HIGHWAY HYDRAULIC STUDY

FOR

SH 30 Carters Creek Bridges

Brazos County, Texas

Draft Report

Parsons Brinckerhoff, Inc.

August, 2006

SH 30 HYDRAULIC STUDY ON CARTERS CREEK

Brazos County, Texas

Preliminary Hydraulic Report

Prepared for:

Texas Department of Transportation
Bryan District

(Contract No. 17-448P5007)

Prepared by:

Parsons Brinckerhoff, Inc.

August 2006

Parsons Brinckerhoff Quade & Douglas, Inc.
2777 N. Stemmons Freeway
Suite 1333
Dallas, TX 75207-2502
214-638-2888
Fax: 214-638-2893

Ms. Cecelia McCord
Texas Dept. of Transportation
1300 North Texas Avenue
Bryan, Texas 77803

August 17, 2006
Job No. 22479B

Re: Hydraulic Study for SH 30 at Carters Creek City of College Station, Brazos County, Texas.

Dear Ms. McCord:

Attached is the Draft Report for the Hydraulic Study for SH 30 Carters Creek at in the City of College Station, Brazos County, Texas (TxDOT Contact No. 17-448P5007). This report includes all necessary hydrologic and hydraulic information to prepare the SH 30 Carters Creek bridge hydraulics and floodplain analysis. Our study indicates that the existing SH 6 crossing structures on Carters Creek floodplain is inadequate. Four proposed crossing structure alternatives are presented. With the proposed bridge improvements, SH 30 Carters Creek Bridge will meet both TxDOT and FEMA criteria.

If you have any questions on the report, please contact us at 214-638-2888. We look forward to working with TxDOT on the successful completion of this project.

Yours very truly,

Parsons Brinckerhoff Quade & Douglas, Inc.

Allen L. Xu, P.E., C.F.M
Lead Engineer

Kenneth Gottleaber, P.E.
Project Manager

Enclosures

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Executive Summary

SH 30 at Carters Creek has experienced severe flooding. The current existing cross structures do not have enough capacity to pass the design discharges. The updated hydraulic model from this study confirmed the flooding problem on SH 30 Carters Creek Bridge. The existing SH 30 cross structures on Carters Creek have approximately 5000 cfs passing capacity which is less than 2-year flood event. The main reason is the limited existing structures size and the low roadway profile between Carters Creek Bridge and Associates Road. The new hydrologic study indicates that the effective FIS discharges were also underestimated. The 100-year flood discharge from this study is approximately 25% higher than the current effective discharges. With the latest hydraulic data, SH 30 crossing structures on Carters Creek should be improved. Two cross structure options with four alternatives have been proposed to alleviate the SH 30 flooding problem. These alternatives are summarized as follows:

- 210 LF New Bridge without roadway flooding under 25-year design discharge
- 400 LF New Bridge with 100-Year Water Surface Elevation Zero-Rise
- 260 LF Existing Bridge Expansion without roadway flooding under 25-year design discharge
- 600 LF Existing Bridge Expansion with 100-Year Water Surface Elevation Zero-Rise

With a proposed new structure, SH 30 can meet the design requirements under the design flood discharges. More detailed hydraulic studies should collaborate with the SH 30 at Carters Creek reconstruction design following TxDOT approval of this study.

1. INTRODUCTION

1.1 OVERVIEW

This engineering report has been prepared to provide hydrologic and hydraulic information used to analyze existing condition and future design on State Highway (SH) 30 Carters Creek crossing structures in Brazos County, Texas. The study presented here includes evaluation of hydrology, stream hydraulics, floodplain management and bridge hydraulics within the project.

1.2 EXISTING CONDITIONS

SH 30 (also called Harvey Road in the City of College Station) runs from Huntsville via Roans Prairie to SH 6 in the northeast of College Station. It crosses Carters Creek and Hudson Creek, a tributary of Carters Creek before intersecting with SH 6 (also called Earl Rudder Freeway). Figure 1 shows the location of SH 30 on Carters Creek. Carters Creek is a tributary of Navasota River. Carters Creek originates 2 miles north of the City of Bryan. The stream flows in southeast direction along SH 6 to its confluence with the Navasota River near Millican. The total drainage area is 26.2 square miles at SH 30. University Drive (FM 60) crosses Carters Creek approximately 4500 ft upstream of SH 30.

The area between FM 60 and SH 30 is called the 30/60 area [City of College Station, 2001], in which its east and west limits are located at FM 158 and SH 6 respectively. Based on the College Station Comprehensive Plan, there are approximately 900 acres included in the 30/60 area, and only about 160 acres are developed. Carters Creek is a priority #2 in the City of College Station Greenways Master Plan. This section of the floodplain is heavily wooded and still largely untouched by development or reclamation. The City, State and Federal government have reviewed applications for a major reclamation project that would have involved relocating Carters Creek and reclaiming substantial floodplain for development.

Within the limits of this project, SH 30 has 8 cross structures. Four of these structures are located at the left overbank side of Hudson Creek. The flow line elevations of these structures are higher than Carters Creek 100-Year water surface elevations, and they are only for local drainage purpose. Because of this reason, these four structures are not included in this study. The remaining four crossing structures play the critical role for the conveyance of the Carters Creek floodplain. From east to west, the four existing structures are listed as follows:

Fig 1. SH 30 Carters Bridge Location Map

- Hudson Creek 4-10'x8' Multi-Box Culvert
- Carters Creek 5 span 125 LF Bridge
- Carters Creek 2 30" RCP (Reinforced Concrete Pipe)
- Carters Creek 1-7'x5' Box Culvert

Since the confluence location between Hudson Creek and Carters Creek is just 800 ft downstream of SH 30, the floodplain of the two creeks is merged together under normal flood period. Therefore these four structures function as combined cross structures.

A site inspection and discussion with the Texas Department of Transportation (TxDOT) maintenance staffs indicate that SH 30 between the Carters Creek Bridge and Associates Road has experienced severe flooding in the past, which reveals that the existing drainage system for SH 30 on Carters Creek seems to be inadequate as designed.

1.3 HISTORY OF FLOODING

National Weather Services (NWS) data indicates that the most severe weather occurred on October 16, 1994, in a 55 year record (1951-2006). This storm produced a point rainfall depth of 13.39 inches in a 24-hour period at College Station. There is no USGS Gage Station on Carters Creek. Therefore, no detailed flood discharges were recorded for Carters Creek. However, field observations by TxDOT engineers indicated that the SH 30 roadway was severely flooded on May 14, 2004. The estimated overtopping depth on SH 30 between the Carters Bridge and Associates Road is approximately 2 ft. The NWS data indicated that the May 13, 2004 storm is the ninth largest storm in this area with a daily rainfall depth of 5.04 inches. Photos 1 and 2 show the 2004 flooding information. No overtopping was observed for FM 60 on the Carters Creek floodplain for the May 13, 2004 storm.

1.4 STUDY PURPOSE AND SCOPE

The objective of this study includes developing floodplain information for Carters Creek and Hudson Creek between SH 30 and FM 60. The floodplain study consists of the development of water surface elevations under the design flood and preparation of floodplain delineation maps and profiles. In order to attain this objective, new hydrologic and hydraulic models based on the most current conditions are necessary and must be prepared. In developing the floodplain management plans, flooding problems will be identified using the floodplain information. Alternative solutions to those problems will be presented.

The floodplain delineation presented in this report is based upon a new hydraulic computer model updated to reflect current channel, bridge and floodplain conditions. The key elements of this project are listed as follows:

- Investigate the flooding information on Carters Creek and Hudson Creek near SH 30
- Develop new hydrologic and hydraulic models
- Delineate the design floodplain based on current existing land use condition
- Identify erosion/deposition locations
- Proposed alternative plans for improving SH 30 at Carters Creek

The major focus of this project, as concurred by the TxDOT Bryan District engineers, is to better understand and identify the true flooding conditions on the SH 30 Carters Creek floodplain. The resulting floodplain data will provide a base for future improvements of SH 30 over Carters Creek.

2. FEMA PARTICIPATION

Brazos County is a participating member of the National Flood Insurance (FIS) Program, which is administered by the Federal Emergency Management Agency (FEMA). All stream crossings on this project are within the jurisdiction of the Brazos County Floodplain Administrator and show up on the following maps:

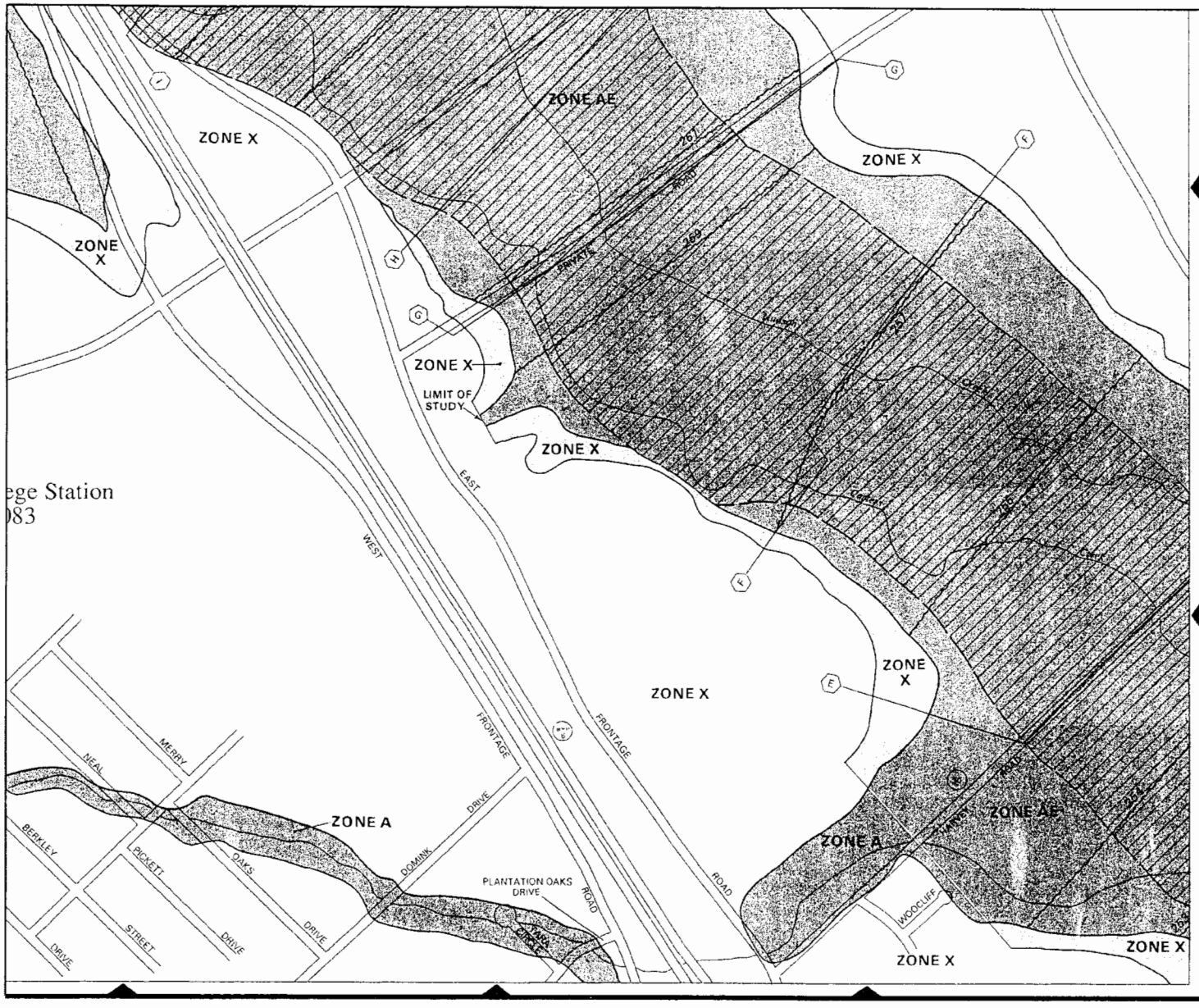
Flood Insurance Rate Maps (FIRM) for Brazos County, Texas and Unincorporated Areas

1. Map Number 48041C0142 C A Effective Date: July 2, 1992
2. Map Number 48041C0161 C A Effective Date: July 2, 1992

The two maps which cover the SH 30 project area are shown in Figure 2 of this report. The maps indicate that the study area is within Flood Zone AE. Flood Zone AE is defined as a special flood hazard area inundated by the 100-year flooding (or base flood) with determined base flood elevations (BFE).

The floodplain studies for all the stream segments for this project were performed in accordance with following documents:

1. Texas Department of Transportation's Hydraulic Design Manual, March 2004



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insurance

APPROXIMATE SCALE

500 0 500 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

BRAZOS COUNTY, TEXAS AND INCORPORATED AREAS

PANEL 142 OF 250

(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BRYAN, CITY OF	480082	0142	C
COLLEGE STATION, CITY OF	480083	0142	C
UNINCORPORATED AREAS	481195	0142	C

Notice to User: The MAP NUMBER shown below should be used when placing map orders; the COMMUNITY NUMBER shown above should be used on insurance applications for the subject community.

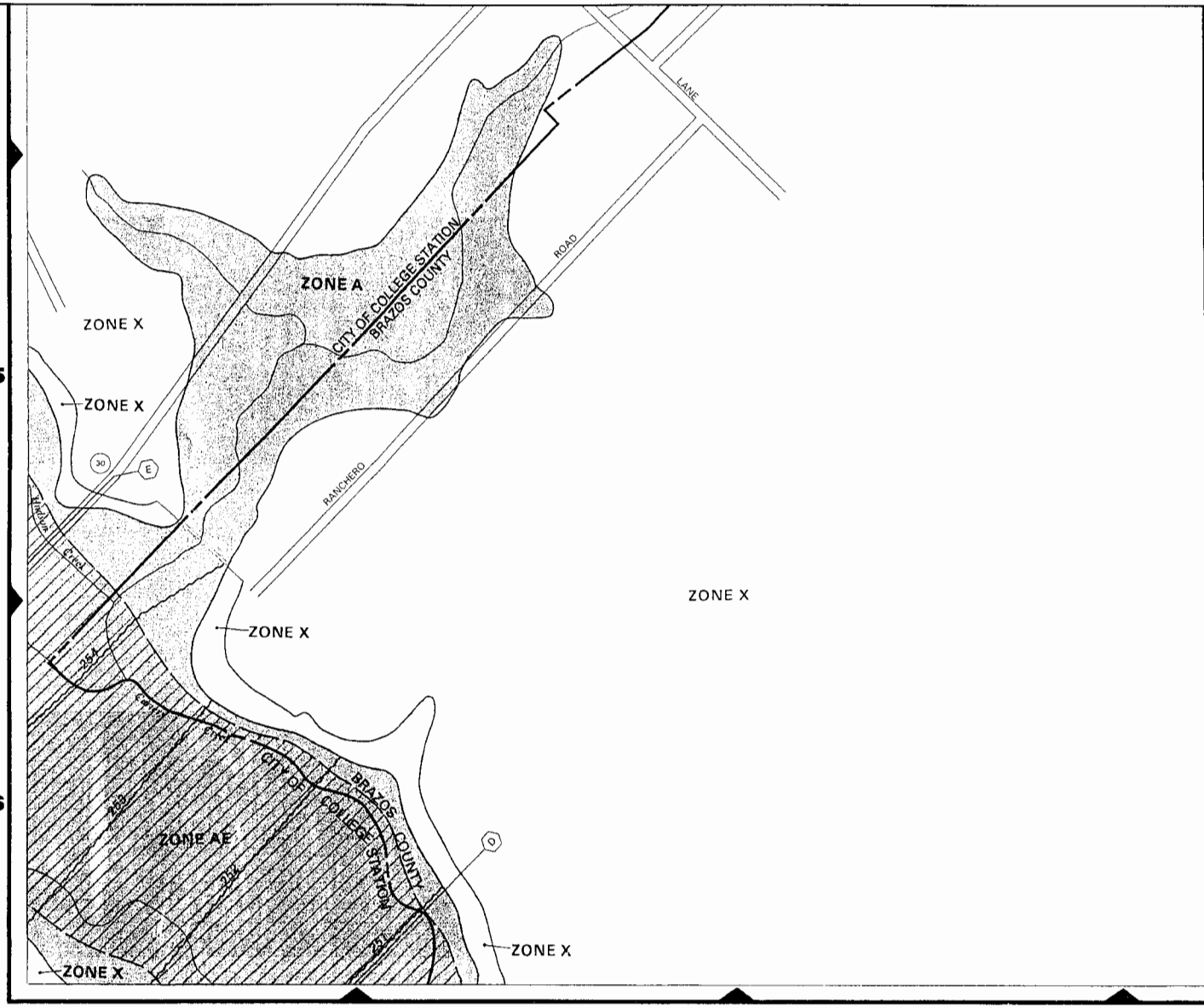
MAP NUMBER
48041C0142 C

EFFECTIVE DATE:
JULY 2, 1992

Federal Emergency Management Agency

Fig. 2
Flood Insurance Rate Map (1)

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



APPROXIMATE SCALE

500 0 500 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

BRAZOS COUNTY, TEXAS AND INCORPORATED AREAS

PANEL 161 OF 250

(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BRYAN, CITY OF	480082	0161	C
COLLEGE STATION, CITY OF	480083	0161	C
UNINCORPORATED AREAS	481193	0161	C

Notice to User: The MAP NUMBER shown below should be used when placing map orders; the COMMUNITY NUMBER shown above should be used on insurance applications for the subject community.

MAP NUMBER
48041C0161C

EFFECTIVE DATE:
JULY 2, 1992

Federal Emergency Management Agency

Fig. 2
Flood Insurance Rate Map (2)

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

2. Federal Emergency Management Agency, National Flood Insurance Program Regulation 44 CFR 59, 60 and 65

In reference to the above listed documents, the main criteria for encroachment of the floodplain with the known base floodway are summarized as follows:

1. The highway crossing should be designed to allow no more than 1-foot increase in the backwater elevations.
2. Replacement structures shall be hydraulically designed to equal or exceed the existing structure and not allow more than a 1 foot increase in back water elevations.

In conclusion, the hydraulic studies for this project were performed in accordance with the above criteria.

3. HYDROLOGIC METHODOLOGY AND ANALYSIS

3.1 METHODOLOGY

The FEMA effective FIS study was performed in 1973, which is more than thirty years old. Therefore, both hydrologic and hydraulic models need to be updated. The hydrologic study methods used in this study include a preliminary analysis method and detailed analysis method. The preliminary analysis used a USGS (United States Geologic Survey) Regression Equation Method, and the detailed analysis used USCOE (United States Corps of Engineers) HEC-HMS rainfall-runoff model.

3.1.1 PRELIMINARY ANALYSIS USING USGS REGRESSION EQUATIONS

Initial estimates of peak stream flow for the study basin were calculated using the regional regression equations developed by the USGS (USGS, 1997). These equations were developed based on gaged streams in natural (unregulated and rural or non-urbanized) basins. Since Brazos County is located in the Hydrologic Region 8 of Texas and all study basins are less than 32 square miles in area, the corresponding regression equations were adopted as follows:

10-year recurrence interval: $Q_{10} = 134\ A^{.675}\ SL^{.475}$

25-year recurrence interval: $Q_{25} = 191A^{.690}\ SL^{.444}$

50-year recurrence interval: $Q_{50} = 229\ A^{.703}\ SL^{.433}$

100-year recurrence interval: $Q_{100} = 261\ A^{.718}\ SL^{.429}$

where A is the watershed area in square miles. The 500-year recurrence interval discharge can be extrapolated from a rating curve based on the data computed above. The detailed calculation sheet is listed in Appendix A.

The results from the Regression Equation method are substantially lower than those from the FIS results. TxDOT Bryan District used transposition of FEMA data based on Burton Creek and Wolf Pen Creek discharges to estimate the discharges from Carters Creek near SH 30, which is much larger than the results directly from Region 8 regression equation method. The calculation table for transposition of the FEMA effective discharges is also attached in Appendix A. The preliminary hydrologic study results will be used to compare with those from the detailed hydrologic analysis.

3.1.2 DETAILED ANALYSIS USING HEC-HMS RAINFALL-RUNOFF MODEL

The USACE HEC-HMS computer program (version 3.0.0) [USACE, 2005] was used to establish rainfall-runoff relationships for the study. The hydrologic models use rainfall data, unit hydrograph, soil hydrologic group data, and land use information to generate peak discharges.

The HEC-HMS program is composed of three major modules: Meteorological Model, Basin Model and Control Specifications. The methods used in this study are listed as follows:

3.1.2.1 RAINFALL DATA

Rainfall data for the HEC-HMS models were determined from 24-hour rainfall tables listed in the TxDOT Hydraulic Design Manual and two rainfall frequency publications from the National Weather Service. These publications are known as the Hydro-35 [NOAA, 1977] and Technical Paper No. 40 [NWS, 1961]. Both hydrologic methods model a 24-hour storm duration to determine peak discharges. The rainfall data used for these studies are shown in Table 1.

Table 1: Hydro-35 & TP-40 Rainfall Data for Brazos County, Texas

Rainfall Depth	Storm Duration							
Frequency	**5 min.**	**15 Min.**	**60 Min.**	**2 Hr.**	**3 Hr.**	**6 Hr.**	**12 hr.**	**24 Hr.**
2 Year	0.53	1.15	2.20	2.58	2.86	3.37	3.86	4.5
5 Year	0.60	1.32	2.68	3.37	3.70	4.40	5.26	6.17
10 Year	0.66	1.45	3.02	3.88	4.38	5.25	6.24	7.33
25 Year	0.75	1.64	3.52	4.57	5.09	6.21	7.48	8.88
50 Year	0.82	1.80	3.91	5.10	5.63	6.96	8.46	9.75
100 Year	0.89	1.95	4.30	5.62	6.27	7.83	9.50	11.00
500 Year	1.03	2.27	5.15	6.88	7.66	9.61	11.78	13.66

The 500-Year rainfall depth was extrapolated from the Hydro-35 and TP-40 data.

3.1.2.2 DRAINAGE AREA DELINEATION

The delineation of each watershed boundary was developed based on the USGS quadrangle topographic maps (Map name: Bryan East). The entire watershed is divided into four (4) drainage sub-basins. Figure 3 shows the detailed drainage divide and sub-basin information.

3.1.2.3 UNIT HYDROGRAPH COMPUTATION

The NRCS dimensionless unit hydrograph method was utilized to generate a flood hydrograph for each sub-basin. The NRCS lag time Tp factor was determined from the basin topographic feature, hydrologic soil group information and land use.

In NRCS method, the basin topographic features are related to the flow path and ground slope in each drainage basin. The lag time of a watershed is defined as the time from the center of mass of excess rainfall to the time to peak of a unit hydrograph. The detailed NRCS lag time calculation is listed in Appendix B.

3.1.2.4 RAINFALL LOSS RATE

Rainfall loss rate indicates the difference between the rainfall depth and runoff depth. Many factors influence rainfall loss such as soil features, ground vegetation and land use. In this study, NRCS Curve Number (CN) method is used to estimate rainfall loss rate. CN is a function of soil type and land use. A composite CN value is weighted by each CN with its related hydrologic soil group (HSG) and land use area in the basin.

This study area is located in Brazos County [SCS, 1980]. The soil data from Brazos County is a GIS formatted shape file, which was obtained from the NRCS web site [NRCS, 2005]. Land use information in the study area was obtained from the City of College Station and the City of Bryan. Using GIS techniques, these three maps: drainage area map, Hydrologic Soil Group map and Land Use Map, can be overlaid together to calculate the composite CN. Detailed data maps and CN calculation sheets are listed in Appendix B.

3.1.2.5 RIVERINE STORAGE ROUTING RATING CURVE

Natural stream and their floodplain can temporarily store a portion of the flood wave, which tends to reduce the magnitude of downstream flood discharges. In this study, the Modified Puls method was used to model riverine routing for the reaches in the study area, based on detailed storage data from the hydraulic analysis.

The rating curve (Flood Discharges-Volume Q-V) data for the valley storage computation was calculated from the effective FIS model results. With the above mentioned factor calculation and considerations, designed flood discharges can be estimated using HEC-HMS model. Detailed HEC-HMS model results are enclosed in Appendix B.

3.2 FLOW COMPUATIONS AND ANALYSIS

Based on the previous mentioned methods, the flood discharges under the various frequencies have been calculated and summarized in Table 2.

Table 2: Summary of Hydrologic Study Results

LOCATION	HYDROLOGIC STUDY RESULT SUMMARY							
	FIS EFFECTIVE		HEC-HMS		REGRESSION		Transposition FEMA data*	
	25-YR	100-YR	25-YR	100-YR	25-YR	100-YR	10-YR**	100-YR
SH 30	16900	21800	19690	27510	5481	7907	12650	20140
FM 60	13520	17720	18950	26030			12500	19910

* From TxDOT study, Drainage Study for FM60/Carters Bridge, Brazos County, 2000

** No 25 Year FEMA data available

From Table 2, it can be found that the discharges from this study are the highest compared to the effective FIS results and preliminary Regression Equation method. The hydrologic results from this study are logically reasonable because of the large portion of new development in Bryan-College Station area in recent thirty years. They also provide a conservative consideration for the hydraulic analysis. In the following hydraulic analysis, both discharges from this study and FIS are used to analyze SH 30 bridge hydraulics.

4. HYDRAULIC METHODOLOGY AND ANALYSIS

4.1 METHODOLOGY

Analysis of the floodplain and bridge hydraulic characteristics in the study area was performed using USACE's HEC-RAS computer program (version 3.1.2). The base hydraulic model was taken from the FIS effective HEC-2 model. For comparison purpose, FIS HEC-2 model was converted into HEC-RAS model. Then hydrologic and geometric updates within the study area were added in the base model to become the corrected existing model and further proposed model with the proposed structure alternatives. The design criteria for bridge class structures are the following:

- The design flood (25-year flood for this project) must not overtop the highway
- No significant damage to the highway under the check flood (100-year flood for this project)
- Backwater water surface elevations cannot be increased more than 1 foot.

The detailed model processing will be stated in the next few sections.

4.2 EFFECTIVE FLOOD INSURANCE STUDY MODELS

The hardcopy of the FEMA effective hydraulic model for Carters Creek was obtained from the FEMA Library. The digital file was requested from the City of Bryan. The effective model is a HEC-2 computer program. This model was used as a base model for this study. The updates in the study area were based on this model. For comparison purposes, this model and results are attached in Appendix C.

4.3 HYDRAULIC MODEL UPDATES

4.3.1 MODEL UPDATE INFORMATION

The corrected existing model originated from the FIS effective HEC-2 model. After converting it into a HEC-RAS model, updated hydrologic data, stream geometry and crossing structure geometric data have been added to the base model. Those updates are primarily listed as follows:

Hydrologic Data: The updated hydraulic model will also adopt discharges from this study to compare to the results with the effective FIS discharges.

Stream Geometry: There are a total of ten (10) cross sections (From Section 10.93 to Section 12.27) between SH 30 and FM 60 in the effective model. In order to reflect the study area better, five more cross sections are added in the model. Sections 11.0 and 11.20 are added

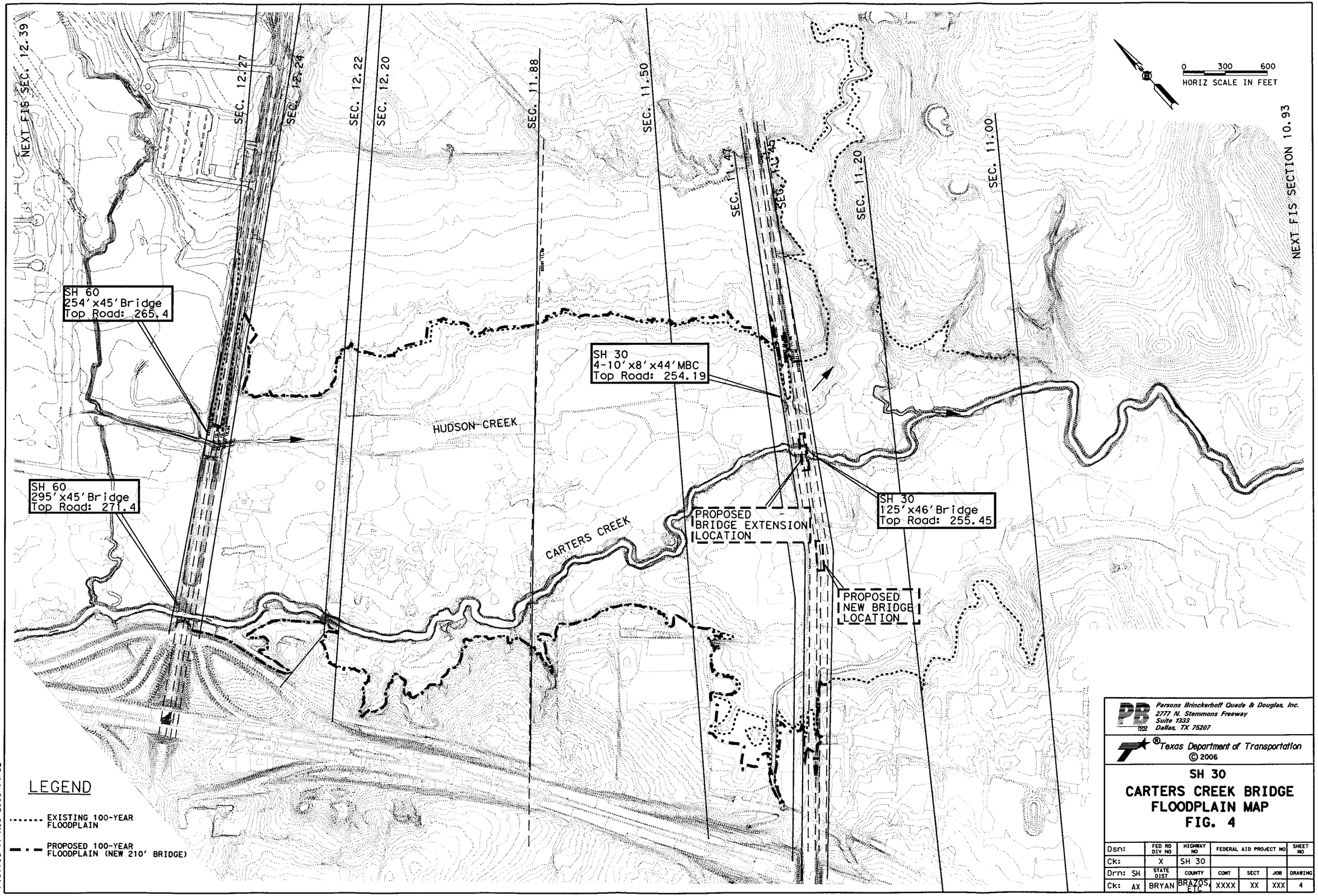
between Sections 10.91 and 11.45 to reduce the reach length downstream of SH 30. Section 11.5 is inserted between Sections 11.47 and 11.88 upstream of SH 30. Sections 12.20 and 12.22 are to reflect a private road downstream of FM 60. After those cross sections updates, all fifteen (15) cross sections were regenerated using GeoPak terrain model based on the City's 1 ft contour map. With field survey data on the channel part of those sections, new cross sections will better reflect the channel flow lines in the study area. Thus, 15 cross sections have been updated and incorporated in the new HEC-RAS model. The cross section reach lengths were adjusted due to the addition of new cross sections. The roughness factor, "n" value, is a very sensitive factor in the hydraulic model. The "n" value settings in the effective FIS model remained same in the new HEC-RAS model. Those values range from n= 0.045 – 0.06 in the creek channel and n= 0.075-0.085 in the heavy forested overbank in the study area.

Bridge Geometry: SH 30 cross structures in the effective model were also out of date. The field survey was made for four SH 30 cross structures on the Carters Creek floodplain. Combined with the bridge "As-built" data, four cross structures have been updated in the new HEC-RAS model. All associated multiple opening and ineffective area limits were adjusted accordingly.

This new HEC-RAS model also updated upstream FM 60 Carters Creek Bridge and Hudson Creek Bridge per field survey data.

4.3.2 UPDATED SH 30 CARTERS CREEK FLOODPLAIN

With the previous mentioned update, corrected existing Carters Creek HEC-RAS model has been performed. The results from this model reflect current floodplain information and SH 30 bridge hydraulics. The updated existing Carters Creek water surface elevations based on the HEC-RAS calculation results are summarized in Table 3. The floodplain delineation based on the HEC-RAS results is shown on Figure 4, which indicates flooding area under the updated base flood elevation (BFE). With the updated Carters Creek hydraulic model and the field observations, the following notes can be made for the SH 30 Carters Creek study area:



Parsons Brinckerhoff Quade & Douglas, Inc.
2777 N. Stemmons Freeway
Suite 1333
Dallas, TX 75207

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SH 30

CARTERS CREEK BRIDGE
FLOODPLAIN MAP
FIG. 4

Dsn:	FED RD DIV NO	HIGHWAY NO	FEDERAL AID PROJECT NO			SHEET NO
Ck:	X	SH 30				
Drn: SH	STATE DIST	COUNTY	CONT	SECT	JOB	DRAWING
Ck: AX	BRYAN	BRAZOS, ETC	XXXX	XX	XXX	4

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Plotted 17-AUG-2006 14:32

- The existing SH 30 cross structures on Carters Creek have approximately 5000 cfs passing capacity which is less than 2-year flood event. The main reasons are the limited existing structures dimension and the lower roadway profile between Carters Creek Bridge and Associates Road.

- With the 100-Year flood event, the existing SH 30 overtopping depth can reach to 4.2 ft. which would jeopardize integrity of the SH 30 structures and roadway.

- The current SH 30 cross structures cannot pass the 25-Year design discharge either. The overtopping depth under 25-Year design flood is approximately 3.3 ft.

- The existing Carters Creek channel passing capacity is approximately 1200 cfs, which is slightly over the 1-Year flood discharge.

- Base floodplain widths in the study area between SH 30 and FM 60 range from 1500 to 2000 ft.

- The existing minimum top road elevation is 351.4. The May 14, 2004 flood depth at the SH 30 low point is approximately 2 ft. This depth leads to water surface elevation of 353.4, which is lower than the 10-year water surface elevation at SH 30 (354.06).

- Flow velocities in the study area of Carters Creek channel range from 3 to 6 fps except downstream of FM 60 bridge, where the flow velocities are much higher than 6 fps.

- The existing FM 60 structures on Carters Creek and Hudson Creek can pass the design discharges and meets the TxDOT requirements. Therefore, no structure improvements are required.

The detailed HEC-RAS model and results are attached in Appendix D.

4.3.3 BRIDGE OPTIONS

In order to overcome the under-designed existing cross structures, structural improvements for SH 30 on Carters Creek floodplain are necessary. The SH 30 roadway on the Carters Creek floodplain is in a steep vertical curve. The major existing structures are located at the relatively higher point of the roadway vertical curve. Therefore, the low point of vertical curve on the Carters Creek floodplain can be easily flooded. In order to keep SH 30 out of the design flood, the roadway profile has to be raised to above the bridge head water elevation under the design discharges. After consideration of the Carters Creek floodplain geometries, existing SH 30

roadway profile and existing cross structure dimension, several improvement options have been proposed. Those options can be classified in two categories. One is to expand the existing Carters Creek bridge and raise the roadway profile. The other is to construct a new bridge near the low point of the existing roadway profile in addition to raising the roadway profile. Using updated HEC-RAS model, these options have been evaluated and described as follows:

Option 1: Construction of New Bridge

The proposed new bridge will be located at the low point of the SH 30 profile, which is near the existing 2-30" RCP structure. In order to keep the existing Carters Creek Bridge in function, the water surface elevation under the 25-Year design flood has to be lower than the lower chord elevation of the existing bridge. With this minimum requirement, the proposed new bridge should be a 210 LF long with low chord elevation higher than the existing bridge low chord. If the BFE zero-rise policy has to be met, the new bridge length will need to extend to 400 LF. Table 3.1 and 3.2 list the water surface elevations for these two alternatives based on the HEC-RAS calculation results. Detailed calculation results for the 210 LF new bridge option are listed in Appendix E, and those for the 400 LF new bridge option are listed in Appendix F.

Option 2: Expansion of Existing Bridge

The existing Carters Creek Bridge length is 125 linear feet (LF) 5 span bridge. With raised roadway profile, the existing Carters Creek Bridge needs to be expanded to compensate for the reduced flow area due to the elevated roadway profile. Similar to the new bridge option, Option 2 also has two alternatives. The first one is to meet minimum requirement, which is to extend bridge length to 260 LF to keep SH 30 from being inundated by the design discharges. Because of the lengthy bridge, creek channel has also been modified with the 50 feet bottom width and 3:1 side slope. Erosion control measure around bridge will also be required for this alternative due to its high flow velocities. The other is to extend the existing bridge to 600 LF to meet the no-rise BFE policy. Table 4.1 and 4.2 list the water surface elevations for these two alternatives based on the HEC-RAS calculation results. Detailed calculation results for the 260 LF bridge expansion option are listed in Appendix G, and those for the 600 LF bridge expansion option are listed in Appendix H.

Table 3.1

SH 30 CARTERS CREEK FLOODPLAIN STUDY
HYDRAULIC MODEL RESULTS FOR 210 LF NEW BRIDGE OPTION

Community Name	Flooding Source	Project Name/Identifier
CITY OF COLLEGE STATION	*CARTERS CREEK*	*SH 30*

LOCATION	FIRM SECTION	EFFECTIVE MODEL FIS HEC-2				CORRECTED MODEL HEC-RAS FROM FIS HEC-2				PROPOSED-PROJECT HEC-RAS WITH NEW BRIDGE (210')			
		SECNO	$WSEL_{25}$[1]	$WSEL_{100}$[2]	V_{25}[3]	SECNO	$WSEL_{25}$[1]	$WSEL_{100}$[2]	V_{25}[3]	SECNO	$WSEL_{25}$[1]	$WSEL_{100}$[2]	V_{25}[3]
	D	10.93	250.30	251.06	4.1	10.93	250.72	251.73	4.3	10.93	250.72	251.73	4.3
	add XS	11.00				11.00	252.35	253.50	4.0	11.00	252.35	253.50	4.0
	add XS	11.20				11.20	253.09	254.27	3.0	11.20	253.09	254.27	3.0
		11.45	253.89	254.67	2.2	11.45	253.53	254.69	3.2	11.45	253.53	254.69	3.2
D.S. OF SH 30	E	11.46	253.94	254.72	2.2	11.46	253.58	254.74	4.0	11.46	253.28	254.27	6.0
U.S. OF SH 30		11.465	254.24	254.98	2.0	11.465	254.72	255.65	2.5	11.465	253.78	256.58	6.3
		11.47	254.28	255.02	2.2	11.47	254.75	255.68	2.6	11.47	254.92	256.60	2.5
	add XS	11.50				11.50	255.34	256.31	3.6	11.50	255.46	257.00	3.5
	F	11.88	256.12	256.88	2.9	11.88	256.46	257.49	4.3	11.88	256.52	257.87	4.2
	add XS	12.20				12.20	258.45	259.45	4.6	12.20	258.46	259.55	4.6
	add XS	12.22				12.22	258.89	259.80	6.5	12.22	258.89	259.87	6.5
		12.24	258.53	259.25	3.8	12.24	260.88	261.79	5.5	12.24	260.88	261.79	5.5
D.S. OF FM 60	G	12.25	259.20	259.20	8.1	12.25	260.54	261.28	11.5	12.25	260.54	261.29	11.5
U.S. OF FM 60		12.26	259.73	260.32	6.2	12.26	262.33	263.92	6.8	12.26	262.33	263.92	6.8
		12.27	260.20	260.79	6.6	12.27	262.92	264.62	3.2	12.27	262.92	264.63	3.2
	H	12.39	260.68	261.33	8.3	12.39	263.20	264.88	2.3	12.39	263.20	264.88	2.3
		12.75	262.75	263.44	16.8	12.75	264.09	265.66	3.2	12.75	264.09	265.66	3.2

COMMENTS:

1-25-year (natural) Water Surface Elevation 2-100-year (natural) Water Surface Elevation 3-25-year Channel Flow Velocity (fps)

Sheet ___1____ of ____1_____

Table 3.2

SH 30 CARTERS CREEK FLOODPLAIN STUDY
HYDRAULIC MODEL RESULTS FOR 400 LF NEW BRIDGE OPTION (BFE ZERO RISE)

Community Name	Flooding Source	Project Name/Identifier
CITY OF COLLEGE STATION	*CARTERS CREEK*	*SH 30*

LOCATION	FIRM SECTION	EFFECTIVE MODEL (FIS HEC-2)				CORRECTED MODEL (HEC-RAS FROM FIS HEC-2)				PROPOSED-PROJECT HEC-RAS WITH NEW BRIDGE 100-Yr (400')			
		SECNO	$WSEL_{25}$[1]	$WSEL_{100}$[2]	V_{25}[3]	SECNO	$WSEL_{25}$[1]	$WSEL_{100}$[2]	V_{25}[3]	SECNO	$WSEL_{25}$[1]	$WSEL_{100}$[2]	V_{25}[3]
	D	10.93	250.30	251.06	4.1	10.93	250.72	251.73	4.3	10.93	250.72	251.73	4.3
	add XS	11.00				11.00	252.35	253.50	4.0	11.00	252.35	253.50	4.0
	add XS	11.20				11.20	253.09	254.27	3.0	11.20	253.09	254.27	3.0
		11.45	253.89	254.67	2.2	11.45	253.53	254.69	3.2	11.45	253.53	254.69	3.2
D.S. OF SH 30	E	11.46	253.94	254.72	2.2	11.46	253.58	254.74	4.0	11.46	253.46	254.68	5.0
U.S. OF SH 30		11.465	254.24	254.98	2.0	11.465	254.72	255.65	2.5	11.465	253.82	255.57	5.1
		11.47	254.28	255.02	2.2	11.47	254.75	255.68	2.6	11.47	254.34	255.60	2.9
	add XS	11.50				11.50	255.34	256.31	3.6	11.50	255.09	256.25	3.8
	F	11.88	256.12	256.88	2.9	11.88	256.46	257.49	4.3	11.88	256.36	257.45	4.4
	add XS	12.20				12.20	258.45	259.45	4.6	12.20	258.44	259.44	4.6
	add XS	12.22				12.22	258.89	259.80	6.5	12.22	258.82	259.79	6.6
		12.24	258.53	259.25	3.8	12.24	260.88	261.79	5.5	12.24	260.87	261.79	5.5
D.S. OF FM 60	G	12.25	259.20	259.20	8.1	12.25	260.54	261.28	11.5	12.25	260.54	261.28	11.5
U.S. OF FM 60		12.26	259.73	260.32	6.2	12.26	262.33	263.92	6.8	12.26	262.33	263.92	6.8
		12.27	260.20	260.79	6.6	12.27	262.92	264.62	3.2	12.27	262.91	264.62	3.2
	H	12.39	260.68	261.33	8.3	12.39	263.20	264.88	2.3	12.39	263.20	264.88	2.3
		12.75	262.75	263.44	16.8	12.75	264.09	265.66	3.2	12.75	264.09	265.66	3.2

COMMENTS:

1-25-year (natural) Water Surface Elevation 2-100-year (natural) Water Surface Elevation 3-25-year Channel Flow Velocity (fps)

Sheet ___1____ of ____1_____

Table 4.1

SH 30 CARTERS CREEK FLOODPLAIN STUDY
HYDRAULIC MODEL RESULTS FOR 260 LF EXPANSION OPTION

Community Name	Flooding Source	Project Name/Identifier
CITY OF COLLEGE STATION	*CARTERS CREEK*	*SH 30*

LOCATION	FIRM SECTION	EFFECTIVE MODEL FIS HEC-2				CORRECTED MODEL HEC-RAS FROM FIS HEC-2				PROPOSED-PROJECT HEC-RAS WITH BRIDGE EXPANSION (260')			
		SECNO	$WSEL_{25}$[1]	$WSEL_{100}$[2]	V_{25}[3]	SECNO	$WSEL_{25}$[1]	$WSEL_{100}$[2]	V_{25}[3]	SECNO	$WSEL_{25}$[1]	$WSEL_{100}$[2]	V_{25}[3]
	D	10.93	250.30	251.06	4.1	10.93	250.72	251.73	4.3	10.93	250.72	251.73	4.3
	add XS	11.00				11.00	252.35	253.50	4.0	11.00	252.35	253.50	4.0
	add XS	11.20				11.20	253.09	254.27	3.0	11.20	253.09	254.27	3.0
		11.45	253.89	254.67	2.2	11.45	253.53	254.69	3.2	11.45	253.53	254.69	3.2
D.S. OF SH 30	E	11.46	253.94	254.72	2.2	11.46	253.58	254.74	4.0	11.46	253.07	253.96	9.1
U.S. OF SH 30		11.465	254.24	254.98	2.0	11.465	254.72	255.65	2.5	11.465	253.23	256.64	10.0
		11.47	254.28	255.02	2.2	11.47	254.75	255.68	2.6	11.47	255.05	256.68	2.4
	add XS	11.50				11.50	255.34	256.31	3.6	11.50	255.55	257.06	3.4
	F	11.88	256.12	256.88	2.9	11.88	256.46	257.49	4.3	11.88	256.56	257.91	4.1
	add XS	12.20				12.20	258.45	259.45	4.6	12.20	258.47	259.57	4.6
	add XS	12.22				12.22	258.89	259.80	6.5	12.22	258.90	259.87	6.5
		12.24	258.53	259.25	3.8	12.24	260.88	261.79	5.5	12.24	260.88	261.79	5.5
D.S. OF FM 60	G	12.25	259.20	259.20	8.1	12.25	260.54	261.28	11.5	12.25	260.54	261.29	11.5
U.S. OF FM 60		12.26	259.73	260.32	6.2	12.26	262.33	263.92	6.8	12.26	262.33	263.92	6.8
		12.27	260.20	260.79	6.6	12.27	262.92	264.62	3.2	12.27	262.92	264.63	3.2
	H	12.39	260.68	261.33	8.3	12.39	263.20	264.88	2.3	12.39	263.20	264.88	2.3
		12.75	262.75	263.44	16.8	12.75	264.09	265.66	3.2	12.75	264.09	265.66	3.2

COMMENTS:

1-25-year (natural) Water Surface Elevation 2-100-year (natural) Water Surface Elevation 3-25-year Channel Flow Velocity (fps)

Sheet ___1____ of ____1_____

Table 4.2

SH 30 CARTERS CREEK FLOODPLAIN STUDY
HYDRAULIC MODEL RESULTS FOR 600 LF BRIDGE EXPANSION OPTION (BFE ZERO RISE)

Community Name	Flooding Source	Project Name/Identifier
CITY OF COLLEGE STATION	*CARTERS CREEK*	*SH 30*

LOCATION	FIRM SECTION	EFFECTIVE MODEL FIS HEC-2				CORRECTED MODEL HEC-RAS FROM FIS HEC-2				PROPOSED-PROJECT HEC-RAS WITH BRIDGE EXPANSION 100-Yr (600')			
		SECNO	$WSEL_{25}$ [1]	$WSEL_{100}$ [2]	V_{25} [3]	SECNO	$WSEL_{25}$ [1]	$WSEL_{100}$ [2]	V_{25} [3]	SECNO	$WSEL_{25}$ [1]	$WSEL_{100}$ [2]	V_{25} [3]
	D	10.93	250.30	251.06	4.1	10.93	250.72	251.73	4.3	10.93	250.72	251.73	4.3
	add XS	11.00				11.00	252.35	253.50	4.0	11.00	252.35	253.50	4.0
	add XS	11.20				11.20	253.09	254.27	3.0	11.20	253.09	254.27	3.0
		11.45	253.89	254.67	2.2	11.45	253.53	254.69	3.2	11.45	253.53	254.69	3.2
D.S. OF SH 30	E	11.46	253.94	254.72	2.2	11.46	253.58	254.74	4.0	11.46	253.29	254.70	7.6
U.S. OF SH 30		11.465	254.24	254.98	2.0	11.465	254.72	255.65	2.5	11.465	253.33	255.24	8.4
		11.47	254.28	255.02	2.2	11.47	254.75	255.68	2.6	11.47	254.44	255.31	2.8
	add XS	11.50				11.50	255.34	256.31	3.6	11.50	255.15	256.07	3.8
	F	11.88	256.12	256.88	2.9	11.88	256.46	257.49	4.3	11.88	256.38	257.36	4.3
	add XS	12.20				12.20	258.45	259.45	4.6	12.20	258.44	259.43	4.6
	add XS	12.22				12.22	258.89	259.80	6.5	12.22	258.82	259.78	6.6
		12.24	258.53	259.25	3.8	12.24	260.88	261.79	5.5	12.24	260.87	261.79	5.5
D.S. OF FM 60	G	12.25	259.20	259.20	8.1	12.25	260.54	261.28	11.5	12.25	260.54	261.28	11.5
U.S. OF FM 60		12.26	259.73	260.32	6.2	12.26	262.33	263.92	6.8	12.26	262.33	263.92	6.8
		12.27	260.20	260.79	6.6	12.27	262.92	264.62	3.2	12.27	262.91	264.62	3.2
	H	12.39	260.68	261.33	8.3	12.39	263.20	264.88	2.3	12.39	263.20	264.88	2.3
		12.75	262.75	263.44	16.8	12.75	264.09	265.66	3.2	12.75	264.09	265.66	3.2

COMMENTS:

1-25-year (natural) Water Surface Elevation 2-100-year (natural) Water Surface Elevation 3-25-year Channel Flow Velocity (fps)

Sheet ___1____ of ____1_____

4.4 BACKWATER ANALYSIS RESULTS

With above-mentioned options, Table 5 summarizes main features for each option.

Table 5: Proposed Bridge Option Summary

Bridge Data	Bridge Design Requirements: No SH 30 Flood under Design Q		Bridge Design Requirements: Zero Rise for BFE	
Option 1	**210 LF Bridge**		**400 LF Bridge**	
New Bridge Option	Hw_{25}^1= 253.78	Hw_{100}^2 = 256.58	Hw_{25}^1= 253.82	Hw_{100}^2 = 255.57
Option 2	**260 LF Bridge**		**600 LF Bridge**	
Exist Bridge Expansion	Hw_{25}^1= 253.23	Hw_{100}^2 = 256.64	Hw_{25}^1= 253.33	Hw_{100}^2 = 255.24
Notes: 1. Controlled by exist low chord elevation 254.12; 2. Controlled by exist condition BFE=255.68				

After comparing these options, the new bridge option will have a shorter bridge length which leads to the lower cost for the roadway improvement. However, the existing Carters Creek Bridge was built in 1980. Bridge expansion option can reduce maintenance cost. Furthermore, the bridge is located within the City of College Station; the Zero-Rise policy of BFE may be applied. As a preliminary hydraulic study, final decision should be made after coordinating with TxDOT and local government.

5. CONCLUSION AND RECOMMENDATION

SH 30 at Carters Creek has experienced severe flooding. The current existing cross structures do not have enough capacity to pass the design discharges. The updated hydraulic model from this study confirmed the flooding problem on SH 30 Carters Creek Bridge. The new hydrologic study indicates that the effective FIS discharges were also underestimated. The 100-year flood discharge from this study is approximately 25% higher than the current effective discharges. With the latest hydraulic data, SH 30 crossing structures on Carters Creek should be improved. Two cross structure options with four alternatives have been proposed to alleviate the SH 30 flooding problem. With a proposed new structure, SH 30 can meet the design requirements under the design flood discharges. More detailed hydraulic studies should collaborate with the SH 30 at Carters Creek reconstruction design following TxDOT approval of this study.

