ft)	4450.71	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		170.85	
E.G. Slope (ft/ft)	0.003565	Area (sq ft)		170.85	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	112.32	Top Width (ft)		112.32	
Vel Total (ft/s)	2.93	Avg. Vel. (ft/s)		2.93	
Max Chl Dpth (ft)	1.61	Hydr. Depth (ft)		1.52	
Conv. Total (cfs)	8373.9	Conv. (cfs)		8373.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.74	
Min Ch El (ft)	4449.10	Shear (lb/sq ft)		0.34	
Alpha	1.00	Stream Power (lb/ft s)		0.99	
Frctn Loss (ft)	0.33	Cum Volume (acre-ft)		34.58	
C & E Loss (ft)	0.00	Cum SA (acres)		16.04	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.7 Profile: pf-1

E.G. Elev (ft)	4450.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.		0.040	
W.S. Elev (ft)	4450.39	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		179.55	
E.G. Slope (ft/ft)	0.003029	Area (sq ft)		179.55	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	112.49	Top Width (ft)		112.49	
Vel Total (ft/s)	2.78	Avg. Vel. (ft/s)		2.78	
Max Chl Dpth (ft)	1.69	Hydr. Depth (ft)		1.60	
Conv. Total (cfs)	9085.2	Conv. (cfs)		9085.2	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		112.95	
Min Ch El (ft)	4448.70	Shear (lb/sq ft)		0.30	
Alpha	1.00	Stream Power (lb/ft s)		0.84	
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)		34.18	
C & E Loss (ft)	0.01	Cum SA (acres)		15.78	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.69 Profile: pf-1

E.G. Elev (ft)	4450.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.		0.040	
W.S. Elev (ft)	4450.15	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		197.11	
E.G. Slope (ft/ft)	0.002251	Area (sq ft)		197.11	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	113.64	Top Width (ft)		113.64	
Vel Total (ft/s)	2.54	Avg. Vel. (ft/s)		2.54	
Max Chl Dpth (ft)	1.85	Hydr. Depth (ft)		1.73	
Conv. Total (cfs)	10539.7	Conv. (cfs)		10539.7	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		114.13	
Min Ch El (ft)	4448.30	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		0.62	
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)		33.74	
C & E Loss (ft)	0.01	Cum SA (acres)		15.52	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.68 Profile: pf-1

E.G. Elev (ft)	4450.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.		0.040	
W.S. Elev (ft)	4449.98	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		225.03	
E.G. Slope (ft/ft)	0.001494	Area (sq ft)		225.03	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	116.37	Top Width (ft)		116.37	
Vel Total (ft/s)	2.22	Avg. Vel. (ft/s)		2.22	
Max Chl Dpth (ft)	2.08	Hydr. Depth (ft)		1.93	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.68 Profile: pf-1 (Continued)

Conv. Total (cfs)	12936.4	Conv. (cfs)		12936.4	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		116.89	
Min Ch El (ft)	4447.90	Shear (lb/sq ft)		0.18	
Alpha	1.00	Stream Power (lb/ft s)		0.40	
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)		33.26	
C & E Loss (ft)	0.01	Cum SA (acres)		15.26	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.67 Profile: pf-1

E.G. Elev (ft)	4449.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.		0.040	
W.S. Elev (ft)	4449.88	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		258.76	
E.G. Slope (ft/ft)	0.000955	Area (sq ft)		258.76	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	117.91	Top Width (ft)		117.91	
Vel Total (ft/s)	1.93	Avg. Vel. (ft/s)		1.93	
Max Chl Dpth (ft)	2.38	Hydr. Depth (ft)		2.19	
Conv. Total (cfs)	16176.9	Conv. (cfs)		16176.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		118.53	
Min Ch El (ft)	4447.50	Shear (lb/sq ft)		0.13	
Alpha	1.00	Stream Power (lb/ft s)		0.25	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		32.70	
C & E Loss (ft)	0.00	Cum SA (acres)		14.99	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.66 Profile: pf-1

E.G. Elev (ft)	4449.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.		0.040	
W.S. Elev (ft)	4449.81	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		297.55	
E.G. Slope (ft/ft)	0.000612	Area (sq ft)		297.55	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	119.63	Top Width (ft)		119.63	
Vel Total (ft/s)	1.68	Avg. Vel. (ft/s)		1.68	
Max Chl Dpth (ft)	2.71	Hydr. Depth (ft)		2.49	
Conv. Total (cfs)	20204.7	Conv. (cfs)		20204.7	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		120.40	
Min Ch El (ft)	4447.10	Shear (lb/sq ft)		0.09	
Alpha	1.00	Stream Power (lb/ft s)		0.16	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		32.07	
C & E Loss (ft)	0.00	Cum SA (acres)		14.72	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.65 Profile: pf-1

E.G. Elev (ft)	4449.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.		0.040	
W.S. Elev (ft)	4449.77	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		345.47	
E.G. Slope (ft/ft)	0.000395	Area (sq ft)		345.47	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	125.15	Top Width (ft)		125.15	
Vel Total (ft/s)	1.45	Avg. Vel. (ft/s)		1.45	
Max Chl Dpth (ft)	3.07	Hydr. Depth (ft)		2.76	
Conv. Total (cfs)	25155.6	Conv. (cfs)		25155.6	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		125.88	
Min Ch El (ft)	4446.70	Shear (lb/sq ft)		0.07	
Alpha	1.00	Stream Power (lb/ft s)		0.10	
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		31.33	
C & E Loss (ft)	0.00	Cum SA (acres)		14.44	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.64 Profile: pf-1

E.G. Elev (ft)	4449.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.		0.040	
W.S. Elev (ft)	4449.74	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		403.69	
E.G. Slope (ft/ft)	0.000258	Area (sq ft)		403.69	
Q Total (cfs)	500.00	Flow (cfs)		500.00	
Top Width (ft)	134.44	Top Width (ft)		134.44	
Vel Total (ft/s)	1.24	Avg. Vel. (ft/s)		1.24	
Max Chl Dpth (ft)	3.44	Hydr. Depth (ft)		3.00	
Conv. Total (cfs)	31107.1	Conv. (cfs)		31107.1	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		135.12	
Min Ch El (ft)	4446.30	Shear (lb/sq ft)		0.05	
Alpha	1.00	Stream Power (lb/ft s)		0.06	
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		30.47	
C & E Loss (ft)	0.00	Cum SA (acres)		14.14	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.5 Profile: pf-1

E.G. Elev (ft)	4449.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.		0.040	
W.S. Elev (ft)	4449.71	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		447.55	
E.G. Slope (ft/ft)	0.000312	Area (sq ft)		447.55	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	135.23	Top Width (ft)		135.23	
Vel Total (ft/s)	1.45	Avg. Vel. (ft/s)		1.45	
Max Chl Dpth (ft)	3.81	Hydr. Depth (ft)		3.31	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.5 Profile: pf-1 (Continued)

Conv. Total (cfs)	36774.9	Conv. (cfs)		36774.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		136.05	
Min Ch El (ft)	4445.90	Shear (lb/sq ft)		0.06	
Alpha	1.00	Stream Power (lb/ft s)		0.09	
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		29.49	
C & E Loss (ft)	0.00	Cum SA (acres)		13.83	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.45 Profile: pf-1

E.G. Elev (ft)	4449.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.		0.040	
W.S. Elev (ft)	4449.68	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		499.32	
E.G. Slope (ft/ft)	0.000225	Area (sq ft)		499.32	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	138.73	Top Width (ft)		138.73	
Vel Total (ft/s)	1.30	Avg. Vel. (ft/s)		1.30	
Max Chl Dpth (ft)	4.18	Hydr. Depth (ft)		3.60	
Conv. Total (cfs)	43377.0	Conv. (cfs)		43377.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		139.63	
Min Ch El (ft)	4445.50	Shear (lb/sq ft)		0.05	
Alpha	1.00	Stream Power (lb/ft s)		0.07	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		28.40	
C & E Loss (ft)	0.00	Cum SA (acres)		13.51	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.4 Profile: pf-1

E.G. Elev (ft)	4449.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.		0.040	
W.S. Elev (ft)	4449.67	Reach Len. (ft)	140.00	140.00	140.00
Crit W.S. (ft)		Flow Area (sq ft)		539.72	
E.G. Slope (ft/ft)	0.000170	Area (sq ft)		539.72	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	136.39	Top Width (ft)		136.39	
Vel Total (ft/s)	1.20	Avg. Vel. (ft/s)		1.20	
Max Chl Dpth (ft)	4.57	Hydr. Depth (ft)		3.96	
Conv. Total (cfs)	49885.4	Conv. (cfs)		49885.4	
Length Wtd. (ft)	140.00	Wetted Per. (ft)		137.52	
Min Ch El (ft)	4445.10	Shear (lb/sq ft)		0.04	
Alpha	1.00	Stream Power (lb/ft s)		0.05	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		27.21	
C & E Loss (ft)	0.00	Cum SA (acres)		13.20	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.32 Profile: pf-1

E.G. Elev (ft)	4449.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.		0.040	
W.S. Elev (ft)	4449.65	Reach Len. (ft)	40.00	40.00	40.00
Crit W.S. (ft)		Flow Area (sq ft)		619.74	
E.G. Slope (ft/ft)	0.000114	Area (sq ft)		619.74	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	142.52	Top Width (ft)		142.52	
Vel Total (ft/s)	1.05	Avg. Vel. (ft/s)		1.05	
Max Chl Dpth (ft)	5.11	Hydr. Depth (ft)		4.35	
Conv. Total (cfs)	60989.0	Conv. (cfs)		60989.0	
Length Wtd. (ft)	40.00	Wetted Per. (ft)		143.73	
Min Ch El (ft)	4444.54	Shear (lb/sq ft)		0.03	
Alpha	1.00	Stream Power (lb/ft s)		0.03	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		25.35	
C & E Loss (ft)	0.06	Cum SA (acres)		12.75	

Errors Warnings and Notes

Warning:	The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
	additional cross sections.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
	than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.3 Profile: pf-1