6. REFERENCES

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Natural Resources Conservation Service (NRCS), USDA, October 2005: SSURGO Data Packaging and Use

PHOTOGRAPHS

Photo 1 May 13, 2004 Flooding on SH 30 Carters Creek Crossing

Photo 2 Close View of Photo 1 (same location)

Photo 3 SH 30 Low Profile Section (Looking East)

Photo 4 Looking SH 30 Carters Creek Bridge Downstream Side

Photo 5 Looking at FM 60 Carters Creek Bridge Downstream Side

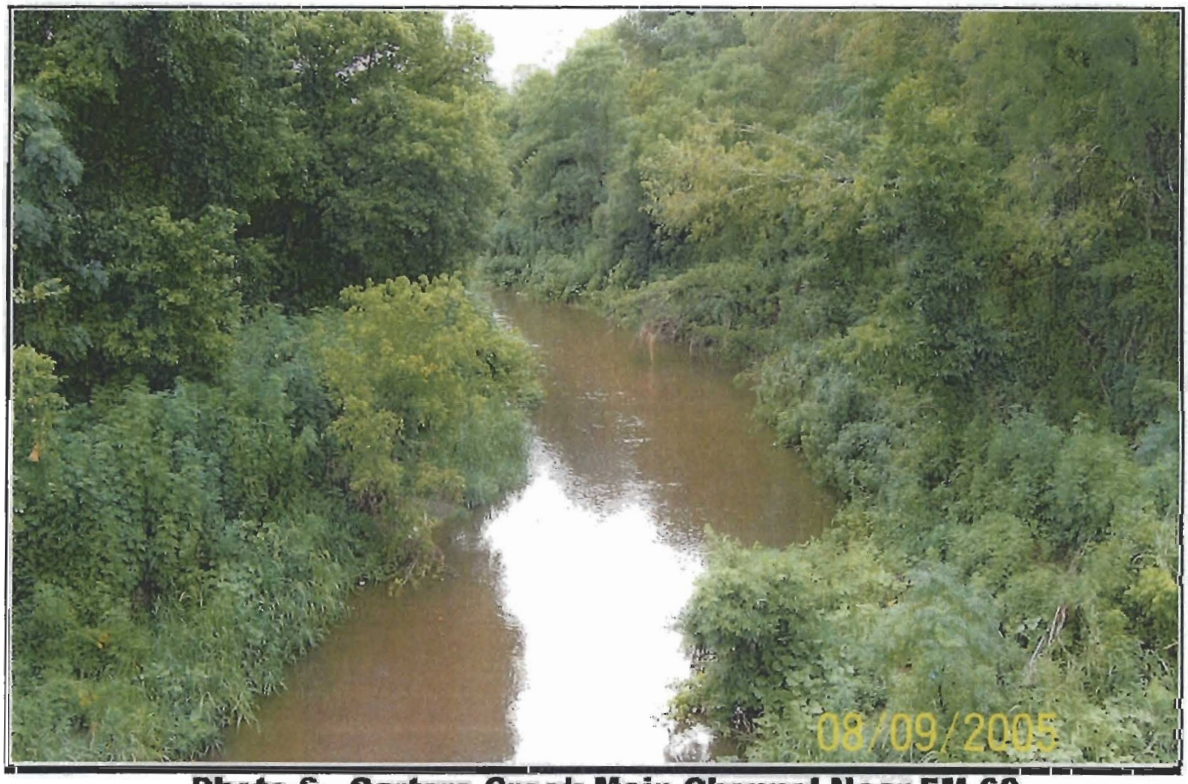


Photo 6 Carters Creek Main Channel Near FM 60

APPENDIX A

HYDROLOGIC CALCULATION- REGREESION EQUATION METHOD

http://nowdata.rcc-acis.org - Extremes Results - Microsoft Internet Explorer

File Edit View Favorites Tools Help

NOWData - NOAA Online Weather Data

COLLEGE STATION EASTERWOOD FLD (411889)
Extremes
Highest Daily Precipitation (inches)
Days: 1/1 - 12/31
Length of period: 1 day
Years: 1951-2006

Rank	Value	Ending Date
1	13.39	10/16/1994
2	6.23	5/20/1983
3	5.79	12/15/1994
4	5.63	1/9/1991
5	5.23	9/13/1974
6	5.17	4/12/1969
7	5.13	10/14/1957
8	5.09	7/9/1968
9	5.04	5/13/2004
10	4.93	12/2/1965

Official data and data for additional locations and years are available from the Regional Climate Centers and the National Climatic Data Center.

Done Internet

http://nowdata.rcc-acis.org - Daily Results - Microsoft Internet Explorer

File Edit View Favorites Tools Help

NOWData - NOAA Online Weather Data

COLLEGE STATION EASTERWOOD FLD (411889)
Calendar Day Extremes
Highest Precipitation (inches)
Years: 1951-2006

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.78	2.11	1.17	0.58	3.97	1.73	1.17	2.45	0.90	1.47	1.62	1.48
2	2.47	0.60	1.00	1.02	0.98	1.88	1.94	0.60	3.56	1.30	2.01	4.93
3	0.57	2.20	1.03	0.49	1.96	1.91	1.19	0.42	2.81	0.56	3.65	0.96
4	1.15	3.34	2.27	1.56	2.65	3.58	1.56	1.07	2.10	1.01	4.56	2.35
5	1.33	1.06	0.63	3.30	2.68	1.86	2.15	0.43	2.65	2.36	1.14	2.41
6	1.04	1.21	1.02	1.48	1.79	1.56	3.13	2.45	2.14	1.97	0.35	1.14
7	1.60	1.63	1.27	1.20	1.34	1.44	1.75	0.91	1.70	2.39	2.21	1.03
8	0.95	1.82	0.53	1.88	2.03	2.41	1.47	2.15	2.35	1.64	1.76	1.18
9	5.63	1.61	0.64	1.80	1.19	1.52	5.09	0.70	3.84	3.01	1.00	1.71
10	0.70	1.93	0.42	1.80	2.51	0.60	0.76	1.92	1.05	0.97	0.40	1.32
11	1.10	1.15	0.82	2.26	3.72	1.35	1.42	3.41	4.28	2.64	0.62	1.90
12	1.54	0.56	0.92	5.17	3.16	2.67	1.50	1.52	4.03	1.15	0.51	1.11
13	0.95	0.61	1.62	3.30	5.04	2.32	2.01	0.50	5.23	3.27	1.27	1.52
14	3.23	1.90	1.12	1.38	0.74	2.00	3.18	1.91	3.05	5.13	1.64	1.72
15	0.48	0.83	2.81	3.51	2.17	2.93	1.00	3.47	1.22	2.22	1.19	5.79
16	1.53	3.07	1.84	2.02	1.12	1.91	0.88	0.58	3.64	13.39	2.09	0.57
17	1.24	0.66	1.48	1.68	1.26	2.49	1.00	0.82	1.49	2.10	1.89	2.92
18	2.07	2.64	0.40	0.56	2.41	2.25	0.46	3.20	1.55	1.78	1.89	1.30
19	2.18	2.03	2.06	1.64	2.79	2.93	2.05	0.99	4.86	1.88	2.04	2.22
20	0.42	4.76	1.65	2.30	6.23	2.20	0.98	2.26	4.63	3.04	1.34	1.35
21	0.89	1.56	0.78	1.86	3.07	1.79	0.32	2.12	3.50	1.86	3.12	2.38
22	1.66	2.02	1.32	2.03	1.15	1.65	1.79	1.44	2.40	2.73	2.87	1.32
23	1.03	1.48	2.35	3.41	2.47	2.74	0.25	2.76	1.02	1.96	1.35	1.36
24	2.29	2.62	1.94	3.62	1.16	2.56	1.38	1.05	1.66	1.40	2.09	0.99
25	1.72	1.37	0.54	2.01	1.61	4.18	1.74	0.70	1.69	1.99	1.37	1.17
26	1.76	1.99	0.60	2.05	1.02	2.96	3.84	1.38	1.29	3.74	1.60	1.73
27	1.90	0.41	4.20	2.38	1.39	1.80	1.32	1.35	3.05	0.64	2.16	1.44
28	0.69	0.81	2.87	2.12	1.66	0.70	0.91	2.06	1.03	2.88	1.68	1.62
29	1.21	0.29	1.87	3.22	3.17	2.91	2.23	4.42	1.71	2.04	0.44	1.25
30	0.99	-	0.96	1.53	1.47	1.77	2.56	1.15	0.60	1.52	1.91	2.94
31	1.51	-	1.01	-	2.63	-	0.98	1.48	-	2.51	-	1.73

Based on 52 to 53 years of data.

Official data and data for additional locations and years are available from the Regional Climate Centers and the National Climatic Data Center.

Done Internet

REGION 8 REGRESSION EQUATIONS

County: Brazos CSJ: N/A Stream: Carters Creek

Flow Path Length(ft) 46188 Max. Elev 355 Min. Elev 250

	English Units	Metric Units
Drainage Area	26.2 mi^2	67.9 km^2
BSF	2.9	2.9
Slope, m	12.00 feet/mile	0.0023 m/m

Frequency (years)	2	5	10	25	50	100
Flows (cfs)	1,393	2,826	3,955	5,481	6,672	7,907
Flows (m^3/s)	39.44	80.02	111.98	155.20	188.91	223.88
Standard error (%)	51	43	43	46	49	51

Flows for Region 8 are calculated based upon the following formulas:

Flows in English Units (cfs)

$Q_2 = (30.7)(area^{0.672})(m^{0.652})$

$Q_5 = (87.6)(area^{0.668})(m^{0.520})$

$Q_{10} = (134)(area^{0.675})(m^{0.475})$

$Q_{25} = (191)(area^{0.690})(m^{0.444})$

$Q_{50} = (229)(area^{0.703})(m^{0.433})$

$Q_{100} = (261)(area^{0.718})(m^{0.429})$

Range of independent variables

Area: 0.75 to 7,065 mi^2
BSF: 1.94 to 24.8
Slope: 3.83 to 39.5 feet/mile

Where:
Area is the contributing drainage area in square miles.

Flows in Metric Units (m^3/s)

$Q_2 = (122.6319)(area^{0.672})(m^{0.652})$

$Q_5 = (113.3012)(area^{0.668})(m^{0.52})$

$Q_{10} = (117.0641)(area^{0.675})(m^{0.475})$

$Q_{25} = (126.1105)(area^{0.69})(m^{0.444})$

$Q_{50} = (135.9037)(area^{0.703})(m^{0.433})$

$Q_{100} = (147.5524)(area^{0.718})(m^{0.429})$

Range of independent variables

Area: 1.9 to 18,297 km^2
BSF: 1.94 to 24.8
Slope: 0.0007 to 0.0075 m/m

Where:
Area is the contributing drainage area in square kilometers.

BSF is the ratio of the longest mapped channel squared to the contributing drainage area.

Slope is the ratio of change in elevation of the longest mapped channel from the site to the headwaters to the length of the longest mapped channel. Slope in English units are feet/mile or meters/meters in Metric units.

Transposition of FEMA DATA

LOCATION	TRANSPOSITION OF FEMA Q CALCULATION TABLE*											
	FIS Q		FIS AREA		THIS STUDY AREA		Transposition FEMA data at FM60*		Transposition FEMA data at SH30		Mean Q	
	BURTON CR	WOLF CR	BURTIB CR	WOLF CR	FM 60	SH 30	BURTIB CR	WOLF CR	BURTIB CR	WOLF CR	FM 60	SH 30
Q10	11040	13800	22.10	28.98	25.78	26.20	12295	12713	12437	12859	12504	12648
Q50	15530	19250	22.10	28.98	25.78	26.20	17296	17734	17495	17938	17515	17716
Q100	17720	21800	22.10	28.98	25.78	26.20	19735	20083	19962	20314	19909	20138

* Calculation is based on TxDOT Hydraulic Manual, Qnew=Q*(Area/known area)^0.7

** From TxDOT study, Drainage Study for FM60/Carters Bridge, Brazos County, 2000

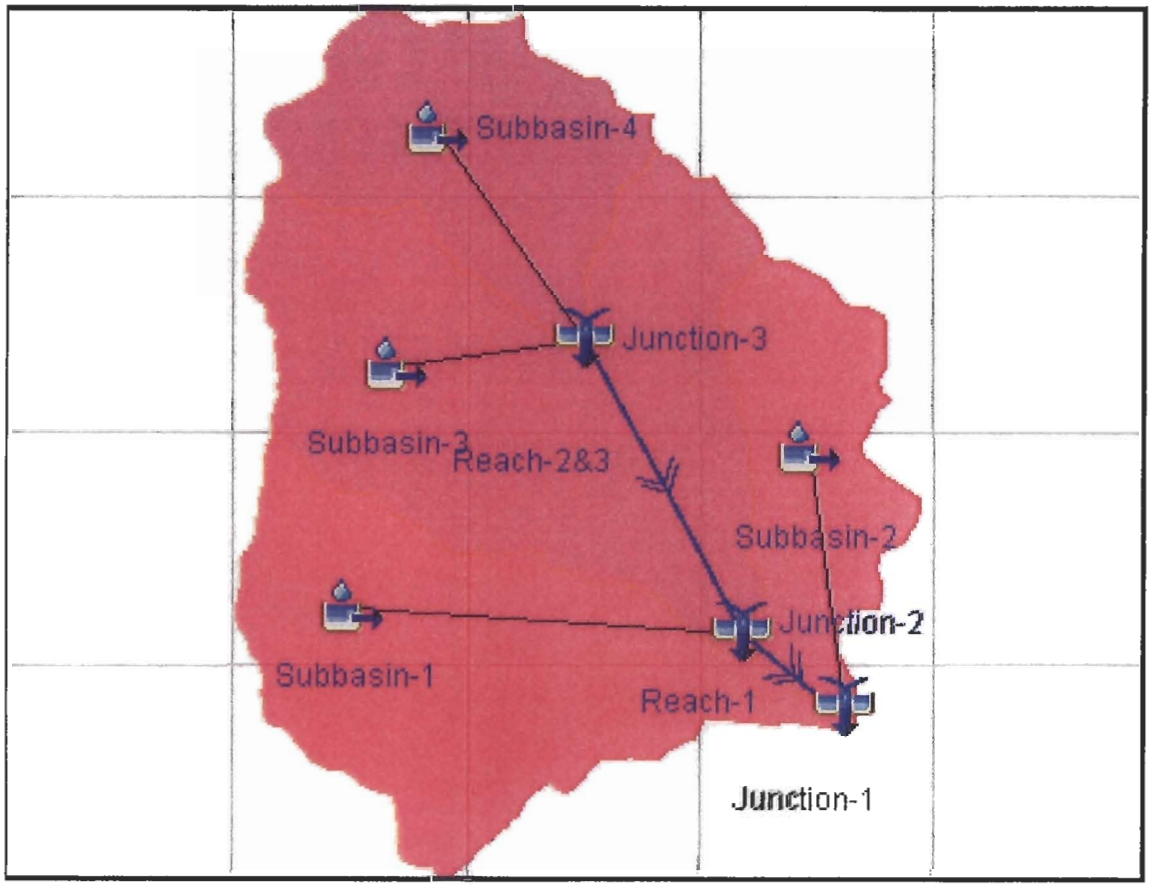
APPENDIX B
HYDROLOGIC CALCULATION – HEC-HMS MODEL AND DATA

HEC-HMS

Project : 479BASIN

Basin Model : Basin 1

Aug 17 13:12:11 CDT 2006



Project: CartersBasin Simulation Run: 2 Year 24 Hour Rain

Start of Run: 01May2000, 00:00 Basin Model: Existing Carters Basin
End of Run: 02May2000, 00:00 Meteorologic Model: 2 Year 24 Hour Rain
Execution Time: 17Aug2006, 13:30:06 Control Specifications: 24 Hour Duration

Volume Units: IN

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Junction-1	26.3050	7084.95	01May2000, 14:40	2.72
Junction-2	22.7000	7405.06	01May2000, 14:05	2.75
Junction-3	14.8970	7306.43	01May2000, 13:30	2.80
Reach-1	22.7000	6431.56	01May2000, 14:55	2.70
Reach-2&3	14.8970	4006.61	01May2000, 15:00	2.60
Subbasin-1	7.8030	4208.57	01May2000, 13:40	3.05
Subbasin-2	3.6050	2486.13	01May2000, 13:05	2.84
Subbasin-3	10.1140	4834.99	01May2000, 13:50	2.83
Subbasin-4	4.7830	2955.24	01May2000, 13:10	2.72

Project: CartersBasin Simulation Run: 5 Year 24 Hour

Start of Run:	01May2000, 00:00	Basin Model:	Existing Carters Basin
End of Run:	02May2000, 00:00	Meteorologic Model:	5 Year 24 Hour
Execution Time:	17Aug2006, 13:22:53	Control Specifications:	24 Hour Duration

Volume Units: IN

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Junction-1	26.3050	11774.04	01May2000, 14:35	4.44
Junction-2	22.7000	11395.69	01May2000, 14:15	4.50
Junction-3	14.8970	11093.94	01May2000, 13:30	4.59
Reach-1	22.7000	10659.96	01May2000, 14:45	4.40
Reach-2&3	14.8970	6608.02	01May2000, 14:50	4.29
Subbasin-1	7.8030	6167.45	01May2000, 13:40	4.88
Subbasin-2	3.6050	3667.42	01May2000, 13:05	4.65
Subbasin-3	10.1140	7310.15	01May2000, 13:50	4.63
Subbasin-4	4.7830	4452.94	01May2000, 13:10	4.51

Project: CartersBasin Simulation Run: 10 Year 24 Hour

Start of Run: 01May2000, 00:00 Basin Model: Existing Carters Basin
End of Run: 02May2000, 00:00 Meteorologic Model: 10 Year 24 Hour
Execution Time: 17Aug2006, 13:14:03 Control Specifications: 24 Hour Duration

Volume Units: IN

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Junction-1	26.3050	15853.22	01May2000, 14:35	5.70
Junction-2	22.7000	15195.80	01May2000, 14:15	5.77
Junction-3	14.8970	13758.65	01May2000, 13:30	5.90
Reach-1	22.7000	14351.16	01May2000, 14:40	5.66
Reach-2&3	14.8970	9059.49	01May2000, 14:45	5.54
Subbasin-1	7.8030	7547.79	01May2000, 13:40	6.20
Subbasin-2	3.6050	4474.58	01May2000, 13:05	5.97
Subbasin-3	10.1140	9065.77	01May2000, 13:50	5.93
Subbasin-4	4.7830	5483.38	01May2000, 13:10	5.82

Project: CartersBasin Simulation Run: 25-Year 24 Hour duration

Start of Run:	01May2000, 00:00	Basin Model:	Existing Carters Basin
End of Run:	02May2000, 00:00	Meteorologic Model:	25 Year 24 Hour Rain
Execution Time:	17Aug2006, 13:21:29	Control Specifications:	24 Hour Duration

Volume Units: IN

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Junction-1	26.3050	19685.52	01May2000, 14:30	7.08
Junction-2	22.7000	18952.59	01May2000, 14:10	7.16
Junction-3	14.8970	16446.33	01May2000, 13:30	7.33
Reach-1	22.7000	17841.21	01May2000, 14:40	7.02
Reach-2&3	14.8970	11413.97	01May2000, 14:35	6.90
Subbasin-1	7.8030	8930.87	01May2000, 13:40	7.65
Subbasin-2	3.6050	5321.26	01May2000, 13:05	7.42
Subbasin-3	10.1140	10813.20	01May2000, 13:50	7.37
Subbasin-4	4.7830	6559.12	01May2000, 13:10	7.26

Project: CartersBasin Simulation Run: 50 Year 24 Hour

Start of Run:	01May2000, 00:00	Basin Model:	Existing Carters Basin
End of Run:	02May2000, 00:00	Meteorologic Model:	50 Year 24 Hour Rain
Execution Time:	17Aug2006, 13:29:45	Control Specifications:	24 Hour Duration

Volume Units: IN

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Junction-1	26.3050	22716.38	01May2000, 14:25	7.92
Junction-2	22.7000	21608.31	01May2000, 14:10	8.01
Junction-3	14.8970	18432.43	01May2000, 13:30	8.18
Reach-1	22.7000	20534.13	01May2000, 14:35	7.87
Reach-2&3	14.8970	13069.05	01May2000, 14:35	7.75
Subbasin-1	7.8030	9971.76	01May2000, 13:40	8.51
Subbasin-2	3.6050	5954.46	01May2000, 13:05	8.27
Subbasin-3	10.1140	12107.37	01May2000, 13:50	8.22
Subbasin-4	4.7830	7355.81	01May2000, 13:10	8.11

Project: CartersBasin Simulation Run: 100 Year 24 Hour duration

Start of Run: 01May2000, 00:00 Basin Model: Existing Carters Basin
End of Run: 02May2000, 00:00 Meteorologic Model: 100 Year 24 Hour Rai
Execution Time: 17Aug2006, 13:13:01 Control Specifications: 24 Hour Duration

Volume Units: IN

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Junction-1	26.3050	27508.40	01May2000, 14:20	9.28
Junction-2	22.7000	26025.58	01May2000, 14:05	9.36
Junction-3	14.8970	21875.16	01May2000, 13:30	9.56
Reach-1	22.7000	24830.33	01May2000, 14:30	9.21
Reach-2&3	14.8970	15816.01	01May2000, 14:30	9.08
Subbasin-1	7.8030	11782.79	01May2000, 13:40	9.90
Subbasin-2	3.6050	7256.93	01May2000, 13:05	9.73
Subbasin-3	10.1140	14227.48	01May2000, 13:50	9.57
Subbasin-4	4.7830	8919.37	01May2000, 13:10	9.54

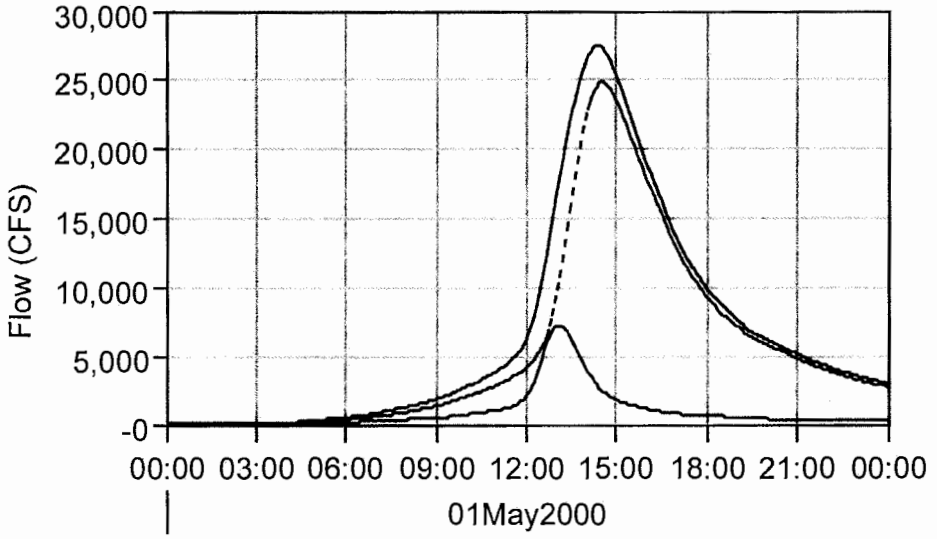
Project: CartersBasin Simulation Run: 500 Yr 24 Hour Rain

Start of Run: 01May2000, 00:00 Basin Model: Existing Carters Basin
End of Run: 02May2000, 00:00 Meteorologic Model: 500 Year 24 Hour Rai
Execution Time: 17Aug2006, 13:30:18 Control Specifications: 24 Hour Duration

Volume Units: IN

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Junction-1	26.3050	33682.11	01May2000, 14:20	11.48
Junction-2	22.7000	31648.99	01May2000, 14:05	11.59
Junction-3	14.8970	25344.21	01May2000, 13:30	11.86
Reach-1	22.7000	30380.69	01May2000, 14:30	11.40
Reach-2&3	14.8970	19563.61	01May2000, 14:25	11.28
Subbasin-1	7.8030	13563.41	01May2000, 13:40	12.20
Subbasin-2	3.6050	8071.37	01May2000, 13:05	11.98
Subbasin-3	10.1140	16640.30	01May2000, 13:50	11.89
Subbasin-4	4.7830	10053.35	01May2000, 13:10	11.80

Junction Element "Junction-1" Results for Run "100 Year 24 Hour duration"

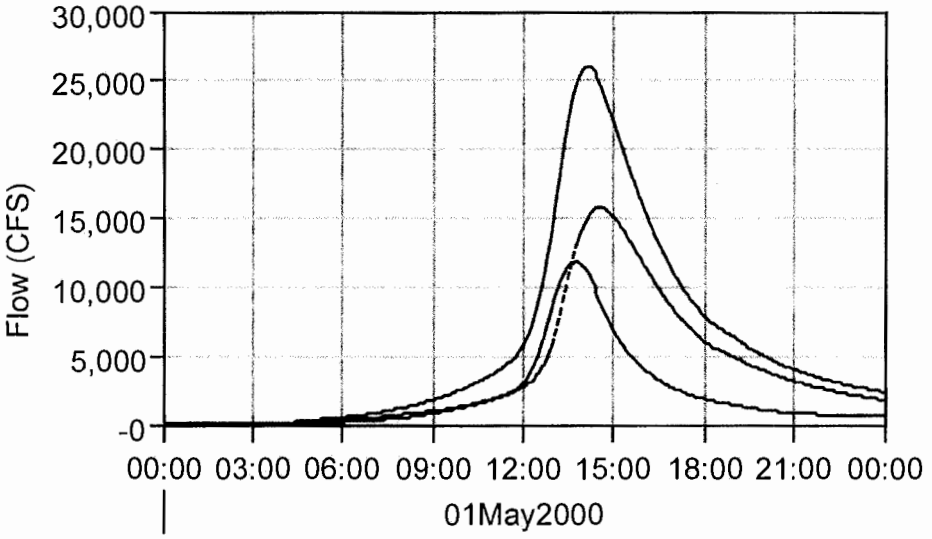


Run:100 Year 24 Hour duration Element:JUNCTION-1 Result:Outflow

Run:100 Year 24 Hour duration Element:Subbasin-2 Result:Outflow

Run:100 Year 24 Hour duration Element:Reach-1 Result:Outflow

Junction Element "Junction-2" Results for Run "100 Year 24 Hour duration"

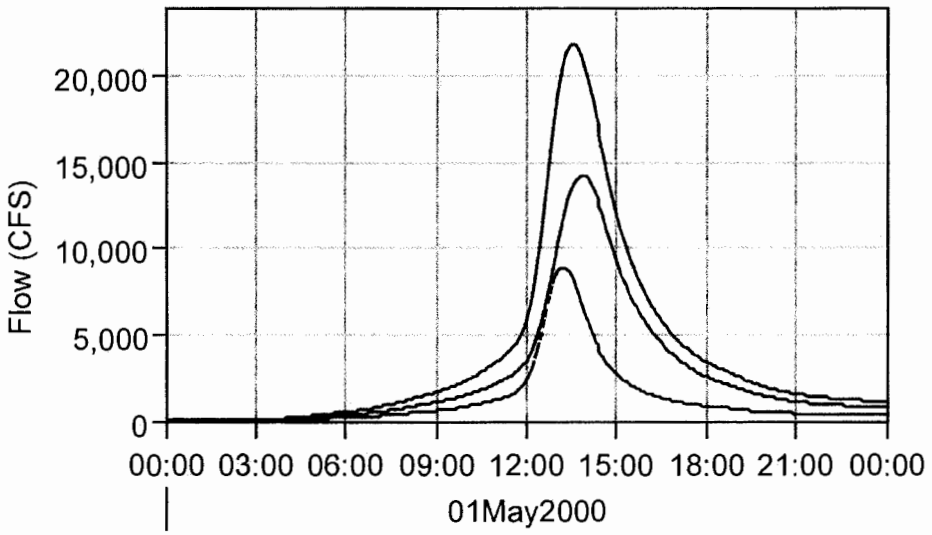


Run:100 YEAR 24 HOUR DURATION Element:JUNCTION-2 Result:Outflow

Run:100 Year 24 Hour duration Element:Subbasin-1 Result:Outflow

Run:100 Year 24 Hour duration Element:Reach-2&3 Result:Outflow

Junction Element "Junction-3" Results for Run "100 Year 24 Hour duration"



Run:100 YEAR 24 HOUR DURATION Element:JUNCTION-3 Result:Outflow

Run:100 Year 24 Hour duration Element:Subbasin-3 Result:Outflow

Run:100 Year 24 Hour duration Element:Subbasin-4 Result:Outflow

Carters Creek Riverine Storage Volume Data

HEC-RAS Plan: FIS HEC-2 River: RIVER-1 Reach: Reach-1

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Volume (acre-ft)	Net Volume (acre-ft)
Reach-1	14.81	PF 1 2-Yr	2600	262.1	275.59	1.92	2490.69	950.48	4641	
Reach-1	14.81	PF 2 10-Yr	4710	262.1	276.49	2.5	3370.23	1011.85	7221	
Reach-1	14.81	PF 3 25-Yr	5850	262.1	276.98	2.66	3887.83	1087.9	8229	
Reach-1	14.81	PF 4 50-Yr	6750	262.1	277.34	2.76	4287.29	1136.89	8938	
Reach-1	14.81	PF 5 100-Yr	7650	262.1	277.7	2.85	4707.76	1193.26	9687	
Reach-1	14.81	PF 6 500-Yr	12800	262.1	279.4	3.42	7050.6	1536.11	13240	
Reach-1	14.81	PF 7 0.5Yr	400	262.1	270.1	2.82	141.97	36.34	2344	
		Reach 2 upper limits								
Reach-1	14.2	PF 1 2-Yr	3870	255.5	271.81	4.1	2247.49	1243.43	4473	789
Reach-1	14.2	PF 2 10-Yr	5730	255.5	272.87	3.74	3637.37	1375.2	6973	1141
Reach-1	14.2	PF 3 25-Yr	7100	255.5	273.4	3.79	4376.37	1437.12	7937	1298
Reach-1	14.2	PF 4 50-Yr	8170	255.5	273.74	3.86	4883.33	1478.09	8614	1411
Reach-1	14.2	PF 5 100-Yr	9380	255.5	274.09	3.95	5403.77	1515.47	9330	1530
Reach-1	14.2	PF 6 500-Yr	15550	255.5	275.59	4.3	7789.01	1661.1	12716	2118
Reach-1	14.2	PF 7 0.5Yr	500	255.5	267.37	1.52	393.04	103.77	2324	133
Reach-1	13.5	PF 1 2-Yr	4370	251.6	267.67	2.29	3997.41	1751.06	4245	
Reach-1	13.5	PF 2 10-Yr	7550	251.6	268.23	3.05	4994.17	1829.1	6661	
Reach-1	13.5	PF 3 25-Yr	9250	251.6	268.49	3.34	5472.05	1854.12	7583	
Reach-1	13.5	PF 4 50-Yr	10500	251.6	268.67	3.52	5820.59	1872.16	8229	
Reach-1	13.5	PF 5 100-Yr	11900	251.6	268.89	3.69	6224.98	1892.87	8913	
Reach-1	13.5	PF 6 500-Yr	19820	251.6	270.15	4.28	8754.34	2171.66	12125	
Reach-1	13.5	PF 7 0.5Yr	800	251.6	264.92	1.97	733.87	560.37	2280	
Reach-1	12.75	PF 1 2-Yr	6450	249.6	260.91	4.99	2891.92	2258.72	4011	
Reach-1	12.75	PF 2 10-Yr	11040	249.6	262.08	4.2	5796.16	2616.97	6310	
Reach-1	12.75	PF 3 25-Yr	13520	249.6	262.55	4.05	7057.67	2678.84	7179	
Reach-1	12.75	PF 4 50-Yr	15530	249.6	262.9	3.99	7995.62	2719.12	7787	
Reach-1	12.75	PF 5 100-Yr	17720	249.6	263.25	3.96	8943.74	2767.95	8430	
Reach-1	12.75	PF 6 500-Yr	29070	249.6	264.75	4.23	13319.43	3157.04	11430	
Reach-1	12.75	PF 7 0.5Yr	1200	249.6	258.23	3.39	361.15	123.78	2236	
Reach-1	12.39	PF 1 2-Yr	6450	244.7	259.23	2.33	6620.45	2189.39	3804	
Reach-1	12.39	PF 2 10-Yr	11040	244.7	260.27	2.79	8957.66	2315.9	5988	
Reach-1	12.39	PF 3 25-Yr	13520	244.7	260.67	3.03	9881.53	2348.35	6809	
Reach-1	12.39	PF 4 50-Yr	15530	244.7	260.94	3.22	10518.25	2370.48	7383	
Reach-1	12.39	PF 5 100-Yr	17720	244.7	261.22	3.41	11198.63	2393.86	7990	
Reach-1	12.39	PF 6 500-Yr	29070	244.7	262.42	4.2	14109.01	2459.49	10830	
Reach-1	12.39	PF 7 0.5Yr	1200	244.7	255.87	2.65	821.54	939.79	2210	
Reach-1	12.273	PF 1 2-Yr	6450	247.9	259.06	1.4	8115.09	2074.86	3696	
Reach-1	12.273	PF 2 10-Yr	11040	247.9	260.02	1.86	10174.81	2176.82	5848	
Reach-1	12.273	PF 3 25-Yr	13520	247.9	260.38	2.1	10946.15	2186.91	6657	
Reach-1	12.273	PF 4 50-Yr	15530	247.9	260.61	2.29	11455.83	2196.87	7222	
Reach-1	12.273	PF 5 100-Yr	17720	247.9	260.86	2.48	12005.11	2205.41	7829	
Reach-1	12.273	PF 6 500-Yr	29070	247.9	261.88	3.35	14279.72	2240.43	10623	
Reach-1	12.273	PF 7 0.5Yr	1200	247.9	255.4	2.07	1512.2	1405.91	2193	
Reach-1	12.272	PF 1 2-Yr	6450	247.9	259.05	1.4	8110.47	2074.5	3694	
Reach-1	12.272	PF 2 10-Yr	11040	247.9	260.02	1.86	10167.44	2176.71	5848	
Reach-1	12.272	PF 3 25-Yr	13520	247.9	260.37	2.1	10937.47	2188.78	6655	
Reach-1	12.272	PF 4 50-Yr	15530	247.9	260.61	2.29	11445.84	2196.71	7219	
Reach-1	12.272	PF 5 100-Yr	17720	247.9	260.85	2.48	11993.73	2205.23	7818	
Reach-1	12.272	PF 6 500-Yr	29070	247.9	261.87	3.35	14261.4	2240.15	10620	
Reach-1	12.272	PF 7 0.5Yr	1200	247.9	255.39	2.09	1498.13	1404.8	2193	
Reach-1	12.271	PF 1 2-Yr	6450	247.9	259.05	1.4	8105.85	2074.34	3692	
Reach-1	12.271	PF 2 10-Yr	11040	247.9	260.02	1.86	10160.26	2176.59	5843	
Reach-1	12.271	PF 3 25-Yr	13520	247.9	260.37	2.1	10928.79	2188.64	6652	
Reach-1	12.271	PF 4 50-Yr	15530	247.9	260.6	2.29	11435.79	2196.56	7217	
Reach-1	12.271	PF 5 100-Yr	17720	247.9	260.85	2.48	11982.38	2205.08	7815	
Reach-1	12.271	PF 6 500-Yr	29070	247.9	261.87	3.36	14243	2239.87	10617	
Reach-1	12.271	PF 7 0.5Yr	1200	247.9	255.38	2.12	1483.71	1403.25	2193	
Reach-1	12.27	PF 1 2-Yr	6450	247.9	259.05	1.4	8101.23	2074.08	3690	
Reach-1	12.27	PF 2 10-Yr	11040	247.9	260.01	1.86	10153.02	2176.48	5841	
Reach-1	12.27	PF 3 25-Yr	13520	247.9	260.37	2.1	10920.04	2188.51	6650	
Reach-1	12.27	PF 4 50-Yr	15530	247.9	260.6	2.3	11425.66	2196.4	7214	
Reach-1	12.27	PF 5 100-Yr	17720	247.9	260.84	2.49	11970.85	2204.88	7812	
Reach-1	12.27	PF 6 500-Yr	29070	247.9	261.86	3.36	14224.14	2239.58	10613	
Reach-1	12.27	PF 7 0.5Yr	1200	247.9	255.36	2.15	1468.17	1401.6	2192	
Reach-1	12.255	PF 1 2-Yr	6450	247.6	258.69	6.26	2086.46	1133.35	3685	
Reach-1	12.255	PF 2 10-Yr	11040	247.6	259.68	6.59	3348.25	1461.17	5833	
Reach-1	12.255	PF 3 25-Yr	13520	247.6	259.98	7.27	3816.92	1681.06	6641	
Reach-1	12.255	PF 4 50-Yr	15530	247.6	260.2	7.5	4167.8	1726.71	7205	
Reach-1	12.255	PF 5 100-Yr	17720	247.6	260.44	7.64	4612.44	1777.8	7803	
Reach-1	12.255	PF 6 500-Yr	29070	247.6	261.38	6.66	6382.74	2020.25	10602	
Reach-1	12.255	PF 7 0.5Yr	1200	247.6	254.92	4.92	277.12	153.76	2191	
Reach-1	12.2525		Bridge	FM 60 Bridge						
Reach-1	12.25	PF 1 2-Yr	6450	247.6	257.92	9.18	1330.51	807.13	3684	444
Reach-1	12.25	PF 2 10-Yr	11040	247.6	258.71	10.63	2103.33	1137.52	5832	640
Reach-1	12.25	PF 3 25-Yr	13520	247.6	259	11.19	2441.84	1210.11	6639	735
Reach-1	12.25	PF 4 50-Yr	15530	247.6	259.25	11.35	2753.74	1273.41	7203	801
Reach-1	12.25	PF 5 100-Yr	17720	247.6	259.43	11.86	2995.97	1346.11	7800	869
Reach-1	12.25	PF 6 500-Yr	29070	247.6	260.3	13.38	4364.31	1748.13	10598	1249
Reach-1	12.25	PF 7 0.5Yr	1200	247.6	254.61	5.07	261.47	140.36	2191	84
Reach-1	12.24	PF 1 2-Yr	6450	247.7	256.63	3.34	3889.93	1804.4	3581	
Reach-1	12.24	PF 2 10-Yr	11040	247.7	257.57	3.56	5627.49	1881.91	5827	
Reach-1	12.24	PF 3 25-Yr	13520	247.7	258.02	3.65	6469.46	1915.72	6634	
Reach-1	12.24	PF 4 50-Yr	15530	247.7	258.35	3.71	7118.69	1941.38	7197	
Reach-1	12.24	PF 5 100-Yr	17720	247.7	258.7	3.78	7601.06	1970.72	7794	
Reach-1	12.24	PF 6 500-Yr	29070	247.7	260.3	4.04	11221.68	2193.22	10589	
Reach-1	12.24	PF 7 0.5Yr	1200	247.7	254.87	2.73	1086.99	1306.09	2190	
Reach-1	11.88	PF 1 2-Yr	6450	242.3	254.06	2.54	4849.15	2052.58	3499	
Reach-1	11.88	PF 2 10-Yr	11040	242.3	255.13	2.67	7087.44	2120.16	5562	
Reach-1	11.88	PF 3 25-Yr	13520	242.3	255.63	2.73	8155.04	2151.65	6330	
Reach-1	11.88	PF 4 50-Yr	15530	242.3	256	2.79	8954.2	2171	6863	
Reach-1	11.88	PF 5 100-Yr	17720	242.3	256.42	2.81	9874.96	2192.02	7426	
Reach-1	11.88	PF 6 500-Yr	29070	242.3	258.18	3.06	13799.98	2279.45	10067	
Reach-1	11.88	PF 7 0.5Yr	1200	242.3	251.8	2.77	836.42	1185.82	2151	
Reach-1	11.47	PF 1 2-Yr	6450	239.1	252.33	1.5	5919.55	2145.31	3246	
Reach-1	11.47	PF 2 10-Yr	11040	239.1	253.45	1.8	8366.45	2230.76	5203	
Reach-1	11.47	PF 3 25-Yr	13520	239.1	253.98	1.93	9560.08	2363.33	5918	
Reach-1	11.47	PF 4 50-Yr	15530	239.1	254.26	2.11	10227.82	2390.94	6417	
Reach-1	11.47	PF 5 100-Yr	17720	239.1	254.81	2.12	11557.69	2422.85	6928	
Reach-1	11.47	PF 6 500-Yr	29070	239.1	256.64	2.49	16082.85	2527.58	9374	
Reach-1	11.47	PF 7 0.5Yr	1200	239.1	249.17	1.85	921.7	686.32	2109	
Reach-1	11.465	PF 1 2-Yr	6450	238.9	252.3	1.38	6262.56	2152.66	3241	
Reach-1	11.465	PF 2 10-Yr	11040	238.9	253.42	1.65	8745.47	2262.41	5193	
Reach-1	11.465	PF 3 25-Yr	13520	238.9	253.94	1.78	9961.38	2383.59	5908	
Reach-1	11.465	PF 4 50-Yr	15530	238.9	254.22	1.94	10623.87	2400.43	6405	
Reach-1	11.465	PF 5 100-Yr	17720	238.9	254.76	1.96	11968.23	2432.36	6914	
Reach-1	11.465	PF 6 500-Yr	29070	238.9	256.61	2.32	16513.84	2537.34	9355	
Reach-1	11.465	PF 7 0.5Yr	1200	238.9	249.13	1.69	1035.7	779.57	2108	
Reach-1	11.4625		Bridge	SH 30 Bridge						
Reach-1	11.46	PF 1 2-Yr	6450	238.9	252	1.52	5636.53	2139.56	3240	
Reach-1	11.46	PF 2 10-Yr	11040	238.9	253.17	1.77	8160.12	2215.03	5191	
Reach-1	11.46	PF 3 25-Yr	13520	238.9	253.71	1.88	9404.78	2337.89	5904	
Reach-1	11.46	PF 4 50-Yr	15530	238.9	254.12	1.99	10390.53	2394.84	6402	
Reach-1	11.46	PF 5 100-Yr	17720	238.9	254.62	2.07	11341.42	2417.52	6911	
Reach-1	11.46	PF 6 500-Yr	29070	238.9	256.43	2.38	16056.14	2526.97	9349	
Reach-1	11.46	PF 7 0.5Yr	1200	238.9	249.05	1.96	715.71	729.75	2107	

Brazos County Soil SHG Table

Brazos County	HYDROLOGIC GROUP			
	A	B	C	D
	DfC	CoA	ChC	AxB
	DuC	PaC	ChD	BeA
	EuB	SmC	HbA	BeB
	NvB	SmD	ReC	BoA
		SxB	RoB	BoB
		Uh	RsC	BrB
		WaA	RsD	BuA
		WaC	RtC	BuB
		WwA	Ruc	BuC
		Wy	Sa	BwC
		YaA	Sb	BwD
			SkB	CrB
			SpB	CrB2
				DeA
				DmA
				FaB
				Gd
				GrC
				GrC2
				GrD
				GvC
				GyC
				Ka
				KrD
				KuC
				KuD
				LfA
				LuB
				LuD
				MaA
				MrA
				RaB
				RbA
				Rr
				ScC
				ShA
				ShC
				SnB
				TaA
				TgB
				TuA
				Us
				WzA
				ZaB
				ZaC2
				ZaD
				ZaE3
				ZcB
				ZcD
				ZuB

Carters Creek at FM 30 Drainage Basin

Lake Hawkins AREA ID	Area (ac)	TOTAL flow path (ft)	OVERLAND FLOW (sheet)					SHALLOW CONCENTRATED FLOW					OPEN CHANNEL FLOW			Total Tc Tc (hr)	Lag Time Tg (hr)
			LENGTH (ft)	SLOPE %	n	P2 (inch)	Tt (hr)	LENGTH (ft)	U.S. ELE (ft)	D.S. ELE (ft)	SLOPE %	Tsc (hr)	LENGTH (ft)	VELOCITY (fps)	Tch (hr)		
Basin 1	4994.1	34619	100	0.96%	0.15	4.7	0.18	4700	375	330	0.96%	0.83	29819	5	1.66	2.67	1.60
Basin 2	2307.1	25034	100	1.20%	0.15	4.7	0.17	1000	352	340	1.20%	0.16	23934	5	1.33	1.65	0.99
Basin 3	6472.7	41603	100	0.86%	0.15	4.7	0.19	2800	374	350	0.86%	0.52	38703	5	2.15	2.86	1.72
Basin 4	3060.8	24030	100	0.88%	0.15	4.7	0.19	2500	372	350	0.88%	0.46	21430	5	1.19	1.84	1.10

NOTES:

This table is based on TR-55 Manual mainly
Per TxDOT manuel, when tc is less than 10 minutes then 10-minutes will be used.
P2 is 2 Year 24 hour rainfall in Brazos County from the TR-55 Manual
Tsc formula is based on Michael A Stevens (Estimating Design Discharge for Small Ungaged Watersheds Using the SCS Method)

Composite CN Calculation

BASINID	1											
Sum of AREA	HSG					Imp &	Curve No.				WT CN	WT CN
LandUse	A	B	C	D	Grand Total		A	B	C	D		
21			8759155.1	66883660	75642815.1	38%	61	76	84	88	91.5	31.7
22	183887.3		3790450.5	31569310.6	35543648.4	65%	81	88	91	93	96.2	15.7
23	15603.9	28248.3	7829499.8	79538323.4	87411675.4	85%	91	94	95	96	97.7	39.2
71	83899.6	241652.9	4975799.4	2478664.2	7780016.1	5%	49	69	79	84	80.9	2.9
85	241205.3		2877036.7	8609278.5	11727520.5	5%	49	69	79	84	84.0	4.5
Grand Total	524596.1	269901.2	28231941.5	189079236.7	218105675.5						Final CN	94.0
	0.2%	0.1%	12.9%	86.7%	1							

Composite CN Calculation

BASINID	2			
Sum of AREA	HSG			
LandUse	B	C	D	Grand Total
21	109345.1	692688	14498751.6	15300784.7
22	1348300.7	4331975.8	8296941.1	13977217.6
23	262539.8	1904930.8	27517537.9	29685008.5
71	305951.7	7088102.1	27974371.5	35368425.3
85	486705.2	1009500.7	4670503	6166708.9
Grand Total	2512842.5	15027197.4	82958105.1	100498145
	2.5%	15.0%	82.5%	

Imp &	Curve No.				WT CN	WT CN
	A	B	C	D		
38%	61	76	84	88	91.6	14.0
65%	81	88	91	93	95.9	13.3
85%	91	94	95	96	97.7	28.9
5%	49	69	79	84	83.6	29.4
5%	49	69	79	84	82.8	5.1
					Final CN	90.6

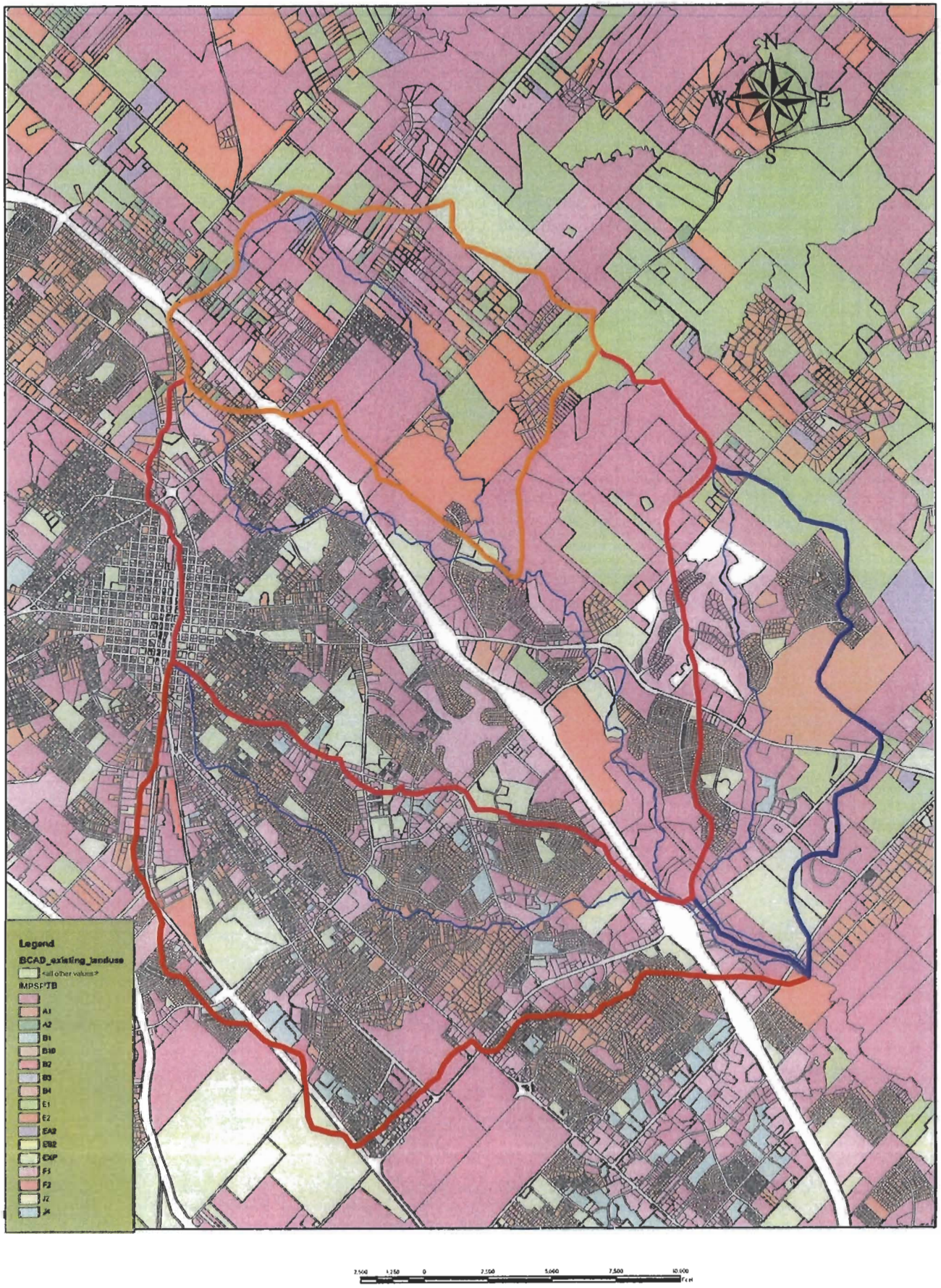
Composite CN Calculation

BASINID	3											
Sum of AREA	HSG					Imp &	Curve No.				WT CN	WT CN
LandUse	A	B	C	D	Grand Total		A	B	C	D		
21			2794813.1	50421161.9	53215975	38%	61	76	84	88	91.7	17.3
22			6932135.6	37564245.9	44496381.5	65%	81	88	91	93	96.1	15.2
23		21020.5	7181899.6	74492717	81695637.1	85%	91	94	95	96	97.7	28.4
71	311169.5	1171755.6	23430920	64521724.3	89435569.4	5%	49	69	79	84	83.2	26.4
85			2127472.6	10417560.7	12545033.3	5%	49	69	79	84	83.9	3.7
Grand Total	311169.5	1192776.1	42467240.9	237417409.8	281388596.3						Final CN	91.1
	0.1%	0.4%	15.1%	84.4%								