E.G. Elev (ft)	4449.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.57	Wt. n-Val.		0.040	
W.S. Elev (ft)	4449.03	Reach Len. (ft)	90.00	90.00	90.00
Crit W.S. (ft)	4447.27	Flow Area (sq ft)		107.45	
E.G. Slope (ft/ft)	0.003395	Area (sq ft)		556.06	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	138.04	Top Width (ft)		138.04	
Vel Total (ft/s)	6.05	Avg. Vel. (ft/s)		6.05	
Max Chl Dpth (ft)	4.67	Hydr. Depth (ft)		4.67	
Conv. Total (cfs)	11155.3	Conv. (cfs)		11155.3	
Length Wtd. (ft)	90.00	Wetted Per. (ft)		23.00	
Min Ch El (ft)	4444.36	Shear (lb/sq ft)		0.99	
Alpha	1.00	Stream Power (lb/ft s)		5.99	
Frctn Loss (ft)		Cum Volume (acre-ft)		24.81	
C & E Loss (ft)		Cum SA (acres)		12.62	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.2 Profile: pf-1

E.G. Elev (ft)	4448.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.44	Wt. n-Val.		0.040	
W.S. Elev (ft)	4446.95	Reach Len. (ft)	80.00	80.00	80.00
Crit W.S. (ft)	4446.95	Flow Area (sq ft)		67.48	
E.G. Slope (ft/ft)	0.016005	Area (sq ft)		336.63	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	129.46	Top Width (ft)		129.46	
Vel Total (ft/s)	9.63	Avg. Vel. (ft/s)		9.63	
Max Chl Dpth (ft)	2.93	Hydr. Depth (ft)		2.93	
Conv. Total (cfs)	5137.9	Conv. (cfs)		5137.9	
Length Wtd. (ft)	80.00	Wetted Per. (ft)		23.00	
Min Ch El (ft)	4444.02	Shear (lb/sq ft)		2.93	
Alpha	1.00	Stream Power (lb/ft s)		28.24	
Frctn Loss (ft)	0.58	Cum Volume (acre-ft)		23.89	
C & E Loss (ft)	0.64	Cum SA (acres)		12.35	

Errors Warnings and Notes

Warning:	The energy equation could not be balanced within the specified number of iterations. The
	program used critical depth for the water surface and continued on with the calculations.
Warning:	The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for
	additional cross sections.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
	than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
	section. This may indicate the need for additional cross sections.
Warning:	During the standard step iterations, when the assumed water surface was set equal to critical
	depth, the calculated water surface came back below critical depth. This indicates that there
	is not a valid subcritical answer. The program defaulted to critical depth.

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.05 Profile: pf-1

E.G. Elev (ft)	4445.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.		0.040	
W.S. Elev (ft)	4445.49	Reach Len. (ft)	20.00	20.00	20.00
Crit W.S. (ft)	4444.77	Flow Area (sq ft)		196.71	
E.G. Slope (ft/ft)	0.004085	Area (sq ft)		196.71	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	119.49	Top Width (ft)		119.49	
Vel Total (ft/s)	3.30	Avg. Vel. (ft/s)		3.30	
Max Chl Dpth (ft)	1.79	Hydr. Depth (ft)		1.65	
Conv. Total (cfs)	10169.9	Conv. (cfs)		10169.9	
Length Wtd. (ft)	20.00	Wetted Per. (ft)		119.81	
Min Ch El (ft)	4443.70	Shear (lb/sq ft)		0.42	
Alpha	1.00	Stream Power (lb/ft s)		1.38	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		23.40	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9.05 Profile: pf-1 (Continued)

C & E Loss (ft)	0.00	Con SA (acres)		12.12	

Errors Warnings and Notes

Note:	Hydraulic jump has occurred between this cross section and the previous upstream section.

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 9 Profile: pf-1

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	4445.58				
Vel Head (ft)	0.17	Wt. n-Val.		0.040	
W.S. Elev (ft)	4445.41	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		196.55	
E.G. Slope (ft/ft)	0.004099	Area (sq ft)		196.55	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	119.55	Top Width (ft)		119.55	
Vel Total (ft/s)	3.31	Avg. Vel. (ft/s)		3.31	
Max Chl Dpth (ft)	1.79	Hydr. Depth (ft)		1.64	
Conv. Total (cfs)	10152.8	Conv. (cfs)		10152.8	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		119.87	
Min Ch El (ft)	4443.62	Shear (lb/sq ft)		0.42	
Alpha	1.00	Stream Power (lb/ft s)		1.39	
Frctn Loss (ft)	0.42	Cum Volume (acre-ft)		23.31	
C & E Loss (ft)	0.00	Cum SA (acres)		12.06	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 8.8 Profile: pf-1

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	4445.16				
Vel Head (ft)	0.18	Wt. n-Val.		0.040	
W.S. Elev (ft)	4444.98	Reach Len. (ft)	280.00	280.00	280.00
Crit W.S. (ft)		Flow Area (sq ft)		192.88	
E.G. Slope (ft/ft)	0.004348	Area (sq ft)		192.88	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	119.21	Top Width (ft)		119.21	
Vel Total (ft/s)	3.37	Avg. Vel. (ft/s)		3.37	
Max Chl Dpth (ft)	1.76	Hydr. Depth (ft)		1.62	
Conv. Total (cfs)	9857.4	Conv. (cfs)		9857.4	
Length Wtd. (ft)	280.00	Wetted Per. (ft)		119.53	
Min Ch El (ft)	4443.22	Shear (lb/sq ft)		0.44	
Alpha	1.00	Stream Power (lb/ft s)		1.48	
Frctn Loss (ft)	1.18	Cum Volume (acre-ft)		22.86	
C & E Loss (ft)	0.00	Cum SA (acres)		11.79	

Errors Warnings and Notes

Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
	section. This may indicate the need for additional cross sections.

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 8.7 Profile: pf-1

E.G. Elev (ft)	4443.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.		0.040	
W.S. Elev (ft)	4443.80	Reach Len. (ft)	250.00	250.00	250.00
Crit W.S. (ft)		Flow Area (sq ft)		196.82	
E.G. Slope (ft/ft)	0.004110	Area (sq ft)		196.82	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	120.11	Top Width (ft)		120.11	
Vel Total (ft/s)	3.30	Avg. Vel. (ft/s)		3.30	
Max Chl Dpth (ft)	2.00	Hydr. Depth (ft)		1.64	
Conv. Total (cfs)	10139.2	Conv. (cfs)		10139.2	
Length Wtd. (ft)	250.00	Wetted Per. (ft)		120.53	
Min Ch El (ft)	4441.80	Shear (lb/sq ft)		0.42	
Alpha	1.00	Stream Power (lb/ft s)		1.38	
Frctn Loss (ft)	0.93	Cum Volume (acre-ft)		21.61	
C & E Loss (ft)	0.00	Cum SA (acres)		11.02	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 8.6 Profile: pf-1

E.G. Elev (ft)	4443.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.		0.040	
W.S. Elev (ft)	4442.89	Reach Len. (ft)	198.00	200.00	202.00
Crit W.S. (ft)		Flow Area (sq ft)		207.48	
E.G. Slope (ft/ft)	0.003394	Area (sq ft)		207.48	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	118.70	Top Width (ft)		118.70	
Vel Total (ft/s)	3.13	Avg. Vel. (ft/s)		3.13	
Max Chl Dpth (ft)	1.99	Hydr. Depth (ft)		1.75	
Conv. Total (cfs)	11156.5	Conv. (cfs)		11156.5	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		119.14	
Min Ch El (ft)	4440.90	Shear (lb/sq ft)		0.37	
Alpha	1.00	Stream Power (lb/ft s)		1.16	
Frctn Loss (ft)	0.76	Cum Volume (acre-ft)		20.45	
C & E Loss (ft)	0.00	Cum SA (acres)		10.33	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 8.5 Profile: pf-1

E.G. Elev (ft)	4442.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.		0.040	
W.S. Elev (ft)	4442.09	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)		Flow Area (sq ft)		190.21	
E.G. Slope (ft/ft)	0.004310	Area (sq ft)		190.21	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	114.29	Top Width (ft)		114.29	
Vel Total (ft/s)	3.42	Avg. Vel. (ft/s)		3.42	
Max Chl Dpth (ft)	1.89	Hydr. Depth (ft)		1.66	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 8.5 Profile: pf-1 (Continued)

Conv. Total (cfs)	9900.6	Conv. (cfs)		9900.6	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		114.68	
Min Ch El (ft)	4440.20	Shear (lb/sq ft)		0.45	
Alpha	1.00	Stream Power (lb/ft s)		1.53	
Frctn Loss (ft)	0.86	Cum Volume (acre-ft)		19.53	
C & E Loss (ft)	0.00	Cum SA (acres)		9.80	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 8.4 Profile: pf-1

E.G. Elev (ft)	4441.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.		0.040	
W.S. Elev (ft)	4441.23	Reach Len. (ft)	295.00	300.00	305.00
Crit W.S. (ft)		Flow Area (sq ft)		189.35	
E.G. Slope (ft/ft)	0.004326	Area (sq ft)		189.35	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	113.24	Top Width (ft)		113.24	
Vel Total (ft/s)	3.43	Avg. Vel. (ft/s)		3.43	
Max Chl Dpth (ft)	1.83	Hydr. Depth (ft)		1.67	
Conv. Total (cfs)	9882.9	Conv. (cfs)		9882.9	
Length Wtd. (ft)	300.00	Wetted Per. (ft)		113.69	
Min Ch El (ft)	4439.40	Shear (lb/sq ft)		0.45	
Alpha	1.00	Stream Power (lb/ft s)		1.54	
Frctn Loss (ft)	1.19	Cum Volume (acre-ft)		18.66	
C & E Loss (ft)	0.00	Cum SA (acres)		9.28	

Errors Warnings and Notes

Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
	section. This may indicate the need for additional cross sections.