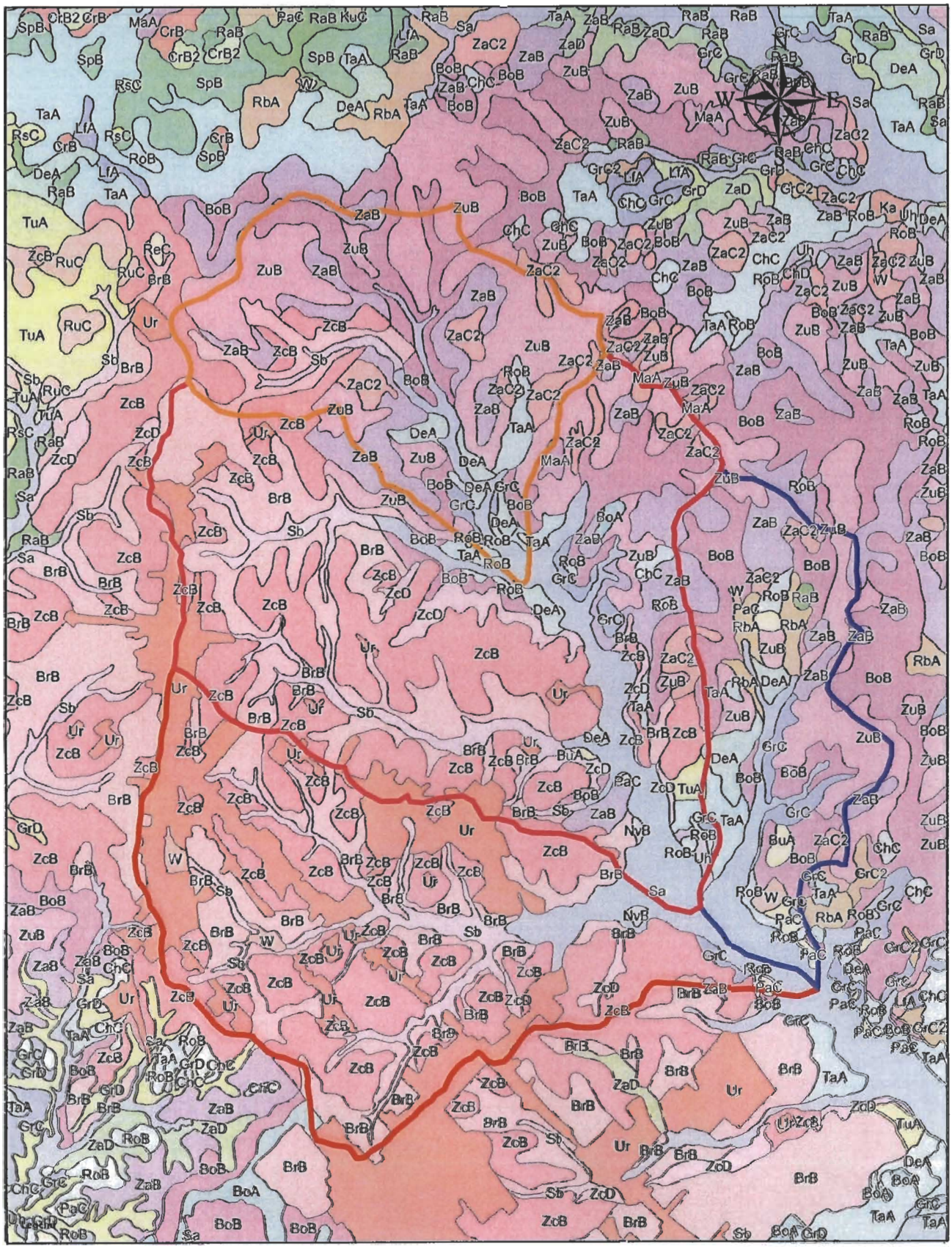
Composite CN Calculation

BASINID	4							
Sum of AREA	HSG			Imp &			WT CN	WT CN
LandUse	C	D	Grand Total		C	D		
21	629871.5	17726812.5	18356684	38%	84	88	91.7	12.6
22	816594.7	6361639.2	7178233.9	65%	91	93	96.2	5.2
23	1098619.7	29375241	30473860.7	85%	95	96	97.7	22.3
71	7409212.6	60110096.6	67519309.2	5%	79	84	84.2	42.6
81		1704708.8	1704708.8	5%	79	84	84.7	1.1
85	672065.3	7422614.1	8094679.4	5%	79	84	84.3	5.1
Grand Total	10626363.8	122701112.2	133327476				Final CN	89.0
	8.0%	92.0%						

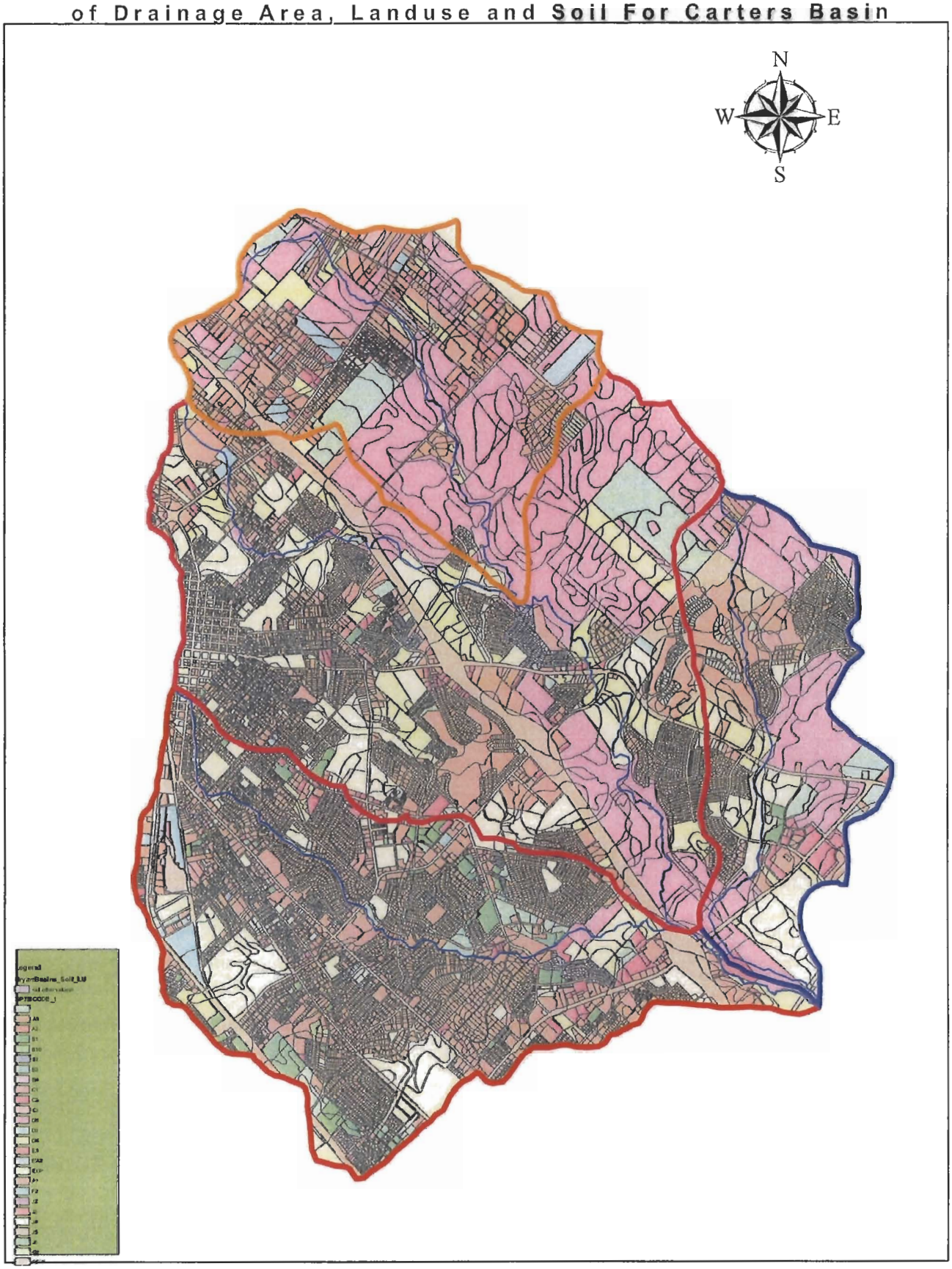
City of Bryan Land Use Map



Brazos County Hydrologic Soil Group Map



Intersection
of Drainage Area, Landuse and Soil For Carters Basin



APPENDIX C

EFFECTIVE FIS HEC-2 MODEL

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T1       CARTERS CREEK FROM R.M. 6.76 TO R.M. 19.07
T2       MITCHELL & MORGAN, LLP REQUEST FOR CLOMR
T3       CARTERS CREEK DUPLICATE EFFECTIVE MODEL - FPI REPORT AUGUST 1973
*        MAIN CHANNEL          2-YEAR FREQUENCY          CC-DEMF.IH2
*        10-, 50-, 100-, 500-YEAR STARTING WSEL FROM FIS WATER SURFACE PROFILES
J1     -1       2                                      -1          223.95
J2      1              -1
J3    150     110       0       0       0       0       0
NC    .07    .075     .05      .1      .3
QT      6   10290   18020   22340   25730   29530   49370
X1   6.76      66    2800    2900
GR    243    1000   242.7    1100   241.6    1200   238.9    1300   229.5    1400
GR  226.8    1500   225.5    1600   225.8    1700   223.8    1800   224.0    1900
GR  223.3    2000     220    2100   219.3    2150   221.0    2200   220.9    2295
GR  219.5    2300     221    2310   221.4    2400   221.2    2500   221.0    2600
GR  221.9    2700   223.0    2800   223.8    2842   214.9    2855   214.9    2881
GR  222.9    2896   222.9    2900   222.6    3000   220.4    3100   220.4    3127
GR  219.1    3137   220.5    3151   220.6    3200   220.8    3300   221.3    3400
GR  221.9    3500   222.2    3600   222.0    3700   221.3    3800   221.9    3900
GR  222.2    4000   222.4    4200   223.6    4300   223.5    4500   222.4    4600
GR  224.7    4800   223.5    4853   218.0    4874   218.4    4895   224.8    4918
GR  223.4    5000   223.8    5200   224.2    5300   224.7    5500   226.2    5700
GR  226.5    5800   229.2    6000   232.4    6200   234.9    6400   234.9    6500
GR  236.2    6600   238.8    6700   246.0    6900   254.2    7000   261.7    7100
GR  265.8    7200
X1   6.77      80    2790    2892     50.     50.     50.
BT     21    2404   227.3   226.7    2425   227.3   226.7    2500   226.8
BT   2600   226.9           2790     227   225.8    2892     227   225.8    3000
BT  226.4           3100   226.2   224.9    3148   226.1   224.9    3243   226.6
BT    225    3264   226.6     225    3400   226.1           3464   226.1   224.2
BT   3485     226   224.2    3600   225.7           3700   225.7           3800
BT  225.9           3900   226.2           4600   225.6           4818   227.7
BT  226.7    4859   227.7   226.7
GR  244.1    1000   243.9    1100   234.1    1300   231.3    1400   227.5    1600
GR  225.9    1800   226.2    2000   226.9    2200   226.5    2300   227.3    2404
GR  216.9    2405   215.5    2413   216.8    2424   227.3    2425   226.8    2500
GR  226.9    2600   227.3    2700   227.0    2790   224.1    2790   223.8    2806
GR  219.1    2818   225.8    2818   225.8    2820   219.0    2820   214.6    2827
GR  212.1    2840   214.6    2852   223.0    2866   226.9    2892   226.4    3000
GR  226.2    3100   220.0    3101   212.2    3123   224.9    3123   224.9    3124
GR  212.2    3124   220.4    3147   226.4    3148   226.6    3243   217.4    3244
GR  219.2    3262   226.6    3264   226.1    3400   226.1    3464   220.2    3464
GR  220.2    3485   226.0    3485   225.7    3600   225.7    3700   225.9    3800
GR  226.2    3900   226.9    4100   225.6    4600   227.5    4800   227.7    4818
GR  221.5    4818   220.3    4830   217.8    4834   226.7    4834   226.7    4836
GR  217.0    4836   216.7    4839   217.2    4849   219.2    4852   220.7    4859
GR  227.7    4859   226.0    5000   225.8    5100   226.2    5200   226.8    5400
GR  227.4    5500   228.5    5700   229.5    5800   230.2    5900   237.7    6600
GR  242.2    6800   245.7    6900   249.2    7000   253.0    7100   257.2    7200
X1  6.775                           27      27      27       1
X2                                                   1
X1   6.79      66    2800    2900     100     100     100
GR    243    1000   242.7    1100   241.6    1200   238.9    1300   229.5    1400
GR  226.8    1500   225.5    1600   225.8    1700   223.8    1800   224.0    1900
GR  223.3    2000     220    2100   219.3    2150   221.0    2200   220.9    2295
GR  219.5    2300     221    2310   221.4    2400   221.2    2500   221.0    2600
GR  221.9    2700   223.0    2800   223.8    2842   214.9    2855   214.9    2881
```

GR	222.9	2896	222.9	2900	222.6	3000	220.4	3100	220.4	3127
GR	219.1	3137	220.5	3151	220.6	3200	220.8	3300	221.3	3400
GR	221.9	3500	222.2	3600	222.0	3700	221.3	3800	221.9	3900
GR	222.2	4000	222.4	4200	223.6	4300	223.5	4500	222.4	4600
GR	224.7	4800	223.5	4853	218.0	4874	218.4	4895	224.8	4918
GR	223.4	5000	223.8	5200	224.2	5300	224.7	5500	226.2	5700
GR	226.5	5800	229.2	6000	232.4	6200	234.9	6400	234.9	6500
GR	236.2	6600	238.8	6700	246.0	6900	254.2	7000	261.7	7100
GR	265.8	7200								
X1	6.791				10	10	10			
X1	6.792				10	10	10			
X1	6.793				10	10	10			
NC	.085	.075	.06							
X1	7.375				2910	3000	3089	1.2	2.5	
X1	7.376				10	10	10			
NH	5	.085	3265	.055	3327	.075	5539	.06	5600	.075
NH	6486									
X1	7.96	51	3265	3327	2910	3000	3089			
GR	255.3	1000	254.6	1400	250.9	1600	244.8	1800	243.7	1900
GR	239.4	2000	235.8	2200	238.4	2400	244.0	2600	237.1	2800
GR	232.0	3000	229.5	3100	232.3	3125	231.6	3200	231.8	3265
GR	217.3	3279	216.8	3302	227.7	3315	232.9	3327	232.9	3335
GR	231.9	3400	230.6	3700	231.8	3900	232.5	4000	231.6	4100
GR	229.1	4200	231.6	4239	230.7	4400	230.0	4500	229.9	4700
GR	229.3	4900	229.4	5000	229.2	5100	229.4	5200	228.7	5300
GR	227.7	5338	225.5	5351	228.4	5370	228.7	5400	229.5	5539
GR	223.2	5542	228.6	5554	229.5	5600	229.5	5700	230.0	5800
GR	230.3	5900	230.8	6000	235.9	6200	242.4	6300	247.4	6400
GR	251.1	6486								
X1	7.961				10	10	10			
X1	7.962				10	10	10			
X1	7.963				10	10	10			
QT	6	7880	13900	17200	19900	22600	38380			
NH	5	.075	1919	.055	1941	.075	3668	.06	3750	.07
NH	4000									
X1	8.82	39	3668	3750	3400	3600	4541			
GR	259.0	1000	250.7	1200	244.1	1300	241.6	1350	240.8	1400
GR	237.1	1500	236.0	1600	235.0	1700	234.6	1800	234.5	1900
GR	234.5	1919	228.4	1933	234.5	1941	235.5	2000	233.8	2100
GR	234.4	2200	233.9	2300	234.1	2500	234.0	2600	233.4	2700
GR	233.4	2800	233.1	2900	233.0	3000	232.9	3100	233.5	3200
GR	234.7	3300	234.6	3400	235.1	3500	236.1	3600	237.5	3668
GR	227.3	3685	224.2	3690	223.9	3720	233.4	3735	236.5	3750
GR	237.2	3800	241.9	3852	245.0	3900	247.5	4000		
NH	5	.075	1691	.05	1723	.08	2143	.06	2193	.075
NH	4050									
X1	9.58	40	2143	2200	2900	3400	4013			
GR	255.1	1000	240.0	1400	238.3	1500	237.7	1529	236.8	1573
GR	236.5	1600	237.1	1691	232.9	1709	236.1	1723	236.5	1800
GR	236.3	1900	239.9	1961	234.8	1970	239.1	1980	238.0	2000
GR	239.3	2100	240.2	2143	229.6	2157	229.8	2175	239.7	2193
GR	239.7	2200	239.3	2300	238.0	2400	237.1	2470	236.7	2500
GR	235.5	2600	236.1	2700	236.6	2782	237.0	2800	236.7	2900
GR	237.8	3100	238.0	3200	237.6	3300	244.2	3500	243.8	3600
GR	244.8	3700	248.0	3800	249.4	3900	250.8	4000	252.3	4050
QT	6	7880	14050	17290	19740	22420	37960			
NH	5	.07	3138	.065	3189	.08	3360	.07	3385	.085

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NH  4800
X1 10.11      49    3138    3189    2480    2560    2798
GR 263.1    1000   251.6    1200   248.6    1255   247.2    1300   245.4    1400
GR 243.9    1500   243.0    1600   241.8    1700   240.8    1800   240.5    1900
GR 239.8    2000   239.5    2100   239.7    2200   239.9    2300   239.9    2400
GR 239.9    2500   240.1    2600   240.2    2700   240.1    2800   240.3    2900
GR 240.4    3000   242.1    3100   242.7    3138   235.8    3148   229.7    3154
GR 229.6    3170   233.8    3172   242.3    3189   242.9    3200   241.3    3300
GR 242.0    3360   239.2    3363   239.3    3380   241.7    3385   241.6    3400
GR 241.3    3500   241.8    3600   245.1    3700   249.3    3800   252.5    3900
GR 253.7    4000   253.8    4100   253.0    4200   254.5    4300   254.8    4400
GR 255.9    4500   258.6    4600   260.6    4700   263.2    4800
QT     6    7800   13800   16900   19250   21800   36830
NH     5    .075    2010     .06    2050     .08    3051    .065    3113    .085
NH  5890
X1 10.93      65    2000    2050    3920    3840    4330
GR 270.1    1000   269.5    1100   269.1    1200   268.9    1237   267.3    1300
GR 265.7    1400   264.3    1500   263.7    1600   267.0    1700   266.0    1740
GR 260.6    1800   253.9    1900   249.4    1975   248.9    2000   247.8    2010
GR 236.0    2021   236.5    2027   237.8    2035   247.4    2050   247.1    2100
GR 246.7    2200   246.0    2300   246.2    2325   246.1    2400   246.9    2500
GR 245.6    2600   245.2    2700   245.2    2800   245.0    2900   245.5    3000
GR 245.5    3051   241.0    3053   239.3    3074   241.2    3111   245.0    3113
GR 245.6    3200   245.8    3300   246.4    3400   247.1    3500   249.3    3600
GR 252.5    3700   255.5    3800   257.6    3900   258.7    4000   258.7    4007
GR 259.5    4100   261.2    4200   261.7    4300   263.3    4360   262.7    4400
GR 263.7    4500   264.4    4600   266.9    4700   266.4    4800   266.5    4900
GR 266.4    5000   266.1    5100   266.4    5200   266.8    5300   267.6    5400
GR 268.0    5500   268.3    5600   269.0    5700   269.9    5800   271.3    5890
NC  .085     .08    .065      .3      .5
X1 11.45      48    2900    3347    2700    2700    2700
GR 272.3     800   258.5    1145   253.8    1162   253.6    1200     259    1240
GR 262.9    1300   266.7    1600   264.2    1800   257.8    1878   263.8    1900
GR 265.5    2100   268.1    2200   266.5    2400   247.2    2800   248.4    2900
GR 245.0    2929   245.0    2967   249.1    3000   251.6    3226   250.5    3241
GR 246.9    3250   241.6    3259   240.9    3268   238.9    3275   238.9    3277
GR 249.4    3290   249.0    3300   249.9    3325   251.0    3347   251.9    3349
GR 250.4    3400   248.6    3600   250.2    3700   249.0    3760   250.9    3800
GR 247.7    4100   248.9    4300   251.8    4800   254.0    4830   247.9    4850
GR 253.0    4880   253.8    5000   257.7    5100   260.4    5400   260.9    5600
GR 260.0    5700   261.1    5900   268.4    6200
X1 11.46                            50      50      50       1
X3    10                                                  248.0   250.9
SB  1.25     1.3     2.5            21     7.7    1122     3.7
X111.465                            25      25      25
X2                     1     254   250.9
BT    13     800     272           1400   264.9            1600   266.7
BT  1900   263.8            2200   268.8            2400   266.5            2600
BT 256.1            3500   254.1            3800   250.9            4400   251.2
BT          5400   257.7            5900   261.1            6200   268.4
NC  .075     .08     .06      .1      .3
X1 11.47            3241    3300      50      50      50       1      .2
NH     5     .07    2908     .06    2944    .075    3409    .065    3454    .075
NH  4300
X1 11.88      47    3400    3454    2000    2000    2165
GR 275.1    1000   273.4    1100   271.4    1200   269.3    1300   268.7    1400
GR 268.1    1500   263.0    1600   258.2    1700   252.5    1800   251.9    1900
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GR 252.0    2000   251.7    2100   251.4    2200   251.4    2300   251.2    2400
GR 251.2    2500   251.2    2600   251.3    2700   251.1    2800   251.4    2900
GR 251.3    2908   247.3    2920   246.1    2929   247.3    2938   251.5    2944
GR 251.2    3000   251.8    3100   251.7    3200   252.2    3300   252.1    3325
GR 253.6    3400   253.8    3409   244.9    3420   243.3    3425   242.3    3430
GR 242.4    3433   244.7    3439   253.5    3454   253.6    3500   252.2    3600
GR 252.3    3700   253.5    3800   255.7    3900   258.8    4000   264.2    4100
GR 269.8    4200   274.8    4300
NH     5    .075    2509    .065    2538    .075    2820     .06    2867    .075
NH  3421
X1 12.24      35    2800    2867    1800    1900    1900       1    -.2
GR 265.6    1000   257.7    1038   255.9    1100   255.9    1200   254.3    1300
GR 254.3    1400   254.8    1500   254.6    1600   254.5    1700   255.3    1800
GR 254.5    1900   254.2    2000   254.1    2100   254.1    2200   254.4    2300
GR 254.4    2400   254.4    2500   253.8    2509   251.3    2515   251.3    2527
GR 254.3    2538   255.7    2600   256.0    2700   256.0    2800   255.1    2820
GR 247.9    2835   247.9    2849   256.7    2867   257.5    2900   258.9    3000
GR 259.0    3100   259.9    3200   263.3    3300   269.9    3400   270.1    3421
NC   .05     .05    .045      .3      .5
X1 12.25      40    2819    2885      50      50      50
BT     2    2819   262.4   259.2    2885   262.4   259.2
GR 265.8    1000   262.9    1038   261.3    1100   260.8    1200   259.8    1300
GR 259.9    1400   258.2    1800   258.2    1900   257.6    2000   257.1    2088
GR 256.6    2100   254.3    2148   254.5    2200   255.2    2271   256.6    2300
GR 257.4    2333   257.5    2400   256.7    2500   257.2    2600   258.0    2700
GR 258.7    2752   261.6    2800   262.4    2819   258.3    2819   258.3    2821
GR 256.7    2821   247.9    2841   247.6    2861   255.4    2872   256.9    2883
GR 258.3    2885   262.4    2885   262.3    2900   259.9    3000   259.3    3073
GR 259.6    3100   261.5    3200   264.1    3300   267.6    3371   269.2    3400
X112.255                           25      25      25       1
X2                                                  1
NC  .075    .075    .055      .1      .3
X112.270     35.   2800.   2867.      50      50      50       1
GR 265.6    1000   257.7    1038   255.9    1100   255.9    1200   254.3    1300
GR 254.3    1400   254.8    1500   254.6    1600   254.5    1700   255.3    1800
GR 254.5    1900   254.2    2000   254.1    2100   254.1    2200   254.4    2300
GR 254.4    2400   254.4    2500   253.8    2509   251.3    2515   251.3    2527
GR 254.3    2538   255.7    2600   256.0    2700   256.0    2800   255.1    2820
GR 247.9    2835   247.9    2849   256.7    2867   257.5    2900   258.9    3000
GR 259.0    3100   259.9    3200   263.3    3300   269.9    3400   270.1    3421
X112.271                           10      10      10
X112.272                           10      10      10
X112.273                           10      10      10
NH     5    .075    3927     .06    3953    .075    4311     .05    4372     .07
NH  5174
X1 12.39      49    4300    4372     640     600     633
GR 278.3    1000   271.5    1300   269.4    1500   268.8    1600   268.6    1700
GR 263.8    1900   264.5    2000   264.5    2100   263.9    2200   261.5    2300
GR 260.2    2400   259.4    2500   257.3    2700   257.1    2800   256.2    2900
GR 255.6    2990   253.6    3000   255.4    3007   255.5    3200   256.7    3400
GR 256.1    3500   256.7    3600   253.2    3610   255.6    3630   255.8    3700
GR 255.6    3800   256.2    3832   252.7    3840   256.0    3851   255.3    3900
GR 255.9    3927   251.5    3935   249.3    3949   256.0    3953   255.1    4000
GR 255.5    4200   258.0    4300   258.4    4311   244.7    4327   247.2    4346
GR 258.9    4372   258.8    4400   257.3    4500   256.9    4600   258.2    4700
GR 271.8    4768   270.7    4800   269.6    5137   275.6    5174
QT     6    6450   11040   13520   15530   17720   29070
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NC	.08	.075	.055						
X1	12.75	65	4536	4700	1920	1800	1828		
GR	281.9	1000	281.4	1100	277.0	1200	272.5	1300	270.0	1400
GR	266.9	1500	265.3	1600	264.5	1700	264.4	1800	264.4	1900
GR	262.3	2000	261.3	2100	260.6	2200	260.5	2300	260.2	2400
GR	260.0	2500	261.3	2573	258.9	2580	261.2	2590	260.9	2600
GR	259.9	2700	259.7	2800	260.3	2900	260.8	2971	258.0	2981
GR	260.6	2993	260.6	3000	259.0	3100	259.5	3200	264.7	3300
GR	260.2	3400	260.8	3500	261.2	3600	261.3	3625	256.8	3640
GR	261.3	3654	260.6	3700	260.6	3800	259.9	3900	259.7	4000
GR	259.0	4100	259.2	4200	258.8	4300	259.0	4400	259.9	4482
GR	264.0	4493	262.8	4500	264.0	4536	259.3	4564	259.1	4580
GR	256.3	4600	251.1	4610	249.6	4634	263.8	4654	255.7	4665
GR	258.0	4700	259.6	4800	264.8	4826	269.0	4840	270.1	4854
GR	271.7	4880	267.6	4900	266.2	4912	271.2	4940	274.2	4960
QT	6	4370	7550	9250	10500	11900	19820			
NC	.085	.08	.065							
X1	13.50	57	2975	3045	2400	3000	3960			
GR	281.9	1000	282.0	1100	282.7	1200	282.1	1300	282.7	1400
GR	281.4	1500	277.4	1600	274.7	1700	272.5	1800	272.4	1822
GR	269.6	1826	272.5	1832	272.1	1900	271.8	2000	274.9	2100
GR	275.2	2200	275.8	2300	276.1	2400	275.8	2500	272.0	2600
GR	268.0	2700	265.4	2800	262.0	2819	265.7	2826	266.0	2900
GR	268.0	2960	266.7	2975	253.6	2995	251.6	3000	262.7	3015
GR	267.3	3045	267.2	3100	265.6	3200	264.3	3300	263.8	3400
GR	263.6	3500	264.0	3600	264.7	3700	265.6	3800	266.8	3900
GR	265.1	4000	263.0	4009	265.5	4017	266.0	4100	266.1	4200
GR	266.2	4300	266.9	4400	267.9	4500	269.3	4600	269.7	4700
GR	269.9	4800	271.4	4900	274.8	5000	277.6	5100	281.8	5200
GR	284.2	5285	287.2	5300						
QT	6	3870	5730	7100	8170	9380	15550			
X1	14.20	53	3494	3550	2800	3200	3696			
GR	290.9	1000	289.4	1100	288.7	1200	287.7	1300	287.2	1400
GR	286.6	1500	286.2	1600	285.6	1700	283.8	1800	283.3	1900
GR	284.3	2000	283.1	2100	281.4	2200	279.3	2300	278.0	2400
GR	277.3	2500	277.3	2600	274.0	2700	271.1	2800	269.3	2857
GR	261.3	2868	269.6	2887	264.6	2920	269.5	2938	270.2	3000
GR	270.4	3100	270.7	3200	271.3	3300	271.1	3400	271.0	3445
GR	270.7	3494	255.5	3523	268.3	3550	270.5	3565	269.9	3600
GR	269.9	3607	269.8	3700	271.6	3800	270.3	3860	266.2	3860
GR	270.1	3878	271.4	3900	271.6	4000	272.7	4100	273.9	4200
GR	275.4	4300	276.9	4400	278.1	4500	279.9	4600	281.7	4700
GR	283.4	4800	286.6	4900	290.8	5000				
QT	6	2600	4710	5850	6750	7650	12800			
X1	14.81	35	1557	1630	2800	3200	3221			
GR	293.8	1000	293.5	1100	290.1	1200	285.2	1300	280.2	1380
GR	278.4	1400	273.6	1500	274.6	1557	270.9	1585	264.9	1595
GR	262.1	1600	265.3	1608	272.5	1630	273.2	1700	273.0	1800
GR	272.6	1900	270.9	2000	273.5	2100	274.5	2200	273.2	2300
GR	275.4	2400	277.5	2500	278.7	2600	276.5	2690	276.5	2700
GR	278.9	2765	279.0	2800	278.2	2870	279.0	2900	280.6	3000
GR	281.8	3100	284.7	3200	287.5	3300	289.0	3400	290.6	3500
NC	.085	.085	.065							
X1	15.69	34	2018	2088	4200	3800	4646	1	-.2	
GR	298.4	1000	293.0	1100	290.0	1200	288.0	1300	284.2	1318
GR	281.7	1400	277.7	1600	277.8	1800	275.6	1900	276.8	2000
GR	276.5	2018	267.3	2044	267.3	2050	275.6	2055	277.1	2088

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GR 277.4    2100   277.5    2200   277.0    2400   279.4    2468   281.5    2500
GR 287.0    2600   292.1    2700   290.7    2800   288.0    2900   281.2    2928
GR 278.3    2957   284.0    2977   288.9    3000   290.0    3024   291.9    3100
GR 295.1    3200   296.3    3300   296.3    3400   296.3    3444
NC   .05     .05    .045      .3      .5
X1 15.70      50    1949    2099      50      50      50
BT     2    1949   283.9   282.7    2099   284.0   282.7
GR 297.2    1000   294.8    1100   290.8    1200   287.7    1300   284.8    1400
GR 282.8    1500   282.8    1600   283.1    1677   282.5    1700   283.4    1800
GR 283.9    1900   283.9    1949   276.5    1963   275.4    1974   283.7    1974
GR 283.7    1976   275.4    1976   275.9    1999   283.7    1999   283.7    2001
GR 275.9    2001   267.9    2024   283.7    2024   283.7    2026   267.9    2026
GR 267.9    2029   275.9    2040   283.7    2040   283.7    2042   275.9    2042
GR 275.9    2074   283.7    2074   283.7    2076   275.9    2076   280.6    2087
GR 284.0    2099   284.0    2200   283.3    2300   282.9    2400   282.8    2500
GR 283.4    2600   284.3    2700   285.5    2800   287.9    2900   289.9    3000
GR 292.2    3100   294.5    3200   295.8    3300   296.6    3400   297.2    3444
X115.705                           26      26      26       1
X2                                                  1
NC  .085    .085   .065      .1      .3
X1 15.71      34    2018    2088      50      50      50
GR 298.4    1000   293.0    1100   290.0    1200   288.0    1300   284.2    1318
GR 281.7    1400   277.7    1600   277.8    1800   275.6    1900   276.8    2000
GR 276.5    2018   267.3    2044   267.3    2050   275.6    2055   277.1    2088
GR 277.4    2100   277.5    2200   277.0    2400   279.4    2468   281.5    2500
GR 287.0    2600   292.1    2700   290.7    2800   288.0    2900   281.2    2928
GR 278.3    2957   284.0    2977   288.9    3000   290.0    3024   291.9    3100
GR 295.1    3200   296.3    3300   296.3    3400   296.3    3444
X1 16.31      38    2465    2511    2600    2600    3168
GR 298.2    1000     298    1100   296.9    1200   295.6    1300   294.7    1400
GR 292.4    1500   292.2    1600   289.8    1700   287.8    1800   284.6    1900
GR 281.6    2000   280.2    2100   279.3    2200   278.9    2300   278.8    2400
GR 280.1    2465   270.9    2482   270.9    2488   276.7    2496   280.2    2511
GR 279.8    2600   278.9    2700   279.5    2800   282.7    2900   282.2    3000
GR 280.7    3100   281.0    3200   280.7    3300   281.7    3400   281.5    3500
GR 282.4    3600   283.2    3700   284.8    3800   287.8    3900   292.8    4000
GR 297.4    4100   300.1    4200   301.5    4300
NC  .075    .075     .06
X1 16.96     44.    2945    3034    2800    2600    3432
GR 300.6    1000   299.4    1100   298.2    1200   295.9    1300   292.4    1400
GR 289.2    1500   286.5    1600   285.2    1700   284.9    1800   283.8    1883
GR 284.4    1915   283.9    2000   283.6    2100   283.0    2200   282.2    2300
GR 282.5    2400   283.1    2500   283.7    2600   284.0    2700   283.8    2753
GR 283.2    2769   275.4    2785   275.4    2789   283.2    2793   283.2    2800
GR 284.2    2900   284.2    2945   283.3    2966   275.9    2977   275.9    2981
GR 283.4    2990   284.8    3000   287.1    3034   287.4    3100   287.8    3200
GR 288.1    3300   289.5    3400   291.3    3500   293.8    3600   297.8    3700
GR 301.8    3800   305.4    3900   308.2    4000   310.2    4100
X1 17.29      26    1760    1837    1400    1500    1742
GR 299.6    1000   297.6    1100   295.5    1200   293.4    1300   290.8    1400
GR 287.7    1500   285.7    1600   283.8    1700   286.3    1760   286.4    1800
GR 285.6    1813   278.4    1821   278.4    1827   285.7    1837   285.9    1900
GR 285.6    2000   286.0    2100   289.1    2200   292.8    2300   293.9    2350
GR 293.7    2400   295.1    2500   296.5    2600   297.9    2700   298.8    2800
GR 299.6    2900
NC  .075     .08     .06
X1 17.95      42    1900    1943    2900    3200    3484
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GR 307.4    1000   304.7    1100   302.8    1200   300.4    1300   298.9    1400
GR 298.6    1500   298.3    1600   300.6    1700   300.5    1724   297.1    1800
GR 293.7    1886   291.2    1900   291.3    1919   281.9    1930   281.9    1935
GR 292.5    1943   291.0    2000   291.0    2100   290.3    2200   292.2    2300
GR 293.4    2400   293.8    2500   294.6    2600   296.6    2700   298.0    2800
GR 298.6    2900   299.3    2946   299.1    3000   299.5    3100   300.5    3200
GR 299.2    3300   300.1    3340   296.1    3375   293.7    3384   295.9    3392
GR 296.0    3400   299.2    3441   300.5    3500   302.3    3600   305.0    3700
GR 307.1    3800   310.0    3900
QT     6    1280    2110    2240    2900    3200    5270
NC  .085     .08    .065
X1 18.51      26    2276    2325    2700    2600    2957
GR 310.5    1000   308.0    1100   305.4    1200   302.4    1300   306.5    1400
GR 303.2    1500   300.9    1600   298.7    1700   298.7    1800   298.4    1900
GR 298.0    2000   296.2    2100   295.8    2200   294.8    2250   294.7    2276
GR 292.9    2294   288.9    2300   295.1    2313   296.3    2325   298.0    2400
GR 299.8    2500   301.7    2600   303.1    2700   304.5    2800   305.9    2900
GR 308.1    3000
X118.511                              10      10      10
X118.512                              10      10      10
X118.513                              10      10      10
NC    .1     .09    .075
X1 19.05      37    2000    2056    2500    2300    2851
GR 320.0    1000   317.8    1100   315.2    1200   312.6    1300   310.2    1400
GR 308.1    1500   307.2    1600   306.6    1700   305.7    1800   303.1    1900
GR 303.1    2000   298.7    2017   299.1    2040   300.5    2056   302.4    2100
GR 302.9    2200   302.0    2300   300.9    2363   298.6    2373   298.7    2387
GR 300.1    2397   301.8    2427   303.3    2500   304.1    2600   305.7    2700
GR 306.9    2800   308.6    2900   309.7    3000   310.6    3100   311.5    3200
GR 311.7    3300   311.7    3400   312.2    3500   312.0    3600   312.4    3700
GR 311.9    3800   310.3    3886
NC   .05     .05    .045      .3      .5
X1 19.06                              50      50      50
SB  1.25    1.25     2.6            42.4     2.4     163            297.1   297.1
X119.065                              25      25      25
X2                     1     301   302.8
BT    12    1000   319.1            1300   312.7            1600   307.9
BT  2000   302.8            2010   303.8            2042   303.5            2300
BT 303.8            2375   304.2            2500   304.1            2800   307.8
BT          3000   310.8            3100   311.5
NC   .06     .06     .05
X1 19.07      37    2000    2056      50      50      50
GR 320.0    1000   317.8    1100   315.2    1200   312.6    1300   310.2    1400
GR 308.1    1500   307.2    1600   306.6    1700   305.7    1800   303.1    1900
GR 303.1    2000   298.7    2017   299.1    2040   300.5    2056   302.4    2100
GR 302.9    2200   302.0    2300   300.9    2363   298.6    2373   298.7    2387
GR 300.1    2397   301.8    2427   303.3    2500   304.1    2600   305.7    2700
GR 306.9    2800   308.6    2900   309.7    3000   310.6    3100   311.5    3200
GR 311.7    3300   311.7    3400   312.2    3500   312.0    3600   312.4    3700
GR 311.9    3800   310.3    3886
EJ
T1CARTERS CREEK                       10 YEAR FREQUENCY
T2FPI REPORT AUGUST 1973
T3FROM R.M. 6.76 TO R.M. 19.07 RUN BY AL
J1             3                                     -1          224.94
J2     2              -1
T1CARTERS CREEK                       25 YEAR FREQUENCY
```

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T2FPI REPORT AUGUST 1973
T3FROM R.M. 6.76 TO R.M. 19.07 RUN BY AL
J1             4                                        -1          225.38
J2     3              -1
T1CARTERS CREEK                        50 YEAR FREQUENCY
T2FPI REPORT AUGUST 1973
T3FROM R.M. 6.76 TO R.M. 19.07 RUN BY AL
J1             5                                        -1          225.69
J2     4              -1
T1CARTERS CREEK                       100 YEAR FREQUENCY
T2FPI REPORT AUGUST 1973
T3FROM R.M. 6.76 TO R.M. 19.07 RUN BY AL
J1             6                                        -1          226.02
J2     5              -1
T1CARTERS CREEK                       500 YEAR FREQUENCY
T2FPI REPORT AUGUST 1973
T3FROM R.M. 6.76 TO R.M. 19.07 RUN BY AL
J1             7                                        -1          227.43
J2    15              -1
ER
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THIS RUN EXECUTED 14APR06 14:49:49

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HEC-2 WATER SURFACE PROFILES
Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CARTERS CREEK DUPLICATE

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	6.760	223.95	.00	224.00	3261.67	3888.89	1201.18	5199.93	.00	.00	2800.00	2900.00	.00
	6.760	224.94	.00	225.00	3789.00	6472.37	1692.52	9855.11	.00	.00	2800.00	2900.00	.00
	6.760	225.38	.00	225.45	3869.67	7850.98	1935.38	12553.63	.00	.00	2800.00	2900.00	.00
	6.760	225.69	.00	225.76	4004.45	8921.66	2119.21	14689.13	.00	.00	2800.00	2900.00	.00
	6.760	226.02	.00	226.10	4116.00	10124.40	2314.80	17090.80	.00	.00	2800.00	2900.00	.00
	6.760	227.43	.00	227.53	4392.22	16419.96	3258.86	29691.19	.00	.00	2800.00	2900.00	.00
*	6.770	222.98	.00	224.72	201.54	1048.18	4811.80	4130.02	.00	.00	2790.00	2892.00	.00
*	6.770	226.95	.00	227.55	3345.23	2499.04	5486.10	10034.86	.00	.00	2790.00	2892.00	.00
*	6.770	227.16	.00	227.65	3604.94	3527.75	4954.72	13857.53	.00	.00	2790.00	2892.00	.00
*	6.770	227.32	.00	227.82	3793.91	4011.56	5301.81	16416.63	.00	.00	2790.00	2892.00	.00
*	6.770	227.45	.00	227.99	3861.11	4921.43	5619.70	18988.86	.00	.00	2790.00	2892.00	.00
*	6.770	227.87	.00	228.72	4003.98	9806.61	7566.81	31996.58	.00	.00	2790.00	2892.00	.00
	6.775	224.28	.00	225.26	229.43	1069.40	4321.93	4898.68	.00	.00	2790.00	2892.00	.00
*	6.775	227.81	.00	227.93	3992.01	3522.58	2839.30	11658.12	.00	.00	2790.00	2892.00	.00
*	6.775	227.95	.00	228.10	4022.80	4543.23	3282.11	14514.66	.00	.00	2790.00	2892.00	.00
*	6.775	228.13	.00	228.30	4064.69	5479.57	3457.15	16793.28	.00	.00	2790.00	2892.00	.00
*	6.775	228.30	.00	228.48	4104.57	6526.28	3665.98	19337.74	.00	.00	2790.00	2892.00	.00
*	6.775	229.06	.00	229.33	4237.41	12186.49	4563.63	32619.87	.00	.00	2790.00	2892.00	.00
*	6.790	225.44	.00	225.46	3880.52	3606.48	882.56	5800.96	.00	.00	2800.00	2900.00	.00
*	6.790	227.98	.00	227.99	4452.71	5950.33	1129.02	10940.64	.00	.00	2800.00	2900.00	.00
*	6.790	228.17	.00	228.18	4473.20	7361.47	1377.18	13601.35	.00	.00	2800.00	2900.00	.00
*	6.790	228.36	.00	228.38	4495.14	8461.04	1560.00	15708.95	.00	.00	2800.00	2900.00	.00
*	6.790	228.56	.00	228.58	4516.77	9692.35	1762.52	18075.12	.00	.00	2800.00	2900.00	.00
*	6.790	229.44	.00	229.49	4612.76	16087.49	2763.48	30519.04	.00	.00	2800.00	2900.00	.00
	6.791	225.45	.00	225.46	3882.01	3605.17	881.36	5803.48	.00	.00	2800.00	2900.00	.00
	6.791	227.98	.00	227.99	4453.33	5949.94	1128.46	10941.60	.00	.00	2800.00	2900.00	.00
	6.791	228.17	.00	228.18	4474.25	7360.71	1376.06	13603.23	.00	.00	2800.00	2900.00	.00
	6.791	228.37	.00	228.39	4496.34	8460.13	1558.62	15711.26	.00	.00	2800.00	2900.00	.00
	6.791	228.56	.00	228.59	4518.14	9691.24	1760.80	18077.96	.00	.00	2800.00	2900.00	.00
	6.791	229.44	.00	229.49	4613.26	16086.88	2762.55	30520.56	.00	.00	2800.00	2900.00	.00

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	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	6.792	225.45	.00	225.46	3882.60	3604.65	880.89	5804.47	.00	.00	2800.00	2900.00	.00
	6.792	227.98	.00	227.99	4453.50	5949.84	1128.31	10941.86	.00	.00	2800.00	2900.00	.00
	6.792	228.17	.00	228.19	4474.48	7360.55	1375.81	13603.64	.00	.00	2800.00	2900.00	.00
	6.792	228.37	.00	228.39	4496.62	8459.92	1558.30	15711.78	.00	.00	2800.00	2900.00	.00
	6.792	228.57	.00	228.59	4518.46	9690.98	1760.41	18078.62	.00	.00	2800.00	2900.00	.00
	6.792	229.45	.00	229.50	4613.77	16086.27	2761.62	30522.11	.00	.00	2800.00	2900.00	.00
	6.793	225.45	.00	225.47	3883.19	3604.12	880.41	5805.47	.00	.00	2800.00	2900.00	.00
	6.793	227.98	.00	227.99	4453.67	5949.73	1128.15	10942.11	.00	.00	2800.00	2900.00	.00
	6.793	228.17	.00	228.19	4474.71	7360.39	1375.58	13604.04	.00	.00	2800.00	2900.00	.00
	6.793	228.37	.00	228.39	4496.88	8459.71	1557.99	15712.29	.00	.00	2800.00	2900.00	.00
	6.793	228.57	.00	228.59	4518.78	9690.72	1760.01	18079.27	.00	.00	2800.00	2900.00	.00
	6.793	229.46	.00	229.50	4614.28	16085.66	2760.67	30523.67	.00	.00	2800.00	2900.00	.00
*	7.375	226.89	.00	226.92	4248.50	3409.32	992.05	5888.63	.00	.00	3160.00	3280.00	.00
*	7.375	228.68	.00	228.69	4978.49	5460.91	1252.34	11306.76	.00	.00	3160.00	3280.00	.00
*	7.375	229.06	.00	229.08	5142.94	6695.63	1473.93	14170.44	.00	.00	3160.00	3280.00	.00
*	7.375	229.37	.00	229.40	5196.40	7652.58	1632.43	16444.99	.00	.00	3160.00	3280.00	.00
	7.375	229.70	.00	229.72	5239.48	8725.41	1805.08	18999.51	.00	.00	3160.00	3280.00	.00
	7.375	231.13	.00	231.17	5430.12	14297.49	2640.21	32432.30	.00	.00	3160.00	3280.00	.00
	7.376	226.90	.00	226.92	4255.17	3407.64	990.09	5892.26	.00	.00	3160.00	3280.00	.00
	7.376	228.68	.00	228.70	4979.34	5460.34	1251.73	11307.93	.00	.00	3160.00	3280.00	.00
	7.376	229.06	.00	229.09	5143.71	6694.87	1473.13	14172.00	.00	.00	3160.00	3280.00	.00
	7.376	229.38	.00	229.40	5197.02	7651.80	1631.52	16446.68	.00	.00	3160.00	3280.00	.00
	7.376	229.70	.00	229.73	5240.16	8724.58	1804.07	19001.35	.00	.00	3160.00	3280.00	.00
	7.376	231.13	.00	231.17	5430.92	14296.61	2638.97	32434.43	.00	.00	3160.00	3280.00	.00
*	7.960	231.34	.00	231.65	2299.91	86.19	3848.00	6355.80	.00	.00	3265.00	3327.00	.00
*	7.960	231.65	.00	232.26	2537.06	190.17	5847.26	11982.56	.00	.00	3265.00	3327.00	.00
*	7.960	232.31	.00	232.71	2972.23	402.52	5457.48	16480.01	.00	.00	3265.00	3327.00	.00
*	7.960	232.69	.00	233.03	3079.10	619.65	5402.06	19708.29	.00	.00	3265.00	3327.00	.00
*	7.960	233.08	.00	233.38	3131.94	877.41	5414.03	23238.56	.00	.00	3265.00	3327.00	.00
*	7.960	234.70	.00	234.96	3258.66	2335.97	5969.60	41064.43	.00	.00	3265.00	3327.00	.00

	7.961	231.41	.00	231.69	2354.48	91.70	3714.98	6483.32	.00	.00	3265.00	3327.00	.00
	7.961	231.94	.00	232.35	2785.24	236.26	5131.13	12652.61	.00	.00	3265.00	3327.00	.00
	7.961	232.42	.00	232.77	3021.12	445.88	5195.89	16698.23	.00	.00	3265.00	3327.00	.00
	7.961	232.78	.00	233.09	3091.95	653.64	5229.35	19847.01	.00	.00	3265.00	3327.00	.00
	7.961	233.14	.00	233.43	3136.87	902.35	5307.65	23320.00	.00	.00	3265.00	3327.00	.00
	7.961	234.74	.00	235.00	3262.06	2354.58	5916.45	41098.97	.00	.00	3265.00	3327.00	.00
	7.962	231.47	.00	231.73	2386.68	94.95	3639.26	6555.79	.00	.00	3265.00	3327.00	.00
	7.962	232.07	.00	232.42	2853.27	265.40	4847.08	12907.51	.00	.00	3265.00	3327.00	.00
	7.962	232.51	.00	232.82	3052.82	476.03	5024.15	16839.82	.00	.00	3265.00	3327.00	.00
	7.962	232.85	.00	233.14	3100.46	675.78	5120.10	19934.12	.00	.00	3265.00	3327.00	.00
	7.962	233.20	.00	233.48	3140.96	922.74	5222.21	23385.05	.00	.00	3265.00	3327.00	.00
	7.962	234.78	.00	235.04	3264.91	2370.02	5872.76	41127.23	.00	.00	3265.00	3327.00	.00

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	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	7.963	231.53	.00	231.77	2438.43	100.15	3521.81	6668.04	.00	.00	3265.00	3327.00	.00
	7.963	232.16	.00	232.47	2899.72	288.17	4665.83	13066.00	.00	.00	3265.00	3327.00	.00
	7.963	232.59	.00	232.87	3063.81	502.20	4879.85	16957.95	.00	.00	3265.00	3327.00	.00
	7.963	232.91	.00	233.18	3117.81	700.07	5003.13	20026.79	.00	.00	3265.00	3327.00	.00
	7.963	233.26	.00	233.52	3145.41	944.55	5132.32	23453.13	.00	.00	3265.00	3327.00	.00
	7.963	234.82	.00	235.07	3268.05	2386.91	5825.31	41157.77	.00	.00	3265.00	3327.00	.00
*	8.820	236.99	.00	237.02	2249.28	6187.58	1690.59	1.83	.00	.00	3668.00	3750.00	.00
*	8.820	238.33	.00	238.38	2345.87	11684.12	2160.38	55.50	.00	.00	3668.00	3750.00	.00
*	8.820	238.86	.00	238.91	2365.99	14671.19	2430.86	97.95	.00	.00	3668.00	3750.00	.00
*	8.820	239.24	.00	239.29	2380.40	17115.71	2647.48	136.82	.00	.00	3668.00	3750.00	.00
*	8.820	239.60	.00	239.66	2394.04	19566.60	2853.60	179.81	.00	.00	3668.00	3750.00	.00
*	8.820	241.27	.00	241.36	2474.73	33915.67	3983.12	481.20	.00	.00	3668.00	3750.00	.00
	9.580	239.90	.00	239.95	1949.61	2635.85	1053.73	4190.41	.00	.00	2143.00	2200.00	.00
	9.580	241.17	.00	241.23	2039.05	4802.08	1368.34	7729.58	.00	.00	2143.00	2200.00	.00
	9.580	241.75	.00	241.82	2072.52	6004.69	1526.46	9668.86	.00	.00	2143.00	2200.00	.00
	9.580	242.19	.00	242.27	2097.55	6992.98	1652.12	11254.90	.00	.00	2143.00	2200.00	.00
	9.580	242.60	.00	242.68	2120.71	7984.09	1775.88	12840.04	.00	.00	2143.00	2200.00	.00
	9.580	244.59	.00	244.70	2400.58	13791.61	2457.04	22131.35	.00	.00	2143.00	2200.00	.00
	10.110	243.09	.00	243.14	2048.34	6090.89	1224.96	564.15	.00	.00	3138.00	3189.00	.00
	10.110	244.28	.00	244.34	2200.88	11063.37	1534.18	1452.46	.00	.00	3138.00	3189.00	.00
	10.110	244.81	.00	244.88	2253.18	13657.83	1671.48	1960.70	.00	.00	3138.00	3189.00	.00
	10.110	245.21	.00	245.28	2290.44	15612.24	1765.05	2362.71	.00	.00	3138.00	3189.00	.00
	10.110	245.60	.00	245.68	2323.23	17739.85	1868.53	2811.62	.00	.00	3138.00	3189.00	.00
	10.110	247.53	.00	247.63	2468.63	30028.87	2411.00	5520.13	.00	.00	3138.00	3189.00	.00
	10.930	248.48	.00	248.54	1558.99	.00	1038.60	6761.40	.00	.00	2000.00	2050.00	.00
	10.930	249.76	.00	249.84	1645.27	9.11	1512.84	12278.05	.00	.00	2000.00	2050.00	.00
	10.930	250.30	.00	250.39	1671.22	29.10	1690.90	15179.99	.00	.00	2000.00	2050.00	.00
	10.930	250.68	.00	250.78	1689.21	50.07	1821.22	17378.71	.00	.00	2000.00	2050.00	.00
	10.930	251.06	.00	251.17	1707.83	78.33	1956.86	19764.80	.00	.00	2000.00	2050.00	.00
	10.930	252.98	.00	253.14	1801.03	336.68	2701.86	33791.47	.00	.00	2000.00	2050.00	.00
	11.450	252.08	.00	252.11	2143.56	918.79	2656.77	4224.44	.00	.00	2900.00	3347.00	.00
	11.450	253.33	.00	253.38	2247.42	1448.78	4332.36	8018.86	.00	.00	2900.00	3347.00	.00
	11.450	253.89	.00	253.94	2379.72	1723.30	5164.31	10012.39	.00	.00	2900.00	3347.00	.00
	11.450	254.27	.00	254.33	2403.61	1936.80	5778.80	11534.40	.00	.00	2900.00	3347.00	.00
	11.450	254.67	.00	254.72	2426.15	2173.49	6434.88	13191.63	.00	.00	2900.00	3347.00	.00
	11.450	256.64	.00	256.73	2539.41	3654.05	10163.85	23012.09	.00	.00	2900.00	3347.00	.00
	11.460	252.13	.00	252.16	2145.81	912.66	2645.58	4241.76	.00	.00	2900.00	3347.00	.00
	11.460	253.39	.00	253.43	2257.41	1444.06	4320.44	8035.51	.00	.00	2900.00	3347.00	.00
	11.460	253.94	.00	253.99	2383.85	1719.43	5150.80	10029.76	.00	.00	2900.00	3347.00	.00
	11.460	254.32	.00	254.38	2406.89	1933.74	5764.16	11552.11	.00	.00	2900.00	3347.00	.00
	11.460	254.72	.00	254.77	2429.49	2171.26	6419.56	13209.18	.00	.00	2900.00	3347.00	.00
	11.460	256.69	.00	256.77	2542.34	3655.65	10149.26	23025.09	.00	.00	2900.00	3347.00	.00

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	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	11.465	252.56	.00	252.58	2164.08	870.71	2564.61	4364.69	.00	.00	2900.00	3347.00	.00
*	11.465	253.73	.00	253.77	2346.41	1417.47	4249.35	8133.19	.00	.00	2900.00	3347.00	.00
*	11.465	254.24	.00	254.29	2401.72	1701.99	5080.83	10117.18	.00	.00	2900.00	3347.00	.00
*	11.465	254.61	.00	254.66	2422.76	1921.40	5696.13	11632.47	.00	.00	2900.00	3347.00	.00
*	11.465	254.98	.00	255.03	2444.13	2163.38	6354.97	13281.65	.00	.00	2900.00	3347.00	.00
*	11.465	256.81	.00	256.89	2549.09	3659.58	10116.16	23054.26	.00	.00	2900.00	3347.00	.00
	11.470	252.59	.00	252.62	2157.01	962.23	2694.64	4143.13	.00	.00	2900.00	3347.00	.00
	11.470	253.77	.00	253.81	2291.31	1557.83	4461.26	7780.91	.00	.00	2900.00	3347.00	.00
	11.470	254.28	.00	254.33	2392.81	1866.29	5336.75	9696.96	.00	.00	2900.00	3347.00	.00
	11.470	254.65	.00	254.70	2413.86	2104.53	5983.10	11162.36	.00	.00	2900.00	3347.00	.00

	11.470	255.02	.00	255.08	2435.24	2367.60	6674.87	12757.53	.00	.00	2900.00	3347.00	.00
	11.470	256.85	.00	256.94	2540.28	3997.03	10621.44	22211.53	.00	.00	2900.00	3347.00	.00
	11.880	254.35	.00	254.39	2070.98	6409.68	905.74	484.59	.00	.00	3400.00	3454.00	.00
	11.880	255.59	.00	255.64	2149.16	11358.42	1156.63	1284.95	.00	.00	3400.00	3454.00	.00
	11.880	256.12	.00	256.18	2177.27	13871.06	1277.62	1751.32	.00	.00	3400.00	3454.00	.00
	11.880	256.50	.00	256.56	2195.95	15762.96	1366.55	2120.48	.00	.00	3400.00	3454.00	.00
	11.880	256.88	.00	256.95	2215.00	17806.79	1461.03	2532.17	.00	.00	3400.00	3454.00	.00
	11.880	258.78	.00	258.88	2311.67	29720.36	1987.00	5122.64	.00	.00	3400.00	3454.00	.00
	12.240	256.90	.00	256.96	1824.45	6680.25	1118.78	.97	.00	.00	2800.00	2867.00	.00
	12.240	258.03	.00	258.11	1916.88	12278.53	1477.88	43.59	.00	.00	2800.00	2867.00	.00
	12.240	258.53	.00	258.62	1954.76	15152.39	1650.29	97.32	.00	.00	2800.00	2867.00	.00
	12.240	258.89	.00	258.98	2077.94	17314.44	1775.25	160.31	.00	.00	2800.00	2867.00	.00
	12.240	259.25	.00	259.35	2120.07	19626.80	1905.67	267.53	.00	.00	2800.00	2867.00	.00
	12.240	261.09	.00	261.23	2220.09	32809.11	2614.65	1406.24	.00	.00	2800.00	2867.00	.00
*	12.250	257.79	.00	258.78	769.40	3745.86	4054.14	.00	.00	.00	2819.00	2885.00	.00
*	12.250	258.24	.00	260.05	991.76	7621.05	6178.95	.00	.00	.00	2819.00	2885.00	.00
*	12.250	259.20	.00	259.85	1261.57	12930.63	3969.37	.00	.00	.00	2819.00	2885.00	.00
*	12.250	259.20	.00	260.04	1261.57	14728.68	4521.32	.00	.00	.00	2819.00	2885.00	.00
*	12.250	259.20	.00	260.28	1261.70	16681.06	5118.94	.00	.00	.00	2819.00	2885.00	.00
*	12.250	260.96	.00	261.69	1904.31	32526.82	3637.26	665.93	.00	.00	2819.00	2885.00	.00
*	12.255	258.82	.00	259.11	1165.99	4971.32	2828.68	.00	.00	.00	2819.00	2885.00	.00
*	12.255	257.40	.00	262.20	583.79	5760.89	8039.10	.00	.00	.00	2819.00	2885.00	.00
	12.255	259.73	.00	260.13	1481.92	13858.64	3023.47	17.88	.00	.00	2819.00	2885.00	.00
*	12.255	259.98	.00	260.40	1680.73	16148.77	3039.93	61.30	.00	.00	2819.00	2885.00	.00
*	12.255	260.32	.00	260.73	1751.84	18724.84	2909.29	165.87	.00	.00	2819.00	2885.00	.00
	12.255	261.38	.00	261.94	2021.42	32857.62	3034.30	938.08	.00	.00	2819.00	2885.00	.00
*	12.270	259.15	.00	259.17	2085.99	6974.26	755.51	70.22	.00	.00	2800.00	2867.00	.00
*	12.270	262.69	.00	262.70	2267.92	12057.59	969.08	773.34	.00	.00	2800.00	2867.00	.00
*	12.270	260.20	.00	260.25	2182.90	15074.53	1446.67	378.80	.00	.00	2800.00	2867.00	.00
*	12.270	260.47	.00	260.52	2192.16	17138.64	1603.51	507.85	.00	.00	2800.00	2867.00	.00
*	12.270	260.79	.00	260.85	2202.96	19361.84	1762.85	675.31	.00	.00	2800.00	2867.00	.00
*	12.270	261.99	.00	262.10	2244.19	32375.04	2705.95	1749.00	.00	.00	2800.00	2867.00	.00

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	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	12.271	259.16	.00	259.17	2087.09	6974.47	754.56	70.97	.00	.00	2800.00	2867.00	.00
	12.271	262.69	.00	262.70	2267.97	12057.44	968.99	773.57	.00	.00	2800.00	2867.00	.00
	12.271	260.21	.00	260.25	2183.13	15073.87	1445.66	380.47	.00	.00	2800.00	2867.00	.00
	12.271	260.48	.00	260.53	2192.42	17137.71	1602.35	509.95	.00	.00	2800.00	2867.00	.00
	12.271	260.80	.00	260.85	2203.23	19360.59	1761.57	677.84	.00	.00	2800.00	2867.00	.00
	12.271	262.00	.00	262.11	2244.61	32371.56	2703.64	1754.80	.00	.00	2800.00	2867.00	.00
	12.272	259.16	.00	259.17	2086.67	6974.39	754.93	70.68	.00	.00	2800.00	2867.00	.00
	12.272	262.69	.00	262.70	2268.01	12057.31	968.92	773.77	.00	.00	2800.00	2867.00	.00
	12.272	260.21	.00	260.26	2183.35	15073.23	1444.67	382.10	.00	.00	2800.00	2867.00	.00
	12.272	260.49	.00	260.54	2192.66	17136.79	1601.23	511.98	.00	.00	2800.00	2867.00	.00
	12.272	260.80	.00	260.86	2203.50	19359.39	1760.34	680.27	.00	.00	2800.00	2867.00	.00
	12.272	262.02	.00	262.13	2245.02	32368.21	2701.42	1760.38	.00	.00	2800.00	2867.00	.00
	12.273	259.16	.00	259.18	2087.00	6974.45	754.64	70.90	.00	.00	2800.00	2867.00	.00
	12.273	262.69	.00	262.70	2268.05	12057.18	968.85	773.97	.00	.00	2800.00	2867.00	.00
	12.273	260.22	.00	260.27	2183.58	15072.58	1443.67	383.75	.00	.00	2800.00	2867.00	.00
	12.273	260.49	.00	260.55	2192.91	17135.87	1600.08	514.05	.00	.00	2800.00	2867.00	.00
	12.273	260.81	.00	260.87	2203.76	19358.16	1759.09	682.74	.00	.00	2800.00	2867.00	.00
	12.273	262.03	.00	262.14	2245.43	32364.77	2699.15	1766.07	.00	.00	2800.00	2867.00	.00
	12.390	259.38	.00	259.42	2204.38	5979.03	1426.03	394.94	.00	.00	4300.00	4372.00	.00
	12.390	262.78	.00	262.79	2475.78	11006.39	1430.62	1363.00	.00	.00	4300.00	4372.00	.00
	12.390	260.68	.00	260.74	2349.01	13268.43	2350.31	1281.26	.00	.00	4300.00	4372.00	.00
	12.390	260.99	.00	261.05	2374.37	15164.71	2539.32	1545.97	.00	.00	4300.00	4372.00	.00
	12.390	261.33	.00	261.40	2402.44	17227.87	2724.44	1847.69	.00	.00	4300.00	4372.00	.00
	12.390	262.76	.00	262.88	2475.17	29372.46	3823.68	3633.86	.00	.00	4300.00	4372.00	.00
*	12.750	261.05	.00	261.20	2341.85	2984.41	3025.37	440.21	.00	.00	4536.00	4700.00	.00
*	12.750	263.27	.00	263.31	2772.03	7965.12	2421.38	653.50	.00	.00	4536.00	4700.00	.00
*	12.750	262.75	.00	262.83	2699.07	9315.33	3377.93	826.73	.00	.00	4536.00	4700.00	.00
*	12.750	263.09	.00	263.17	2745.76	11045.18	3555.54	929.28	.00	.00	4536.00	4700.00	.00
*	12.750	263.44	.00	263.52	2795.33	12930.93	3749.66	1039.41	.00	.00	4536.00	4700.00	.00
	12.750	265.05	.00	265.13	3195.81	22672.14	4819.13	1578.73	.00	.00	4536.00	4700.00	.00
	13.500	267.36	.00	267.40	1696.04	266.20	1059.65	3044.14	.00	.00	2975.00	3045.00	.00
*	13.500	266.94	.00	267.12	1545.93	399.39	2167.26	4983.35	.00	.00	2975.00	3045.00	.00
*	13.500	268.15	.00	268.23	1822.07	686.73	1759.58	6803.70	.00	.00	2975.00	3045.00	.00
*	13.500	268.36	.00	268.44	1841.93	819.88	1889.44	7790.68	.00	.00	2975.00	3045.00	.00
*	13.500	268.59	.00	268.68	1863.04	973.97	2026.27	8899.77	.00	.00	2975.00	3045.00	.00
*	13.500	269.64	.00	269.76	2027.59	1908.93	2698.73	15212.34	.00	.00	2975.00	3045.00	.00

	14.200	271.68	.00	271.80	1226.59	1391.64	1959.07	519.29	.00	.00	3494.00	3550.00	.00
*	14.200	273.30	.00	273.35	1425.59	2564.44	1773.57	1391.99	.00	.00	3494.00	3550.00	.00
	14.200	273.31	.00	273.39	1427.47	3181.06	2188.37	1730.57	.00	.00	3494.00	3550.00	.00
	14.200	273.64	.00	273.73	1466.54	3735.05	2313.96	2120.99	.00	.00	3494.00	3550.00	.00
	14.200	273.99	.00	274.07	1505.54	4358.75	2447.77	2573.47	.00	.00	3494.00	3550.00	.00
	14.200	275.44	.00	275.53	1646.76	7521.38	3022.34	5006.28	.00	.00	3494.00	3550.00	.00

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	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	14.810	275.41	.00	275.44	938.00	57.11	885.29	1657.60	.00	.00	1557.00	1630.00	.00
*	14.810	276.18	.00	276.23	990.83	160.35	1331.83	3217.82	.00	.00	1557.00	1630.00	.00
	14.810	276.80	.00	276.85	1065.45	247.77	1463.15	4139.07	.00	.00	1557.00	1630.00	.00
	14.810	277.17	.00	277.22	1113.91	313.67	1589.15	4847.18	.00	.00	1557.00	1630.00	.00
	14.810	277.52	.00	277.58	1162.71	384.14	1703.89	5561.97	.00	.00	1557.00	1630.00	.00
	14.810	279.06	.00	279.13	1510.96	827.57	2308.39	9664.04	.00	.00	1557.00	1630.00	.00
	15.690	279.13	.00	279.17	961.93	1024.81	933.92	641.27	.00	.00	2018.00	2088.00	.00
	15.690	280.44	.00	280.48	1065.19	2058.25	1215.28	1436.47	.00	.00	2018.00	2088.00	.00
	15.690	280.91	.00	280.95	1102.16	2612.41	1380.77	1856.82	.00	.00	2018.00	2088.00	.00
	15.690	281.28	.00	281.33	1129.99	3056.63	1495.50	2197.87	.00	.00	2018.00	2088.00	.00
	15.690	281.62	.00	281.67	1153.54	3504.80	1606.95	2538.26	.00	.00	2018.00	2088.00	.00
	15.690	283.23	.00	283.30	1248.33	6134.05	2184.27	4481.68	.00	.00	2018.00	2088.00	.00
*	15.700	279.05	.00	279.46	115.19	.00	2600.00	.00	.00	.00	1949.00	2099.00	.00
*	15.700	280.14	.00	280.99	119.83	.00	4710.00	.00	.00	.00	1949.00	2099.00	.00
*	15.700	280.47	.00	281.63	121.22	.00	5850.00	.00	.00	.00	1949.00	2099.00	.00
*	15.700	280.72	.00	282.14	122.40	.00	6750.00	.00	.00	.00	1949.00	2099.00	.00
*	15.700	280.92	.00	282.62	123.51	.00	7650.00	.00	.00	.00	1949.00	2099.00	.00
*	15.700	281.87	.00	285.39	128.63	.00	12800.00	.00	.00	.00	1949.00	2099.00	.00
	15.705	279.22	.00	279.60	115.94	.00	2600.00	.00	.00	.00	1949.00	2099.00	.00
	15.705	280.51	.00	281.25	121.39	.00	4710.00	.00	.00	.00	1949.00	2099.00	.00
	15.705	281.01	.00	281.98	124.00	.00	5850.00	.00	.00	.00	1949.00	2099.00	.00
	15.705	281.44	.00	282.56	126.30	.00	6750.00	.00	.00	.00	1949.00	2099.00	.00
	15.705	281.86	.00	283.12	128.57	.00	7650.00	.00	.00	.00	1949.00	2099.00	.00
*	15.705	286.43	.00	286.53	1495.09	4464.24	3605.38	4730.38	.00	.00	1949.00	2099.00	.00
*	15.710	279.69	.00	279.71	990.42	1064.01	841.23	694.76	.00	.00	2018.00	2088.00	.00
*	15.710	281.37	.00	281.39	1121.81	2124.49	1062.85	1522.66	.00	.00	2018.00	2088.00	.00
*	15.710	282.11	.00	282.14	1170.71	2708.24	1176.07	1965.69	.00	.00	2018.00	2088.00	.00
*	15.710	282.70	.00	282.73	1205.37	3180.21	1253.47	2316.31	.00	.00	2018.00	2088.00	.00
*	15.710	283.28	.00	283.30	1239.12	3654.01	1327.84	2668.15	.00	.00	2018.00	2088.00	.00
*	15.710	286.54	.00	286.56	1367.54	6393.54	1693.24	4713.21	.00	.00	2018.00	2088.00	.00
	16.310	281.94	.00	281.96	1417.32	1042.68	647.03	910.29	.00	.00	2465.00	2511.00	.00
	16.310	283.07	.00	283.10	1732.31	1823.87	782.99	2103.14	.00	.00	2465.00	2511.00	.00
	16.310	283.63	.00	283.65	1794.15	2201.44	829.36	2819.20	.00	.00	2465.00	2511.00	.00
	16.310	284.07	.00	284.09	1836.55	2488.12	858.37	3403.52	.00	.00	2465.00	2511.00	.00
	16.310	284.51	.00	284.54	1879.19	2768.36	883.47	3998.17	.00	.00	2465.00	2511.00	.00
	16.310	287.23	.00	287.25	2063.40	4335.43	981.61	7482.95	.00	.00	2465.00	2511.00	.00
	16.960	285.07	.00	285.09	1259.41	2265.71	334.29	.00	.00	.00	2945.00	3034.00	.00
	16.960	285.91	.00	285.94	1370.30	4244.87	465.13	.00	.00	.00	2945.00	3034.00	.00
*	16.960	286.27	.00	286.30	1403.54	5314.97	535.03	.00	.00	.00	2945.00	3034.00	.00
*	16.960	286.53	.00	286.57	1427.01	6160.76	589.24	.00	.00	.00	2945.00	3034.00	.00
*	16.960	286.80	.00	286.84	1440.30	7006.69	643.31	.00	.00	.00	2945.00	3034.00	.00
*	16.960	288.51	.00	288.56	1803.30	11656.77	1008.15	135.09	.00	.00	2945.00	3034.00	.00

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	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	17.290	287.77	.00	287.83	658.47	1084.07	625.09	890.84	.00	.00	1760.00	1837.00	.00
*	17.290	288.68	.00	288.78	718.27	1923.98	992.54	1793.48	.00	.00	1760.00	1837.00	.00
*	17.290	289.09	.00	289.19	744.30	2379.44	1179.98	2290.57	.00	.00	1760.00	1837.00	.00
*	17.290	289.37	.00	289.49	760.91	2734.74	1322.62	2692.64	.00	.00	1760.00	1837.00	.00
*	17.290	289.63	.00	289.76	777.11	3090.17	1460.45	3099.38	.00	.00	1760.00	1837.00	.00
*	17.290	290.81	.00	291.01	846.45	5141.25	2229.11	5429.64	.00	.00	1760.00	1837.00	.00
	17.950	294.17	.00	294.22	675.68	27.31	718.46	1854.22	.00	.00	1900.00	1943.00	.00
	17.950	295.36	.00	295.43	806.39	89.17	992.04	3628.79	.00	.00	1900.00	1943.00	.00
	17.950	295.87	.00	295.95	848.75	135.39	1118.73	4595.88	.00	.00	1900.00	1943.00	.00
	17.950	296.24	.00	296.32	889.68	177.39	1212.10	5360.51	.00	.00	1900.00	1943.00	.00
	17.950	296.57	.00	296.66	921.95	223.15	1302.54	6124.31	.00	.00	1900.00	1943.00	.00
*	17.950	298.18	.00	298.29	1125.64	585.32	1742.72	10471.96	.00	.00	1900.00	1943.00	.00
*	18.510	298.24	.00	298.29	475.09	667.21	552.07	60.72	.00	.00	2276.00	2325.00	.00
*	18.510	299.26	.00	299.30	795.52	1239.17	687.38	183.45	.00	.00	2276.00	2325.00	.00
*	18.510	299.57	.00	299.61	827.14	1354.02	669.76	216.21	.00	.00	2276.00	2325.00	.00
*	18.510	299.99	.00	300.03	869.10	1804.80	778.20	317.00	.00	.00	2276.00	2325.00	.00

*	18.510	300.26	.00	300.30	895.73	2019.23	804.60	376.16	.00	.00	2276.00	2325.00	.00
*	18.510	301.65	.00	301.69	1031.13	3465.64	1004.06	800.29	.00	.00	2276.00	2325.00	.00
	18.511	298.26	.00	298.31	479.17	668.38	550.13	61.49	.00	.00	2276.00	2325.00	.00
	18.511	299.27	.00	299.31	796.88	1240.85	684.79	184.36	.00	.00	2276.00	2325.00	.00
	18.511	299.58	.00	299.62	828.38	1355.40	667.58	217.02	.00	.00	2276.00	2325.00	.00
	18.511	300.00	.00	300.04	870.31	1806.04	775.83	318.13	.00	.00	2276.00	2325.00	.00
	18.511	300.27	.00	300.31	896.85	2020.28	802.49	377.22	.00	.00	2276.00	2325.00	.00
	18.511	301.66	.00	301.70	1031.52	3465.88	1003.39	800.73	.00	.00	2276.00	2325.00	.00
	18.512	298.27	.00	298.32	483.36	669.57	548.15	62.29	.00	.00	2276.00	2325.00	.00
	18.512	299.28	.00	299.33	797.85	1242.05	682.95	185.00	.00	.00	2276.00	2325.00	.00
	18.512	299.59	.00	299.63	828.98	1356.06	666.53	217.41	.00	.00	2276.00	2325.00	.00
	18.512	300.01	.00	300.05	871.00	1806.74	774.48	318.77	.00	.00	2276.00	2325.00	.00
	18.512	300.28	.00	300.32	897.43	2020.83	801.39	377.78	.00	.00	2276.00	2325.00	.00
	18.512	301.67	.00	301.71	1031.86	3466.09	1002.78	801.12	.00	.00	2276.00	2325.00	.00
	18.513	298.29	.00	298.33	487.66	670.78	546.12	63.10	.00	.00	2276.00	2325.00	.00
	18.513	299.30	.00	299.34	799.00	1243.47	680.76	185.77	.00	.00	2276.00	2325.00	.00
	18.513	299.60	.00	299.63	829.89	1357.07	664.93	218.00	.00	.00	2276.00	2325.00	.00
	18.513	300.02	.00	300.06	871.96	1807.72	772.62	319.66	.00	.00	2276.00	2325.00	.00
	18.513	300.29	.00	300.33	898.33	2021.67	799.70	378.63	.00	.00	2276.00	2325.00	.00
	18.513	301.68	.00	301.72	1032.60	3466.55	1001.47	801.98	.00	.00	2276.00	2325.00	.00
*	19.050	303.22	.00	303.27	600.15	2.21	477.87	799.93	.00	.00	2000.00	2056.00	.00
*	19.050	303.80	.00	303.87	689.25	51.83	657.96	1400.21	.00	.00	2000.00	2056.00	.00
*	19.050	303.74	.00	303.83	680.73	49.89	709.36	1480.75	.00	.00	2000.00	2056.00	.00
*	19.050	304.21	.00	304.29	749.78	122.28	804.93	1972.79	.00	.00	2000.00	2056.00	.00
*	19.050	304.34	.00	304.42	762.53	150.97	858.79	2190.24	.00	.00	2000.00	2056.00	.00
*	19.050	305.24	.00	305.34	853.00	407.53	1151.91	3710.56	.00	.00	2000.00	2056.00	.00

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	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
*	19.060	303.30	.00	303.35	607.78	6.14	442.65	831.21	.00	.00	2000.00	2056.00	.00
*	19.060	303.90	.00	303.95	706.38	69.69	602.49	1437.83	.00	.00	2000.00	2056.00	.00
*	19.060	303.86	.00	303.93	700.86	70.27	646.11	1523.62	.00	.00	2000.00	2056.00	.00
*	19.060	304.32	.00	304.38	760.94	152.29	734.47	2013.24	.00	.00	2000.00	2056.00	.00
*	19.060	304.45	.00	304.52	774.38	186.22	782.13	2231.66	.00	.00	2000.00	2056.00	.00
*	19.060	305.35	.00	305.44	864.57	475.08	1050.07	3744.85	.00	.00	2000.00	2056.00	.00
*	19.065	303.99	.00	304.01	721.92	48.18	355.38	876.44	.00	.00	2000.00	2056.00	.00
*	19.065	304.53	.00	304.56	782.13	129.45	505.58	1474.97	.00	.00	2000.00	2056.00	.00
*	19.065	304.57	.00	304.60	785.85	140.75	531.73	1567.52	.00	.00	2000.00	2056.00	.00
	19.065	304.87	.00	304.91	816.01	215.15	640.54	2044.31	.00	.00	2000.00	2056.00	.00
	19.065	304.98	.00	305.02	827.34	250.11	689.07	2260.82	.00	.00	2000.00	2056.00	.00
*	19.065	305.63	.00	305.70	892.66	517.85	995.60	3756.54	.00	.00	2000.00	2056.00	.00
	19.070	304.01	.00	304.03	724.15	47.96	374.01	858.03	.00	.00	2000.00	2056.00	.00
	19.070	304.56	.00	304.59	785.04	129.44	531.92	1448.64	.00	.00	2000.00	2056.00	.00
	19.070	304.59	.00	304.63	789.11	140.97	559.10	1539.93	.00	.00	2000.00	2056.00	.00
	19.070	304.90	.00	304.94	819.93	215.41	673.87	2010.73	.00	.00	2000.00	2056.00	.00
	19.070	305.01	.00	305.06	831.44	250.29	725.18	2224.53	.00	.00	2000.00	2056.00	.00
	19.070	305.67	.00	305.75	897.37	516.92	1050.37	3702.71	.00	.00	2000.00	2056.00	.00

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CARTERS CREEK DUPLICATE

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	6.760	.00	.00	.00	214.90	10290.00	223.95	.00	224.00	17.37	3.02	6254.21	2468.78
	6.760	.00	.00	.00	214.90	18020.00	224.94	.00	225.00	16.45	3.40	9785.04	4442.58
	6.760	.00	.00	.00	214.90	22340.00	225.38	.00	225.45	16.22	3.58	11469.96	5547.73
	6.760	.00	.00	.00	214.90	25730.00	225.69	.00	225.76	16.15	3.70	12685.76	6403.04
	6.760	.00	.00	.00	214.90	29530.00	226.02	.00	226.10	15.98	3.83	14030.28	7386.86
	6.760	.00	.00	.00	214.90	49370.00	227.43	.00	227.53	15.76	4.37	20074.06	12436.96
*	6.770	50.00	225.60	225.80	212.10	10290.00	222.98	.00	224.72	218.70	13.32	1100.49	695.82
*	6.770	50.00	225.60	225.80	212.10	18020.00	226.95	226.95	227.55	254.04	9.46	3732.41	1130.60
*	6.770	50.00	225.60	225.80	212.10	22340.00	227.16	227.16	227.65	322.85	8.30	4439.44	1243.32
*	6.770	50.00	225.60	225.80	212.10	25730.00	227.32	227.32	227.82	338.89	8.66	5002.53	1397.69
*	6.770	50.00	225.60	225.80	212.10	29530.00	227.45	227.45	227.99	352.92	8.97	5525.83	1571.91
*	6.770	50.00	225.60	225.80	212.10	49370.00	227.87	227.87	228.72	515.49	11.32	7137.44	2174.46
	6.775	27.00	225.60	225.80	212.10	10290.00	224.28	.00	225.26	140.22	9.66	1376.32	868.99
*	6.775	27.00	225.60	225.80	212.10	18020.00	227.81	.00	227.93	74.50	4.28	6933.32	2087.78
*	6.775	27.00	225.60	225.80	212.10	22340.00	227.95	.00	228.10	93.13	4.85	7459.56	2314.95
*	6.775	27.00	225.60	225.80	212.10	25730.00	228.13	.00	228.30	94.57	4.97	8182.04	2645.87

*	6.775	27.00	225.60	225.80	212.10	29530.00	228.30	.00	228.48	97.94	5.15	8876.92	2983.82
*	6.775	27.00	225.60	225.80	212.10	49370.00	229.06	.00	229.33	107.54	5.78	12053.29	4760.71
*	6.790	100.00	.00	.00	214.90	10290.00	225.44	.00	225.46	3.25	1.61	11699.44	5706.25
*	6.790	100.00	.00	.00	214.90	18020.00	227.98	.00	227.99	1.50	1.41	22481.73	14734.82
*	6.790	100.00	.00	.00	214.90	22340.00	228.17	.00	228.18	2.06	1.68	23304.78	15555.04
*	6.790	100.00	.00	.00	214.90	25730.00	228.36	.00	228.38	2.44	1.86	24190.17	16456.39
*	6.790	100.00	.00	.00	214.90	29530.00	228.56	.00	228.58	2.89	2.05	25067.15	17368.12
*	6.790	100.00	.00	.00	214.90	49370.00	229.44	.00	229.49	5.12	2.92	29125.81	21825.80
	6.791	10.00	.00	.00	214.90	10290.00	225.45	.00	225.46	3.23	1.61	11730.89	5728.12
	6.791	10.00	.00	.00	214.90	18020.00	227.98	.00	227.99	1.49	1.41	22506.66	14759.41
	6.791	10.00	.00	.00	214.90	22340.00	228.17	.00	228.18	2.05	1.68	23347.03	15597.62
	6.791	10.00	.00	.00	214.90	25730.00	228.37	.00	228.39	2.43	1.86	24238.81	16506.46
	6.791	10.00	.00	.00	214.90	29530.00	228.56	.00	228.59	2.87	2.05	25123.12	17426.94
	6.791	10.00	.00	.00	214.90	49370.00	229.44	.00	229.49	5.10	2.92	29149.04	21852.45
	6.792	10.00	.00	.00	214.90	10290.00	225.45	.00	225.46	3.22	1.61	11743.33	5736.78
	6.792	10.00	.00	.00	214.90	18020.00	227.98	.00	227.99	1.49	1.41	22513.32	14765.99
	6.792	10.00	.00	.00	214.90	22340.00	228.17	.00	228.19	2.05	1.68	23356.25	15606.91
	6.792	10.00	.00	.00	214.90	25730.00	228.37	.00	228.39	2.43	1.85	24249.79	16517.78
	6.792	10.00	.00	.00	214.90	29530.00	228.57	.00	228.59	2.87	2.05	25136.08	17440.57
	6.792	10.00	.00	.00	214.90	49370.00	229.45	.00	229.50	5.09	2.91	29172.55	21879.44

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SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
6.793	10.00	.00	.00	214.90	10290.00	225.45	.00	225.47	3.21	1.61	11755.89	5745.53
6.793	10.00	.00	.00	214.90	18020.00	227.98	.00	227.99	1.49	1.41	22519.98	14772.56
6.793	10.00	.00	.00	214.90	22340.00	228.17	.00	228.19	2.05	1.68	23365.33	15616.07
6.793	10.00	.00	.00	214.90	25730.00	228.37	.00	228.39	2.42	1.85	24260.69	16529.02
6.793	10.00	.00	.00	214.90	29530.00	228.57	.00	228.59	2.86	2.05	25149.11	17454.28
6.793	10.00	.00	.00	214.90	49370.00	229.46	.00	229.50	5.08	2.91	29196.42	21906.85
* 7.375	3089.00	.00	.00	217.40	10290.00	226.89	.00	226.92	8.20	1.87	9310.72	3593.58
* 7.375	3089.00	.00	.00	217.40	18020.00	228.68	.00	228.69	4.22	1.68	17608.44	8769.19
* 7.375	3089.00	.00	.00	217.40	22340.00	229.06	.00	229.08	4.79	1.86	19548.58	10206.34
* 7.375	3089.00	.00	.00	217.40	25730.00	229.37	.00	229.40	5.03	1.97	21173.91	11470.80
7.375	3089.00	.00	.00	217.40	29530.00	229.70	.00	229.72	5.28	2.08	22859.86	12848.76
7.375	3089.00	.00	.00	217.40	49370.00	231.13	.00	231.17	6.19	2.54	30487.61	19841.60
7.376	10.00	.00	.00	217.40	10290.00	226.90	.00	226.92	8.11	1.86	9347.44	3612.40
7.376	10.00	.00	.00	217.40	18020.00	228.68	.00	228.70	4.21	1.68	17625.38	8781.42
7.376	10.00	.00	.00	217.40	22340.00	229.06	.00	229.09	4.78	1.86	19570.32	10222.84
7.376	10.00	.00	.00	217.40	25730.00	229.38	.00	229.40	5.01	1.97	21198.10	11490.10
7.376	10.00	.00	.00	217.40	29530.00	229.70	.00	229.73	5.26	2.08	22886.40	12870.98
7.376	10.00	.00	.00	217.40	49370.00	231.13	.00	231.17	6.17	2.54	30519.93	19873.66
* 7.960	3089.00	.00	.00	216.80	10290.00	231.34	230.81	231.65	40.06	6.91	3870.19	1625.86
* 7.960	3089.00	.00	.00	216.80	18020.00	231.65	231.44	232.26	85.12	10.17	4614.57	1953.11
* 7.960	3089.00	.00	.00	216.80	22340.00	232.31	231.69	232.71	61.62	8.88	6446.01	2845.96
* 7.960	3089.00	.00	.00	216.80	25730.00	232.69	231.89	233.03	54.18	8.47	7625.73	3495.52
* 7.960	3089.00	.00	.00	216.80	29530.00	233.08	.00	233.38	48.53	8.17	8843.79	4239.07
* 7.960	3089.00	.00	.00	216.80	49370.00	234.70	.00	234.96	36.89	7.83	14006.25	8127.94
7.961	10.00	.00	.00	216.80	10290.00	231.41	.00	231.69	36.58	6.62	4045.75	1701.34
7.961	10.00	.00	.00	216.80	18020.00	231.94	.00	232.35	60.41	8.66	5401.27	2318.37
7.961	10.00	.00	.00	216.80	22340.00	232.42	.00	232.77	53.97	8.36	6812.55	3041.06
7.961	10.00	.00	.00	216.80	25730.00	232.78	.00	233.09	49.56	8.13	7897.86	3654.93
7.961	10.00	.00	.00	216.80	29530.00	233.14	.00	233.43	45.74	7.97	9040.79	4366.51
7.961	10.00	.00	.00	216.80	49370.00	234.74	.00	235.00	35.82	7.73	14147.74	8249.24
7.962	10.00	.00	.00	216.80	10290.00	231.47	.00	231.73	34.69	6.45	4151.30	1747.20
7.962	10.00	.00	.00	216.80	18020.00	232.07	.00	232.42	51.91	8.07	5772.86	2501.20
7.962	10.00	.00	.00	216.80	22340.00	232.51	.00	232.82	49.26	8.01	7072.99	3182.86
7.962	10.00	.00	.00	216.80	25730.00	232.85	.00	233.14	46.76	7.91	8078.75	3762.83
7.962	10.00	.00	.00	216.80	29530.00	233.20	.00	233.48	43.57	7.80	9204.73	4473.97
7.962	10.00	.00	.00	216.80	49370.00	234.78	.00	235.04	34.95	7.65	14266.26	8351.41
7.963	10.00	.00	.00	216.80	10290.00	231.53	.00	231.77	31.86	6.20	4323.88	1822.92
7.963	10.00	.00	.00	216.80	18020.00	232.16	.00	232.47	46.87	7.70	6031.92	2631.99
7.963	10.00	.00	.00	216.80	22340.00	232.59	.00	232.87	45.51	7.72	7303.61	3311.46
7.963	10.00	.00	.00	216.80	25730.00	232.91	.00	233.18	43.86	7.68	8280.95	3885.25
7.963	10.00	.00	.00	216.80	29530.00	233.26	.00	233.52	41.35	7.63	9383.05	4592.25
7.963	10.00	.00	.00	216.80	49370.00	234.82	.00	235.07	34.02	7.57	14397.30	8464.95

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SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
* 8.820	4541.00	.00	.00	223.90	7880.00	236.99	.00	237.02	6.63	2.49	6462.22	3060.55
* 8.820	4541.00	.00	.00	223.90	13900.00	238.33	.00	238.38	6.66	2.74	9571.96	5386.46

*	8.820	4541.00	.00	.00	223.90	17200.00	238.86	.00	238.91	7.05	2.92	10816.44	6476.01
*	8.820	4541.00	.00	.00	223.90	19900.00	239.24	.00	239.29	7.41	3.07	11713.88	7312.40
*	8.820	4541.00	.00	.00	223.90	22600.00	239.60	.00	239.66	7.70	3.20	12568.73	8146.75
*	8.820	4541.00	.00	.00	223.90	38380.00	241.27	.00	241.36	9.30	3.87	16640.11	12586.67
	9.580	4013.00	.00	.00	229.60	7880.00	239.90	.00	239.95	13.13	3.03	4967.37	2174.30
	9.580	4013.00	.00	.00	229.60	13900.00	241.17	.00	241.23	12.66	3.26	7496.91	3906.46
	9.580	4013.00	.00	.00	229.60	17200.00	241.75	.00	241.82	12.40	3.37	8708.56	4883.78
	9.580	4013.00	.00	.00	229.60	19900.00	242.19	.00	242.27	12.27	3.45	9627.57	5681.05
	9.580	4013.00	.00	.00	229.60	22600.00	242.60	.00	242.68	12.21	3.54	10487.82	6468.31
	9.580	4013.00	.00	.00	229.60	38380.00	244.59	.00	244.70	12.22	4.00	14895.41	10978.62
	10.110	2798.00	.00	.00	229.60	7880.00	243.09	.00	243.14	11.90	2.89	5171.06	2284.18
	10.110	2798.00	.00	.00	229.60	14050.00	244.28	.00	244.34	11.91	3.16	7726.15	4071.37
	10.110	2798.00	.00	.00	229.60	17290.00	244.81	.00	244.88	11.76	3.26	8927.33	5041.72
	10.110	2798.00	.00	.00	229.60	19740.00	245.21	.00	245.28	11.54	3.32	9817.81	5810.02
	10.110	2798.00	.00	.00	229.60	22420.00	245.60	.00	245.68	11.46	3.38	10711.66	6623.70
	10.110	2798.00	.00	.00	229.60	37960.00	247.53	.00	247.63	11.04	3.71	15342.75	11425.22
	10.930	4330.00	.00	.00	236.00	7800.00	248.48	.00	248.54	15.97	3.18	4375.40	1952.11
	10.930	4330.00	.00	.00	236.00	13800.00	249.76	.00	249.84	16.72	3.88	6421.09	3375.21
	10.930	4330.00	.00	.00	236.00	16900.00	250.30	.00	250.39	17.14	4.06	7319.09	4081.98
	10.930	4330.00	.00	.00	236.00	19250.00	250.68	.00	250.78	17.44	4.18	7949.81	4609.77
	10.930	4330.00	.00	.00	236.00	21800.00	251.06	.00	251.17	17.65	4.30	8610.00	5188.33
	10.930	4330.00	.00	.00	236.00	36830.00	252.98	.00	253.14	18.67	4.90	11984.36	8522.86
	11.450	2700.00	.00	.00	238.90	7800.00	252.08	.00	252.11	11.06	1.72	5833.25	2345.05
	11.450	2700.00	.00	.00	238.90	13800.00	253.33	.00	253.38	10.47	2.06	8565.35	4264.20
	11.450	2700.00	.00	.00	238.90	16900.00	253.89	.00	253.94	10.30	2.20	9837.27	5266.66
	11.450	2700.00	.00	.00	238.90	19250.00	254.27	.00	254.33	10.19	2.29	10757.06	6030.11
	11.450	2700.00	.00	.00	238.90	21800.00	254.67	.00	254.72	10.10	2.38	11705.57	6860.37
	11.450	2700.00	.00	.00	238.90	36830.00	256.64	.00	256.73	9.81	2.84	16605.41	11757.83
	11.460	50.00	.00	.00	238.90	7800.00	252.13	.00	252.16	10.44	1.69	5943.89	2413.88
	11.460	50.00	.00	.00	238.90	13800.00	253.39	.00	253.43	10.03	2.03	8685.23	4356.81
	11.460	50.00	.00	.00	238.90	16900.00	253.94	.00	253.99	9.89	2.17	9969.74	5373.87
	11.460	50.00	.00	.00	238.90	19250.00	254.32	.00	254.38	9.80	2.26	10894.40	6147.71
	11.460	50.00	.00	.00	238.90	21800.00	254.72	.00	254.77	9.73	2.36	11846.97	6987.70
	11.460	50.00	.00	.00	238.90	36830.00	256.69	.00	256.77	9.58	2.82	16734.98	11899.94
	11.465	25.00	250.90	254.00	238.90	7800.00	252.56	.00	252.58	6.73	1.46	6848.47	3006.57
*	11.465	25.00	250.90	254.00	238.90	13800.00	253.73	.00	253.77	7.73	1.86	9456.60	4963.17
*	11.465	25.00	250.90	254.00	238.90	16900.00	254.24	.00	254.29	8.03	2.03	10677.98	5962.80
*	11.465	25.00	250.90	254.00	238.90	19250.00	254.61	.00	254.66	8.18	2.13	11582.11	6732.12
*	11.465	25.00	250.90	254.00	238.90	21800.00	254.98	.00	255.03	8.32	2.24	12468.60	7557.97
*	11.465	25.00	250.90	254.00	238.90	36830.00	256.81	.00	256.89	9.07	2.77	17034.24	12230.46

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	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	11.470	50.00	.00	.00	239.10	7800.00	252.59	.00	252.62	7.29	1.60	6497.83	2889.30
	11.470	50.00	.00	.00	239.10	13800.00	253.77	.00	253.81	8.05	2.02	9096.12	4863.54
	11.470	50.00	.00	.00	239.10	16900.00	254.28	.00	254.33	8.29	2.19	10305.93	5869.03
	11.470	50.00	.00	.00	239.10	19250.00	254.65	.00	254.70	8.39	2.30	11187.12	6645.73
	11.470	50.00	.00	.00	239.10	21800.00	255.02	.00	255.08	8.49	2.41	12090.71	7481.04
	11.470	50.00	.00	.00	239.10	36830.00	256.85	.00	256.94	9.07	2.96	16643.89	12227.34
	11.880	2165.00	.00	.00	242.30	7800.00	254.35	.00	254.39	10.48	2.59	5451.40	2409.23
	11.880	2165.00	.00	.00	242.30	13800.00	255.59	.00	255.64	10.12	2.78	8069.89	4338.71
	11.880	2165.00	.00	.00	242.30	16900.00	256.12	.00	256.18	10.05	2.87	9227.86	5331.42
	11.880	2165.00	.00	.00	242.30	19250.00	256.50	.00	256.56	10.02	2.94	10047.97	6082.15
	11.880	2165.00	.00	.00	242.30	21800.00	256.88	.00	256.95	10.00	3.01	10891.71	6893.18
	11.880	2165.00	.00	.00	242.30	36830.00	258.78	.00	258.88	10.10	3.37	15196.23	11591.10
	12.240	1900.00	.00	.00	247.70	7800.00	256.90	.00	256.96	20.04	3.39	4370.33	1742.52
	12.240	1900.00	.00	.00	247.70	13800.00	258.03	.00	258.11	19.06	3.64	6498.58	3161.23
	12.240	1900.00	.00	.00	247.70	16900.00	258.53	.00	258.62	18.75	3.76	7460.47	3903.27
	12.240	1900.00	.00	.00	247.70	19250.00	258.89	.00	258.98	18.48	3.83	8170.20	4477.45
	12.240	1900.00	.00	.00	247.70	21800.00	259.25	.00	259.35	18.20	3.91	8933.11	5109.72
	12.240	1900.00	.00	.00	247.70	36830.00	261.09	.00	261.23	16.95	4.28	12954.25	8945.37
*	12.250	50.00	262.40	259.20	247.60	7800.00	257.79	257.79	258.78	91.71	10.17	1229.02	814.51
*	12.250	50.00	262.40	259.20	247.60	13800.00	258.24	.00	260.05	173.14	14.47	1607.26	1048.78
*	12.250	50.00	262.40	259.20	247.60	16900.00	259.20	259.20	259.85	113.34	8.10	2694.17	1587.41
*	12.250	50.00	262.40	259.20	247.60	19250.00	259.20	259.20	260.04	147.06	9.22	2694.17	1587.41
*	12.250	50.00	262.40	259.20	247.60	21800.00	259.20	259.20	260.28	188.50	10.44	2694.76	1587.82
*	12.250	50.00	262.40	259.20	247.60	36830.00	260.96	.00	261.69	95.17	7.42	5454.76	3775.29
*	12.255	25.00	262.40	259.20	247.60	7800.00	258.82	.00	259.11	28.97	6.08	2233.52	1449.23
*	12.255	25.00	262.40	259.20	247.60	13800.00	257.40	.00	262.20	434.98	21.47	959.50	661.68
	12.255	25.00	262.40	259.20	247.60	16900.00	259.73	.00	260.13	65.76	6.17	3384.79	2084.03
*	12.255	25.00	262.40	259.20	247.60	19250.00	259.98	.00	260.40	66.48	6.20	3764.76	2360.97

*	12.255	25.00	262.40	259.20	247.60	21800.00	260.32	.00	260.73	60.89	5.93	4321.32	2793.79
	12.255	25.00	262.40	259.20	247.60	36830.00	261.38	.00	261.94	66.23	6.19	6254.38	4525.50
*	12.270	50.00	.00	.00	247.90	7800.00	259.15	.00	259.17	2.88	1.62	8314.96	4598.76
*	12.270	50.00	.00	.00	247.90	13800.00	262.69	.00	262.70	1.21	1.38	16090.73	12551.77
*	12.270	50.00	.00	.00	247.90	16900.00	260.20	.00	260.25	6.62	2.69	10561.78	6570.09
*	12.270	50.00	.00	.00	247.90	19250.00	260.47	.00	260.52	7.28	2.88	11153.99	7135.35
*	12.270	50.00	.00	.00	247.90	21800.00	260.79	.00	260.85	7.77	3.05	11847.23	7821.64
*	12.270	50.00	.00	.00	247.90	36830.00	261.99	.00	262.10	11.83	4.11	14526.54	10707.48
	12.271	10.00	.00	.00	247.90	7800.00	259.16	.00	259.17	2.86	1.61	8334.70	4614.98
	12.271	10.00	.00	.00	247.90	13800.00	262.69	.00	262.70	1.21	1.38	16093.98	12555.72
	12.271	10.00	.00	.00	247.90	16900.00	260.21	.00	260.25	6.59	2.68	10576.50	6583.90
	12.271	10.00	.00	.00	247.90	19250.00	260.48	.00	260.53	7.25	2.88	11170.31	7151.21
	12.271	10.00	.00	.00	247.90	21800.00	260.80	.00	260.85	7.73	3.05	11864.92	7839.48
	12.271	10.00	.00	.00	247.90	36830.00	262.00	.00	262.11	11.76	4.10	14554.08	10738.97

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SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
12.272	10.00	.00	.00	247.90	7800.00	259.16	.00	259.17	2.86	1.61	8327.06	4608.69
12.272	10.00	.00	.00	247.90	13800.00	262.69	.00	262.70	1.21	1.38	16096.75	12559.08
12.272	10.00	.00	.00	247.90	16900.00	260.21	.00	260.26	6.56	2.68	10590.89	6597.41
12.272	10.00	.00	.00	247.90	19250.00	260.49	.00	260.54	7.22	2.87	11186.11	7166.56
12.272	10.00	.00	.00	247.90	21800.00	260.80	.00	260.86	7.70	3.04	11881.93	7856.67
12.272	10.00	.00	.00	247.90	36830.00	262.02	.00	262.13	11.70	4.10	14580.59	10769.32
12.273	10.00	.00	.00	247.90	7800.00	259.16	.00	259.18	2.86	1.61	8332.98	4613.56
12.273	10.00	.00	.00	247.90	13800.00	262.69	.00	262.70	1.21	1.37	16099.52	12562.44
12.273	10.00	.00	.00	247.90	16900.00	260.22	.00	260.27	6.53	2.68	10605.49	6611.13
12.273	10.00	.00	.00	247.90	19250.00	260.49	.00	260.55	7.18	2.87	11202.23	7182.26
12.273	10.00	.00	.00	247.90	21800.00	260.81	.00	260.87	7.66	3.04	11899.21	7874.14
12.273	10.00	.00	.00	247.90	36830.00	262.03	.00	262.14	11.63	4.09	14607.72	10800.42
12.390	633.00	.00	.00	244.70	7800.00	259.38	.00	259.42	4.85	2.55	6949.04	3541.58
12.390	633.00	.00	.00	244.70	13800.00	262.78	.00	262.79	1.61	1.78	14970.74	10885.91
12.390	633.00	.00	.00	244.70	16900.00	260.68	.00	260.74	8.27	3.61	9900.45	5875.95
12.390	633.00	.00	.00	244.70	19250.00	260.99	.00	261.05	8.71	3.77	10631.27	6522.68
12.390	633.00	.00	.00	244.70	21800.00	261.33	.00	261.40	8.97	3.90	11449.88	7277.20
12.390	633.00	.00	.00	244.70	36830.00	262.76	.00	262.88	11.52	4.77	14938.03	10849.77
* 12.750	1828.00	.00	.00	249.60	6450.00	261.05	.00	261.20	32.48	4.36	3200.51	1131.82
* 12.750	1828.00	.00	.00	249.60	11040.00	263.27	.00	263.31	6.80	2.36	9023.71	4234.72
* 12.750	1828.00	.00	.00	249.60	13520.00	262.75	.00	262.83	16.81	3.58	7573.34	3297.62
* 12.750	1828.00	.00	.00	249.60	15530.00	263.09	.00	263.17	15.91	3.57	8510.71	3892.98
* 12.750	1828.00	.00	.00	249.60	17720.00	263.44	.00	263.52	15.17	3.57	9482.69	4549.57
12.750	1828.00	.00	.00	249.60	29070.00	265.05	.00	265.13	12.33	3.67	14276.88	8277.17
13.500	3960.00	.00	.00	251.60	4370.00	267.36	.00	267.40	10.91	2.40	3470.53	1323.33
* 13.500	3960.00	.00	.00	251.60	7550.00	266.94	265.96	267.12	55.05	5.25	2784.54	1017.54
* 13.500	3960.00	.00	.00	251.60	9250.00	268.15	.00	268.23	20.33	3.54	4861.19	2051.74
* 13.500	3960.00	.00	.00	251.60	10500.00	268.36	.00	268.44	21.31	3.69	5238.40	2274.64
* 13.500	3960.00	.00	.00	251.60	11900.00	268.59	.00	268.68	22.21	3.84	5643.91	2524.95
* 13.500	3960.00	.00	.00	251.60	19820.00	269.64	.00	269.76	25.35	4.48	7694.52	3936.52
14.200	3696.00	.00	.00	255.50	3870.00	271.68	.00	271.80	16.94	3.82	2081.65	940.25
* 14.200	3696.00	.00	.00	255.50	5730.00	273.30	.00	273.35	8.06	2.94	4236.41	2018.62
14.200	3696.00	.00	.00	255.50	7100.00	273.31	.00	273.39	12.21	3.62	4259.18	2032.16
14.200	3696.00	.00	.00	255.50	8170.00	273.64	.00	273.73	12.34	3.71	4738.97	2325.89
14.200	3696.00	.00	.00	255.50	9380.00	273.99	.00	274.07	12.48	3.81	5249.76	2655.67
14.200	3696.00	.00	.00	255.50	15550.00	275.44	.00	275.53	12.77	4.18	7544.36	4351.51
14.810	3221.00	.00	.00	262.10	2600.00	275.41	.00	275.44	7.31	1.99	2318.54	961.95
* 14.810	3221.00	.00	.00	262.10	4710.00	276.18	.00	276.23	11.12	2.65	3062.78	1412.41
14.810	3221.00	.00	.00	262.10	5850.00	276.80	.00	276.85	10.01	2.67	3710.66	1849.36
14.810	3221.00	.00	.00	262.10	6750.00	277.17	.00	277.22	10.12	2.77	4097.71	2121.95
14.810	3221.00	.00	.00	262.10	7650.00	277.52	.00	277.58	10.05	2.84	4498.72	2412.84
14.810	3221.00	.00	.00	262.10	12800.00	279.06	.00	279.13	10.42	3.24	6530.05	3966.14