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 8.3 Profile: pf-1

E.G. Elev (ft)	4440.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.		0.040	
W.S. Elev (ft)	4440.05	Reach Len. (ft)	185.00	200.00	215.00
Crit W.S. (ft)		Flow Area (sq ft)		198.13	
E.G. Slope (ft/ft)	0.003666	Area (sq ft)		198.13	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	112.05	Top Width (ft)		112.05	
Vel Total (ft/s)	3.28	Avg. Vel. (ft/s)		3.28	
Max Chl Dpth (ft)	1.95	Hydr. Depth (ft)		1.77	
Conv. Total (cfs)	10735.8	Conv. (cfs)		10735.8	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		112.47	
Min Ch El (ft)	4438.10	Shear (lb/sq ft)		0.40	
Alpha	1.00	Stream Power (lb/ft s)		1.32	
Frctn Loss (ft)	0.76	Cum Volume (acre-ft)		17.33	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 8.3 Profile: pf-1 (Continued)

C & E Loss (ft)	0.00	Cum SA (acres)		8.50	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 8.2 Profile: pf-1

E.G. Elev (ft)	4439.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.		0.040	
W.S. Elev (ft)	4439.28	Reach Len. (ft)	195.00	200.00	202.00
Crit W.S. (ft)		Flow Area (sq ft)		197.02	
E.G. Slope (ft/ft)	0.004017	Area (sq ft)		197.02	
Q Total (cfs)	650.00	Flow (cfs)		650.00	
Top Width (ft)	118.26	Top Width (ft)		118.26	
Vel Total (ft/s)	3.30	Avg. Vel. (ft/s)		3.30	
Max Chl Dpth (ft)	1.88	Hydr. Depth (ft)		1.67	
Conv. Total (cfs)	10255.8	Conv. (cfs)		10255.8	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		118.78	
Min Ch El (ft)	4437.40	Shear (lb/sq ft)		0.42	
Alpha	1.00	Stream Power (lb/ft s)		1.37	
Frctn Loss (ft)	0.64	Cum Volume (acre-ft)		16.42	
C & E Loss (ft)	0.01	Cum SA (acres)		7.97	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 8.1 Profile: pf-1

E.G. Elev (ft)	4438.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.		0.040	
W.S. Elev (ft)	4438.67	Reach Len. (ft)	303.00	300.00	300.00
Crit W.S. (ft)		Flow Area (sq ft)		230.99	
E.G. Slope (ft/ft)	0.002629	Area (sq ft)		230.99	
Q Total (cfs)	675.00	Flow (cfs)		675.00	
Top Width (ft)	121.04	Top Width (ft)		121.04	
Vel Total (ft/s)	2.92	Avg. Vel. (ft/s)		2.92	
Max Chl Dpth (ft)	2.17	Hydr. Depth (ft)		1.91	
Conv. Total (cfs)	13165.1	Conv. (cfs)		13165.1	
Length Wtd. (ft)	300.00	Wetted Per. (ft)		121.54	
Min Ch El (ft)	4436.50	Shear (lb/sq ft)		0.31	
Alpha	1.00	Stream Power (lb/ft s)		0.91	
Frctn Loss (ft)	0.67	Cum Volume (acre-ft)		15.44	
C & E Loss (ft)	0.01	Cum SA (acres)		7.42	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 8 Profile: pf-1

E.G. Elev (ft)	4438.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.		0.040	
W.S. Elev (ft)	4438.02	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)		Flow Area (sq ft)		259.59	
E.G. Slope (ft/ft)	0.001914	Area (sq ft)		259.59	
Q Total (cfs)	675.00	Flow (cfs)		675.00	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 8 Profile: pf-1 (Continued)

Top Width (ft)	127.59	Top Width (ft)		127.59	
Vel Total (ft/s)	2.60	Avg. Vel. (ft/s)		2.60	
Max Chl Dpth (ft)	2.22	Hydr. Depth (ft)		2.03	
Conv. Total (cfs)	15430.1	Conv. (cfs)		15430.1	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		128.26	
Min Ch El (ft)	4435.80	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		0.63	
Frctn Loss (ft)	0.38	Cum Volume (acre-ft)		13.75	
C & E Loss (ft)	0.00	Cum SA (acres)		6.57	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 7.9 Profile: pf-1

E.G. Elev (ft)	4437.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.		0.040	
W.S. Elev (ft)	4437.65	Reach Len. (ft)	300.00	300.00	300.00
Crit W.S. (ft)		Flow Area (sq ft)		260.40	
E.G. Slope (ft/ft)	0.001862	Area (sq ft)		260.40	
Q Total (cfs)	675.00	Flow (cfs)		675.00	
Top Width (ft)	125.94	Top Width (ft)		125.94	
Vel Total (ft/s)	2.59	Avg. Vel. (ft/s)		2.59	
Max Chl Dpth (ft)	2.25	Hydr. Depth (ft)		2.07	
Conv. Total (cfs)	15643.0	Conv. (cfs)		15643.0	
Length Wtd. (ft)	300.00	Wetted Per. (ft)		126.62	
Min Ch El (ft)	4435.40	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		0.62	
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)		12.56	
C & E Loss (ft)	0.00	Cum SA (acres)		5.98	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 7.8 Profile: pf-1

E.G. Elev (ft)	4437.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.		0.040	
W.S. Elev (ft)	4437.07	Reach Len. (ft)	285.00	300.00	310.00
Crit W.S. (ft)		Flow Area (sq ft)		263.65	
E.G. Slope (ft/ft)	0.001970	Area (sq ft)		263.65	
Q Total (cfs)	700.00	Flow (cfs)		700.00	
Top Width (ft)	128.35	Top Width (ft)		128.35	
Vel Total (ft/s)	2.66	Avg. Vel. (ft/s)		2.66	
Max Chl Dpth (ft)	2.27	Hydr. Depth (ft)		2.05	
Conv. Total (cfs)	15770.3	Conv. (cfs)		15770.3	
Length Wtd. (ft)	300.00	Wetted Per. (ft)		129.04	
Min Ch El (ft)	4434.80	Shear (lb/sq ft)		0.25	
Alpha	1.00	Stream Power (lb/ft s)		0.67	
Frctn Loss (ft)	0.60	Cum Volume (acre-ft)		10.75	
C & E Loss (ft)	0.00	Cum SA (acres)		5.11	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 7.7 Profile: pf-1

E.G. Elev (ft)	4436.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.		0.040	
W.S. Elev (ft)	4436.45	Reach Len. (ft)	270.00	300.00	325.00
Crit W.S. (ft)		Flow Area (sq ft)		251.08	
E.G. Slope (ft/ft)	0.002060	Area (sq ft)		251.08	
Q Total (cfs)	700.00	Flow (cfs)		700.00	
Top Width (ft)	117.45	Top Width (ft)		117.45	
Vel Total (ft/s)	2.79	Avg. Vel. (ft/s)		2.79	
Max Chl Dpth (ft)	2.45	Hydr. Depth (ft)		2.14	
Conv. Total (cfs)	15423.5	Conv. (cfs)		15423.5	
Length Wtd. (ft)	300.00	Wetted Per. (ft)		118.07	
Min Ch El (ft)	4434.00	Shear (lb/sq ft)		0.27	
Alpha	1.00	Stream Power (lb/ft s)		0.76	
Frctn Loss (ft)	0.73	Cum Volume (acre-ft)		8.98	
C & E Loss (ft)	0.00	Cum SA (acres)		4.26	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 7.6 Profile: pf-1

E.G. Elev (ft)	4435.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.040	
W.S. Elev (ft)	4435.69	Reach Len. (ft)	248.00	150.00	152.00
Crit W.S. (ft)		Flow Area (sq ft)		229.58	
E.G. Slope (ft/ft)	0.002936	Area (sq ft)		229.58	
Q Total (cfs)	700.00	Flow (cfs)		700.00	
Top Width (ft)	122.59	Top Width (ft)		122.59	
Vel Total (ft/s)	3.05	Avg. Vel. (ft/s)		3.05	
Max Chl Dpth (ft)	2.09	Hydr. Depth (ft)		1.87	
Conv. Total (cfs)	12918.4	Conv. (cfs)		12918.4	
Length Wtd. (ft)	150.00	Wetted Per. (ft)		123.15	
Min Ch El (ft)	4433.60	Shear (lb/sq ft)		0.34	
Alpha	1.00	Stream Power (lb/ft s)		1.04	
Frctn Loss (ft)	0.38	Cum Volume (acre-ft)		7.32	
C & E Loss (ft)	0.01	Cum SA (acres)		3.44	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 7.5 Profile: pf-1

E.G. Elev (ft)	4435.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.		0.040	
W.S. Elev (ft)	4435.33	Reach Len. (ft)	150.00	150.00	150.00
Crit W.S. (ft)		Flow Area (sq ft)		254.78	
E.G. Slope (ft/ft)	0.002178	Area (sq ft)		254.78	
Q Total (cfs)	700.00	Flow (cfs)		700.00	
Top Width (ft)	127.04	Top Width (ft)		127.04	
Vel Total (ft/s)	2.75	Avg. Vel. (ft/s)		2.75	
Max Chl Dpth (ft)	2.23	Hydr. Depth (ft)		2.01	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 7.5 Profile: pf-1 (Continued)

Conv. Total (cfs)	15000.8	Conv. (cfs)		15000.8	
Length Wtd. (ft)	150.00	Wetted Per. (ft)		127.68	
Min Ch El (ft)	4433.10	Shear (lb/sq ft)		0.27	
Alpha	1.00	Stream Power (lb/ft s)		0.75	
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)		6.49	
C & E Loss (ft)	0.01	Cum SA (acres)		3.01	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 7.4 Profile: pf-1

E.G. Elev (ft)	4435.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.040	
W.S. Elev (ft)	4435.09	Reach Len. (ft)	202.00	200.00	195.00
Crit W.S. (ft)		Flow Area (sq ft)		291.82	
E.G. Slope (ft/ft)	0.001452	Area (sq ft)		291.82	
Q Total (cfs)	700.00	Flow (cfs)		700.00	
Top Width (ft)	131.51	Top Width (ft)		131.51	
Vel Total (ft/s)	2.40	Avg. Vel. (ft/s)		2.40	
Max Chl Dpth (ft)	2.79	Hydr. Depth (ft)		2.22	
Conv. Total (cfs)	18367.4	Conv. (cfs)		18367.4	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		132.31	
Min Ch El (ft)	4432.30	Shear (lb/sq ft)		0.20	
Alpha	1.00	Stream Power (lb/ft s)		0.48	
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)		5.55	
C & E Loss (ft)	0.00	Cum SA (acres)		2.56	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 7.3 Profile: pf-1