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SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
15.690	4646.00	.00	.00	267.10	2600.00	279.13	.00	279.17	11.13	2.31	2128.01	779.47
15.690	4646.00	.00	.00	267.10	4710.00	280.44	.00	280.48	9.56	2.46	3446.70	1523.17
15.690	4646.00	.00	.00	267.10	5850.00	280.91	.00	280.95	9.96	2.62	3955.57	1853.62
15.690	4646.00	.00	.00	267.10	6750.00	281.28	.00	281.33	9.94	2.70	4373.32	2140.89
15.690	4646.00	.00	.00	267.10	7650.00	281.62	.00	281.67	9.98	2.78	4759.75	2421.33
15.690	4646.00	.00	.00	267.10	12800.00	283.23	.00	283.30	10.15	3.16	6702.03	4017.20
* 15.700	50.00	283.90	282.70	267.90	2600.00	279.05	.00	279.46	55.66	5.13	507.16	348.51
* 15.700	50.00	283.90	282.70	267.90	4710.00	280.14	.00	280.99	96.99	7.41	635.94	478.26

*	15.700	50.00	283.90	282.70	267.90	5850.00	280.47	.00	281.63	126.56	8.66	675.63	520.01
*	15.700	50.00	283.90	282.70	267.90	6750.00	280.72	.00	282.14	149.67	9.57	705.56	551.75
*	15.700	50.00	283.90	282.70	267.90	7650.00	280.92	.00	282.62	174.91	10.47	730.66	578.43
*	15.700	50.00	283.90	282.70	267.90	12800.00	281.87	281.87	285.39	326.43	15.06	849.65	708.45
	15.705	26.00	283.90	282.70	267.90	2600.00	279.22	.00	279.60	49.78	4.93	527.64	368.51
	15.705	26.00	283.90	282.70	267.90	4710.00	280.51	.00	281.25	80.40	6.92	680.58	525.27
	15.705	26.00	283.90	282.70	267.90	5850.00	281.01	.00	281.98	98.16	7.89	741.88	590.45
	15.705	26.00	283.90	282.70	267.90	6750.00	281.44	.00	282.56	108.45	8.49	795.11	648.16
	15.705	26.00	283.90	282.70	267.90	7650.00	281.86	.00	283.12	117.08	9.02	848.34	706.99
*	15.705	26.00	283.90	282.70	267.90	12800.00	286.43	.00	286.53	15.68	2.65	5111.09	3232.64
*	15.710	50.00	.00	.00	267.30	2600.00	279.69	.00	279.71	7.41	1.97	2470.84	954.97
*	15.710	50.00	.00	.00	267.30	4710.00	281.37	.00	281.39	5.27	1.95	4246.88	2052.45
*	15.710	50.00	.00	.00	267.30	5850.00	282.11	.00	282.14	4.76	1.97	5100.25	2681.57
*	15.710	50.00	.00	.00	267.30	6750.00	282.70	.00	282.73	4.32	1.96	5802.82	3245.79
*	15.710	50.00	.00	.00	267.30	7650.00	283.28	.00	283.30	3.96	1.95	6506.67	3845.17
*	15.710	50.00	.00	.00	267.30	12800.00	286.54	.00	286.56	2.45	1.87	10783.01	8173.69
	16.310	3168.00	.00	.00	270.90	2600.00	281.94	.00	281.96	8.99	2.21	2549.01	867.09
	16.310	3168.00	.00	.00	270.90	4710.00	283.07	.00	283.10	7.62	2.27	4350.92	1706.10
	16.310	3168.00	.00	.00	270.90	5850.00	283.63	.00	283.65	6.73	2.24	5337.83	2255.02
	16.310	3168.00	.00	.00	270.90	6750.00	284.07	.00	284.09	6.03	2.19	6140.90	2748.21
	16.310	3168.00	.00	.00	270.90	7650.00	284.51	.00	284.54	5.39	2.15	6967.73	3294.74
	16.310	3168.00	.00	.00	270.90	12800.00	287.23	.00	287.25	2.75	1.83	12339.95	7722.45
	16.960	3432.00	.00	.00	275.40	2600.00	285.07	.00	285.09	13.32	1.82	2127.32	712.33
	16.960	3432.00	.00	.00	275.40	4710.00	285.91	.00	285.94	13.73	1.96	3238.20	1271.18
*	16.960	3432.00	.00	.00	275.40	5850.00	286.27	.00	286.30	13.93	2.02	3740.82	1567.43
*	16.960	3432.00	.00	.00	275.40	6750.00	286.53	.00	286.57	13.90	2.06	4125.47	1810.21
*	16.960	3432.00	.00	.00	275.40	7650.00	286.80	.00	286.84	13.84	2.09	4493.34	2056.52
*	16.960	3432.00	.00	.00	275.40	12800.00	288.51	.00	288.56	9.52	2.20	7257.38	4148.59
	17.290	1742.00	.00	.00	278.40	2600.00	287.77	.00	287.83	27.11	2.62	1376.27	499.37
*	17.290	1742.00	.00	.00	278.40	4710.00	288.68	.00	288.78	28.54	3.20	2014.33	881.61
*	17.290	1742.00	.00	.00	278.40	5850.00	289.09	.00	289.19	29.33	3.46	2309.38	1080.13
*	17.290	1742.00	.00	.00	278.40	6750.00	289.37	.00	289.49	30.06	3.65	2519.39	1231.17
*	17.290	1742.00	.00	.00	278.40	7650.00	289.63	.00	289.76	30.36	3.81	2729.50	1388.31
*	17.290	1742.00	.00	.00	278.40	12800.00	290.81	.00	291.01	35.02	4.71	3678.30	2163.00

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	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	17.950	3484.00	.00	.00	281.90	2600.00	294.17	.00	294.22	15.26	2.81	1585.34	665.65
	17.950	3484.00	.00	.00	281.90	4710.00	295.36	.00	295.43	15.83	3.23	2480.40	1183.74
	17.950	3484.00	.00	.00	281.90	5850.00	295.87	.00	295.95	15.98	3.40	2904.36	1463.32
	17.950	3484.00	.00	.00	281.90	6750.00	296.24	.00	296.32	16.05	3.51	3224.26	1685.02
	17.950	3484.00	.00	.00	281.90	7650.00	296.57	.00	296.66	16.18	3.63	3526.04	1901.81
*	17.950	3484.00	.00	.00	281.90	12800.00	298.18	.00	298.29	16.11	4.07	5159.56	3188.83
*	18.510	2957.00	.00	.00	288.90	1280.00	298.24	.00	298.29	13.88	2.34	904.58	343.58
*	18.510	2957.00	.00	.00	288.90	2110.00	299.26	.00	299.30	11.37	2.41	1585.79	625.74
*	18.510	2957.00	.00	.00	288.90	2240.00	299.57	.00	299.61	9.07	2.23	1839.73	743.87
*	18.510	2957.00	.00	.00	288.90	2900.00	299.99	.00	300.03	9.81	2.42	2196.95	925.73
*	18.510	2957.00	.00	.00	288.90	3200.00	300.26	.00	300.30	9.16	2.40	2436.54	1057.05
*	18.510	2957.00	.00	.00	288.90	5270.00	301.65	.00	301.69	7.68	2.49	3781.76	1901.56
	18.511	10.00	.00	.00	288.90	1280.00	298.26	.00	298.31	13.66	2.33	910.94	346.39
	18.511	10.00	.00	.00	288.90	2110.00	299.27	.00	299.31	11.20	2.39	1596.49	630.52
	18.511	10.00	.00	.00	288.90	2240.00	299.58	.00	299.62	8.95	2.21	1849.91	748.80
	18.511	10.00	.00	.00	288.90	2900.00	300.00	.00	300.04	9.69	2.41	2207.67	931.47
	18.511	10.00	.00	.00	288.90	3200.00	300.27	.00	300.31	9.07	2.39	2446.71	1062.77
	18.511	10.00	.00	.00	288.90	5270.00	301.66	.00	301.70	7.66	2.49	3785.85	1904.37
	18.512	10.00	.00	.00	288.90	1280.00	298.27	.00	298.32	13.43	2.31	917.54	349.29
	18.512	10.00	.00	.00	288.90	2110.00	299.28	.00	299.33	11.08	2.38	1604.15	633.95
	18.512	10.00	.00	.00	288.90	2240.00	299.59	.00	299.63	8.89	2.21	1854.84	751.19
	18.512	10.00	.00	.00	288.90	2900.00	300.01	.00	300.05	9.62	2.40	2213.81	934.76
	18.512	10.00	.00	.00	288.90	3200.00	300.28	.00	300.32	9.02	2.39	2452.05	1065.77
	18.512	10.00	.00	.00	288.90	5270.00	301.67	.00	301.71	7.64	2.48	3789.50	1906.88
	18.513	10.00	.00	.00	288.90	1280.00	298.29	.00	298.33	13.20	2.30	924.38	352.29
	18.513	10.00	.00	.00	288.90	2110.00	299.30	.00	299.34	10.94	2.37	1613.29	638.07
	18.513	10.00	.00	.00	288.90	2240.00	299.60	.00	299.63	8.81	2.20	1862.36	754.84
	18.513	10.00	.00	.00	288.90	2900.00	300.02	.00	300.06	9.53	2.39	2222.35	939.35
	18.513	10.00	.00	.00	288.90	3200.00	300.29	.00	300.33	8.94	2.38	2460.27	1070.40
	18.513	10.00	.00	.00	288.90	5270.00	301.68	.00	301.72	7.59	2.48	3797.51	1912.38
*	19.050	2851.00	.00	.00	298.60	1280.00	303.22	.00	303.27	30.36	2.47	779.29	232.30
*	19.050	2851.00	.00	.00	298.60	2110.00	303.80	.00	303.87	34.13	2.91	1155.13	361.17
*	19.050	2851.00	.00	.00	298.60	2240.00	303.74	.00	303.83	41.43	3.18	1119.42	348.02
*	19.050	2851.00	.00	.00	298.60	2900.00	304.21	.00	304.29	36.91	3.23	1453.42	477.34

*	19.050	2851.00	.00	.00	298.60	3200.00	304.34	.00	304.42	38.27	3.35	1548.93	517.28
*	19.050	2851.00	.00	.00	298.60	5270.00	305.24	.00	305.34	37.92	3.76	2272.76	855.76
*	19.060	50.00	.00	.00	298.60	1280.00	303.30	.00	303.35	8.63	2.24	831.90	435.70
*	19.060	50.00	.00	.00	298.60	2110.00	303.90	.00	303.95	9.46	2.60	1228.26	686.08
*	19.060	50.00	.00	.00	298.60	2240.00	303.86	.00	303.93	11.18	2.81	1204.51	669.97
*	19.060	50.00	.00	.00	298.60	2900.00	304.32	.00	304.38	10.19	2.88	1536.94	908.32
*	19.060	50.00	.00	.00	298.60	3200.00	304.45	.00	304.52	10.50	2.98	1639.15	987.48
*	19.060	50.00	.00	.00	298.60	5270.00	305.35	.00	305.44	10.59	3.36	2371.22	1619.63

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	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	19.065	25.00	302.80	301.00	298.60	1280.00	303.99	.00	304.01	3.05	1.50	1296.12	732.81
*	19.065	25.00	302.80	301.00	298.60	2110.00	304.53	.00	304.56	4.16	1.89	1698.91	1034.91
*	19.065	25.00	302.80	301.00	298.60	2240.00	304.57	.00	304.60	4.48	1.98	1727.74	1058.09
	19.065	25.00	302.80	301.00	298.60	2900.00	304.87	.00	304.91	5.32	2.24	1967.00	1257.41
	19.065	25.00	302.80	301.00	298.60	3200.00	304.98	.00	305.02	5.72	2.36	2059.28	1337.41
*	19.065	25.00	302.80	301.00	298.60	5270.00	305.63	.00	305.70	8.09	3.03	2615.63	1852.38
	19.070	50.00	.00	.00	298.60	1280.00	304.01	.00	304.03	4.13	1.57	1306.03	630.06
	19.070	50.00	.00	.00	298.60	2110.00	304.56	.00	304.59	5.57	1.98	1721.46	894.22
	19.070	50.00	.00	.00	298.60	2240.00	304.59	.00	304.63	5.98	2.06	1753.16	915.83
	19.070	50.00	.00	.00	298.60	2900.00	304.90	.00	304.94	7.09	2.34	1998.76	1089.37
	19.070	50.00	.00	.00	298.60	3200.00	305.01	.00	305.06	7.63	2.46	2092.89	1158.59
	19.070	50.00	.00	.00	298.60	5270.00	305.67	.00	305.75	10.83	3.17	2657.39	1601.23

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CARTERS CREEK DUPLICATE

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	6.760	10290.00	223.95	.00	.00	.00	3261.67	.00
	6.760	18020.00	224.94	.99	.00	.00	3789.00	.00
	6.760	22340.00	225.38	.44	.00	.00	3869.67	.00
	6.760	25730.00	225.69	.31	.00	.00	4004.45	.00
	6.760	29530.00	226.02	.33	.00	.00	4116.00	.00
	6.760	49370.00	227.43	1.41	.00	.00	4392.22	.00
*	6.770	10290.00	222.98	.00	-.97	.00	201.54	50.00
*	6.770	18020.00	226.95	3.98	2.01	.00	3345.23	50.00
*	6.770	22340.00	227.16	.21	1.78	.00	3604.94	50.00
*	6.770	25730.00	227.32	.15	1.63	.00	3793.91	50.00
*	6.770	29530.00	227.45	.14	1.43	.00	3861.11	50.00
*	6.770	49370.00	227.87	.41	.44	.00	4003.98	50.00
	6.775	10290.00	224.28	.00	1.31	.00	229.43	27.00
*	6.775	18020.00	227.81	3.53	.86	.00	3992.01	27.00
*	6.775	22340.00	227.95	.14	.78	.00	4022.80	27.00
*	6.775	25730.00	228.13	.18	.81	.00	4064.69	27.00
*	6.775	29530.00	228.30	.17	.84	.00	4104.57	27.00
*	6.775	49370.00	229.06	.76	1.19	.00	4237.41	27.00
*	6.790	10290.00	225.44	.00	1.16	.00	3880.52	100.00
*	6.790	18020.00	227.98	2.53	.17	.00	4452.71	100.00
*	6.790	22340.00	228.17	.19	.22	.00	4473.20	100.00
*	6.790	25730.00	228.36	.20	.24	.00	4495.14	100.00
*	6.790	29530.00	228.56	.20	.27	.00	4516.77	100.00
*	6.790	49370.00	229.44	.88	.38	.00	4612.76	100.00
	6.791	10290.00	225.45	.00	.00	.00	3882.01	10.00
	6.791	18020.00	227.98	2.53	.00	.00	4453.33	10.00
	6.791	22340.00	228.17	.19	.00	.00	4474.25	10.00
	6.791	25730.00	228.37	.20	.00	.00	4496.34	10.00
	6.791	29530.00	228.56	.20	.00	.00	4518.14	10.00
	6.791	49370.00	229.44	.88	.01	.00	4613.26	10.00
	6.792	10290.00	225.45	.00	.00	.00	3882.60	10.00
	6.792	18020.00	227.98	2.53	.00	.00	4453.50	10.00
	6.792	22340.00	228.17	.19	.00	.00	4474.48	10.00
	6.792	25730.00	228.37	.20	.00	.00	4496.62	10.00
	6.792	29530.00	228.57	.20	.00	.00	4518.46	10.00
	6.792	49370.00	229.45	.88	.01	.00	4613.77	10.00

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SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH

	6.793	10290.00	225.45	.00	.00	.00	3883.19	10.00
	6.793	18020.00	227.98	2.53	.00	.00	4453.67	10.00
	6.793	22340.00	228.17	.19	.00	.00	4474.71	10.00
	6.793	25730.00	228.37	.20	.00	.00	4496.88	10.00
	6.793	29530.00	228.57	.20	.00	.00	4518.78	10.00
	6.793	49370.00	229.46	.89	.01	.00	4614.28	10.00
*	7.375	10290.00	226.89	.00	1.44	.00	4248.50	3089.00
*	7.375	18020.00	228.68	1.78	.69	.00	4978.49	3089.00
*	7.375	22340.00	229.06	.38	.89	.00	5142.94	3089.00
*	7.375	25730.00	229.37	.31	1.00	.00	5196.40	3089.00
	7.375	29530.00	229.70	.32	1.13	.00	5239.48	3089.00
	7.375	49370.00	231.13	1.43	1.67	.00	5430.12	3089.00
	7.376	10290.00	226.90	.00	.01	.00	4255.17	10.00
	7.376	18020.00	228.68	1.78	.00	.00	4979.34	10.00
	7.376	22340.00	229.06	.38	.00	.00	5143.71	10.00
	7.376	25730.00	229.38	.31	.01	.00	5197.02	10.00
	7.376	29530.00	229.70	.32	.01	.00	5240.16	10.00
	7.376	49370.00	231.13	1.43	.01	.00	5430.92	10.00
*	7.960	10290.00	231.34	.00	4.43	.00	2299.91	3089.00
*	7.960	18020.00	231.65	.31	2.97	.00	2537.06	3089.00
*	7.960	22340.00	232.31	.66	3.24	.00	2972.23	3089.00
*	7.960	25730.00	232.69	.39	3.31	.00	3079.10	3089.00
*	7.960	29530.00	233.08	.39	3.38	.00	3131.94	3089.00
*	7.960	49370.00	234.70	1.62	3.57	.00	3258.66	3089.00
	7.961	10290.00	231.41	.00	.07	.00	2354.48	10.00
	7.961	18020.00	231.94	.53	.30	.00	2785.24	10.00
	7.961	22340.00	232.42	.48	.12	.00	3021.12	10.00
	7.961	25730.00	232.78	.36	.09	.00	3091.95	10.00
	7.961	29530.00	233.14	.37	.07	.00	3136.87	10.00
	7.961	49370.00	234.74	1.60	.04	.00	3262.06	10.00
	7.962	10290.00	231.47	.00	.06	.00	2386.68	10.00
	7.962	18020.00	232.07	.60	.13	.00	2853.27	10.00
	7.962	22340.00	232.51	.44	.09	.00	3052.82	10.00
	7.962	25730.00	232.85	.34	.07	.00	3100.46	10.00
	7.962	29530.00	233.20	.36	.06	.00	3140.96	10.00
	7.962	49370.00	234.78	1.58	.04	.00	3264.91	10.00
	7.963	10290.00	231.53	.00	.06	.00	2438.43	10.00
	7.963	18020.00	232.16	.63	.09	.00	2899.72	10.00
	7.963	22340.00	232.59	.42	.08	.00	3063.81	10.00
	7.963	25730.00	232.91	.33	.07	.00	3117.81	10.00
	7.963	29530.00	233.26	.35	.06	.00	3145.41	10.00
	7.963	49370.00	234.82	1.56	.04	.00	3268.05	10.00

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	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	8.820	7880.00	236.99	.00	5.46	.00	2249.28	4541.00
*	8.820	13900.00	238.33	1.35	6.17	.00	2345.87	4541.00
*	8.820	17200.00	238.86	.52	6.27	.00	2365.99	4541.00
*	8.820	19900.00	239.24	.38	6.33	.00	2380.40	4541.00
*	8.820	22600.00	239.60	.36	6.34	.00	2394.04	4541.00
*	8.820	38380.00	241.27	1.67	6.45	.00	2474.73	4541.00
	9.580	7880.00	239.90	.00	2.92	.00	1949.61	4013.00
	9.580	13900.00	241.17	1.26	2.83	.00	2039.05	4013.00
	9.580	17200.00	241.75	.58	2.89	.00	2072.52	4013.00
	9.580	19900.00	242.19	.44	2.96	.00	2097.55	4013.00
	9.580	22600.00	242.60	.41	3.01	.00	2120.71	4013.00
	9.580	38380.00	244.59	1.99	3.32	.00	2400.58	4013.00
	10.110	7880.00	243.09	.00	3.19	.00	2048.34	2798.00
	10.110	14050.00	244.28	1.19	3.12	.00	2200.88	2798.00
	10.110	17290.00	244.81	.53	3.06	.00	2253.18	2798.00
	10.110	19740.00	245.21	.40	3.02	.00	2290.44	2798.00
	10.110	22420.00	245.60	.39	3.00	.00	2323.23	2798.00
	10.110	37060.00	247.53	1.93	2.94	.00	2468.63	2798.00
	10.930	7800.00	248.48	.00	5.39	.00	1558.99	4330.00
	10.930	13800.00	249.76	1.28	5.47	.00	1645.27	4330.00
	10.930	16900.00	250.30	.54	5.49	.00	1671.22	4330.00
	10.930	19250.00	250.68	.38	5.46	.00	1689.21	4330.00
	10.930	21800.00	251.06	.39	5.46	.00	1707.83	4330.00
	10.930	36830.00	252.98	1.92	5.45	.00	1801.03	4330.00
	11.450	7800.00	252.08	.00	3.59	.00	2143.56	2700.00
	11.450	13800.00	253.33	1.26	3.58	.00	2247.42	2700.00

	11.450	16900.00	253.89	.55	3.59	.00	2379.72	2700.00
	11.450	19250.00	254.27	.39	3.60	.00	2403.61	2700.00
	11.450	21800.00	254.67	.39	3.60	.00	2426.15	2700.00
	11.450	36830.00	256.64	1.98	3.66	.00	2539.41	2700.00
	11.460	7800.00	252.13	.00	.06	.00	2145.81	50.00
	11.460	13800.00	253.39	1.25	.05	.00	2257.41	50.00
	11.460	16900.00	253.94	.55	.05	.00	2383.85	50.00
	11.460	19250.00	254.32	.39	.05	.00	2406.89	50.00
	11.460	21800.00	254.72	.39	.05	.00	2429.49	50.00
	11.460	36830.00	256.69	1.98	.05	.00	2542.34	50.00
	11.465	7800.00	252.56	.00	.43	.00	2164.08	25.00
*	11.465	13800.00	253.73	1.17	.34	.00	2346.41	25.00
*	11.465	16900.00	254.24	.51	.30	.00	2401.72	25.00
*	11.465	19250.00	254.61	.37	.29	.00	2422.76	25.00
*	11.465	21800.00	254.98	.37	.26	.00	2444.13	25.00
*	11.465	36830.00	256.81	1.83	.12	.00	2549.09	25.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	11.470	7800.00	252.59	.00	.03	.00	2157.01	50.00
	11.470	13800.00	253.77	1.18	.04	.00	2291.31	50.00
	11.470	16900.00	254.28	.51	.04	.00	2392.81	50.00
	11.470	19250.00	254.65	.37	.04	.00	2413.86	50.00
	11.470	21800.00	255.02	.37	.04	.00	2435.24	50.00
	11.470	36830.00	256.85	1.83	.04	.00	2540.28	50.00
	11.880	7800.00	254.35	.00	1.76	.00	2070.98	2165.00
	11.880	13800.00	255.59	1.24	1.82	.00	2149.16	2165.00
	11.880	16900.00	256.12	.53	1.84	.00	2177.27	2165.00
	11.880	19250.00	256.50	.37	1.85	.00	2195.95	2165.00
	11.880	21800.00	256.88	.38	1.86	.00	2215.00	2165.00
	11.880	36830.00	258.78	1.90	1.93	.00	2311.67	2165.00
	12.240	7800.00	256.90	.00	2.55	.00	1824.45	1900.00
	12.240	13800.00	258.03	1.13	2.44	.00	1916.88	1900.00
	12.240	16900.00	258.53	.51	2.41	.00	1954.76	1900.00
	12.240	19250.00	258.89	.35	2.39	.00	2077.94	1900.00
	12.240	21800.00	259.25	.36	2.37	.00	2120.07	1900.00
	12.240	36830.00	261.09	1.84	2.31	.00	2220.09	1900.00
*	12.250	7800.00	257.79	.00	.90	.00	769.40	50.00
*	12.250	13800.00	258.24	.45	.22	.00	991.76	50.00
*	12.250	16900.00	259.20	.96	.67	.00	1261.57	50.00
*	12.250	19250.00	259.20	.00	.31	.00	1261.57	50.00
*	12.250	21800.00	259.20	.00	-.05	.00	1261.70	50.00
*	12.250	36830.00	260.96	1.76	-.13	.00	1904.31	50.00
*	12.255	7800.00	258.82	.00	1.03	.00	1165.99	25.00
*	12.255	13800.00	257.40	-1.42	-.84	.00	583.79	25.00
	12.255	16900.00	259.73	2.33	.53	.00	1481.92	25.00
*	12.255	19250.00	259.98	.25	.78	.00	1680.73	25.00
*	12.255	21800.00	260.32	.33	1.12	.00	1751.84	25.00
	12.255	36830.00	261.38	1.07	.42	.00	2021.42	25.00
*	12.270	7800.00	259.15	.00	.33	.00	2085.99	50.00
*	12.270	13800.00	262.69	3.53	5.29	.00	2267.92	50.00
*	12.270	16900.00	260.20	-2.48	.47	.00	2182.90	50.00
*	12.270	19250.00	260.47	.27	.49	.00	2192.16	50.00
*	12.270	21800.00	260.79	.32	.47	.00	2202.96	50.00
*	12.270	36830.00	261.99	1.20	.61	.00	2244.19	50.00
	12.271	7800.00	259.16	.00	.00	.00	2087.09	10.00
	12.271	13800.00	262.69	3.53	.00	.00	2267.97	10.00
	12.271	16900.00	260.21	-2.48	.01	.00	2183.13	10.00
	12.271	19250.00	260.48	.27	.01	.00	2192.42	10.00
	12.271	21800.00	260.80	.32	.01	.00	2203.23	10.00
	12.271	36830.00	262.00	1.21	.01	.00	2244.61	10.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	12.272	7800.00	259.16	.00	.00	.00	2086.67	10.00
	12.272	13800.00	262.69	3.53	.00	.00	2268.01	10.00
	12.272	16900.00	260.21	-2.47	.01	.00	2183.35	10.00
	12.272	19250.00	260.49	.27	.01	.00	2192.66	10.00
	12.272	21800.00	260.80	.32	.01	.00	2203.50	10.00
	12.272	36830.00	262.02	1.21	.01	.00	2245.02	10.00

	12.273	7800.00	259.16	.00	.00	.00	2087.00	10.00
	12.273	13800.00	262.69	3.53	.00	.00	2268.05	10.00
	12.273	16900.00	260.22	-2.47	.01	.00	2183.58	10.00
	12.273	19250.00	260.49	.27	.01	.00	2192.91	10.00
	12.273	21800.00	260.81	.32	.01	.00	2203.76	10.00
	12.273	36830.00	262.03	1.22	.01	.00	2245.43	10.00
	12.390	7800.00	259.38	.00	.22	.00	2204.38	633.00
	12.390	13800.00	262.78	3.39	.09	.00	2475.78	633.00
	12.390	16900.00	260.68	-2.10	.45	.00	2349.01	633.00
	12.390	19250.00	260.99	.31	.49	.00	2374.37	633.00
	12.390	21800.00	261.33	.34	.52	.00	2402.44	633.00
	12.390	36830.00	262.76	1.43	.73	.00	2475.17	633.00
*	12.750	6450.00	261.05	.00	1.66	.00	2341.85	1828.00
*	12.750	11040.00	263.27	2.23	.50	.00	2772.03	1828.00
*	12.750	13520.00	262.75	-.53	2.07	.00	2699.07	1828.00
*	12.750	15530.00	263.09	.34	2.11	.00	2745.76	1828.00
*	12.750	17720.00	263.44	.35	2.11	.00	2795.33	1828.00
	12.750	29070.00	265.05	1.61	2.29	.00	3195.81	1828.00
	13.500	4370.00	267.36	.00	6.32	.00	1696.04	3960.00
*	13.500	7550.00	266.94	-.42	3.67	.00	1545.93	3960.00
*	13.500	9250.00	268.15	1.21	5.41	.00	1822.07	3960.00
*	13.500	10500.00	268.36	.21	5.27	.00	1841.93	3960.00
*	13.500	11900.00	268.59	.23	5.15	.00	1863.04	3960.00
*	13.500	19820.00	269.64	1.05	4.59	.00	2027.59	3960.00
	14.200	3870.00	271.68	.00	4.31	.00	1226.59	3696.00
*	14.200	5730.00	273.30	1.62	6.35	.00	1425.59	3696.00
	14.200	7100.00	273.31	.01	5.15	.00	1427.47	3696.00
	14.200	8170.00	273.64	.33	5.28	.00	1466.54	3696.00
	14.200	9380.00	273.99	.34	5.40	.00	1505.54	3696.00
	14.200	15550.00	275.44	1.45	5.80	.00	1646.76	3696.00
	14.810	2600.00	275.41	.00	3.73	.00	938.00	3221.00
*	14.810	4710.00	276.18	.77	2.88	.00	990.83	3221.00
	14.810	5850.00	276.80	.62	3.49	.00	1065.45	3221.00
	14.810	6750.00	277.17	.36	3.53	.00	1113.91	3221.00
	14.810	7650.00	277.52	.35	3.53	.00	1162.71	3221.00
	14.810	12800.00	279.06	1.54	3.62	.00	1510.96	3221.00

1

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	15.690	2600.00	279.13	.00	3.72	.00	961.93	4646.00
	15.690	4710.00	280.44	1.31	4.26	.00	1065.19	4646.00
	15.690	5850.00	280.91	.47	4.10	.00	1102.16	4646.00
	15.690	6750.00	281.28	.37	4.11	.00	1129.99	4646.00
	15.690	7650.00	281.62	.34	4.10	.00	1153.54	4646.00
	15.690	12800.00	283.23	1.62	4.18	.00	1248.33	4646.00
*	15.700	2600.00	279.05	.00	-.08	.00	115.19	50.00
*	15.700	4710.00	280.14	1.09	-.29	.00	119.83	50.00
*	15.700	5850.00	280.47	.33	-.44	.00	121.22	50.00
*	15.700	6750.00	280.72	.25	-.56	.00	122.40	50.00
*	15.700	7650.00	280.92	.20	-.70	.00	123.51	50.00
*	15.700	12800.00	281.87	.94	-1.37	.00	128.63	50.00
	15.705	2600.00	279.22	.00	.18	.00	115.94	26.00
	15.705	4710.00	280.51	1.29	.37	.00	121.39	26.00
	15.705	5850.00	281.01	.50	.55	.00	124.00	26.00
	15.705	6750.00	281.44	.43	.72	.00	126.30	26.00
	15.705	7650.00	281.86	.42	.94	.00	128.57	26.00
*	15.705	12800.00	286.43	4.57	4.56	.00	1495.09	26.00
*	15.710	2600.00	279.69	.00	.46	.00	990.42	50.00
*	15.710	4710.00	281.37	1.68	.86	.00	1121.81	50.00
*	15.710	5850.00	282.11	.74	1.10	.00	1170.71	50.00
*	15.710	6750.00	282.70	.59	1.26	.00	1205.37	50.00
*	15.710	7650.00	283.28	.58	1.42	.00	1239.12	50.00
*	15.710	12800.00	286.54	3.26	.11	.00	1367.54	50.00
	16.310	2600.00	281.94	.00	2.25	.00	1417.32	3168.00
	16.310	4710.00	283.07	1.13	1.70	.00	1732.31	3168.00
	16.310	5850.00	283.63	.56	1.52	.00	1794.15	3168.00
	16.310	6750.00	284.07	.44	1.37	.00	1836.55	3168.00
	16.310	7650.00	284.51	.44	1.23	.00	1879.19	3168.00
	16.310	12800.00	287.23	2.72	.70	.00	2063.40	3168.00
	16.960	2600.00	285.07	.00	3.13	.00	1259.41	3432.00
	16.960	4710.00	285.91	.84	2.84	.00	1370.30	3432.00

*	16.960	5850.00	286.27	.36	2.64	.00	1403.54	3432.00
*	16.960	6750.00	286.53	.26	2.46	.00	1427.01	3432.00
*	16.960	7650.00	286.80	.27	2.28	.00	1440.30	3432.00
*	16.960	12800.00	288.51	1.71	1.27	.00	1803.30	3432.00
	17.290	2600.00	287.77	.00	2.70	.00	658.47	1742.00
*	17.290	4710.00	288.68	.92	2.78	.00	718.27	1742.00
*	17.290	5850.00	289.09	.40	2.82	.00	744.30	1742.00
*	17.290	6750.00	289.37	.28	2.84	.00	760.91	1742.00
*	17.290	7650.00	289.63	.26	2.83	.00	777.11	1742.00
*	17.290	12800.00	290.81	1.18	2.31	.00	846.45	1742.00

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	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	17.950	2600.00	294.17	.00	6.40	.00	675.68	3484.00
	17.950	4710.00	295.36	1.19	6.67	.00	806.39	3484.00
	17.950	5850.00	295.87	.52	6.79	.00	848.75	3484.00
	17.950	6750.00	296.24	.37	6.88	.00	889.68	3484.00
	17.950	7650.00	296.57	.33	6.94	.00	921.95	3484.00
*	17.950	12800.00	298.18	1.61	7.37	.00	1125.64	3484.00
*	18.510	1280.00	298.24	.00	4.08	.00	475.09	2957.00
*	18.510	2110.00	299.26	1.02	3.90	.00	795.52	2957.00
*	18.510	2240.00	299.57	.31	3.70	.00	827.14	2957.00
*	18.510	2900.00	299.99	.42	3.75	.00	869.10	2957.00
*	18.510	3200.00	300.26	.27	3.70	.00	895.73	2957.00
*	18.510	5270.00	301.65	1.39	3.47	.00	1031.13	2957.00
	18.511	1280.00	298.26	.00	.01	.00	479.17	10.00
	18.511	2110.00	299.27	1.01	.01	.00	796.88	10.00
	18.511	2240.00	299.58	.31	.01	.00	828.38	10.00
	18.511	2900.00	300.00	.42	.01	.00	870.31	10.00
	18.511	3200.00	300.27	.27	.01	.00	896.85	10.00
	18.511	5270.00	301.66	1.39	.01	.00	1031.52	10.00
	18.512	1280.00	298.27	.00	.01	.00	483.36	10.00
	18.512	2110.00	299.28	1.01	.01	.00	797.85	10.00
	18.512	2240.00	299.59	.31	.01	.00	828.98	10.00
	18.512	2900.00	300.01	.42	.01	.00	871.00	10.00
	18.512	3200.00	300.28	.27	.01	.00	897.43	10.00
	18.512	5270.00	301.67	1.39	.01	.00	1031.86	10.00
	18.513	1280.00	298.29	.00	.01	.00	487.66	10.00
	18.513	2110.00	299.30	1.01	.01	.00	799.00	10.00
	18.513	2240.00	299.60	.31	.01	.00	829.89	10.00
	18.513	2900.00	300.02	.42	.01	.00	871.96	10.00
	18.513	3200.00	300.29	.27	.01	.00	898.33	10.00
	18.513	5270.00	301.68	1.38	.01	.00	1032.60	10.00
*	19.050	1280.00	303.22	.00	4.93	.00	600.15	2851.00
*	19.050	2110.00	303.80	.58	4.50	.00	689.25	2851.00
*	19.050	2240.00	303.74	-.05	4.14	.00	680.73	2851.00
*	19.050	2900.00	304.21	.47	4.19	.00	749.78	2851.00
*	19.050	3200.00	304.34	.13	4.04	.00	762.53	2851.00
*	19.050	5270.00	305.24	.90	3.56	.00	853.00	2851.00
*	19.060	1280.00	303.30	.00	.09	.00	607.78	50.00
*	19.060	2110.00	303.90	.60	.10	.00	706.38	50.00
*	19.060	2240.00	303.86	-.03	.12	.00	700.86	50.00
*	19.060	2900.00	304.32	.46	.11	.00	760.94	50.00
*	19.060	3200.00	304.45	.13	.11	.00	774.38	50.00
*	19.060	5270.00	305.35	.90	.11	.00	864.57	50.00

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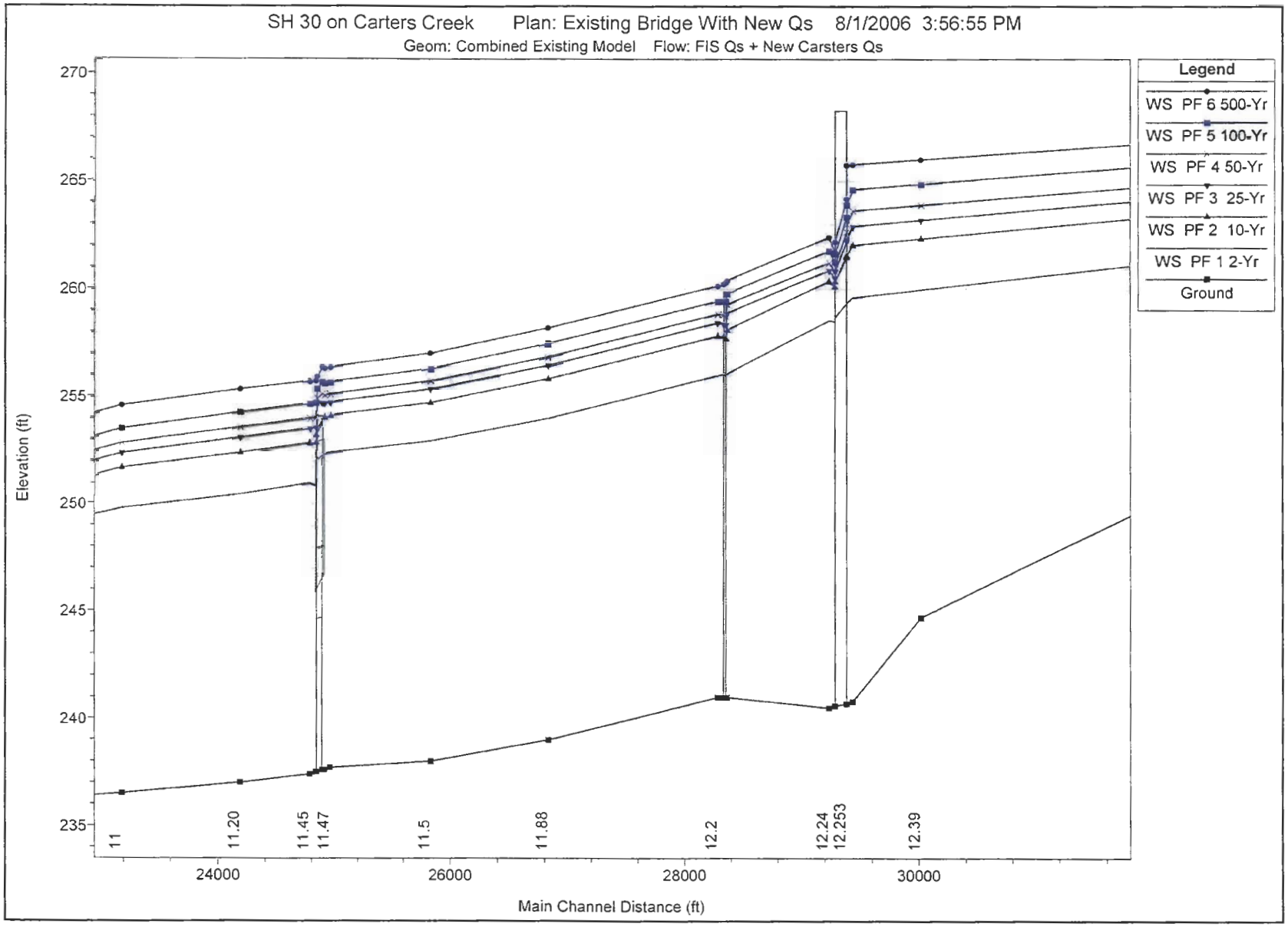
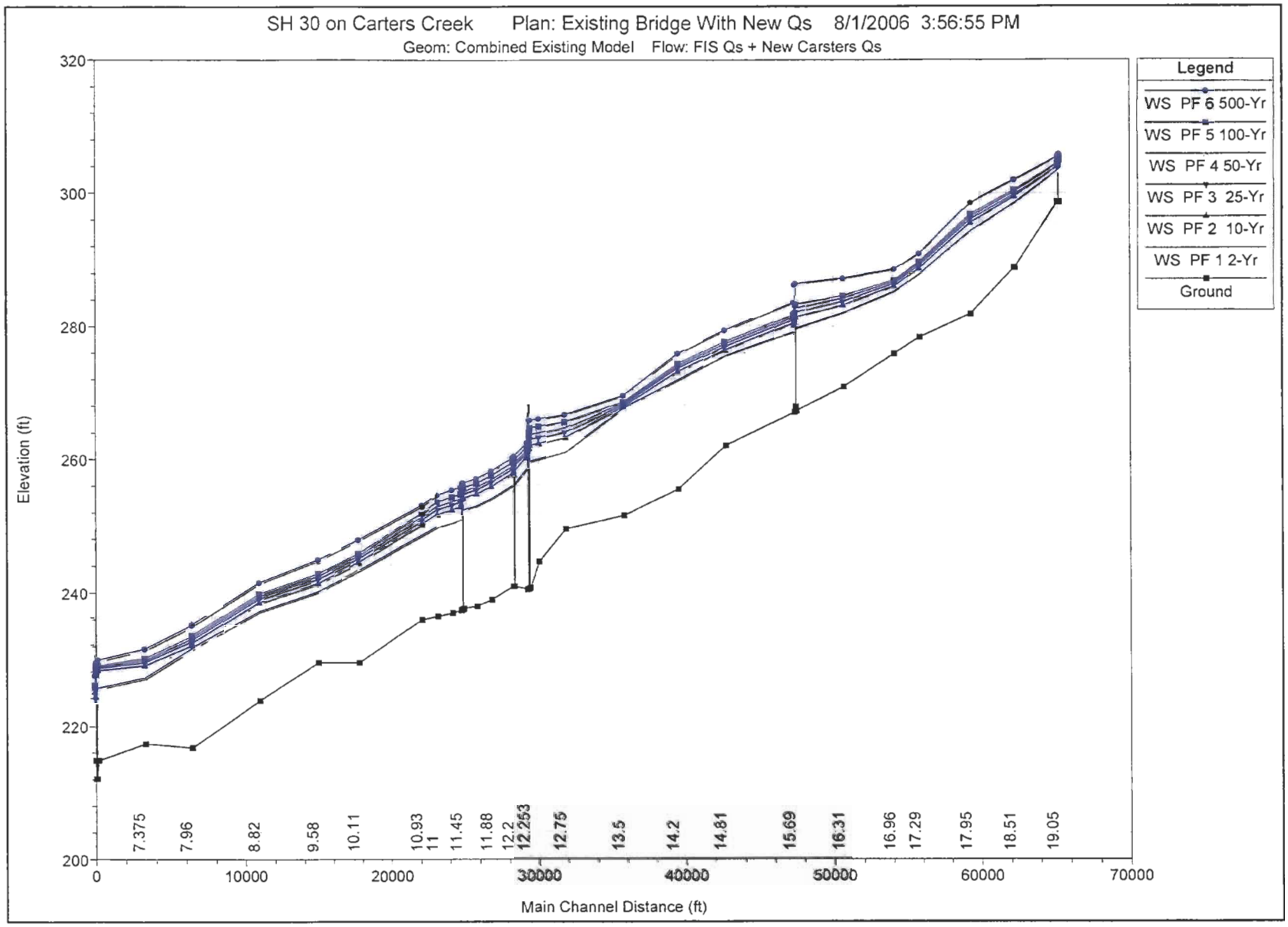
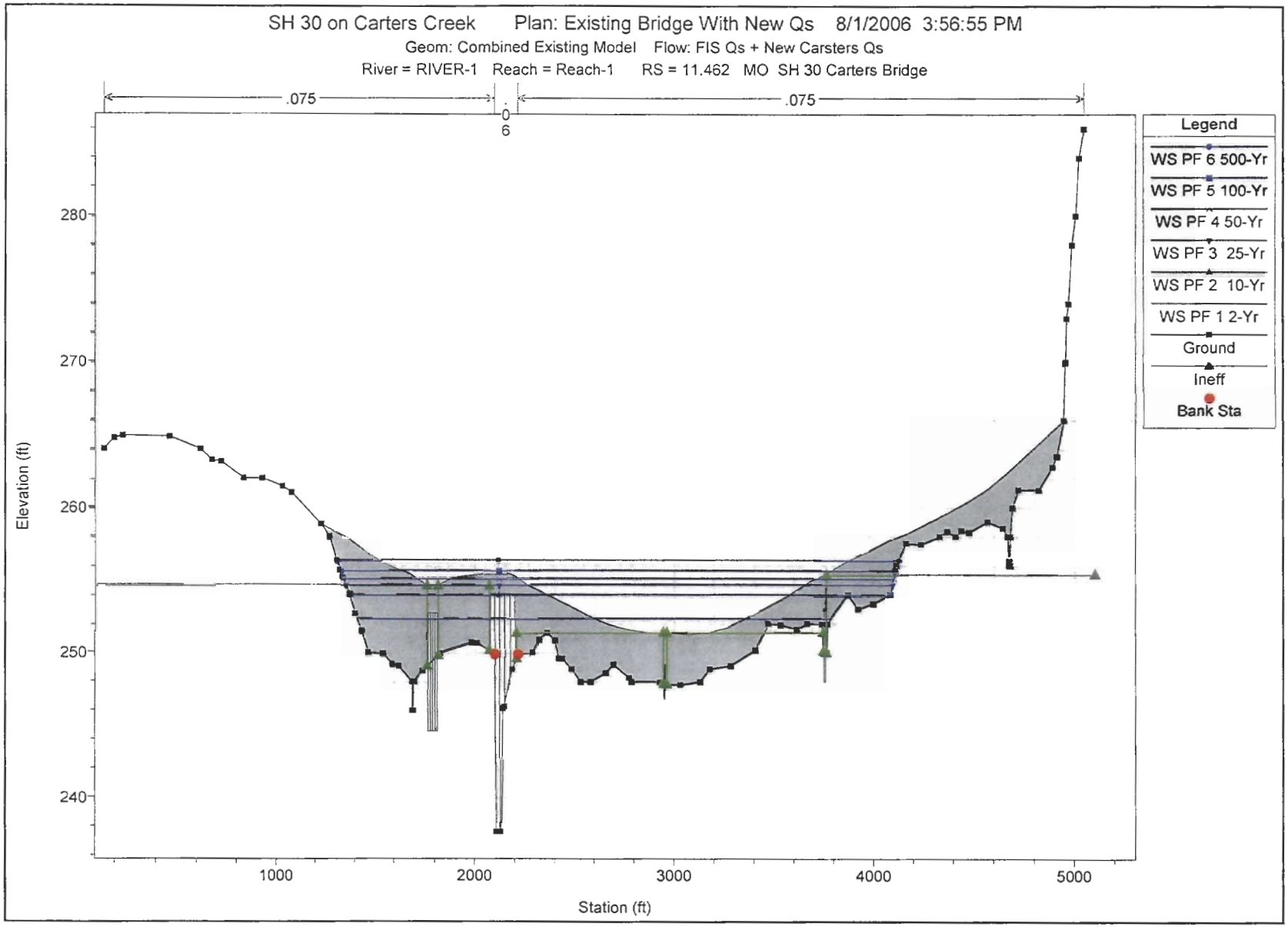
	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	19.065	1280.00	303.99	.00	.69	.00	721.92	25.00
*	19.065	2110.00	304.53	.54	.64	.00	782.13	25.00
*	19.065	2240.00	304.57	.04	.71	.00	785.85	25.00
	19.065	2900.00	304.87	.30	.55	.00	816.01	25.00
	19.065	3200.00	304.98	.11	.53	.00	827.34	25.00
*	19.065	5270.00	305.63	.65	.28	.00	892.66	25.00
	19.070	1280.00	304.01	.00	.02	.00	724.15	50.00
	19.070	2110.00	304.56	.55	.02	.00	785.04	50.00
	19.070	2240.00	304.59	.04	.03	.00	789.11	50.00
	19.070	2900.00	304.90	.30	.03	.00	819.93	50.00
	19.070	3200.00	305.01	.11	.03	.00	831.44	50.00
	19.070	5270.00	305.67	.66	.05	.00	897.37	50.00

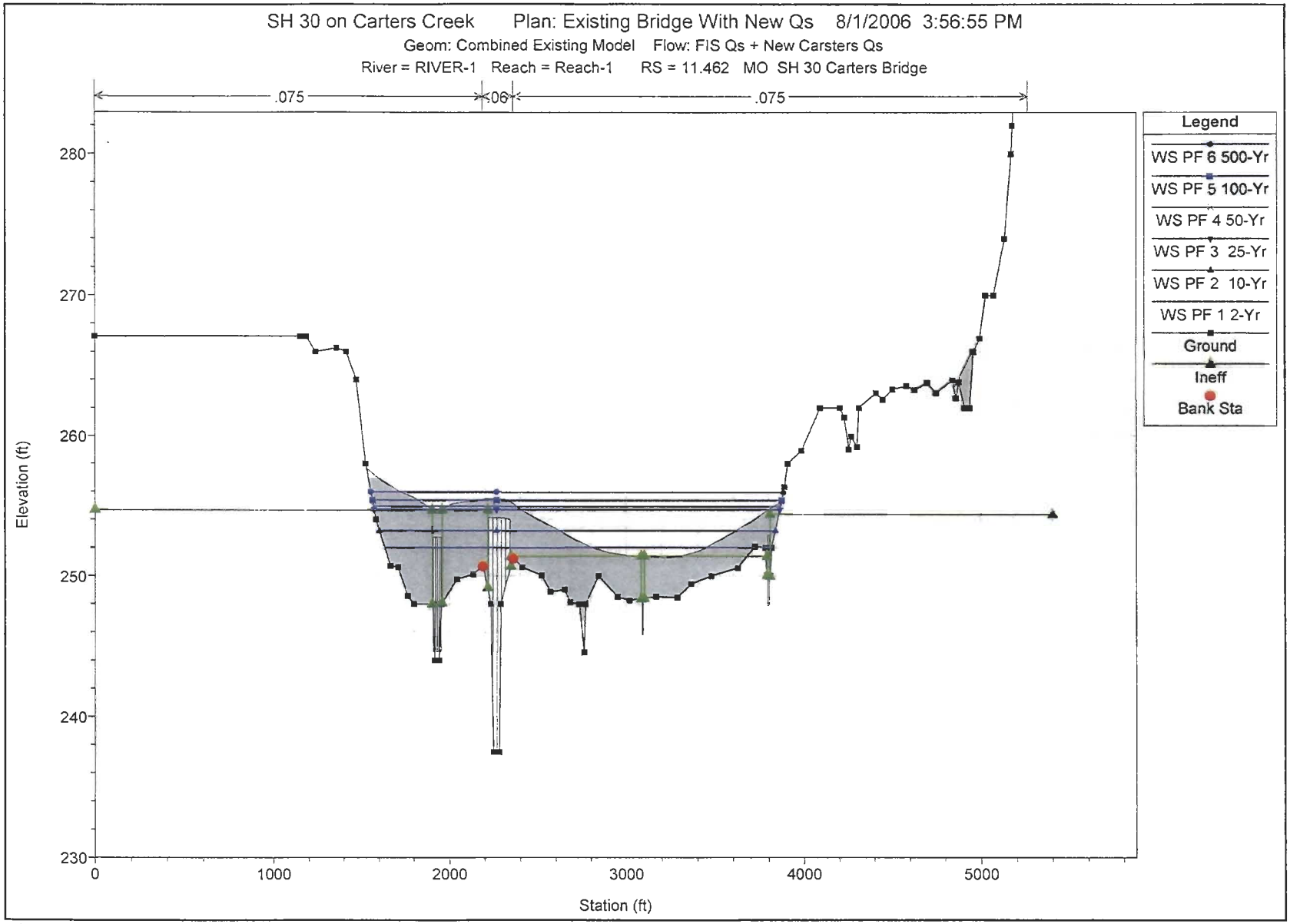
APPENDIX D

UPDATED EXISTING CONDITION HEC-RAS MODELS

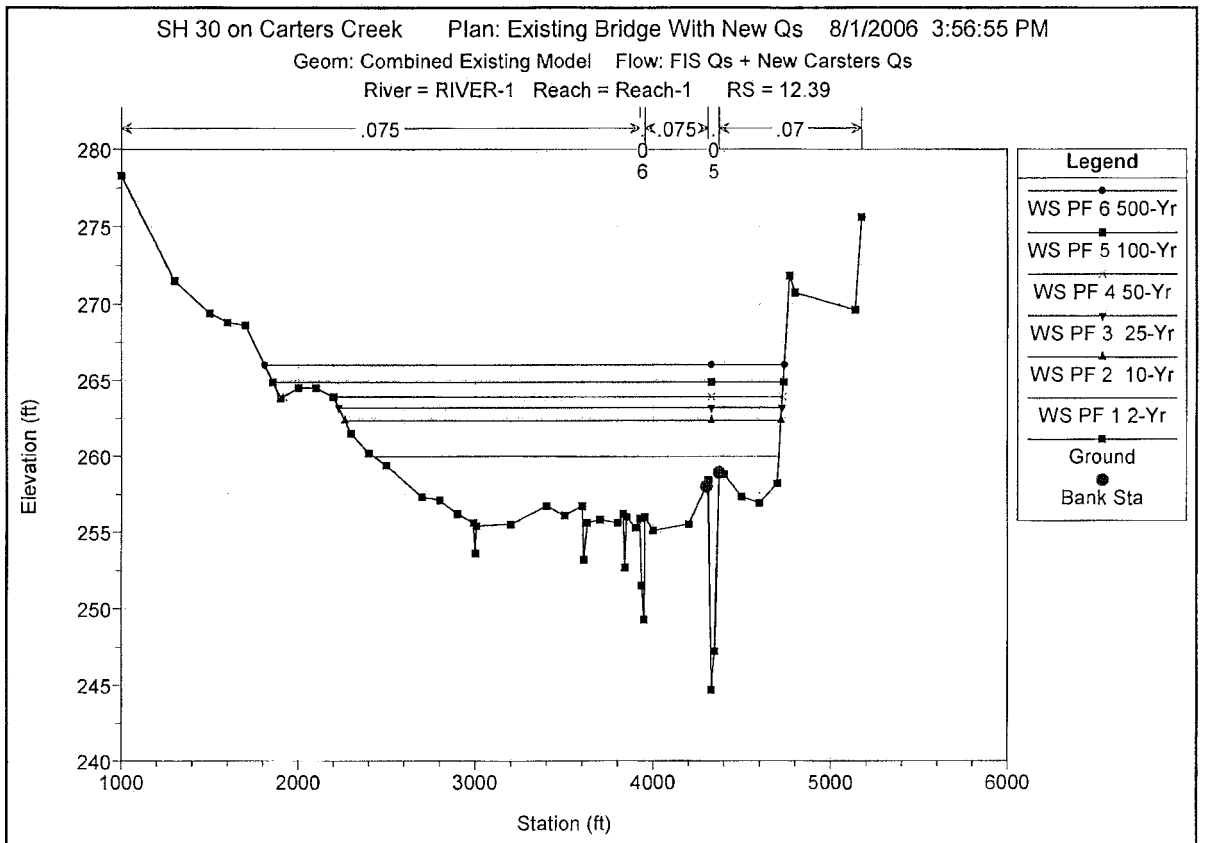

SH 30 on Carters Creek Plan: Existing Bridge With New Qs 8/1/2006 3:56:55 PM
Geom: Combined Existing Model Flow: FIS Qs + New Carsters Qs
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Elevation (ft)
270
265
260
255
250
245
240
235
11
11.20
11.45
11.47
11.5
11.88
12.2
12.24
12.253
12.39
24000
26000
28000
30000
Main Channel Distance (ft)

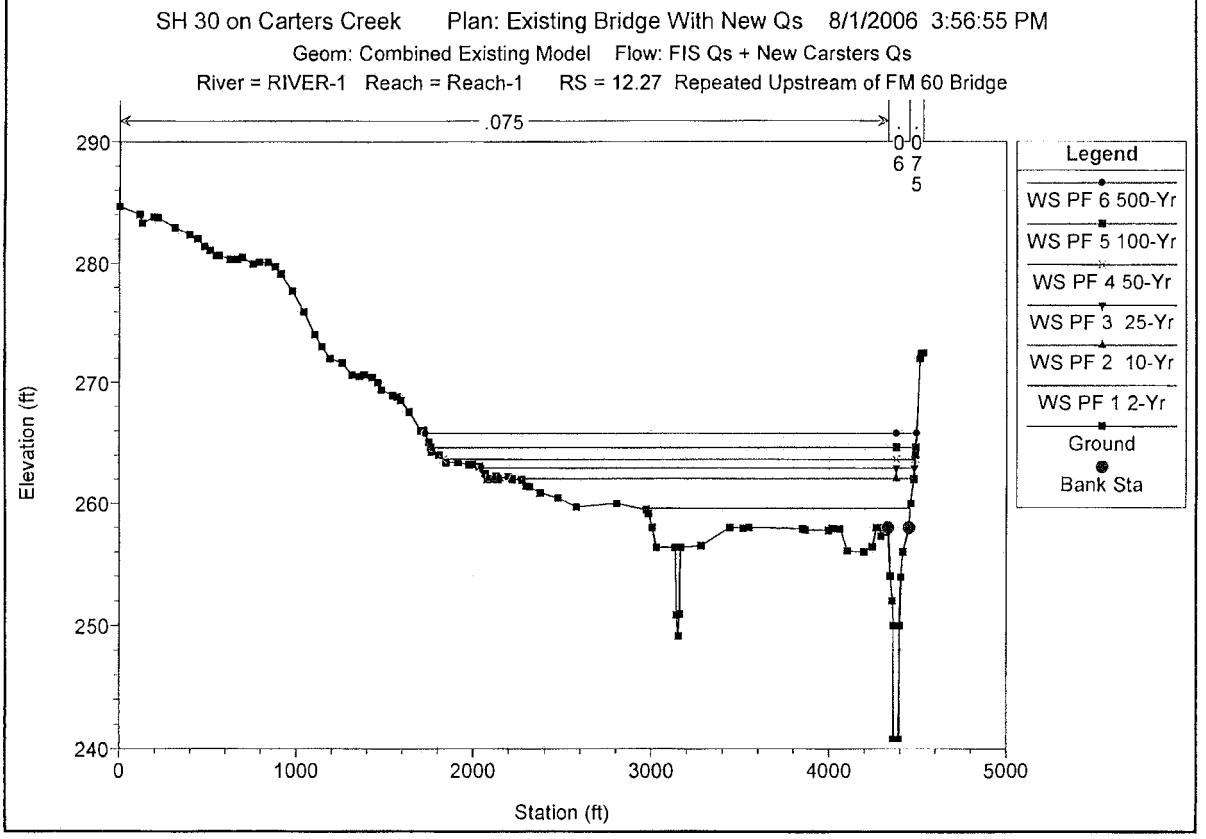

SH 30 on Carters Creek Plan: Existing Bridge With New Qs 8/1/2006 3:56:55 PM
Geom: Combined Existing Model Flow: FIS Qs + New Carsters Qs
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Elevation (ft)
Main Channel Distance (ft)
320
300
280
260
240
220
200
0
10000
20000
30000
40000
50000
60000
70000
7.375
7.96
8.82
9.58
10.11
10.93
11
11.45
11.88
12.2
12.253
12.75
13.5
14.2
14.81
15.69
16.31
16.96
17.29
17.95
18.51
19.05

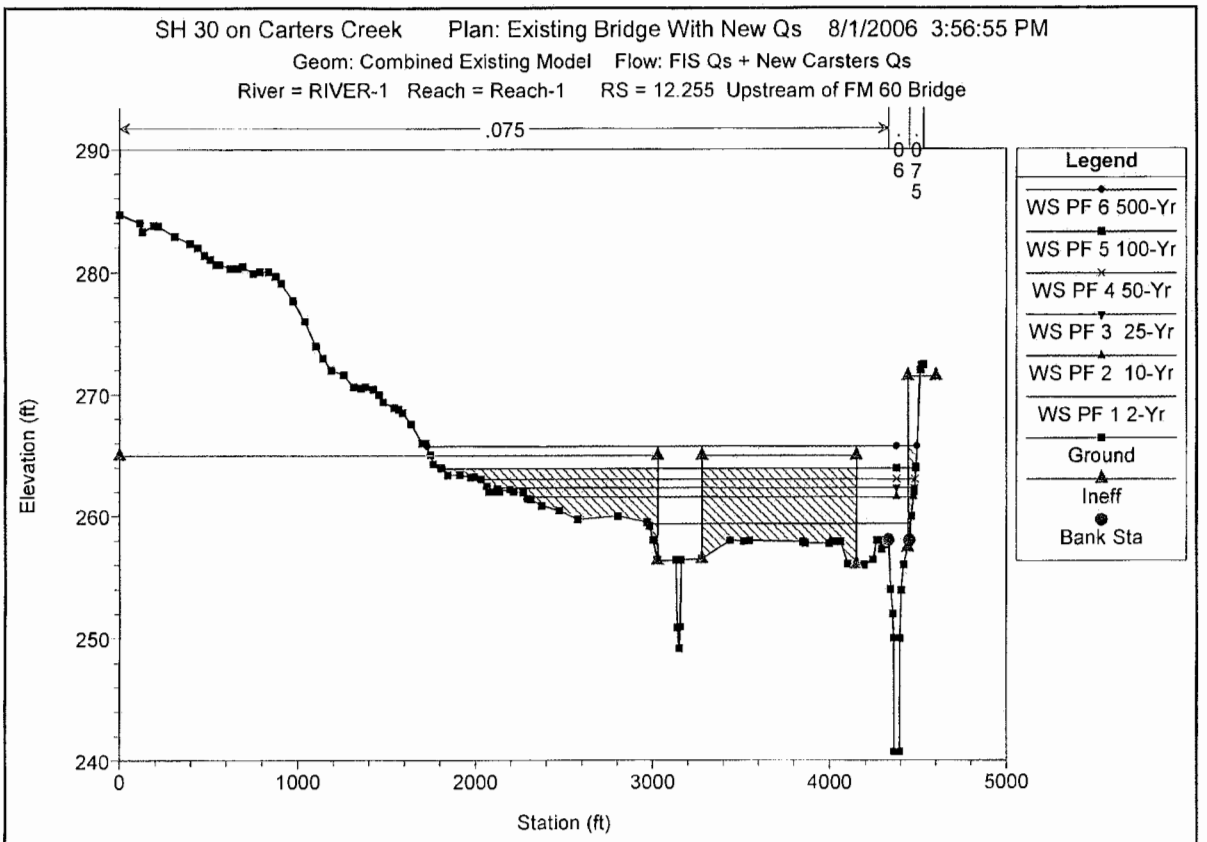

SH 30 on Carters Creek Plan: Existing Bridge With New Qs 8/1/2006 3:56:55 PM
Geom: Combined Existing Model Flow: FIS Qs + New Carsters Qs
River = RIVER-1 Reach = Reach-1 RS = 11.462 MO SH 30 Carters Bridge
.075
.06
.075
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Ineff
Bank Sta
Elevation (ft)
280
270
260
250
240
1000
2000
3000
4000
5000
Station (ft)

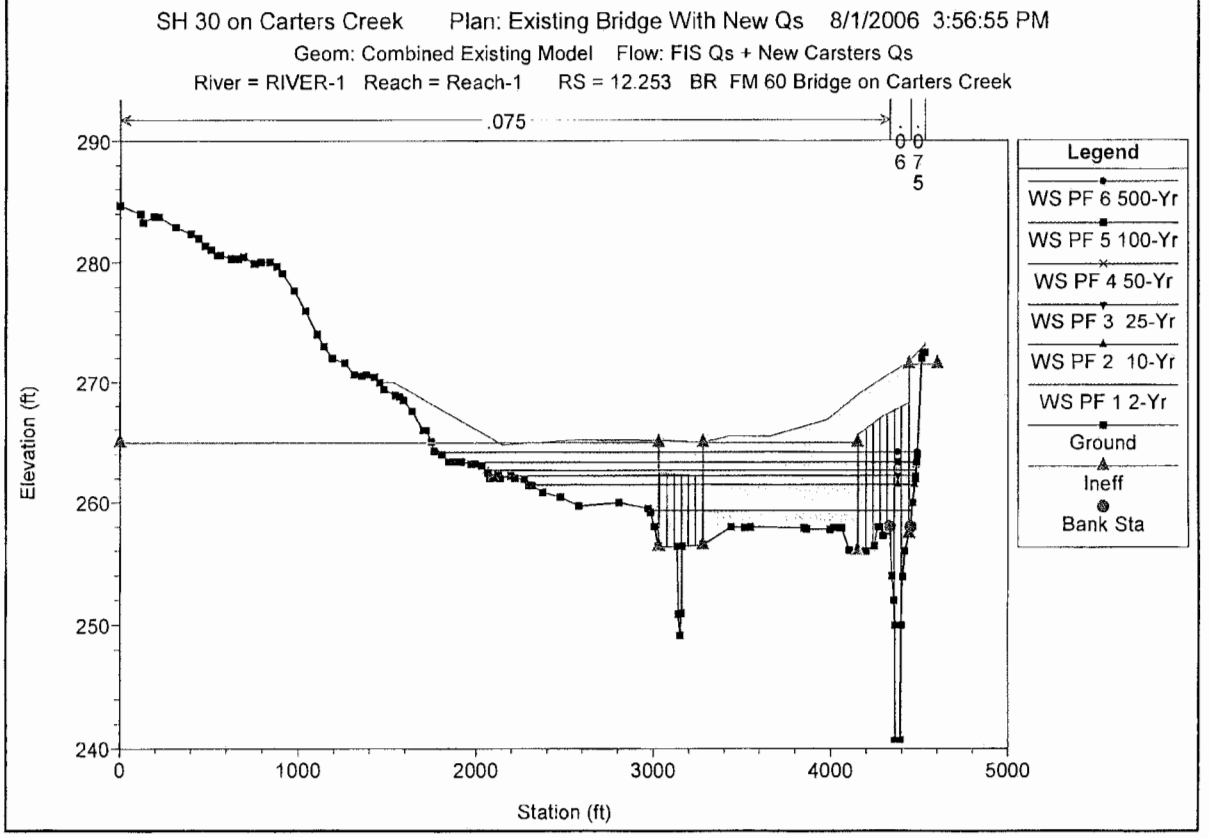


1 in Horiz. = 800 ft 1 in Vert. = 10 ft


SH 30 on Carters Creek Plan: Existing Bridge With New Qs 8/1/2006 3:56:55 PM
Geom: Combined Existing Model Flow: FIS Qs + New Carsters Qs
River = RIVER-1 Reach = Reach-1 RS = 12.39
.075
.075
.07
0 6
0 5
Elevation (ft)
Station (ft)
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Bank Sta


SH 30 on Carters Creek Plan: Existing Bridge With New Qs 8/1/2006 3:56:55 PM
Geom: Combined Existing Model Flow: FIS Qs + New Carsters Qs
River = RIVER-1 Reach = Reach-1 RS = 12.27 Repeated Upstream of FM 60 Bridge
.075
0 6
0 7 5
Elevation (ft)
Station (ft)
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Bank Sta

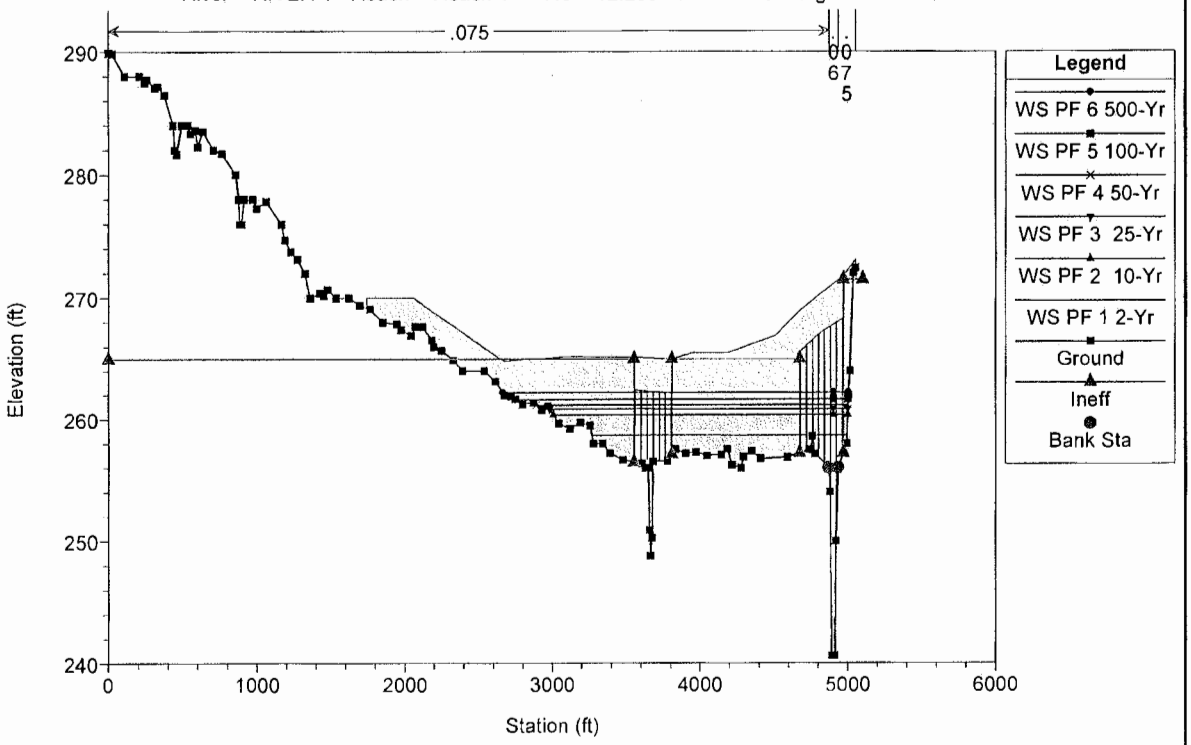

SH 30 on Carters Creek Plan: Existing Bridge With New Qs 8/1/2006 3:56:55 PM
Geom: Combined Existing Model Flow: FIS Qs + New Carsters Qs
River = RIVER-1 Reach = Reach-1 RS = 12.255 Upstream of FM 60 Bridge
.075
Elevation (ft)
Station (ft)
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Ineff
Bank Sta


SH 30 on Carters Creek Plan: Existing Bridge With New Qs 8/1/2006 3:56:55 PM
Geom: Combined Existing Model Flow: FIS Qs + New Carsters Qs
River = RIVER-1 Reach = Reach-1 RS = 12.253 BR FM 60 Bridge on Carters Creek
.075
Elevation (ft)
Station (ft)
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Ineff
Bank Sta

SH 30 on Carters Creek Plan: Existing Bridge With New Qs 8/1/2006 3:56:55 PM

Geom: Combined Existing Model Flow: FIS Qs + New Carsters Qs

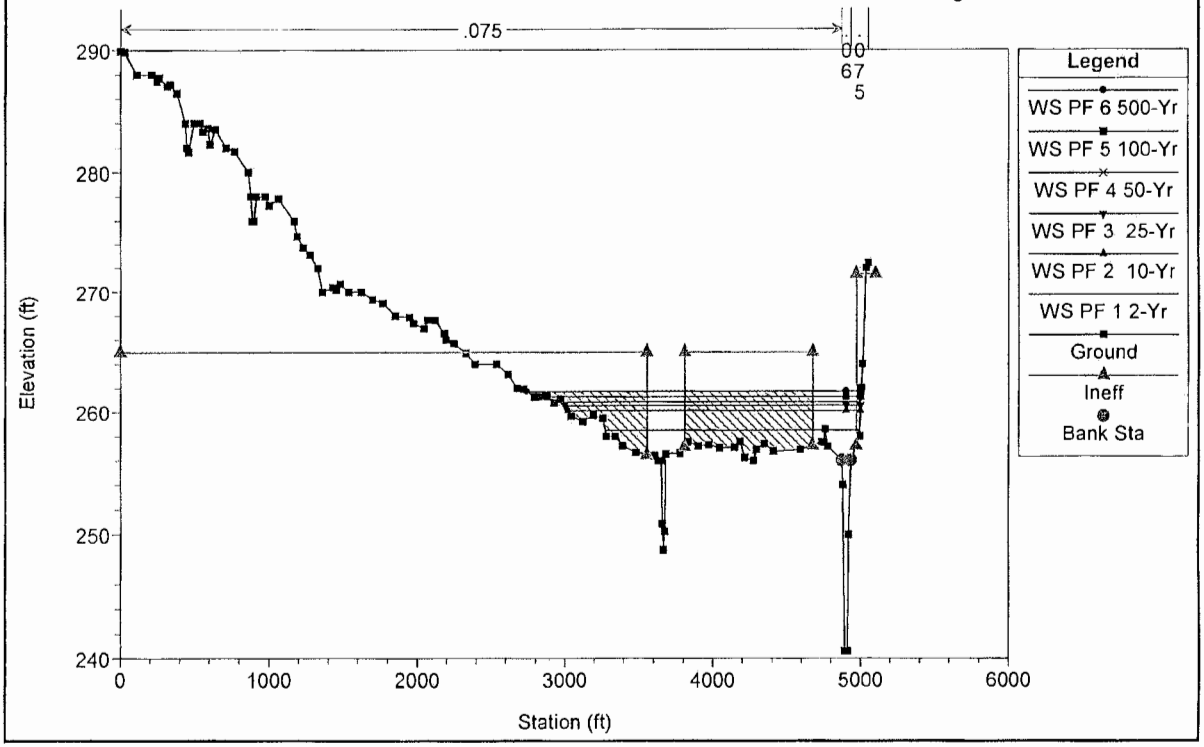
River = RIVER-1 Reach = Reach-1 RS = 12.253 BR FM 60 Bridge on Carters Creek

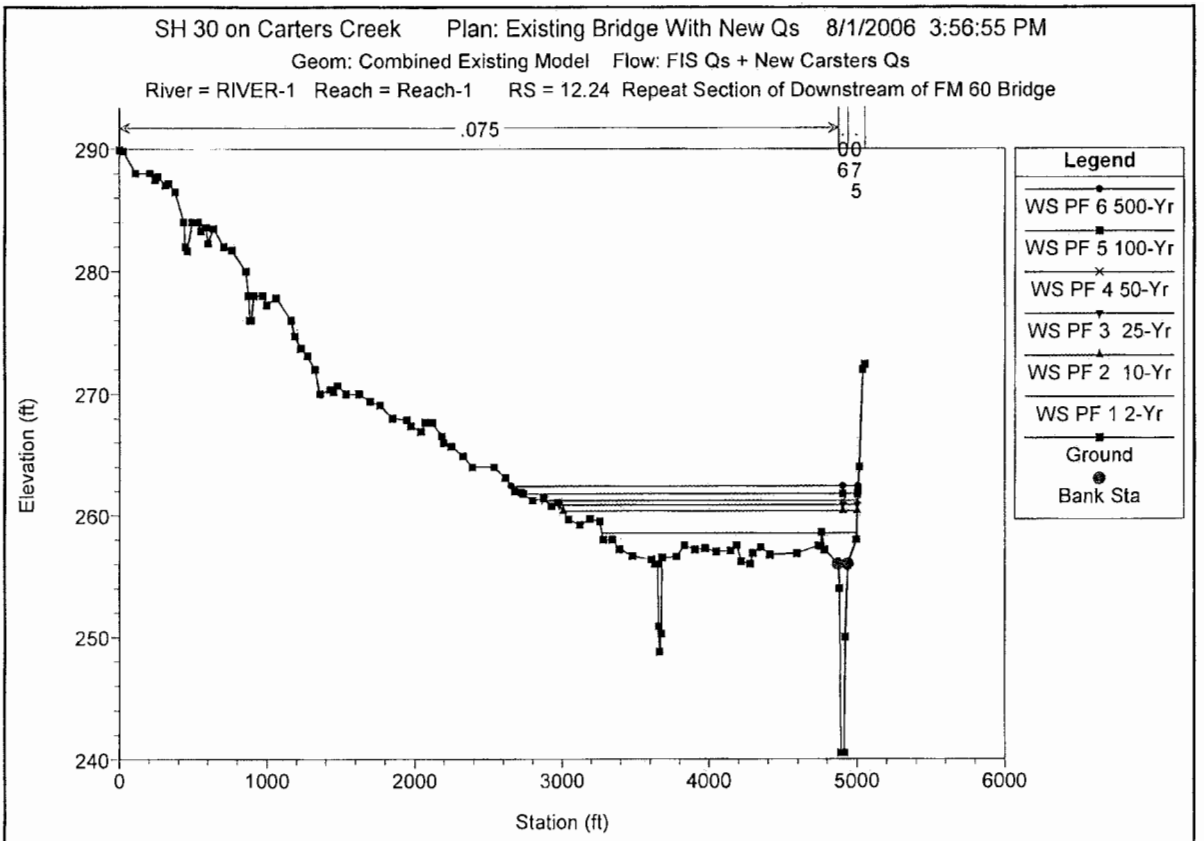


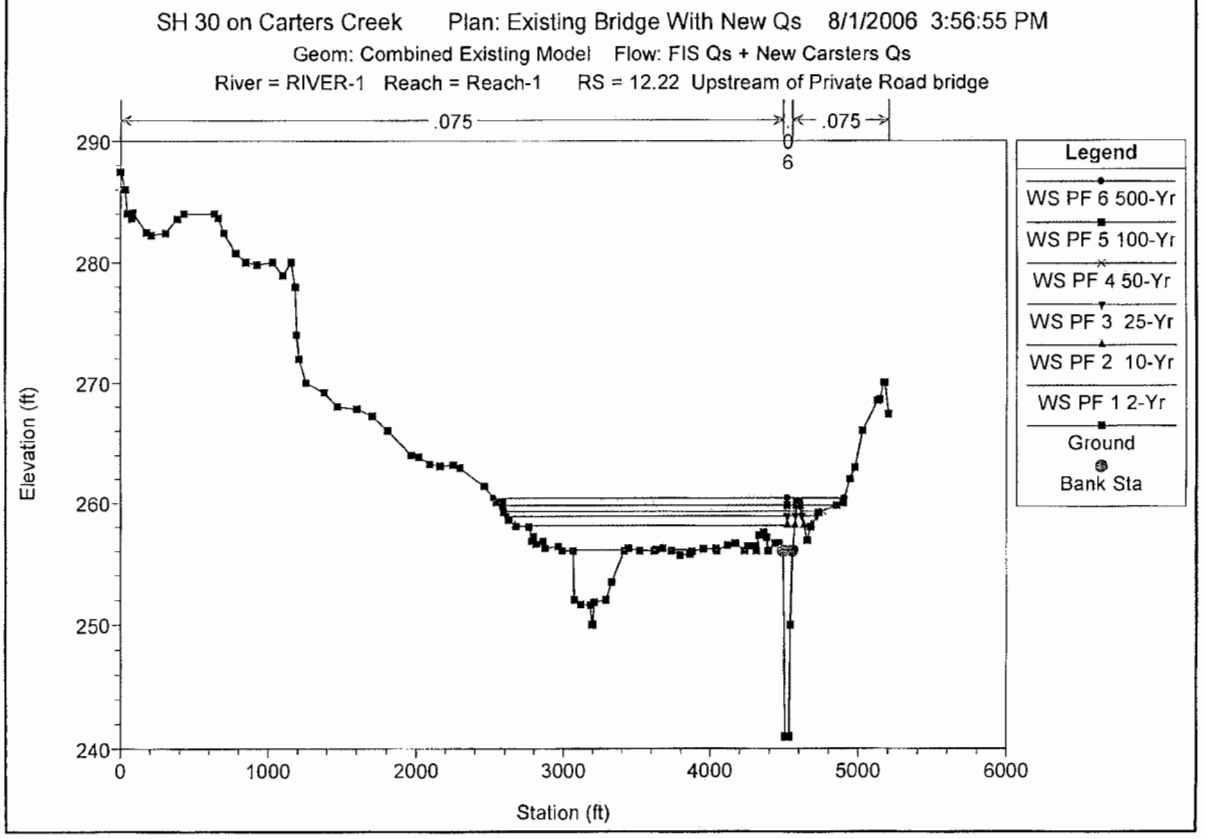
SH 30 on Carters Creek Plan: Existing Bridge With New Qs 8/1/2006 3:56:55 PM

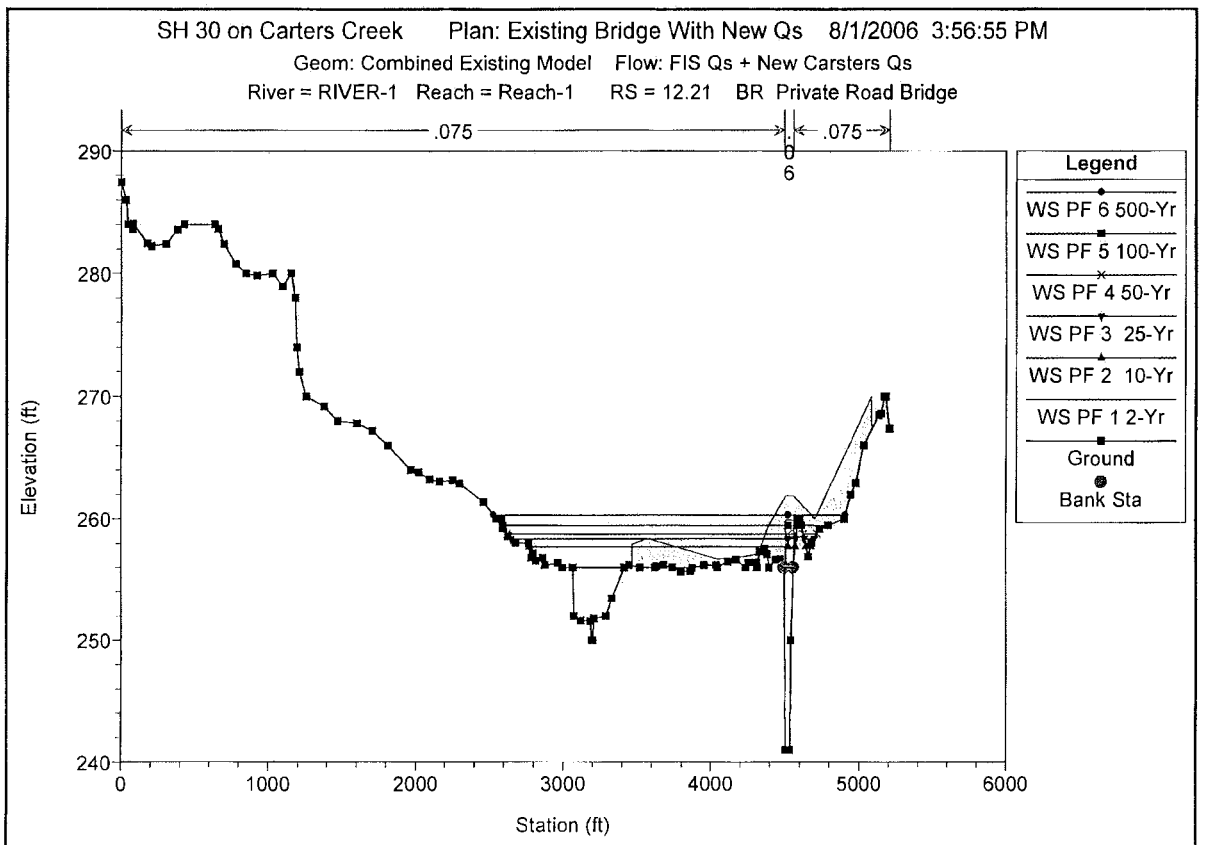
Geom: Combined Existing Model Flow: FIS Qs + New Carsters Qs

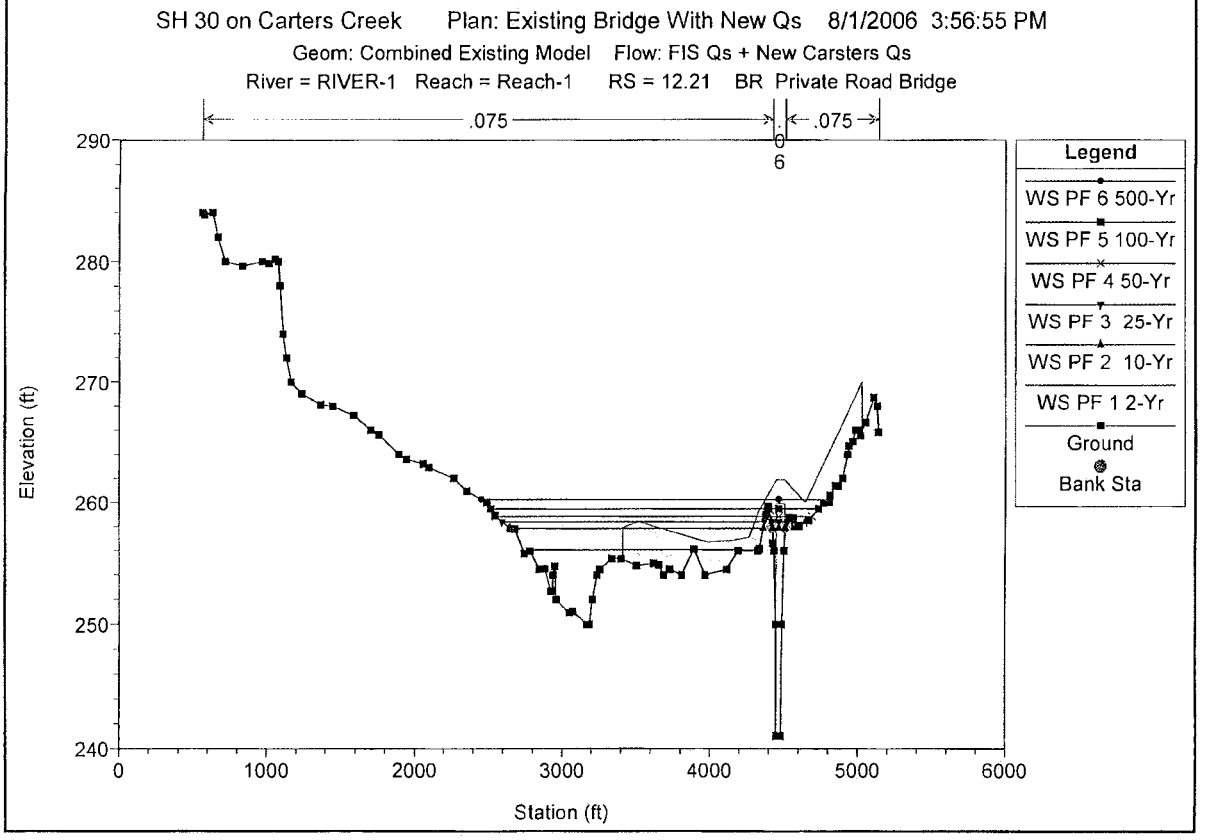
River = RIVER-1 Reach = Reach-1 RS = 12.25 Downstream of FM 60 Bridge

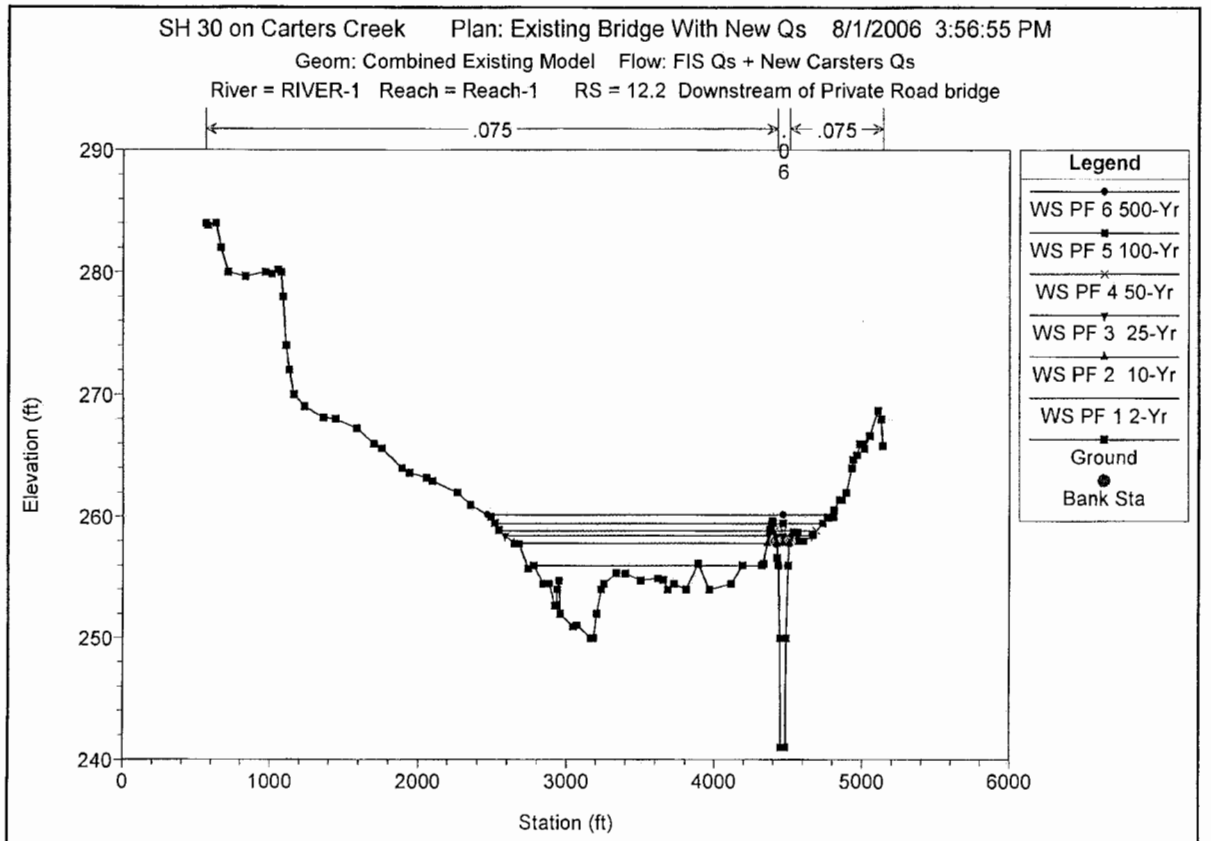


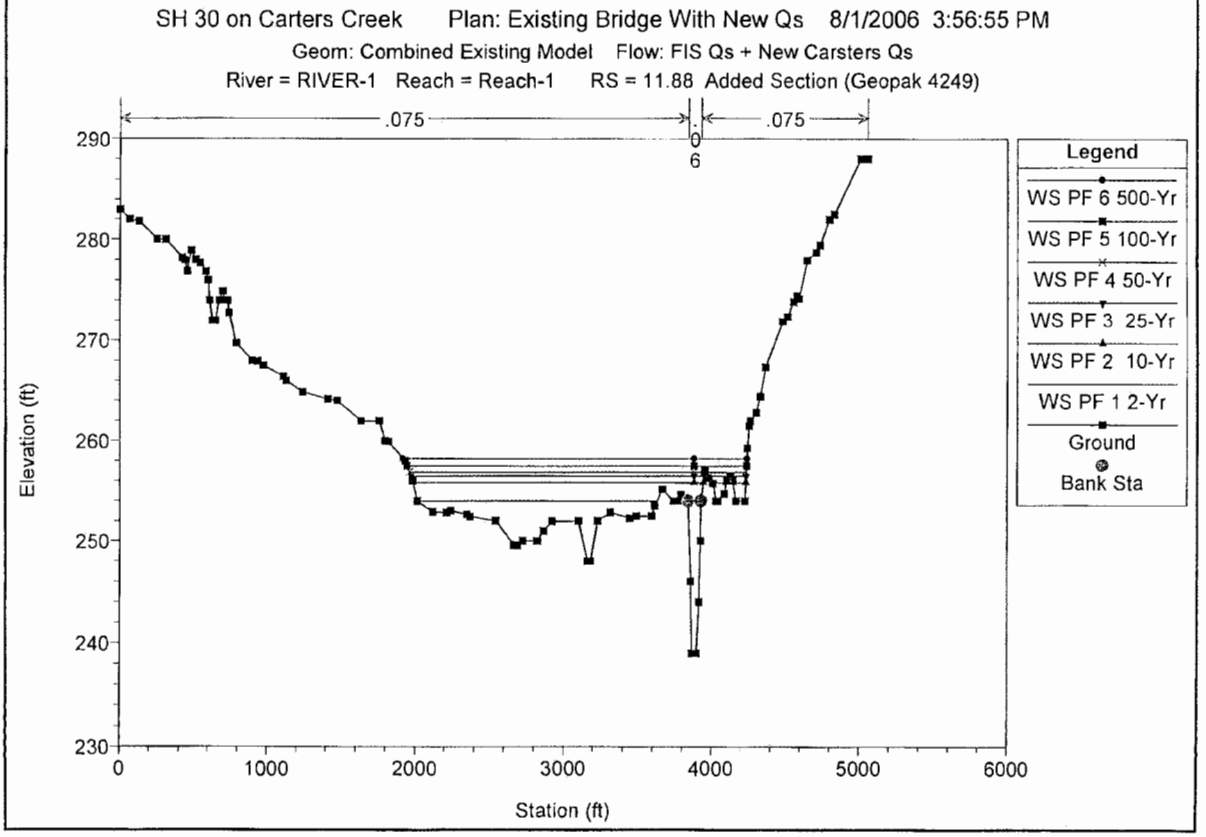

SH 30 on Carters Creek Plan: Existing Bridge With New Qs 8/1/2006 3:56:55 PM
Geom: Combined Existing Model Flow: FIS Qs + New Carsters Qs
River = RIVER-1 Reach = Reach-1 RS = 12.24 Repeat Section of Downstream of FM 60 Bridge
.075
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

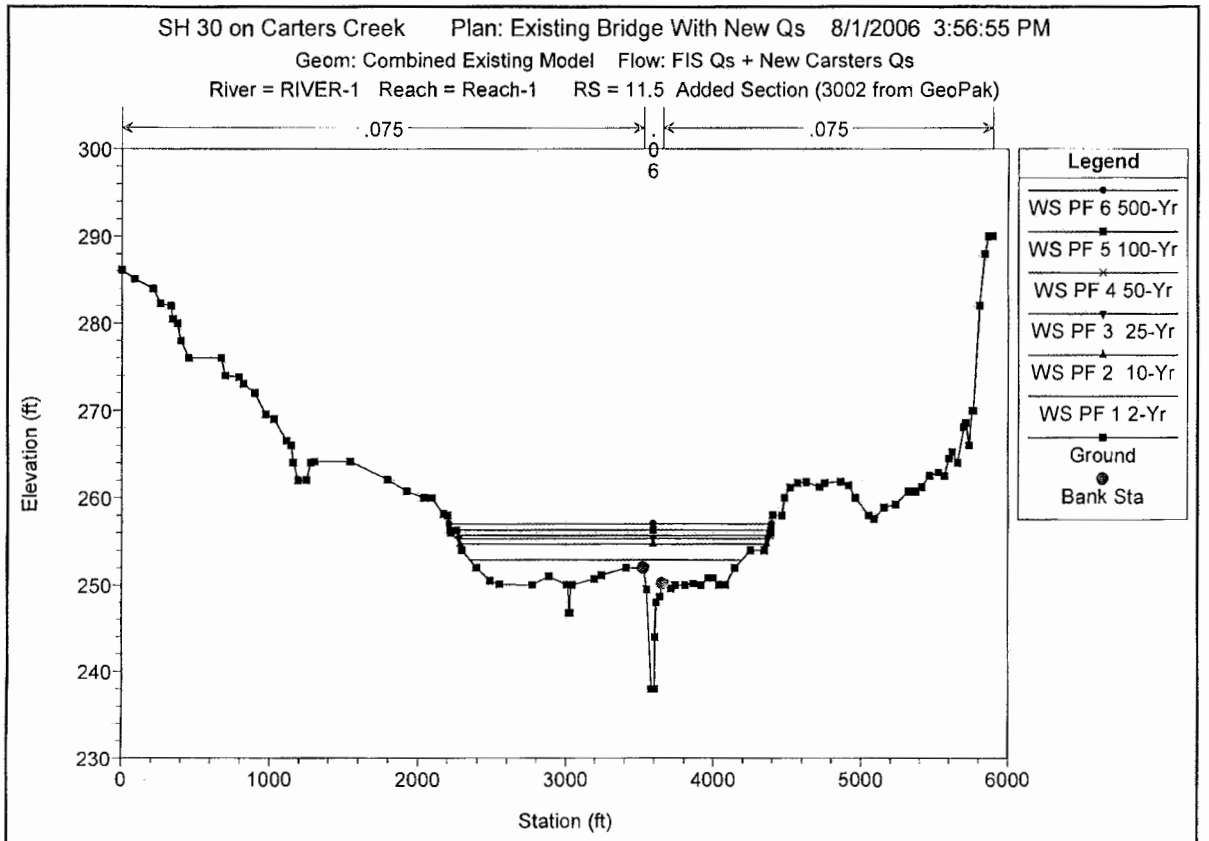

SH 30 on Carters Creek Plan: Existing Bridge With New Qs 8/1/2006 3:56:55 PM
Geom: Combined Existing Model Flow: FIS Qs + New Carsters Qs
River = RIVER-1 Reach = Reach-1 RS = 12.22 Upstream of Private Road bridge
.075
.075
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

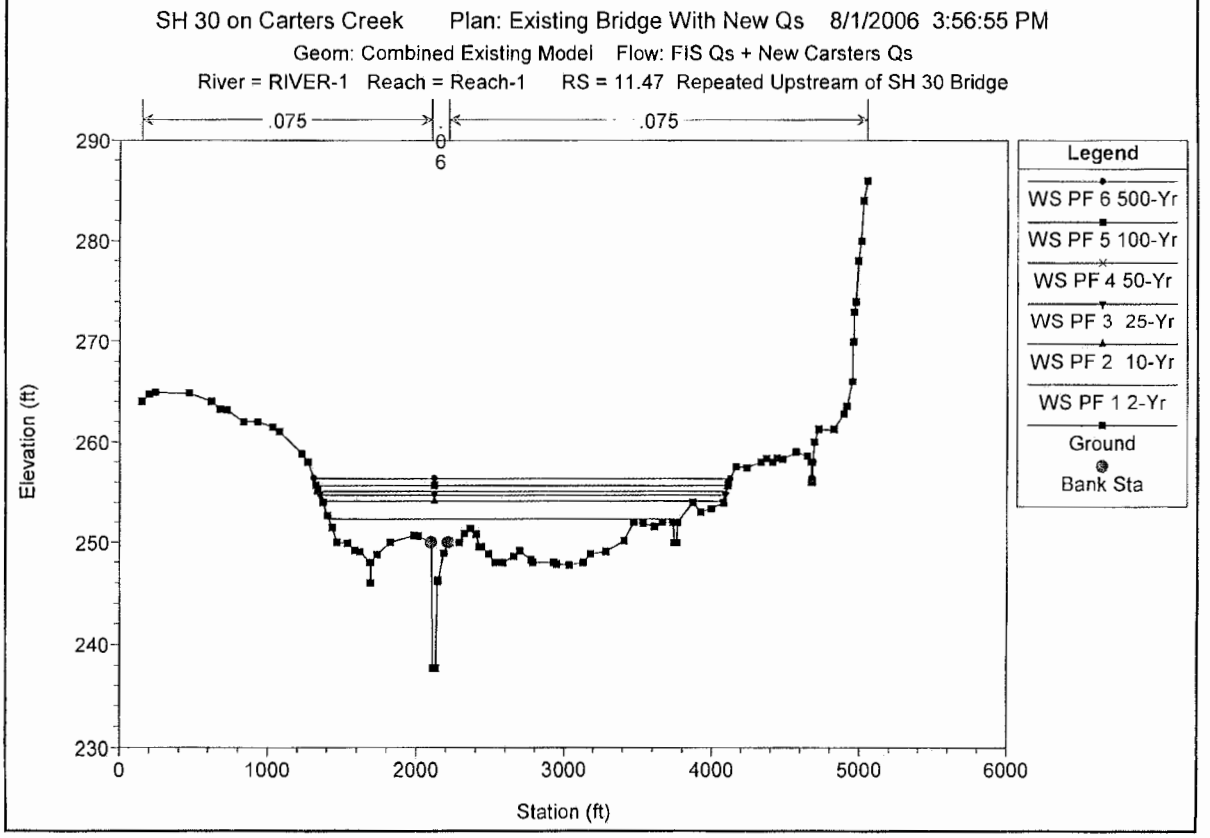

SH 30 on Carters Creek Plan: Existing Bridge With New Qs 8/1/2006 3:56:55 PM
Geom: Combined Existing Model Flow: FIS Qs + New Carsters Qs
River = RIVER-1 Reach = Reach-1 RS = 12.21 BR Private Road Bridge
.075
.075
6
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