E.G. Elev (ft)	4434.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.040	
W.S. Elev (ft)	4434.79	Reach Len. (ft)	215.00	200.00	185.00
Crit W.S. (ft)		Flow Area (sq ft)		284.25	
E.G. Slope (ft/ft)	0.001512	Area (sq ft)		284.25	
Q Total (cfs)	700.00	Flow (cfs)		700.00	
Top Width (ft)	126.93	Top Width (ft)		126.93	
Vel Total (ft/s)	2.46	Avg. Vel. (ft/s)		2.46	
Max Chl Dpth (ft)	2.49	Hydr. Depth (ft)		2.24	
Conv. Total (cfs)	18004.1	Conv. (cfs)		18004.1	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		127.67	
Min Ch El (ft)	4432.30	Shear (lb/sq ft)		0.21	
Alpha	1.00	Stream Power (lb/ft s)		0.52	
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)		4.23	
C & E Loss (ft)	0.00	Cum SA (acres)		1.97	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 7.2 Profile: pf-1

E.G. Elev (ft)	4434.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.		0.040	
W.S. Elev (ft)	4434.45	Reach Len. (ft)	245.00	226.00	215.00
Crit W.S. (ft)		Flow Area (sq ft)		271.03	
E.G. Slope (ft/ft)	0.001747	Area (sq ft)		271.03	
Q Total (cfs)	700.00	Flow (cfs)		700.00	
Top Width (ft)	125.52	Top Width (ft)		125.52	
Vel Total (ft/s)	2.58	Avg. Vel. (ft/s)		2.58	
Max Chl Dpth (ft)	2.75	Hydr. Depth (ft)		2.16	
Conv. Total (cfs)	16747.6	Conv. (cfs)		16747.6	
Length Wtd. (ft)	226.00	Wetted Per. (ft)		126.33	
Min Ch El (ft)	4431.70	Shear (lb/sq ft)		0.23	
Alpha	1.00	Stream Power (lb/ft s)		0.60	
Frctn Loss (ft)	0.46	Cum Volume (acre-ft)		2.95	
C & E Loss (ft)	0.00	Cum SA (acres)		1.39	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 7.1 Profile: pf-1

E.G. Elev (ft)	4434.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.		0.040	
W.S. Elev (ft)	4433.97	Reach Len. (ft)	125.00	119.00	119.00
Crit W.S. (ft)		Flow Area (sq ft)		243.92	
E.G. Slope (ft/ft)	0.002343	Area (sq ft)		243.92	
Q Total (cfs)	700.00	Flow (cfs)		700.00	
Top Width (ft)	120.32	Top Width (ft)		120.32	
Vel Total (ft/s)	2.87	Avg. Vel. (ft/s)		2.87	
Max Chl Dpth (ft)	2.17	Hydr. Depth (ft)		2.03	
Conv. Total (cfs)	14461.5	Conv. (cfs)		14461.5	
Length Wtd. (ft)	119.00	Wetted Per. (ft)		120.98	
Min Ch El (ft)	4431.80	Shear (lb/sq ft)		0.29	
Alpha	1.00	Stream Power (lb/ft s)		0.85	
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)		1.62	
C & E Loss (ft)	0.01	Cum SA (acres)		0.75	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 7.0 Profile: pf-1

E.G. Elev (ft)	4433.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.040	
W.S. Elev (ft)	4433.77	Reach Len. (ft)	145.00	145.00	150.00
Crit W.S. (ft)		Flow Area (sq ft)		283.25	
E.G. Slope (ft/ft)	0.001531	Area (sq ft)		283.25	
Q Total (cfs)	700.00	Flow (cfs)		700.00	
Top Width (ft)	127.07	Top Width (ft)		127.07	
Vel Total (ft/s)	2.47	Avg. Vel. (ft/s)		2.47	
Max Chl Dpth (ft)	2.47	Hydr. Depth (ft)		2.23	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 7.0 Profile: pf-1 (Continued)

Conv. Total (cfs)	17888.4	Conv. (cfs)		17888.4	
Length Wtd. (ft)	145.00	Wetted Per. (ft)		127.79	
Min Ch El (ft)	4431.30	Shear (lb/sq ft)		0.21	
Alpha	1.00	Stream Power (lb/ft s)		0.52	
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)		0.89	
C & E Loss (ft)	0.00	Cum SA (acres)		0.41	

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 6.9 Profile: pf-1

			Left OB	Channel	Right OB
E.G. Elev (ft)	4433.61	Element			
Vel Head (ft)	0.12	Wt. n-Val.		0.040	
W.S. Elev (ft)	4433.49	Reach Len. (ft)			
Crit W.S. (ft)	4432.34	Flow Area (sq ft)		254.48	
E.G. Slope (ft/ft)	0.002040	Area (sq ft)		254.48	
Q Total (cfs)	700.00	Flow (cfs)		700.00	
Top Width (ft)	120.27	Top Width (ft)		120.27	
Vel Total (ft/s)	2.75	Avg. Vel. (ft/s)		2.75	
Max Chl Dpth (ft)	2.29	Hydr. Depth (ft)		2.12	
Conv. Total (cfs)	15499.2	Conv. (cfs)		15499.2	
Length Wtd. (ft)		Wetted Per. (ft)		121.22	
Min Ch El (ft)	4431.20	Shear (lb/sq ft)		0.27	
Alpha	1.00	Stream Power (lb/ft s)		0.74	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