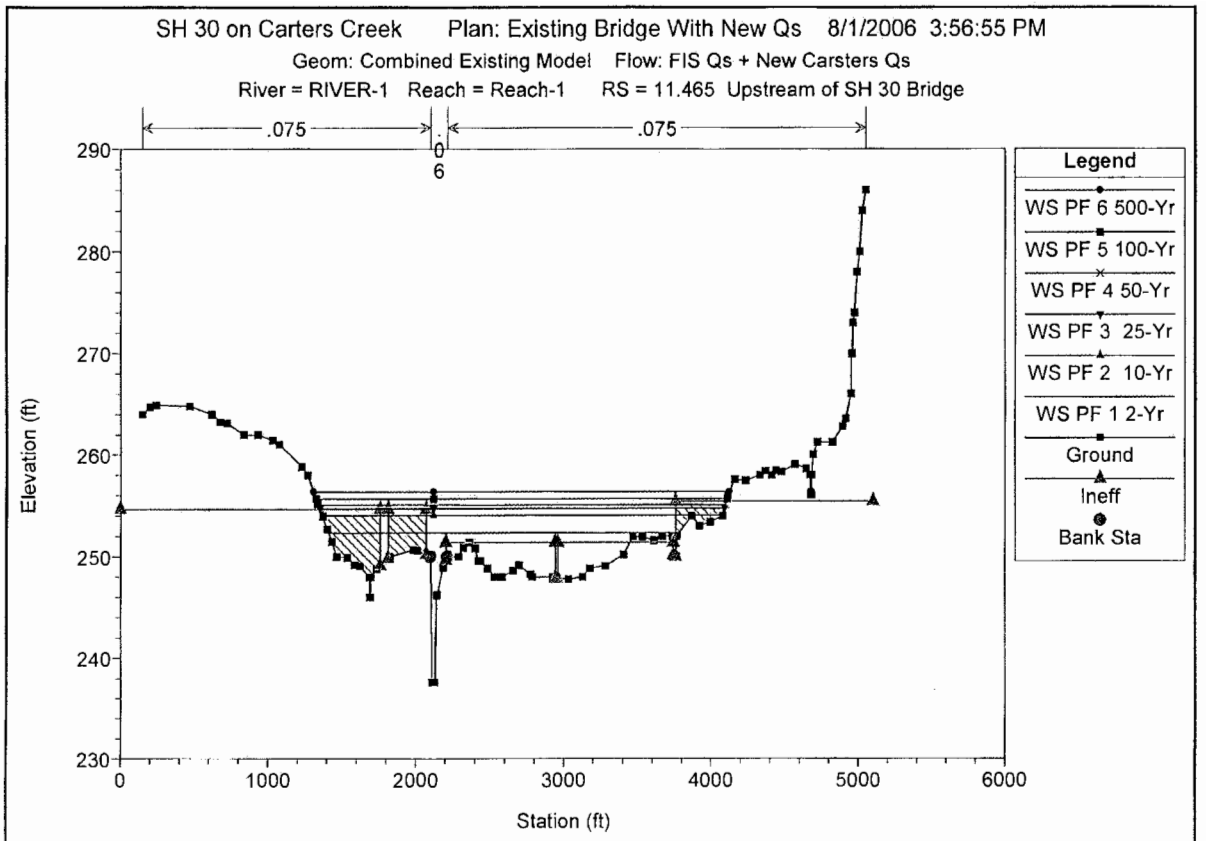

SH 30 on Carters Creek Plan: Existing Bridge With New Qs 8/1/2006 3:56:55 PM
Geom: Combined Existing Model Flow: FIS Qs + New Carsters Qs
River = RIVER-1 Reach = Reach-1 RS = 12.21 BR Private Road Bridge
.075
.075
6
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

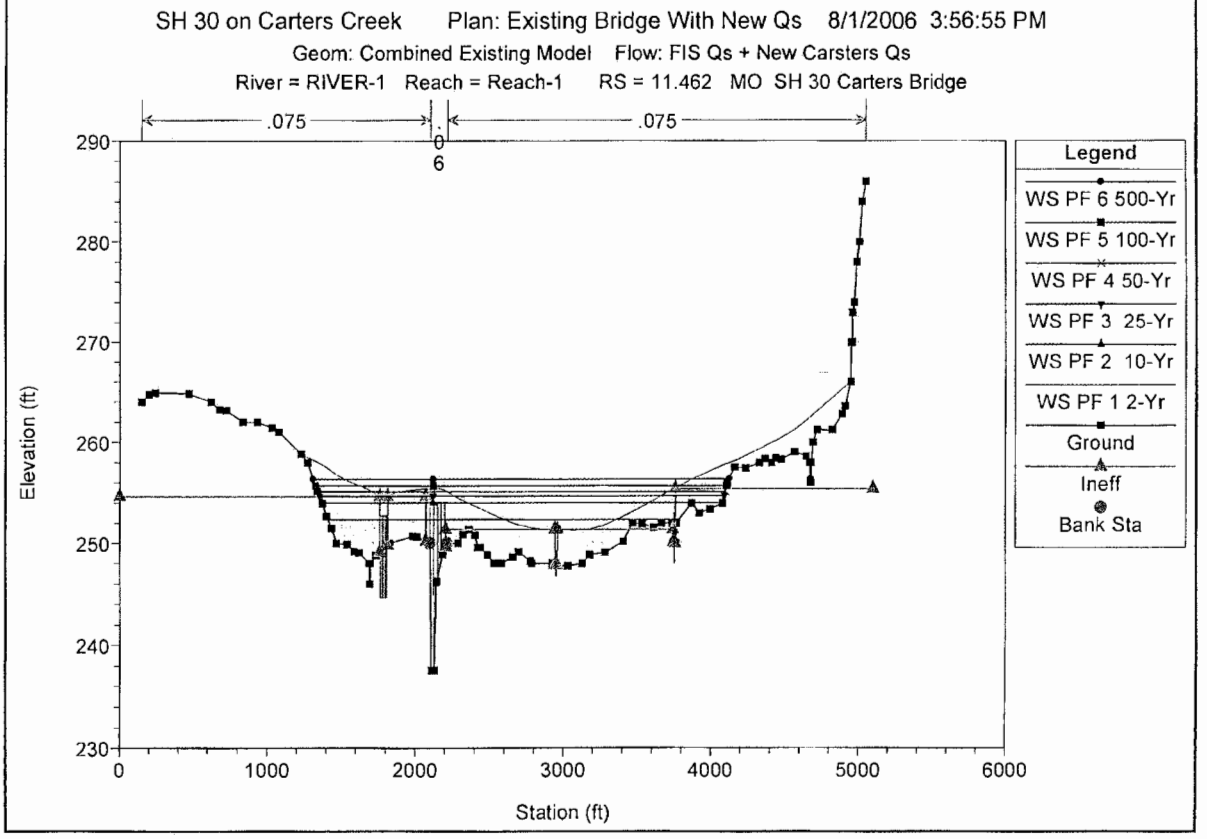

SH 30 on Carters Creek Plan: Existing Bridge With New Qs 8/1/2006 3:56:55 PM
Geom: Combined Existing Model Flow: FIS Qs + New Carsters Qs
River = RIVER-1 Reach = Reach-1 RS = 12.2 Downstream of Private Road bridge
.075
.075
0
6
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


SH 30 on Carters Creek Plan: Existing Bridge With New Qs 8/1/2006 3:56:55 PM
Geom: Combined Existing Model Flow: FIS Qs + New Carsters Qs
River = RIVER-1 Reach = Reach-1 RS = 11.88 Added Section (Geopak 4249)
.075
.075
0
6
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


SH 30 on Carters Creek Plan: Existing Bridge With New Qs 8/1/2006 3:56:55 PM
Geom: Combined Existing Model Flow: FIS Qs + New Carsters Qs
River = RIVER-1 Reach = Reach-1 RS = 11.5 Added Section (3002 from GeoPak)
.075
.075
0
6
Elevation (ft)
Station (ft)
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Bank Sta


SH 30 on Carters Creek Plan: Existing Bridge With New Qs 8/1/2006 3:56:55 PM
Geom: Combined Existing Model Flow: FIS Qs + New Carsters Qs
River = RIVER-1 Reach = Reach-1 RS = 11.47 Repeated Upstream of SH 30 Bridge
.075
.075
0
6
Elevation (ft)
Station (ft)
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Bank Sta

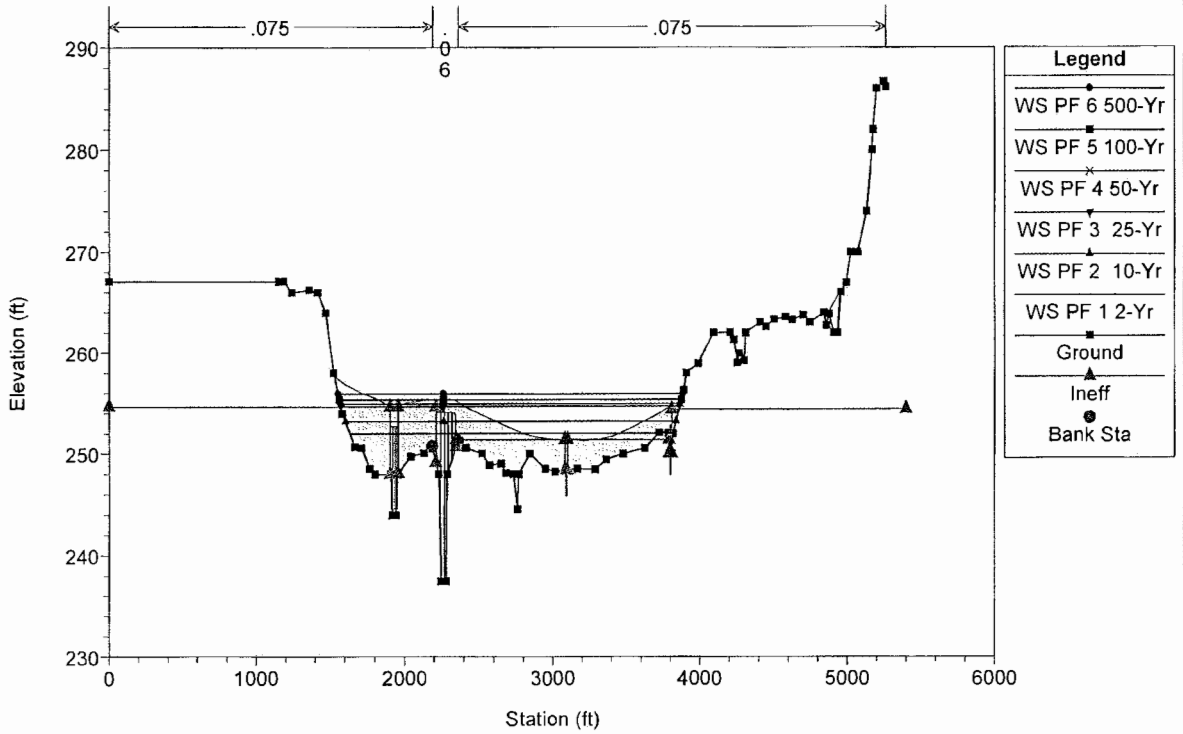

SH 30 on Carters Creek Plan: Existing Bridge With New Qs 8/1/2006 3:56:55 PM
Geom: Combined Existing Model Flow: FIS Qs + New Carsters Qs
River = RIVER-1 Reach = Reach-1 RS = 11.465 Upstream of SH 30 Bridge
.075
.06
.075
Elevation (ft)
Station (ft)
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Ineff
Bank Sta


SH 30 on Carters Creek Plan: Existing Bridge With New Qs 8/1/2006 3:56:55 PM
Geom: Combined Existing Model Flow: FIS Qs + New Carsters Qs
River = RIVER-1 Reach = Reach-1 RS = 11.462 MO SH 30 Carters Bridge
.075
.06
.075
Elevation (ft)
Station (ft)
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Ineff
Bank Sta

SH 30 on Carters Creek Plan: Existing Bridge With New Qs 8/1/2006 3:56:55 PM

Geom: Combined Existing Model Flow: FIS Qs + New Carsters Qs

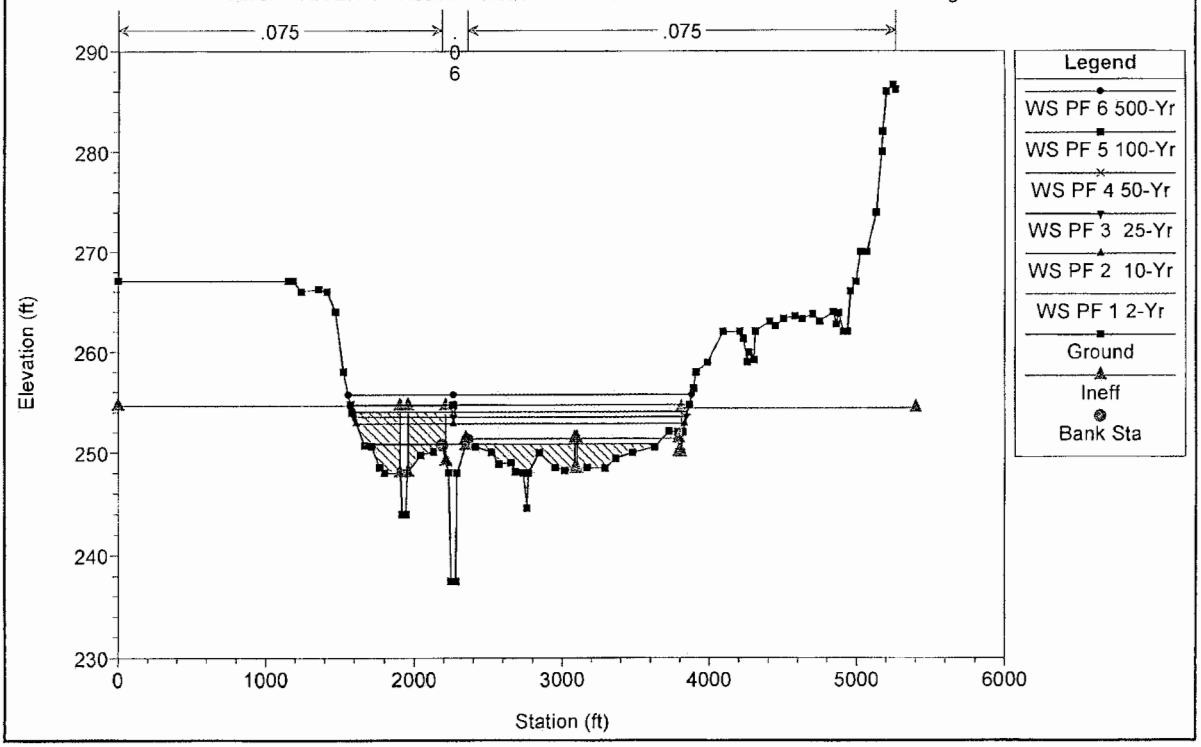
River = RIVER-1 Reach = Reach-1 RS = 11.462 MO SH 30 Carters Bridge

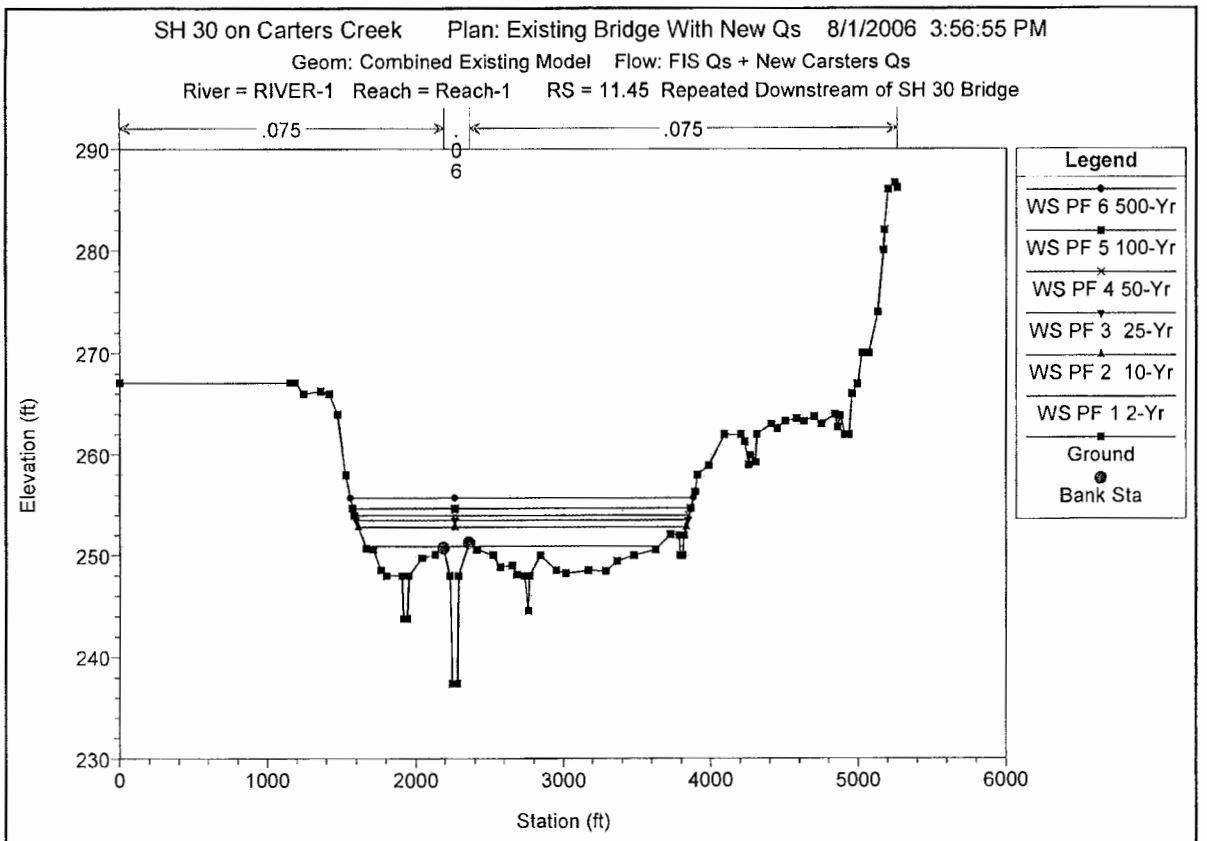


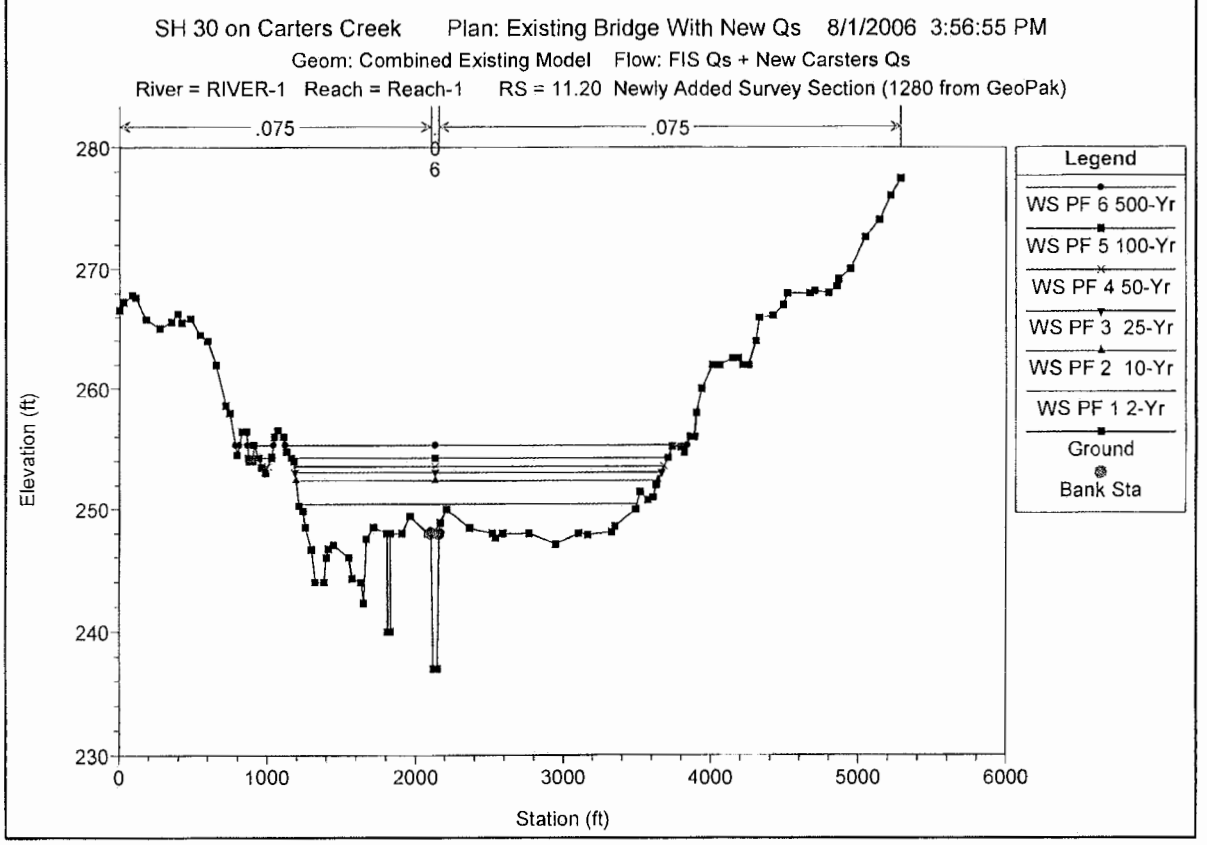
SH 30 on Carters Creek Plan: Existing Bridge With New Qs 8/1/2006 3:56:55 PM

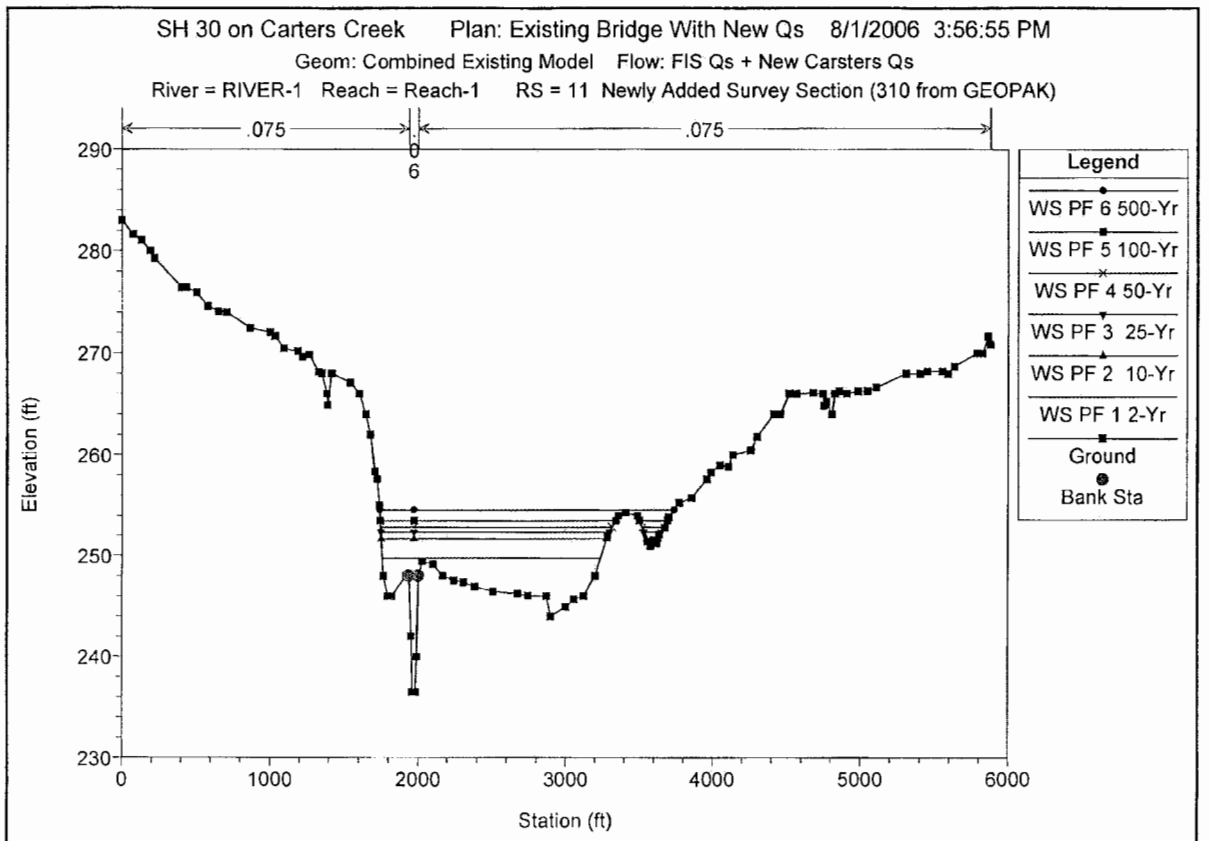
Geom: Combined Existing Model Flow: FIS Qs + New Carsters Qs

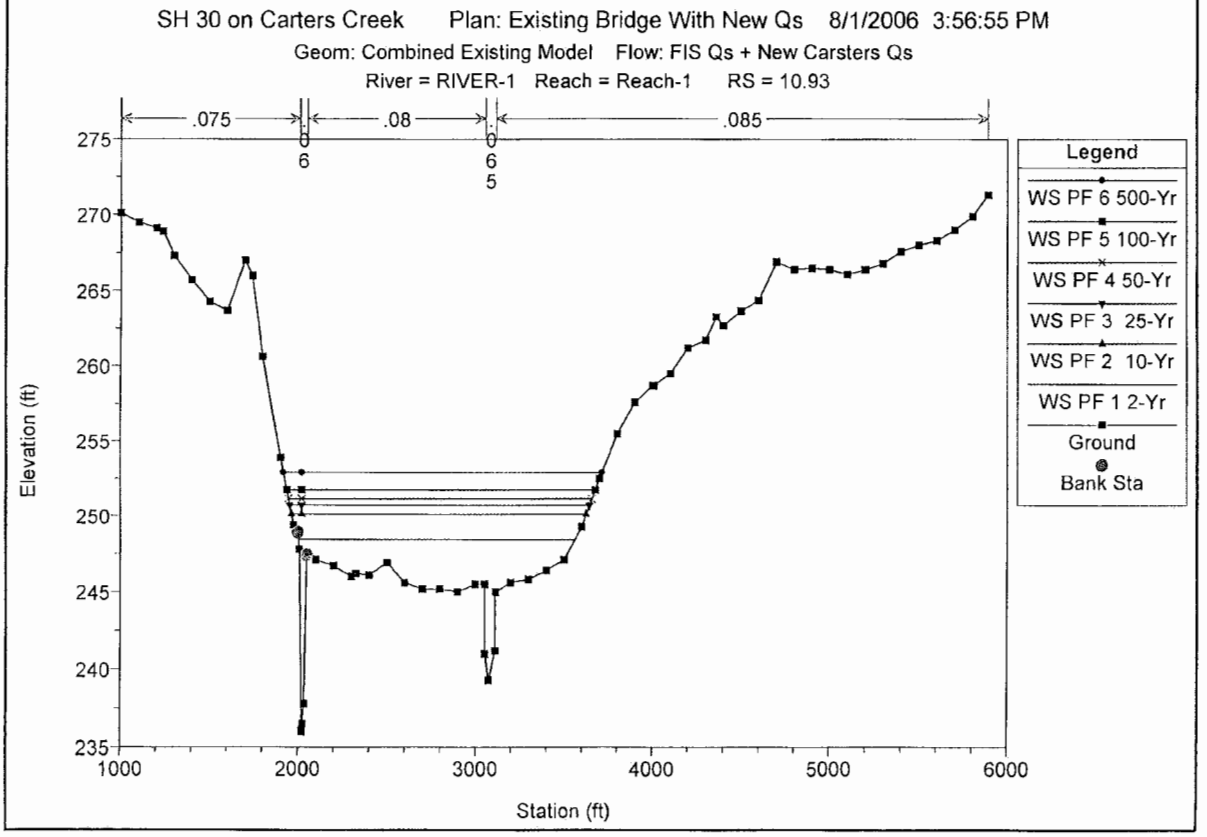
River = RIVER-1 Reach = Reach-1 RS = 11.46 Downstream of SH 30 Bridge




SH 30 on Carters Creek Plan: Existing Bridge With New Qs 8/1/2006 3:56:55 PM
Geom: Combined Existing Model Flow: FIS Qs + New Carsters Qs
River = RIVER-1 Reach = Reach-1 RS = 11.45 Repeated Downstream of SH 30 Bridge
.075
.075
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


SH 30 on Carters Creek Plan: Existing Bridge With New Qs 8/1/2006 3:56:55 PM
Geom: Combined Existing Model Flow: FIS Qs + New Carsters Qs
River = RIVER-1 Reach = Reach-1 RS = 11.20 Newly Added Survey Section (1280 from GeoPak)
.075
.075
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


SH 30 on Carters Creek Plan: Existing Bridge With New Qs 8/1/2006 3:56:55 PM
Geom: Combined Existing Model Flow: FIS Qs + New Carsters Qs
River = RIVER-1 Reach = Reach-1 RS = 11 Newly Added Survey Section (310 from GEOPAK)
.075
.075
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


SH 30 on Carters Creek Plan: Existing Bridge With New Qs 8/1/2006 3:56:55 PM
Geom: Combined Existing Model Flow: FIS Qs + New Carsters Qs
River = RIVER-1 Reach = Reach-1 RS = 10.93
.075
.08
.085
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

HEC-RAS Plan: EX BG New Q River: RIVER-1 Reach: Reach-1

Reach	River Sta	Profile	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)	
Reach-1	6.76	PF 1 2-Yr	10290.00	214.90	223.95	222.69	224.01	0.002136	3.35	6254.21	3261.67	0.30
Reach-1	6.76	PF 2 10-Yr	18020.00	214.90	224.94	223.24	225.01	0.002079	3.83	9785.04	3789.00	0.30
Reach-1	6.76	PF 3 25-Yr	22340.00	214.90	225.38	223.36	225.45	0.001970	3.94	11469.96	3869.67	0.30
Reach-1	6.76	PF 4 50-Yr	25730.00	214.90	225.69	223.41	225.77	0.001926	4.04	12685.76	4004.45	0.30
Reach-1	6.76	PF 5 100-Yr	29530.00	214.90	226.02	223.56	226.10	0.001955	4.23	14030.28	4116.00	0.30
Reach-1	6.76	PF 6 500-Yr	49370.00	214.90	227.43	224.21	227.54	0.001838	4.72	20074.06	4392.22	0.30
Reach-1	6.77	PF 1 2-Yr	10290.00	212.10	222.94	222.39	224.80	0.023570	13.81	1094.35	201.39	0.96
Reach-1	6.77	PF 2 10-Yr	18020.00	212.10	224.36	224.36	227.40	0.044060	17.20	1395.26	229.99	1.30
Reach-1	6.77	PF 3 25-Yr	22340.00	212.10	227.38	227.38	228.20	0.013260	11.25	5548.38	3825.74	0.74
Reach-1	6.77	PF 4 50-Yr	25730.00	212.10	227.55	227.55	228.36	0.013553	11.56	6210.51	3905.51	0.75
Reach-1	6.77	PF 5 100-Yr	29530.00	212.10	227.66	227.66	228.55	0.015251	12.38	6630.41	3949.07	0.80
Reach-1	6.77	PF 6 500-Yr	49370.00	212.10	228.46	228.46	229.31	0.015400	13.31	9885.49	4144.30	0.81
Reach-1	6.7725		Bridge									
Reach-1	6.775	PF 1 2-Yr	10290.00	212.10	224.41	222.39	225.38	0.014036	9.74	1407.25	230.39	0.73
Reach-1	6.775	PF 2 10-Yr	18020.00	212.10	227.92	224.35	228.15	0.004131	6.59	7665.11	4016.73	0.42
Reach-1	6.775	PF 3 25-Yr	22340.00	212.10	228.26	225.44	228.48	0.004059	6.72	9030.89	4095.67	0.42
Reach-1	6.775	PF 4 50-Yr	25730.00	212.10	228.41	227.52	228.65	0.004465	7.14	9658.01	4131.41	0.44
Reach-1	6.775	PF 5 100-Yr	29530.00	212.10	228.60	227.67	228.86	0.004705	7.44	10446.11	4167.79	0.45
Reach-1	6.775	PF 6 500-Yr	49370.00	212.10	229.30	228.40	229.66	0.006331	9.10	13405.19	4274.78	0.53
Reach-1	6.79	PF 1 2-Yr	10290.00	214.90	225.57		225.58	0.000346	1.69	12208.26	3933.03	0.13
Reach-1	6.79	PF 2 10-Yr	18020.00	214.90	228.21		228.22	0.000149	1.43	23527.91	4478.74	0.09
Reach-1	6.79	PF 3 25-Yr	22340.00	214.90	228.54		228.55	0.000189	1.66	25013.05	4515.44	0.10
Reach-1	6.79	PF 4 50-Yr	25730.00	214.90	228.72		228.74	0.000227	1.84	25833.41	4535.58	0.11
Reach-1	6.79	PF 5 100-Yr	29530.00	214.90	228.93		228.95	0.000267	2.03	26783.98	4558.81	0.12
Reach-1	6.79	PF 6 500-Yr	49370.00	214.90	229.77		229.81	0.000490	2.92	30640.53	4638.30	0.16
Reach-1	6.791	PF 1 2-Yr	10290.00	214.90	225.57		225.59	0.000345	1.69	12222.07	3935.12	0.13
Reach-1	6.791	PF 2 10-Yr	18020.00	214.90	228.21		228.22	0.000149	1.43	23534.60	4478.91	0.09
Reach-1	6.791	PF 3 25-Yr	22340.00	214.90	228.54		228.55	0.000189	1.66	25021.66	4515.65	0.10
Reach-1	6.791	PF 4 50-Yr	25730.00	214.90	228.72		228.74	0.000227	1.84	25843.79	4535.83	0.11
Reach-1	6.791	PF 5 100-Yr	29530.00	214.90	228.93		228.95	0.000267	2.03	26796.29	4559.11	0.12
Reach-1	6.791	PF 6 500-Yr	49370.00	214.90	229.77		229.82	0.000489	2.92	30663.67	4638.66	0.16
Reach-1	6.792	PF 1 2-Yr	10290.00	214.90	225.58		225.59	0.000343	1.69	12235.76	3937.18	0.13
Reach-1	6.792	PF 2 10-Yr	18020.00	214.90	228.21		228.22	0.000149	1.43	23541.30	4479.08	0.09
Reach-1	6.792	PF 3 25-Yr	22340.00	214.90	228.54		228.56	0.000189	1.66	25030.21	4515.86	0.10
Reach-1	6.792	PF 4 50-Yr	25730.00	214.90	228.72		228.74	0.000226	1.84	25854.11	4536.09	0.11
Reach-1	6.792	PF 5 100-Yr	29530.00	214.90	228.93		228.96	0.000266	2.03	26808.54	4559.40	0.12
Reach-1	6.792	PF 6 500-Yr	49370.00	214.90	229.78		229.82	0.000487	2.91	30686.67	4639.02	0.16
Reach-1	6.793	PF 1 2-Yr	10290.00	214.90	225.58		225.59	0.000342	1.68	12249.40	3939.24	0.13
Reach-1	6.793	PF 2 10-Yr	18020.00	214.90	228.21		228.22	0.000149	1.43	23548.00	4479.24	0.09
Reach-1	6.793	PF 3 25-Yr	22340.00	214.90	228.54		228.56	0.000189	1.66	25038.75	4516.07	0.10
Reach-1	6.793	PF 4 50-Yr	25730.00	214.90	228.73		228.74	0.000226	1.84	25864.42	4536.34	0.11
Reach-1	6.793	PF 5 100-Yr	29530.00	214.90	228.94		228.96	0.000266	2.03	26820.78	4559.70	0.12
Reach-1	6.793	PF 6 500-Yr	49370.00	214.90	229.78		229.83	0.000486	2.91	30709.61	4639.39	0.16
Reach-1	7.375	PF 1 2-Yr	10290.00	217.40	227.07		227.09	0.000806	1.90	10084.57	4386.85	0.16
Reach-1	7.375	PF 2 10-Yr	18020.00	217.40	228.91		228.92	0.000426	1.73	18780.35	5087.35	0.12
Reach-1	7.375	PF 3 25-Yr	22340.00	217.40	229.37		229.39	0.000453	1.87	21164.40	5196.16	0.13
Reach-1	7.375	PF 4 50-Yr	25730.00	217.40	229.67		229.69	0.000480	1.98	22728.30	5236.13	0.13
Reach-1	7.375	PF 5 100-Yr	29530.00	217.40	230.00		230.02	0.000503	2.09	24440.62	5279.56	0.13
Reach-1	7.375	PF 6 500-Yr	49370.00	217.40	231.40		231.44	0.000605	2.56	31969.55	5466.39	0.15
Reach-1	7.376	PF 1 2-Yr	10290.00	217.40	227.08		227.10	0.000798	1.90	10120.28	4393.13	0.16
Reach-1	7.376	PF 2 10-Yr	18020.00	217.40	228.91		228.93	0.000424	1.73	18802.09	5089.45	0.12
Reach-1	7.376	PF 3 25-Yr	22340.00	217.40	229.38		229.39	0.000452	1.87	21188.11	5196.77	0.13
Reach-1	7.376	PF 4 50-Yr	25730.00	217.40	229.68		229.70	0.000478	1.98	22753.63	5236.78	0.13
Reach-1	7.376	PF 5 100-Yr	29530.00	217.40	230.00		230.03	0.000501	2.08	24467.37	5280.23	0.13
Reach-1	7.376	PF 6 500-Yr	49370.00	217.40	231.40		231.44	0.000603	2.56	32003.00	5467.21	0.15
Reach-1	7.96	PF 1 2-Yr	10290.00	216.80	231.44	230.87	231.75	0.003933	6.87	4112.50	2374.90	0.39
Reach-1	7.96	PF 2 10-Yr	18020.00	216.80	231.87	231.66	232.38	0.007251	9.46	5220.32	2747.12	0.53
Reach-1	7.96	PF 3 25-Yr	22340.00	216.80	232.45	231.93	232.82	0.005887	8.73	6876.67	3029.59	0.48
Reach-1	7.96	PF 4 50-Yr	25730.00	216.80	232.86	232.07	233.18	0.005338	8.46	8136.50	3103.18	0.46
Reach-1	7.96	PF 5 100-Yr	29530.00	216.80	233.24		233.53	0.004758	8.17	9335.12	3144.22	0.44
Reach-1	7.96	PF 6 500-Yr	49370.00	216.80	234.87		235.12	0.003522	7.72	14579.58	3272.43	0.39
Reach-1	7.961	PF 1 2-Yr	10290.00	216.80	231.51		231.79	0.003611	6.59	4284.68	2426.77	0.37
Reach-1	7.961	PF 2 10-Yr	18020.00	216.80	232.06		232.46	0.005816	8.54	5750.89	2849.30	0.48
Reach-1	7.961	PF 3 25-Yr	22340.00	216.80	232.50		232.88	0.005926	8.78	7054.68	3051.95	0.48
Reach-1	7.961	PF 4 50-Yr	25730.00	216.80	232.94		233.24	0.004911	8.15	8391.27	3120.59	0.44

HEC-RAS Plan: EX BG New Q River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	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)	
Reach-1	7.961	PF 5 100-Yr	29530.00	216.80	233.30		233.58	0.004466	7.95	9540.48	3149.34	0.42
Reach-1	7.961	PF 6 500-Yr	49370.00	216.80	234.91		235.16	0.003429	7.63	14708.37	3275.51	0.38
Reach-1	7.962	PF 1 2-Yr	10290.00	216.80	231.57		231.82	0.003383	6.39	4419.91	2466.75	0.36
Reach-1	7.962	PF 2 10-Yr	18020.00	216.80	232.17		232.51	0.005145	8.07	6063.09	2905.26	0.45
Reach-1	7.962	PF 3 25-Yr	22340.00	216.80	232.61		232.94	0.005232	8.29	7389.64	3067.90	0.45
Reach-1	7.962	PF 4 50-Yr	25730.00	216.80	233.01		233.29	0.004570	7.89	8604.49	3125.94	0.43
Reach-1	7.962	PF 5 100-Yr	29530.00	216.80	233.36		233.62	0.004225	7.76	9723.08	3153.88	0.41
Reach-1	7.962	PF 6 500-Yr	49370.00	216.80	234.95		235.19	0.003340	7.55	14836.13	3278.57	0.38
Reach-1	7.963	PF 1 2-Yr	10290.00	216.80	231.61		231.85	0.003232	6.26	4530.94	2502.81	0.35
Reach-1	7.963	PF 2 10-Yr	18020.00	216.80	232.26		232.56	0.004686	7.73	6309.40	2948.67	0.43
Reach-1	7.963	PF 3 25-Yr	22340.00	216.80	232.70		232.99	0.004777	7.95	7642.08	3079.87	0.43
Reach-1	7.963	PF 4 50-Yr	25730.00	216.80	233.07		233.33	0.004289	7.68	8797.15	3130.77	0.41
Reach-1	7.963	PF 5 100-Yr	29530.00	216.80	233.41		233.66	0.004022	7.59	9888.40	3157.99	0.40
Reach-1	7.963	PF 6 500-Yr	49370.00	216.80	234.99		235.22	0.003257	7.47	14960.25	3281.54	0.37
Reach-1	8.82	PF 1 2-Yr	7880.00	223.90	237.08		237.12	0.000653	2.49	6672.50	2269.06	0.15
Reach-1	8.82	PF 2 10-Yr	13900.00	223.90	238.42		238.46	0.000658	2.74	9700.57	2349.03	0.16
Reach-1	8.82	PF 3 25-Yr	17200.00	223.90	238.98		239.02	0.000681	2.89	11093.35	2370.45	0.16
Reach-1	8.82	PF 4 50-Yr	19900.00	223.90	239.32		239.37	0.000733	3.07	11904.11	2383.44	0.17
Reach-1	8.82	PF 5 100-Yr	22600.00	223.90	239.68		239.73	0.000763	3.20	12756.61	2397.03	0.17
Reach-1	8.82	PF 6 500-Yr	38380.00	223.90	241.35		241.44	0.000934	3.89	16821.53	2480.12	0.19
Reach-1	9.58	PF 1 2-Yr	7880.00	229.60	240.03		240.07	0.001366	3.11	5205.39	1965.59	0.22
Reach-1	9.58	PF 2 10-Yr	13900.00	229.60	241.26		241.32	0.001302	3.33	7692.78	2044.49	0.21
Reach-1	9.58	PF 3 25-Yr	17200.00	229.60	241.85		241.91	0.001274	3.43	8896.55	2077.66	0.21
Reach-1	9.58	PF 4 50-Yr	19900.00	229.60	242.29		242.36	0.001257	3.51	9821.45	2102.79	0.21
Reach-1	9.58	PF 5 100-Yr	22600.00	229.60	242.70		242.78	0.001249	3.60	10689.19	2126.10	0.21
Reach-1	9.58	PF 6 500-Yr	38380.00	229.60	244.78		244.88	0.001302	4.17	15344.74	2424.14	0.22
Reach-1	10.11	PF 1 2-Yr	7880.00	229.60	243.21		243.25	0.001140	2.86	5420.11	2065.46	0.17
Reach-1	10.11	PF 2 10-Yr	14050.00	229.60	244.41		244.47	0.001177	3.17	8010.15	2213.36	0.18
Reach-1	10.11	PF 3 25-Yr	17290.00	229.60	244.95		245.02	0.001173	3.29	9218.10	2265.66	0.18
Reach-1	10.11	PF 4 50-Yr	19740.00	229.60	245.35		245.42	0.001156	3.35	10125.51	2302.56	0.18
Reach-1	10.11	PF 5 100-Yr	22420.00	229.60	245.74		245.81	0.001154	3.42	11023.55	2333.86	0.18
Reach-1	10.11	PF 6 500-Yr	37960.00	229.60	247.78		247.87	0.001077	3.71	15945.86	2482.27	0.18
Reach-1	10.93	PF 1 2-Yr	7405.00	236.00	248.44		248.50	0.001582	3.49	4306.26	1556.57	0.23
Reach-1	10.93	PF 2 10-Yr	15850.00	236.00	250.12		250.21	0.001805	4.12	7015.76	1662.50	0.25
Reach-1	10.93	PF 3 25-Yr	19690.00	236.00	250.72		250.83	0.001866	4.34	8031.85	1691.54	0.26
Reach-1	10.93	PF 4 50-Yr	22720.00	236.00	251.15		251.27	0.001919	4.50	8759.19	1712.01	0.26
Reach-1	10.93	PF 5 100-Yr	27510.00	236.00	251.73		251.87	0.002033	4.79	9763.33	1739.89	0.27
Reach-1	10.93	PF 6 500-Yr	33680.00	236.00	252.91		253.04	0.001707	4.67	11837.64	1796.95	0.25
Reach-1	11	PF 1 2-Yr	7080.00	236.50	249.78		249.84	0.000880	3.11	4861.94	1480.18	0.18
Reach-1	11	PF 2 10-Yr	15200.00	236.50	251.67		251.75	0.001013	3.76	7737.46	1607.90	0.19
Reach-1	11	PF 3 25-Yr	18950.00	236.50	252.35		252.44	0.001067	4.01	8845.58	1670.41	0.20
Reach-1	11	PF 4 50-Yr	21610.00	236.50	252.82		252.92	0.001084	4.14	9645.54	1726.48	0.20
Reach-1	11	PF 5 100-Yr	26030.00	236.50	253.50		253.61	0.001130	4.38	10832.52	1788.98	0.21
Reach-1	11	PF 6 500-Yr	31650.00	236.50	254.57		254.69	0.001182	4.71	12855.39	1998.76	0.22
Reach-1	11.20	PF 1 2-Yr	7080.00	237.00	250.44		250.47	0.000529	2.55	6693.15	2288.54	0.14
Reach-1	11.20	PF 2 10-Yr	15200.00	237.00	252.39		252.42	0.000528	2.84	11337.29	2449.48	0.14
Reach-1	11.20	PF 3 25-Yr	18950.00	237.00	253.09		253.13	0.000532	2.95	13068.61	2486.80	0.14
Reach-1	11.20	PF 4 50-Yr	21610.00	237.00	253.57		253.61	0.000529	3.02	14270.06	2545.53	0.14
Reach-1	11.20	PF 5 100-Yr	26030.00	237.00	254.27		254.32	0.000539	3.14	16092.45	2662.95	0.14
Reach-1	11.20	PF 6 500-Yr	31650.00	237.00	255.34		255.39	0.000510	3.20	19052.86	2918.55	0.14
Reach-1	11.45	PF 1 2-Yr	7080.00	237.40	250.96		251.04	0.002013	3.09	4199.41	1983.90	0.25
Reach-1	11.45	PF 2 10-Yr	15200.00	237.40	252.84		252.91	0.001351	3.08	8181.35	2218.68	0.21
Reach-1	11.45	PF 3 25-Yr	18950.00	237.40	253.53		253.60	0.001231	3.15	9715.49	2247.76	0.21
Reach-1	11.45	PF 4 50-Yr	21610.00	237.40	253.99		254.07	0.001163	3.19	10764.86	2267.44	0.20
Reach-1	11.45	PF 5 100-Yr	26030.00	237.40	254.69		254.77	0.001095	3.28	12348.29	2289.49	0.20
Reach-1	11.45	PF 6 500-Yr	31650.00	237.40	255.72		255.80	0.000929	3.26	14717.81	2321.97	0.19
Reach-1	11.46	PF 1 2-Yr	7080.00	237.50	250.85	247.57	251.52	0.008480	6.94	1113.51	1960.95	0.52
Reach-1	11.46	PF 2 10-Yr	15200.00	237.50	252.90	251.40	253.01	0.001888	3.86	6455.10	2221.02	0.25
Reach-1	11.46	PF 3 25-Yr	18950.00	237.50	253.58	251.40	253.70	0.001784	3.99	7575.90	2249.78	0.25
Reach-1	11.46	PF 4 50-Yr	21610.00	237.50	254.04	251.40	254.16	0.001717	4.07	8334.89	2268.87	0.25
Reach-1	11.46	PF 5 100-Yr	26030.00	237.50	254.74	251.41	254.82	0.001063	3.24	12465.25	2291.26	0.20
Reach-1	11.46	PF 6 500-Yr	31650.00	237.50	255.76	251.67	255.84	0.000910	3.23	14816.67	2323.48	0.19
Reach-1	11.462		Mult Open									
Reach-1	11.465	PF 1 2-Yr	7080.00	237.60	252.34	250.43	252.37	0.000785	2.42	5418.58	2372.60	0.16