HEC-RAS Plan: 4RCB@Carat River: Whites Creek Reach: Central Channel

CULVERT SUMMARY

Reach	River Sta	E.G. US.	W.S. US.	E.G. IC	E.G. OC	Min Top Rd	Culv Q	Q Weir	Delta WS	Culv Vel In	Culv Vel Out
		(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(ft)	(ft/s)	(ft/s)
Central Channel	152	Culv Grp #1	4461.26	4460.93	4461.26	4461.23	4465.00	277.89		1.85	9.85	10.20
Central Channel	152	Culv Grp #2	4461.26	4461.19	4458.85	4461.26	4465.00	22.11		1.47	7.04	7.04
Central Channel	97	W.Way-5RCPs	4459.51	4459.17	4459.51	4459.43	4460.20	300.00		4.03	10.18	10.48
Central Channel	9.29	Carat6x5RCBs	4449.60	4449.03	4449.40	4449.60	4451.36	650.00		2.08	9.27	10.15

CULVERT TABLES

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 152 Pr

Culv Q (cfs)	277.89	Culv Vel In (ft/s)	9.85
# Barrels	2	Culv Vel Out (ft/s)	10.20
Q Barrel (cfs)	138.94	Culv Inv El Up (ft)	4455.90
E.G. US. (ft)	4461.26	Culv Inv El Dn (ft)	4455.75
W.S. US. (ft)	4460.93	Culv Frctn Ls (ft)	0.14
Delta EG (ft)	1.42	Culv Ent Loss (ft)	0.80
Delta WS (ft)	1.85	Culv Ent Loss (ft)	0.48
E.G. IC (ft)	4461.26	Q Weir (cfs)	
E.G. OC (ft)	4461.23	Weir Sta Lft (ft)	
Culvert Control	Inlet	Weir Sta Rgt (ft)	
Culv WS In (ft)	4459.28	Weir Submerg	
Culv WS Out (ft)	4459.02	Weir Max Depth (ft)	
Culv Nml Depth (ft)	3.25	Weir Avg Depth (ft)	
Culv Crt Depth (ft)	3.38	Weir Flow Area (sq ft)	
Culv Ful Lngh (ft)		Min Top Rdwy (ft)	4465.00

Errors Warnings and Notes

Note:	The flow in the culvert is entirely supercritical.

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 152 Pr

Culv Q (cfs)	277.89	Culv Vel In (ft/s)	9.85
# Barrels	2	Culv Vel Out (ft/s)	10.20
Q Barrel (cfs)	138.94	Culv Inv El Up (ft)	4455.90
E.G. US. (ft)	4461.26	Culv Inv El Dn (ft)	4455.75
W.S. US. (ft)	4460.93	Culv Frctn Ls (ft)	0.14
Delta EG (ft)	1.42	Culv Ent Loss (ft)	0.80
Delta WS (ft)	1.85	Culv Ent Loss (ft)	0.48
E.G. IC (ft)	4461.26	Q Weir (cfs)	
E.G. OC (ft)	4461.23	Weir Sta Lft (ft)	
Culvert Control	Inlet	Weir Sta Rgt (ft)	
Culv WS In (ft)	4459.28	Weir Submerg	

Culv WS Out (ft)	4459.02	Wtr Max Depth (ft)	
Culv Nml Depth (ft)	3.25	Wtr Avg Depth (ft)	
Culv Crt Depth (ft)	3.38	Wtr Flo Area (sq ft)	
Culv Ful Lngh (ft)		Min Top Rdwy (ft)	4465.00

Errors Warnings and Notes

Note:	The flow in the culvert is entirely supercritical.

Plan: 4RCB@Carat River: Whites Creek Reach:Central Channel Riv Sta: 152 Pr

Culv Q (cfs)	277.89	Culv Vel Inv (ft/s)	9.85
# Barrels	2	Culv Vel Out (ft/s)	10.20
Q Barrel (cfs)	138.94	Culv Inv EL Up (ft)	4455.90
E.G. US. (ft)	4461.26	Culv Inv EL Dn (ft)	4455.75
W.S. US. (ft)	4460.93	Culv Frctn Ls (ft)	0.14
Delta EG (ft)	1.42	Culv Exit Loss (ft)	0.80
Delta WS (ft)	1.85	Culv Entr Loss (ft)	0.48
E.G. IC (ft)	4461.26	Q Weir (cfs)	
E.G. OC (ft)	4461.23	Weir Sta Lft (ft)	
Culvert Control	Inlet	Weir Sta Rgt (ft)	
Culv WS In (ft)	4459.28	Weir Submerg	
Culv WS Out (ft)	4459.02	Weir Max Depth (ft)	
Culv Nml Depth (ft)	3.25	Weir Avg Depth (ft)	
Culv Crt Depth (ft)	3.38	Weir Flo Area (sq ft)	
Culv Ful Lngh (ft)		Min Top Rdwy (ft)	4465.00

Errors Warnings and Notes

Note:	The flow in the culvert is entirely supercritical.

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