HEC-RAS Plan: EX BG New Q River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	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)	
Reach-1	11.465	PF 2 10-Yr	15200.00	237.60	254.06	251.40	254.12	0.000909	3.01	8421.66	2709.96	0.18
Reach-1	11.465	PF 3 25-Yr	18950.00	237.60	254.72	251.41	254.75	0.000586	2.54	12588.01	2741.09	0.15
Reach-1	11.465	PF 4 50-Yr	21610.00	237.60	255.09	251.41	255.13	0.000614	2.67	13478.14	2758.54	0.15
Reach-1	11.465	PF 5 100-Yr	26030.00	237.60	255.65	251.41	255.70	0.000659	2.87	15620.13	2781.80	0.16
Reach-1	11.465	PF 6 500-Yr	31650.00	237.60	256.35	251.70	256.40	0.000674	3.03	17573.94	2821.01	0.16
Reach-1	11.47	PF 1 2-Yr	7080.00	237.70	252.39		252.42	0.000506	1.95	7064.36	2376.81	0.13
Reach-1	11.47	PF 2 10-Yr	15200.00	237.70	254.13		254.17	0.000592	2.44	11453.20	2713.36	0.15
Reach-1	11.47	PF 3 25-Yr	18950.00	237.70	254.75		254.79	0.000601	2.58	13139.09	2742.62	0.15
Reach-1	11.47	PF 4 50-Yr	21610.00	237.70	255.12		255.16	0.000618	2.68	14160.20	2760.19	0.15
Reach-1	11.47	PF 5 100-Yr	26030.00	237.70	255.68		255.73	0.000647	2.85	15710.28	2783.13	0.16
Reach-1	11.47	PF 6 500-Yr	31650.00	237.70	256.38		256.44	0.000663	3.01	17667.65	2823.01	0.16
Reach-1	11.5	PF 1 2-Yr	7080.00	238.00	252.93		252.99	0.001079	2.91	4808.77	1846.77	0.19
Reach-1	11.5	PF 2 10-Yr	15200.00	238.00	254.72		254.80	0.001097	3.41	8327.09	2075.76	0.20
Reach-1	11.5	PF 3 25-Yr	18950.00	238.00	255.34		255.43	0.001102	3.57	9625.93	2099.09	0.20
Reach-1	11.5	PF 4 50-Yr	21610.00	238.00	255.73		255.82	0.001122	3.70	10434.63	2113.49	0.21
Reach-1	11.5	PF 5 100-Yr	26030.00	238.00	256.31		256.41	0.001175	3.93	11682.97	2170.42	0.21
Reach-1	11.5	PF 6 500-Yr	31650.00	238.00	257.02		257.13	0.001181	4.11	13219.25	2183.22	0.22
Reach-1	11.88	PF 1 2-Yr	7080.00	239.00	254.00		254.10	0.001057	3.61	4407.91	1704.82	0.20
Reach-1	11.88	PF 2 10-Yr	15200.00	239.00	255.83		255.94	0.001094	4.09	8134.01	2144.12	0.21
Reach-1	11.88	PF 3 25-Yr	18950.00	239.00	256.46		256.57	0.001102	4.25	9515.79	2240.01	0.21
Reach-1	11.88	PF 4 50-Yr	21610.00	239.00	256.87		256.97	0.001110	4.35	10421.56	2271.05	0.21
Reach-1	11.88	PF 5 100-Yr	26030.00	239.00	257.49		257.60	0.001116	4.50	11837.86	2295.09	0.21
Reach-1	11.88	PF 6 500-Yr	31650.00	239.00	258.20		258.32	0.001126	4.67	13492.50	2322.49	0.22
Reach-1	12.2	PF 1 2-Yr	7080.00	241.00	255.99		256.15	0.002152	4.67	3457.09	1511.36	0.26
Reach-1	12.2	PF 2 10-Yr	15200.00	241.00	257.83		257.94	0.002030	4.45	6599.91	1797.81	0.26
Reach-1	12.2	PF 3 25-Yr	18950.00	241.00	258.45		258.57	0.002006	4.59	7777.84	1990.43	0.26
Reach-1	12.2	PF 4 50-Yr	21610.00	241.00	258.85		258.98	0.001991	4.69	8597.71	2110.78	0.26
Reach-1	12.2	PF 5 100-Yr	26030.00	241.00	259.45		259.59	0.001951	4.83	9903.69	2209.21	0.26
Reach-1	12.2	PF 6 500-Yr	31650.00	241.00	260.16		260.31	0.001921	5.00	11513.61	2341.15	0.26
Reach-1	12.21		Bridge									
Reach-1	12.22	PF 1 2-Yr	7080.00	241.00	256.08	253.51	256.47	0.003556	6.25	1964.89	902.39	0.34
Reach-1	12.22	PF 2 10-Yr	15200.00	241.00	258.12	255.62	258.44	0.003458	6.94	5363.04	1954.86	0.35
Reach-1	12.22	PF 3 25-Yr	18950.00	241.00	258.89	257.38	259.13	0.002777	6.48	6912.13	2068.95	0.31
Reach-1	12.22	PF 4 50-Yr	21610.00	241.00	259.29	257.72	259.52	0.002638	6.44	7757.42	2133.83	0.31
Reach-1	12.22	PF 5 100-Yr	26030.00	241.00	259.80	257.94	260.03	0.002647	6.61	8862.85	2252.01	0.31
Reach-1	12.22	PF 6 500-Yr	31650.00	241.00	260.41	258.36	260.65	0.002659	6.81	10286.55	2383.55	0.31
Reach-1	12.24	PF 1 2-Yr	7080.00	240.50	258.55		258.76	0.002063	5.06	3492.86	1721.33	0.26
Reach-1	12.24	PF 2 10-Yr	15200.00	240.50	260.36		260.52	0.001846	5.28	6837.06	1992.30	0.26
Reach-1	12.24	PF 3 25-Yr	18950.00	240.50	260.88		261.04	0.001924	5.53	7878.22	2046.21	0.26
Reach-1	12.24	PF 4 50-Yr	21610.00	240.50	261.24		261.41	0.001997	5.73	8639.25	2127.01	0.27
Reach-1	12.24	PF 5 100-Yr	26030.00	240.50	261.79		261.97	0.002098	6.02	9853.48	2268.87	0.28
Reach-1	12.24	PF 6 500-Yr	31650.00	240.50	262.41		262.60	0.002128	6.24	11294.84	2354.03	0.28
Reach-1	12.25	PF 1 2-Yr	7080.00	240.60	258.51	253.82	259.08	0.004115	7.12	1722.61	1719.93	0.37
Reach-1	12.25	PF 2 10-Yr	15200.00	240.60	260.12	259.27	261.08	0.006992	10.14	2610.15	1979.53	0.50
Reach-1	12.25	PF 3 25-Yr	18950.00	240.60	260.54	259.82	261.74	0.008652	11.52	2840.69	2002.15	0.55
Reach-1	12.25	PF 4 50-Yr	21610.00	240.60	260.85	260.17	262.19	0.009599	12.32	3009.02	2037.49	0.59
Reach-1	12.25	PF 5 100-Yr	26030.00	240.60	261.28	260.72	262.88	0.011230	13.61	3248.09	2157.31	0.64
Reach-1	12.25	PF 6 500-Yr	31650.00	240.60	261.74	261.33	263.70	0.013376	15.17	3501.82	2264.02	0.70
Reach-1	12.253		Bridge									
Reach-1	12.255	PF 1 2-Yr	7080.00	240.70	259.35	253.30	259.58	0.002271	4.56	2307.74	1481.29	0.27
Reach-1	12.255	PF 2 10-Yr	15200.00	240.70	261.55	258.67	261.94	0.003161	6.23	3494.33	2184.37	0.33
Reach-1	12.255	PF 3 25-Yr	18950.00	240.70	262.33	259.20	262.79	0.003479	6.83	3913.88	2411.04	0.35
Reach-1	12.255	PF 4 50-Yr	21610.00	240.70	263.01	259.55	263.50	0.003421	7.03	4284.36	2448.87	0.35
Reach-1	12.255	PF 5 100-Yr	26030.00	240.70	263.92	260.07	264.47	0.003542	7.49	4772.87	2675.12	0.36
Reach-1	12.255	PF 6 500-Yr	31650.00	240.70	265.77	260.67	265.82	0.000505	3.08	18721.42	2766.50	0.14
Reach-1	12.27	PF 1 2-Yr	7080.00	240.80	259.62		259.70	0.001159	3.19	4281.29	1530.36	0.19
Reach-1	12.27	PF 2 10-Yr	15200.00	240.80	262.04		262.11	0.000861	3.25	9212.99	2309.95	0.17
Reach-1	12.27	PF 3 25-Yr	18950.00	240.80	262.92		262.98	0.000775	3.24	11323.11	2443.00	0.17
Reach-1	12.27	PF 4 50-Yr	21610.00	240.80	263.64		263.70	0.000695	3.19	13158.08	2656.56	0.16
Reach-1	12.27	PF 5 100-Yr	26030.00	240.80	264.62		264.68	0.000585	3.08	15830.12	2733.28	0.15
Reach-1	12.27	PF 6 500-Yr	31650.00	240.80	265.80		265.85	0.000488	2.97	19052.07	2767.42	0.14
Reach-1	12.39	PF 1 2-Yr	7080.00	244.70	259.97		259.99	0.000267	1.97	6270.85	2280.54	0.12
Reach-1	12.39	PF 2 10-Yr	15200.00	244.70	262.34		262.37	0.000264	2.23	13920.01	2455.90	0.12
Reach-1	12.39	PF 3 25-Yr	18950.00	244.70	263.20		263.23	0.000265	2.34	16049.68	2496.04	0.12

HEC-RAS Plan: EX BG New Q River: RIVER-1 Reach: Reach-1 (Continued)

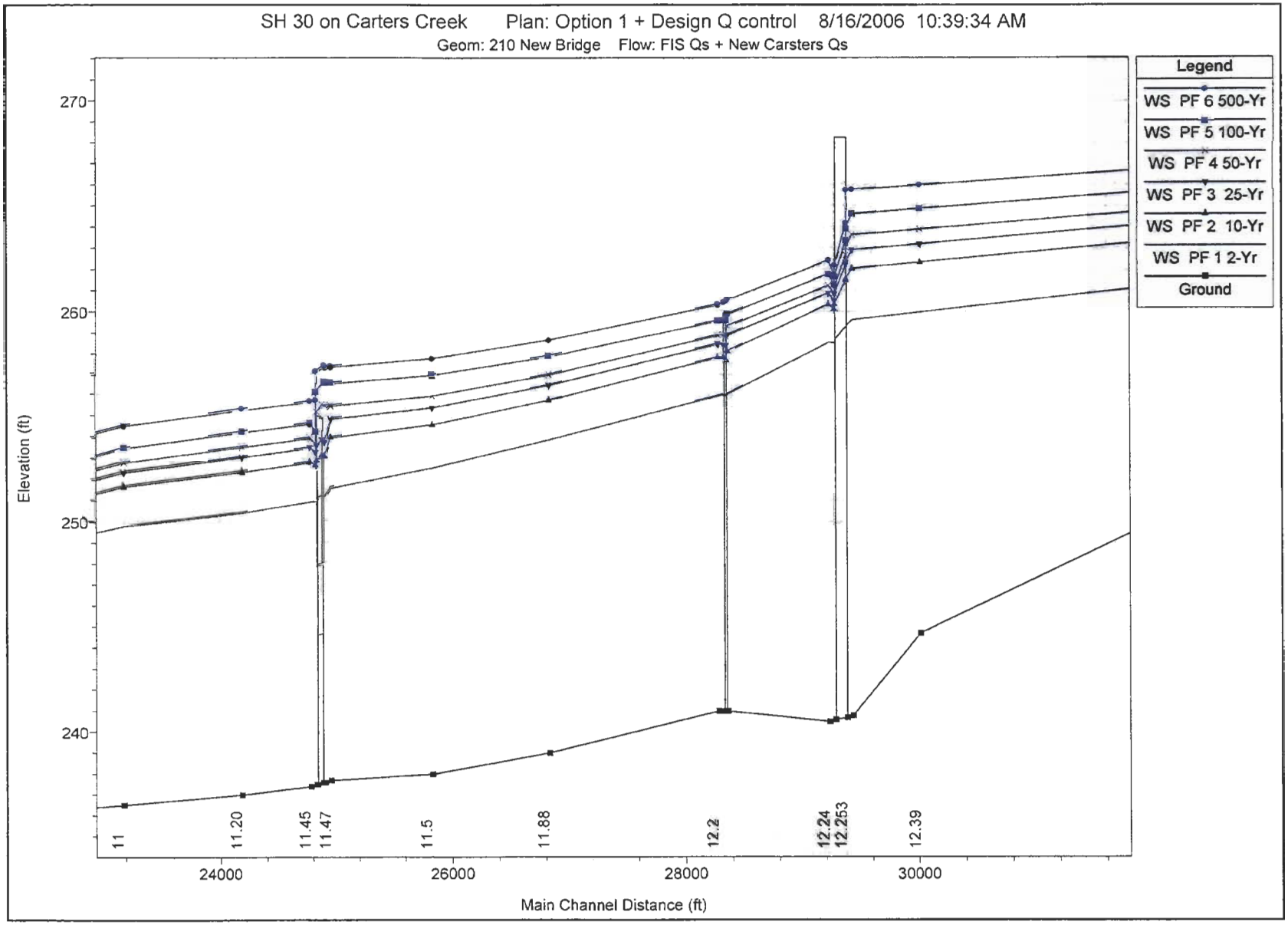
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	12.39	PF 4 50-Yr	21610.00	244.70	263.90		263.93	0.000250	2.35	17800.90	2547.33	0.12
Reach-1	12.39	PF 5 100-Yr	26030.00	244.70	264.88		264.91	0.000268	2.55	20471.52	2878.25	0.12
Reach-1	12.39	PF 6 500-Yr	31650.00	244.70	266.02		266.05	0.000250	2.58	23789.98	2931.56	0.12
Reach-1	12.75	PF 1 2-Yr	7080.00	249.60	261.12		261.30	0.003835	4.76	3362.48	2384.32	0.37
Reach-1	12.75	PF 2 10-Yr	15200.00	249.60	263.28		263.35	0.001368	3.35	9035.55	2772.64	0.23
Reach-1	12.75	PF 3 25-Yr	18950.00	249.60	264.09		264.15	0.001110	3.19	11321.72	2882.14	0.21
Reach-1	12.75	PF 4 50-Yr	21610.00	249.60	264.72		264.78	0.000979	3.17	13218.91	3152.90	0.20
Reach-1	12.75	PF 5 100-Yr	26030.00	249.60	265.66		265.71	0.000761	3.02	16251.12	3251.58	0.18
Reach-1	12.75	PF 6 500-Yr	31650.00	249.60	266.72		266.77	0.000620	2.95	19713.86	3328.23	0.17
Reach-1	13.5	PF 1 2-Yr	4370.00	251.60	267.66	265.37	267.69	0.000954	2.31	3974.34	1748.69	0.16
Reach-1	13.5	PF 2 10-Yr	7550.00	251.60	267.88	266.14	267.95	0.002186	3.57	4368.76	1788.83	0.24
Reach-1	13.5	PF 3 25-Yr	9250.00	251.60	268.11		268.20	0.002543	3.94	4777.21	1817.62	0.26
Reach-1	13.5	PF 4 50-Yr	10500.00	251.60	268.34		268.44	0.002547	4.03	5208.84	1840.38	0.26
Reach-1	13.5	PF 5 100-Yr	11900.00	251.60	268.57		268.67	0.002606	4.16	5628.51	1862.24	0.27
Reach-1	13.5	PF 6 500-Yr	19820.00	251.60	269.51		269.65	0.003265	5.03	7426.40	1990.73	0.30
Reach-1	14.2	PF 1 2-Yr	3870.00	255.50	271.82		271.97	0.001894	4.08	2260.40	1244.73	0.24
Reach-1	14.2	PF 2 10-Yr	5730.00	255.50	273.09		273.16	0.001131	3.43	3936.78	1400.61	0.19
Reach-1	14.2	PF 3 25-Yr	7100.00	255.50	273.61		273.69	0.001106	3.51	4688.29	1462.46	0.19
Reach-1	14.2	PF 4 50-Yr	8170.00	255.50	273.92		273.99	0.001148	3.64	5141.59	1498.26	0.19
Reach-1	14.2	PF 5 100-Yr	9380.00	255.50	274.25		274.33	0.001177	3.76	5643.15	1530.71	0.19
Reach-1	14.2	PF 6 500-Yr	15550.00	255.50	275.79		275.88	0.001183	4.09	8124.32	1680.56	0.20
Reach-1	14.81	PF 1 2-Yr	2600.00	262.10	275.59		275.61	0.000663	1.93	2486.51	950.18	0.14
Reach-1	14.81	PF 2 10-Yr	4710.00	262.10	276.42		276.46	0.000984	2.55	3301.80	1007.21	0.17
Reach-1	14.81	PF 3 25-Yr	5850.00	262.10	276.92		276.97	0.001006	2.70	3827.78	1080.34	0.17
Reach-1	14.81	PF 4 50-Yr	6750.00	262.10	277.30		277.35	0.001010	2.79	4242.47	1131.50	0.17
Reach-1	14.81	PF 5 100-Yr	7650.00	262.10	277.66		277.72	0.001006	2.87	4668.06	1167.52	0.18
Reach-1	14.81	PF 6 500-Yr	12800.00	262.10	279.38		279.45	0.001120	3.43	7018.04	1534.55	0.19
Reach-1	15.69	PF 1 2-Yr	2600.00	267.10	279.17		279.21	0.001154	2.37	2159.37	964.92	0.17
Reach-1	15.69	PF 2 10-Yr	4710.00	267.10	280.49		280.53	0.000987	2.51	3502.12	1069.28	0.17
Reach-1	15.69	PF 3 25-Yr	5850.00	267.10	281.02		281.06	0.000987	2.63	4081.12	1110.99	0.17
Reach-1	15.69	PF 4 50-Yr	6750.00	267.10	281.39		281.44	0.000993	2.73	4503.33	1138.62	0.17
Reach-1	15.69	PF 5 100-Yr	7650.00	267.10	281.75		281.80	0.000993	2.81	4910.90	1161.20	0.17
Reach-1	15.69	PF 6 500-Yr	12800.00	267.10	283.56		283.62	0.000946	3.12	7114.20	1267.53	0.17
Reach-1	15.7	PF 1 2-Yr	2600.00	267.90	279.10		279.50	0.005395	5.07	512.82	115.40	0.42
Reach-1	15.7	PF 2 10-Yr	4710.00	267.90	280.20		281.04	0.009398	7.32	643.26	120.08	0.56
Reach-1	15.7	PF 3 25-Yr	5850.00	267.90	280.60		281.72	0.011868	8.46	691.62	121.78	0.63
Reach-1	15.7	PF 4 50-Yr	6750.00	267.90	280.87		282.22	0.013977	9.33	723.69	123.20	0.68
Reach-1	15.7	PF 5 100-Yr	7650.00	267.90	281.10		282.70	0.016160	10.17	752.48	124.46	0.73
Reach-1	15.7	PF 6 500-Yr	12800.00	267.90	282.08	281.98	285.39	0.030027	14.60	876.70	129.76	0.99
Reach-1	15.7025		Bridge									
Reach-1	15.705	PF 1 2-Yr	2600.00	267.90	279.27	277.01	279.64	0.004850	4.88	532.57	116.12	0.40
Reach-1	15.705	PF 2 10-Yr	4710.00	267.90	280.56	278.32	281.29	0.007868	6.87	665.99	121.58	0.51
Reach-1	15.705	PF 3 25-Yr	5850.00	267.90	281.11	278.94	282.04	0.009421	7.77	753.33	124.50	0.56
Reach-1	15.705	PF 4 50-Yr	6750.00	267.90	281.52	279.39	282.61	0.010489	8.38	805.13	126.73	0.59
Reach-1	15.705	PF 5 100-Yr	7650.00	267.90	281.93	279.83	283.16	0.011381	8.92	857.44	128.95	0.61
Reach-1	15.705	PF 6 500-Yr	12800.00	267.90	286.28	281.98	286.41	0.001250	3.80	5030.19	1483.54	0.21
Reach-1	15.71	PF 1 2-Yr	2600.00	267.30	279.72		279.75	0.000767	2.01	2506.38	993.24	0.14
Reach-1	15.71	PF 2 10-Yr	4710.00	267.30	281.40		281.43	0.000555	2.01	4288.73	1124.52	0.13
Reach-1	15.71	PF 3 25-Yr	5850.00	267.30	282.17		282.20	0.000499	2.02	5173.28	1174.37	0.12
Reach-1	15.71	PF 4 50-Yr	6750.00	267.30	282.75		282.78	0.000461	2.03	5864.07	1208.35	0.12
Reach-1	15.71	PF 5 100-Yr	7650.00	267.30	283.32		283.34	0.000428	2.04	6556.37	1241.47	0.12
Reach-1	15.71	PF 6 500-Yr	12800.00	267.30	286.43		286.45	0.000281	1.99	10630.50	1363.99	0.10
Reach-1	16.31	PF 1 2-Yr	2600.00	270.90	282.01		282.04	0.000891	2.22	2657.55	1435.76	0.15
Reach-1	16.31	PF 2 10-Yr	4710.00	270.90	283.19		283.22	0.000792	2.34	4567.03	1751.95	0.15
Reach-1	16.31	PF 3 25-Yr	5850.00	270.90	283.75		283.78	0.000692	2.29	5564.44	1806.21	0.14
Reach-1	16.31	PF 4 50-Yr	6750.00	270.90	284.19		284.21	0.000623	2.25	6366.31	1848.27	0.14
Reach-1	16.31	PF 5 100-Yr	7650.00	270.90	284.63		284.65	0.000560	2.21	7189.87	1890.43	0.13
Reach-1	16.31	PF 6 500-Yr	12800.00	270.90	287.22		287.24	0.000310	1.94	12308.66	2062.42	0.10
Reach-1	16.96	PF 1 2-Yr	2600.00	275.90	285.21		285.23	0.001410	1.89	2310.02	1306.71	0.19
Reach-1	16.96	PF 2 10-Yr	4710.00	275.90	286.07		286.10	0.001337	1.95	3466.33	1385.49	0.19
Reach-1	16.96	PF 3 25-Yr	5850.00	275.90	286.42		286.46	0.001369	2.03	3962.02	1417.92	0.19
Reach-1	16.96	PF 4 50-Yr	6750.00	275.90	286.68		286.72	0.001373	2.07	4337.82	1434.70	0.19
Reach-1	16.96	PF 5 100-Yr	7650.00	275.90	286.95		286.99	0.001351	2.09	4719.41	1448.41	0.19
Reach-1	16.96	PF 6 500-Yr	12800.00	275.90	288.61		288.66	0.000969	2.25	7443.47	1814.46	0.17

HEC-RAS Plan: EX BG New Q River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	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)	
Reach-1	17.29	PF 1 2-Yr	2600.00	278.40	287.90		287.95	0.002466	2.58	1470.04	667.59	0.25
Reach-1	17.29	PF 2 10-Yr	4710.00	278.40	288.79		288.88	0.002840	3.25	2093.65	725.36	0.28
Reach-1	17.29	PF 3 25-Yr	5850.00	278.40	289.21		289.31	0.002919	3.52	2403.05	751.79	0.29
Reach-1	17.29	PF 4 50-Yr	6750.00	278.40	289.50		289.62	0.002996	3.72	2624.54	769.06	0.30
Reach-1	17.29	PF 5 100-Yr	7650.00	278.40	289.77		289.89	0.003086	3.91	2829.23	784.68	0.30
Reach-1	17.29	PF 6 500-Yr	12800.00	278.40	290.97		291.17	0.003601	4.86	3820.44	857.38	0.34
Reach-1	17.95	PF 1 2-Yr	2600.00	281.90	294.32		294.37	0.001651	2.97	1685.22	698.60	0.21
Reach-1	17.95	PF 2 10-Yr	4710.00	281.90	295.55		295.62	0.001618	3.32	2635.13	822.10	0.22
Reach-1	17.95	PF 3 25-Yr	5850.00	281.90	296.07		296.15	0.001629	3.49	3073.68	873.28	0.22
Reach-1	17.95	PF 4 50-Yr	6750.00	281.90	296.45		296.53	0.001632	3.60	3408.23	909.49	0.22
Reach-1	17.95	PF 5 100-Yr	7650.00	281.90	296.80		296.89	0.001633	3.71	3740.39	948.52	0.22
Reach-1	17.95	PF 6 500-Yr	12800.00	281.90	298.58		298.68	0.001664	4.24	5640.04	1315.33	0.23
Reach-1	18.51	PF 1 2-Yr	1280.00	288.90	298.53		298.57	0.001317	2.37	1050.09	571.02	0.18
Reach-1	18.51	PF 2 10-Yr	2110.00	288.90	299.50		299.54	0.001145	2.48	1777.07	819.45	0.18
Reach-1	18.51	PF 3 25-Yr	2240.00	288.90	299.80		299.83	0.000910	2.28	2026.17	849.60	0.16
Reach-1	18.51	PF 4 50-Yr	2900.00	288.90	300.21		300.25	0.000979	2.47	2388.76	890.49	0.17
Reach-1	18.51	PF 5 100-Yr	3200.00	288.90	300.49		300.53	0.000910	2.45	2637.82	917.51	0.16
Reach-1	18.51	PF 6 500-Yr	5270.00	288.90	302.00		302.04	0.000716	2.47	4141.66	1069.80	0.15
Reach-1	18.511	PF 1 2-Yr	1280.00	288.90	298.54		298.59	0.001301	2.36	1057.95	576.35	0.18
Reach-1	18.511	PF 2 10-Yr	2110.00	288.90	299.51		299.55	0.001128	2.46	1787.00	820.67	0.18
Reach-1	18.511	PF 3 25-Yr	2240.00	288.90	299.81		299.84	0.000901	2.27	2034.29	850.55	0.16
Reach-1	18.511	PF 4 50-Yr	2900.00	288.90	300.22		300.26	0.000968	2.46	2397.87	891.49	0.17
Reach-1	18.511	PF 5 100-Yr	3200.00	288.90	300.50		300.53	0.000901	2.44	2646.54	918.44	0.16
Reach-1	18.511	PF 6 500-Yr	5270.00	288.90	302.01		302.05	0.000712	2.47	4149.60	1070.65	0.15
Reach-1	18.512	PF 1 2-Yr	1280.00	288.90	298.55		298.60	0.001285	2.35	1065.74	581.58	0.18
Reach-1	18.512	PF 2 10-Yr	2110.00	288.90	299.52		299.56	0.001112	2.45	1796.68	821.86	0.18
Reach-1	18.512	PF 3 25-Yr	2240.00	288.90	299.81		299.85	0.000891	2.26	2042.21	851.46	0.16
Reach-1	18.512	PF 4 50-Yr	2900.00	288.90	300.23		300.27	0.000959	2.45	2406.80	892.47	0.17
Reach-1	18.512	PF 5 100-Yr	3200.00	288.90	300.51		300.54	0.000894	2.43	2655.06	919.35	0.16
Reach-1	18.512	PF 6 500-Yr	5270.00	288.90	302.02		302.05	0.000709	2.46	4157.38	1071.49	0.15
Reach-1	18.513	PF 1 2-Yr	1280.00	288.90	298.57		298.61	0.001269	2.34	1073.51	586.76	0.18
Reach-1	18.513	PF 2 10-Yr	2110.00	288.90	299.53		299.57	0.001096	2.44	1806.24	823.04	0.17
Reach-1	18.513	PF 3 25-Yr	2240.00	288.90	299.82		299.86	0.000882	2.25	2050.06	852.36	0.16
Reach-1	18.513	PF 4 50-Yr	2900.00	288.90	300.24		300.28	0.000949	2.44	2415.63	893.44	0.16
Reach-1	18.513	PF 5 100-Yr	3200.00	288.90	300.52		300.55	0.000886	2.42	2663.51	920.25	0.16
Reach-1	18.513	PF 6 500-Yr	5270.00	288.90	302.03		302.06	0.000705	2.46	4165.13	1072.32	0.15
Reach-1	19.05	PF 1 2-Yr	1280.00	298.70	303.39		303.44	0.003012	2.55	886.74	622.36	0.24
Reach-1	19.05	PF 2 10-Yr	2110.00	298.70	304.00		304.06	0.003287	2.95	1297.03	722.12	0.25
Reach-1	19.05	PF 3 25-Yr	2240.00	298.70	303.94		304.02	0.003998	3.23	1257.45	713.11	0.28
Reach-1	19.05	PF 4 50-Yr	2900.00	298.70	304.40		304.48	0.003599	3.28	1595.41	768.66	0.27
Reach-1	19.05	PF 5 100-Yr	3200.00	298.70	304.52		304.60	0.003749	3.41	1689.89	780.97	0.28
Reach-1	19.05	PF 6 500-Yr	5270.00	298.70	305.41		305.51	0.003788	3.84	2424.61	870.79	0.28
Reach-1	19.06	PF 1 2-Yr	1280.00	298.70	303.48		303.52	0.000857	2.30	940.73	636.38	0.21
Reach-1	19.06	PF 2 10-Yr	2110.00	298.70	304.09		304.15	0.000928	2.65	1365.96	737.56	0.22
Reach-1	19.06	PF 3 25-Yr	2240.00	298.70	304.06		304.12	0.001096	2.87	1340.60	731.92	0.24
Reach-1	19.06	PF 4 50-Yr	2900.00	298.70	304.50		304.57	0.001002	2.93	1675.75	779.14	0.24
Reach-1	19.06	PF 5 100-Yr	3200.00	298.70	304.63		304.70	0.001040	3.04	1775.07	791.90	0.24
Reach-1	19.06	PF 6 500-Yr	5270.00	298.70	305.52		305.61	0.001064	3.43	2521.74	881.98	0.25
Reach-1	19.0625		Bridge									
Reach-1	19.065	PF 1 2-Yr	1280.00	298.70	304.35	301.37	304.37	0.000238	1.40	1558.60	763.81	0.11
Reach-1	19.065	PF 2 10-Yr	2110.00	298.70	304.76	302.03	304.78	0.000388	1.89	1875.46	804.60	0.15
Reach-1	19.065	PF 3 25-Yr	2240.00	298.70	304.80	302.20	304.82	0.000417	1.97	1907.93	808.66	0.15
Reach-1	19.065	PF 4 50-Yr	2900.00	298.70	305.04	302.69	305.08	0.000531	2.29	2107.70	833.23	0.18
Reach-1	19.065	PF 5 100-Yr	3200.00	298.70	305.13	302.89	305.18	0.000582	2.43	2188.01	842.91	0.18
Reach-1	19.065	PF 6 500-Yr	5270.00	298.70	305.73	303.49	305.80	0.000876	3.19	2706.87	905.61	0.23
Reach-1	19.07	PF 1 2-Yr	1280.00	298.70	304.36		304.38	0.000322	1.47	1568.79	765.15	0.12
Reach-1	19.07	PF 2 10-Yr	2110.00	298.70	304.78		304.80	0.000524	1.98	1893.01	806.80	0.16
Reach-1	19.07	PF 3 25-Yr	2240.00	298.70	304.82		304.85	0.000563	2.06	1926.88	811.03	0.16
Reach-1	19.07	PF 4 50-Yr	2900.00	298.70	305.07		305.11	0.000713	2.40	2132.59	836.24	0.18
Reach-1	19.07	PF 5 100-Yr	3200.00	298.70	305.17		305.21	0.000781	2.54	2215.64	846.21	0.19
Reach-1	19.07	PF 6 500-Yr	5270.00	298.70	305.78		305.85	0.001171	3.34	2751.86	915.22	0.24

Appendix E

210 LF New Bridge Option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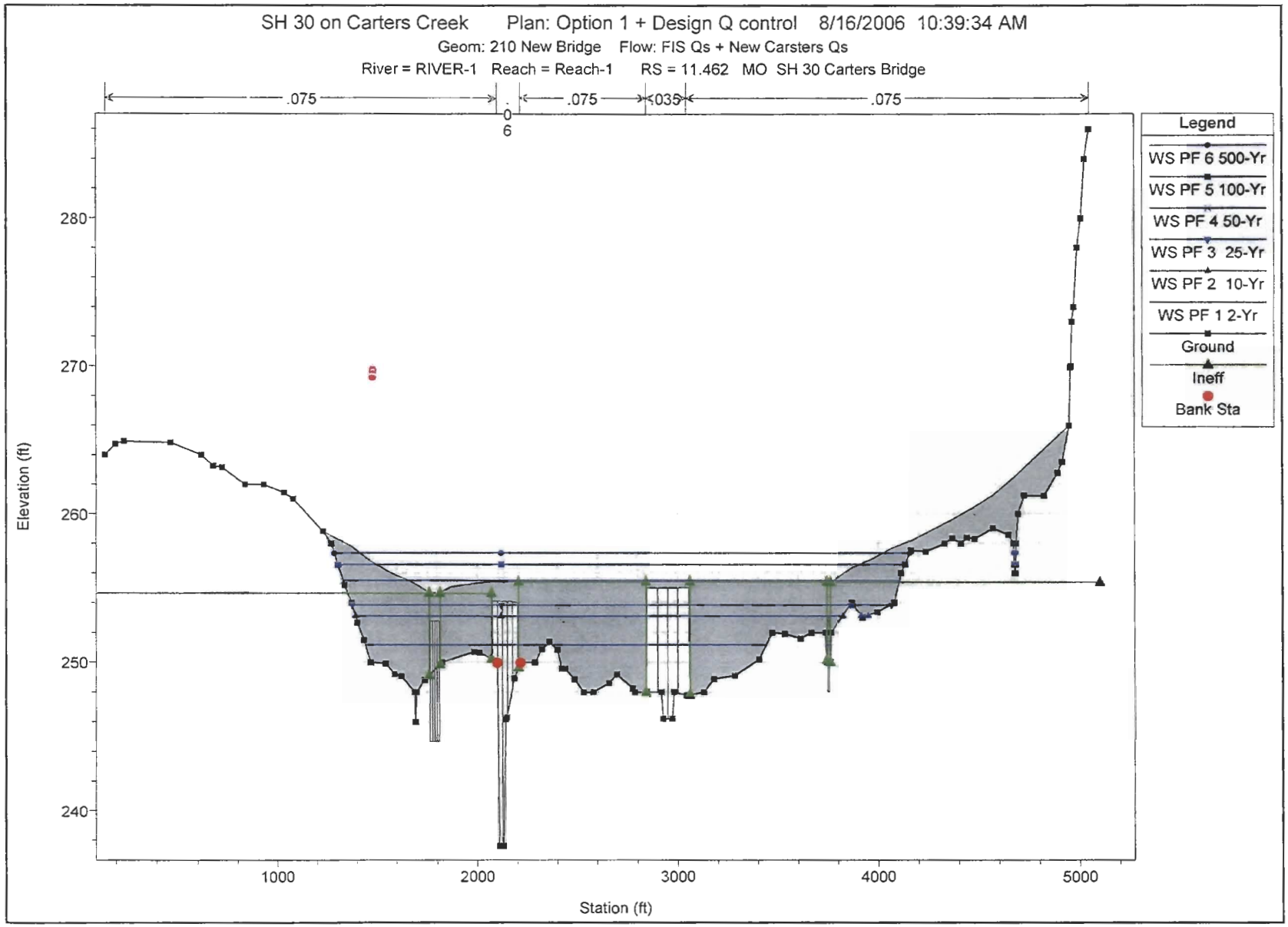
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Elevation (ft)
270
260
250
240
11
11.20
11.45
11.47
11.5
11.88
12.2
12.24
12.253
12.39
24000
26000
28000
30000
Main Channel Distance (ft)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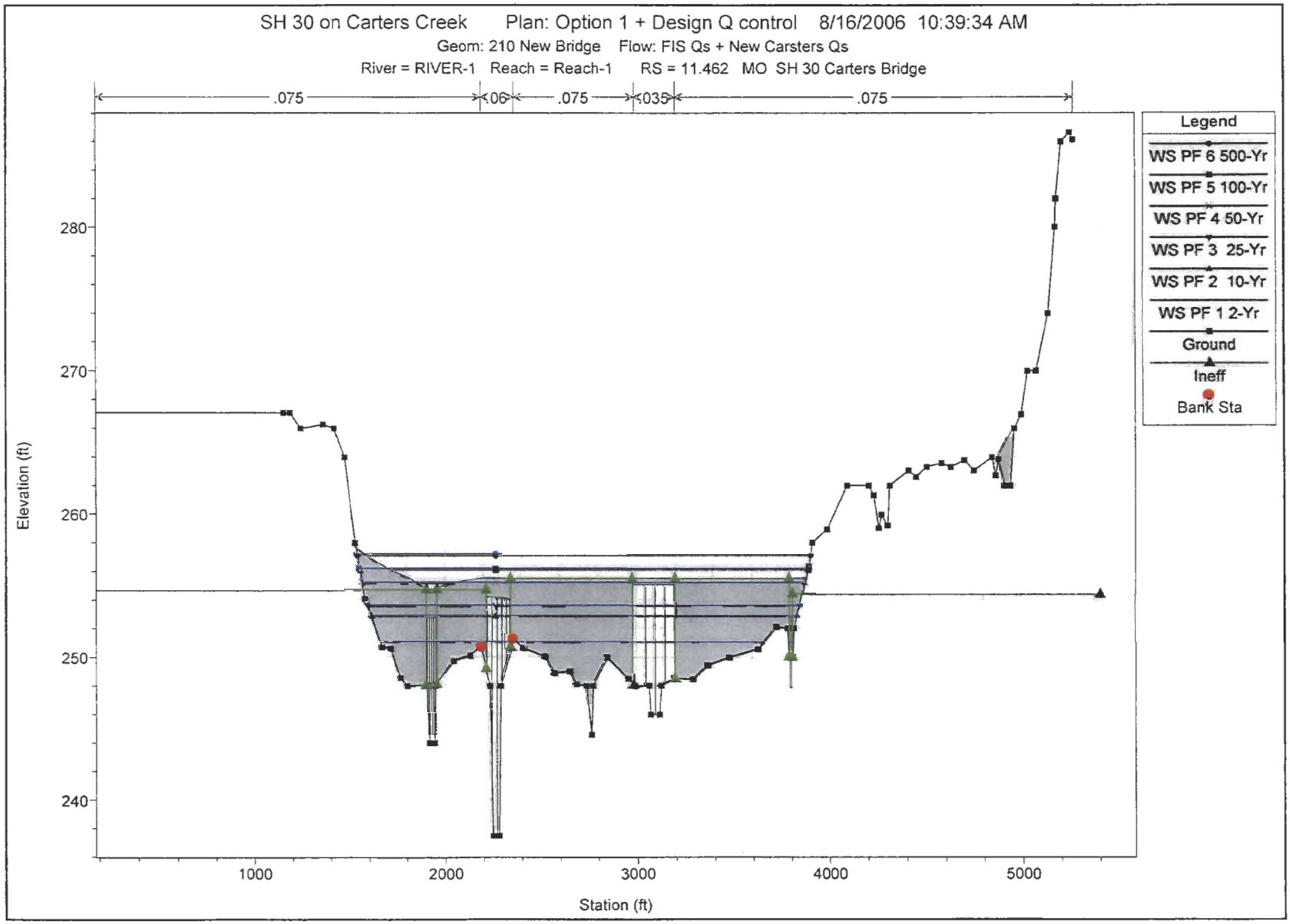
Geom: 210 New Bridge Flow: FIS Qs + New Carsters Qs
River = RIVER-1 Reach = Reach-1 RS = 11.462 MO SH 30 Carters Bridge
.075
.075
.035
.075
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Ineff
Bank Sta
Elevation (ft)
280
270
260
250
240
1000
2000
3000
4000
5000
Station (ft)


SH 30 on Carters Creek Plan: Option 1 + Design Q control 8/16/2006 10:39:34 AM
Geom: 210 New Bridge Flow: FIS Qs + New Carsters Qs
River = RIVER-1 Reach = Reach-1 RS = 11.462 MO SH 30 Carters Bridge
.075
.06
.075
.035
.075
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Ineff
Bank Sta
Elevation (ft)
280
270
260
250
240
1000
2000
3000
4000
5000
Station (ft)

HEC-RAS Plan: 210LF New Bd River: RIVER-1 Reach: Reach-1

Reach	River Sta	Profile	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)	
Reach-1	6.76	PF 1 2-Yr	10290.00	214.90	223.95	222.69	224.01	0.002136	3.35	6254.21	3261.67	0.30
Reach-1	6.76	PF 2 10-Yr	18020.00	214.90	224.94	223.24	225.01	0.002079	3.83	9785.04	3789.00	0.30
Reach-1	6.76	PF 3 25-Yr	22340.00	214.90	225.38	223.36	225.45	0.001970	3.94	11469.96	3869.67	0.30
Reach-1	6.76	PF 4 50-Yr	25730.00	214.90	225.69	223.41	225.77	0.001926	4.04	12685.76	4004.45	0.30
Reach-1	6.76	PF 5 100-Yr	29530.00	214.90	226.02	223.56	226.10	0.001955	4.23	14030.28	4116.00	0.30
Reach-1	6.76	PF 6 500-Yr	49370.00	214.90	227.43	224.21	227.54	0.001838	4.72	20074.06	4392.22	0.30
Reach-1	6.77	PF 1 2-Yr	10290.00	212.10	222.94	222.39	224.80	0.023570	13.81	1094.35	201.39	0.96
Reach-1	6.77	PF 2 10-Yr	18020.00	212.10	224.36	224.36	227.40	0.044060	17.20	1395.26	229.99	1.30
Reach-1	6.77	PF 3 25-Yr	22340.00	212.10	227.38	227.38	228.20	0.013260	11.25	5548.38	3825.74	0.74
Reach-1	6.77	PF 4 50-Yr	25730.00	212.10	227.55	227.55	228.36	0.013553	11.56	6210.51	3905.51	0.75
Reach-1	6.77	PF 5 100-Yr	29530.00	212.10	227.66	227.66	228.55	0.015251	12.38	6630.41	3949.07	0.80
Reach-1	6.77	PF 6 500-Yr	49370.00	212.10	228.46	228.46	229.31	0.015400	13.31	9885.49	4144.30	0.81
Reach-1	6.7725		Bridge									
Reach-1	6.775	PF 1 2-Yr	10290.00	212.10	224.41	222.39	225.38	0.014036	9.74	1407.25	230.39	0.73
Reach-1	6.775	PF 2 10-Yr	18020.00	212.10	227.92	224.35	228.15	0.004131	6.59	7665.11	4016.73	0.42
Reach-1	6.775	PF 3 25-Yr	22340.00	212.10	228.26	225.44	228.48	0.004059	6.72	9030.89	4095.67	0.42
Reach-1	6.775	PF 4 50-Yr	25730.00	212.10	228.41	227.52	228.65	0.004465	7.14	9658.01	4131.41	0.44
Reach-1	6.775	PF 5 100-Yr	29530.00	212.10	228.60	227.67	228.86	0.004705	7.44	10446.11	4167.79	0.45
Reach-1	6.775	PF 6 500-Yr	49370.00	212.10	229.30	228.40	229.66	0.006331	9.10	13405.19	4274.78	0.53
Reach-1	6.79	PF 1 2-Yr	10290.00	214.90	225.57		225.58	0.000346	1.69	12208.26	3933.03	0.13
Reach-1	6.79	PF 2 10-Yr	18020.00	214.90	228.21		228.22	0.000149	1.43	23527.91	4478.74	0.09
Reach-1	6.79	PF 3 25-Yr	22340.00	214.90	228.54		228.55	0.000189	1.66	25013.05	4515.44	0.10
Reach-1	6.79	PF 4 50-Yr	25730.00	214.90	228.72		228.74	0.000227	1.84	25833.41	4535.58	0.11
Reach-1	6.79	PF 5 100-Yr	29530.00	214.90	228.93		228.95	0.000267	2.03	26783.98	4558.81	0.12
Reach-1	6.79	PF 6 500-Yr	49370.00	214.90	229.77		229.81	0.000490	2.92	30640.53	4638.30	0.16
Reach-1	6.791	PF 1 2-Yr	10290.00	214.90	225.57		225.59	0.000345	1.69	12222.07	3935.12	0.13
Reach-1	6.791	PF 2 10-Yr	18020.00	214.90	228.21		228.22	0.000149	1.43	23534.60	4478.91	0.09
Reach-1	6.791	PF 3 25-Yr	22340.00	214.90	228.54		228.55	0.000189	1.66	25021.66	4515.65	0.10
Reach-1	6.791	PF 4 50-Yr	25730.00	214.90	228.72		228.74	0.000227	1.84	25843.79	4535.83	0.11
Reach-1	6.791	PF 5 100-Yr	29530.00	214.90	228.93		228.95	0.000267	2.03	26796.29	4559.11	0.12
Reach-1	6.791	PF 6 500-Yr	49370.00	214.90	229.77		229.82	0.000489	2.92	30663.67	4638.66	0.16
Reach-1	6.792	PF 1 2-Yr	10290.00	214.90	225.58		225.59	0.000343	1.69	12235.76	3937.18	0.13
Reach-1	6.792	PF 2 10-Yr	18020.00	214.90	228.21		228.22	0.000149	1.43	23541.30	4479.08	0.09
Reach-1	6.792	PF 3 25-Yr	22340.00	214.90	228.54		228.56	0.000189	1.66	25030.21	4515.86	0.10
Reach-1	6.792	PF 4 50-Yr	25730.00	214.90	228.72		228.74	0.000226	1.84	25854.11	4536.09	0.11
Reach-1	6.792	PF 5 100-Yr	29530.00	214.90	228.93		228.96	0.000266	2.03	26808.54	4559.40	0.12
Reach-1	6.792	PF 6 500-Yr	49370.00	214.90	229.78		229.82	0.000487	2.91	30686.67	4639.02	0.16
Reach-1	6.793	PF 1 2-Yr	10290.00	214.90	225.58		225.59	0.000342	1.68	12249.40	3939.24	0.13
Reach-1	6.793	PF 2 10-Yr	18020.00	214.90	228.21		228.22	0.000149	1.43	23548.00	4479.24	0.09
Reach-1	6.793	PF 3 25-Yr	22340.00	214.90	228.54		228.56	0.000189	1.66	25038.75	4516.07	0.10
Reach-1	6.793	PF 4 50-Yr	25730.00	214.90	228.73		228.74	0.000226	1.84	25864.42	4536.34	0.11
Reach-1	6.793	PF 5 100-Yr	29530.00	214.90	228.94		228.96	0.000266	2.03	26820.78	4559.70	0.12
Reach-1	6.793	PF 6 500-Yr	49370.00	214.90	229.78		229.83	0.000486	2.91	30709.61	4639.39	0.16
Reach-1	7.375	PF 1 2-Yr	10290.00	217.40	227.07		227.09	0.000806	1.90	10084.57	4386.85	0.16
Reach-1	7.375	PF 2 10-Yr	18020.00	217.40	228.91		228.92	0.000426	1.73	18780.35	5087.35	0.12
Reach-1	7.375	PF 3 25-Yr	22340.00	217.40	229.37		229.39	0.000453	1.87	21164.40	5196.16	0.13
Reach-1	7.375	PF 4 50-Yr	25730.00	217.40	229.67		229.69	0.000480	1.98	22728.30	5236.13	0.13
Reach-1	7.375	PF 5 100-Yr	29530.00	217.40	230.00		230.02	0.000503	2.09	24440.62	5279.56	0.13
Reach-1	7.375	PF 6 500-Yr	49370.00	217.40	231.40		231.44	0.000605	2.56	31969.55	5466.39	0.15
Reach-1	7.376	PF 1 2-Yr	10290.00	217.40	227.08		227.10	0.000798	1.90	10120.28	4393.13	0.16
Reach-1	7.376	PF 2 10-Yr	18020.00	217.40	228.91		228.93	0.000424	1.73	18802.09	5089.45	0.12
Reach-1	7.376	PF 3 25-Yr	22340.00	217.40	229.38		229.39	0.000452	1.87	21188.11	5196.77	0.13
Reach-1	7.376	PF 4 50-Yr	25730.00	217.40	229.68		229.70	0.000478	1.98	22753.63	5236.78	0.13
Reach-1	7.376	PF 5 100-Yr	29530.00	217.40	230.00		230.03	0.000501	2.08	24467.37	5280.23	0.13
Reach-1	7.376	PF 6 500-Yr	49370.00	217.40	231.40		231.44	0.000603	2.56	32003.00	5467.21	0.15
Reach-1	7.96	PF 1 2-Yr	10290.00	216.80	231.44	230.87	231.75	0.003933	6.87	4112.50	2374.90	0.39
Reach-1	7.96	PF 2 10-Yr	18020.00	216.80	231.87	231.66	232.38	0.007251	9.46	5220.32	2747.12	0.53
Reach-1	7.96	PF 3 25-Yr	22340.00	216.80	232.45	231.93	232.82	0.005867	8.73	6876.67	3029.59	0.48
Reach-1	7.96	PF 4 50-Yr	25730.00	216.80	232.86	232.07	233.18	0.005338	8.46	8136.50	3103.18	0.46
Reach-1	7.96	PF 5 100-Yr	29530.00	216.80	233.24		233.53	0.004758	8.17	9335.12	3144.22	0.44
Reach-1	7.96	PF 6 500-Yr	49370.00	216.80	234.87		235.12	0.003522	7.72	14579.58	3272.43	0.39
Reach-1	7.961	PF 1 2-Yr	10290.00	216.80	231.51		231.79	0.003611	6.59	4284.68	2426.77	0.37
Reach-1	7.961	PF 2 10-Yr	18020.00	216.80	232.06		232.46	0.005816	8.54	5750.89	2849.30	0.48
Reach-1	7.961	PF 3 25-Yr	22340.00	216.80	232.50		232.88	0.005926	8.78	7054.68	3051.95	0.48
Reach-1	7.961	PF 4 50-Yr	25730.00	216.80	232.94		233.24	0.004911	8.15	8391.27	3120.59	0.44

HEC-RAS Plan: 210LF New Bd River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	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)	
Reach-1	7.961	PF 5 100-Yr	29530.00	216.80	233.30		233.58	0.004466	7.95	9540.48	3149.34	0.42
Reach-1	7.961	PF 6 500-Yr	49370.00	216.80	234.91		235.16	0.003429	7.63	14708.37	3275.51	0.38
Reach-1	7.962	PF 1 2-Yr	10290.00	216.80	231.57		231.82	0.003383	6.39	4419.91	2466.75	0.36
Reach-1	7.962	PF 2 10-Yr	18020.00	216.80	232.17		232.51	0.005145	8.07	6063.09	2905.26	0.45
Reach-1	7.962	PF 3 25-Yr	22340.00	216.80	232.61		232.94	0.005232	8.29	7389.64	3067.90	0.45
Reach-1	7.962	PF 4 50-Yr	25730.00	216.80	233.01		233.29	0.004570	7.89	8604.49	3125.94	0.43
Reach-1	7.962	PF 5 100-Yr	29530.00	216.80	233.36		233.62	0.004225	7.76	9723.08	3153.88	0.41
Reach-1	7.962	PF 6 500-Yr	49370.00	216.80	234.95		235.19	0.003340	7.55	14836.13	3278.57	0.38
Reach-1	7.963	PF 1 2-Yr	10290.00	216.80	231.61		231.85	0.003232	6.26	4530.94	2502.81	0.35
Reach-1	7.963	PF 2 10-Yr	18020.00	216.80	232.26		232.56	0.004666	7.73	6309.40	2948.67	0.43
Reach-1	7.963	PF 3 25-Yr	22340.00	216.80	232.70		232.99	0.004777	7.95	7642.08	3079.87	0.43
Reach-1	7.963	PF 4 50-Yr	25730.00	216.80	233.07		233.33	0.004289	7.68	8797.15	3130.77	0.41
Reach-1	7.963	PF 5 100-Yr	29530.00	216.80	233.41		233.66	0.004022	7.59	9888.40	3157.99	0.40
Reach-1	7.963	PF 6 500-Yr	49370.00	216.80	234.99		235.22	0.003257	7.47	14960.25	3281.54	0.37
Reach-1	8.82	PF 1 2-Yr	7880.00	223.90	237.08		237.12	0.000653	2.49	6672.50	2269.06	0.15
Reach-1	8.82	PF 2 10-Yr	13900.00	223.90	238.42		238.46	0.000658	2.74	9766.57	2349.03	0.16
Reach-1	8.82	PF 3 25-Yr	17200.00	223.90	238.98		239.02	0.000681	2.89	11093.35	2370.45	0.16
Reach-1	8.82	PF 4 50-Yr	19900.00	223.90	239.32		239.37	0.000733	3.07	11904.11	2383.44	0.17
Reach-1	8.82	PF 5 100-Yr	22600.00	223.90	239.68		239.73	0.000763	3.20	12756.61	2397.03	0.17
Reach-1	8.82	PF 6 500-Yr	38380.00	223.90	241.35		241.44	0.000934	3.89	16821.53	2480.12	0.19
Reach-1	9.58	PF 1 2-Yr	7880.00	229.60	240.03		240.07	0.001366	3.11	5205.39	1965.59	0.22
Reach-1	9.58	PF 2 10-Yr	13900.00	229.60	241.26		241.32	0.001302	3.33	7692.78	2044.49	0.21
Reach-1	9.58	PF 3 25-Yr	17200.00	229.60	241.85		241.91	0.001274	3.43	8896.55	2077.66	0.21
Reach-1	9.58	PF 4 50-Yr	19900.00	229.60	242.29		242.36	0.001257	3.51	9821.45	2102.79	0.21
Reach-1	9.58	PF 5 100-Yr	22600.00	229.60	242.70		242.78	0.001249	3.60	10609.19	2126.10	0.21
Reach-1	9.58	PF 6 500-Yr	38380.00	229.60	244.78		244.88	0.001302	4.17	15344.74	2424.14	0.22
Reach-1	10.11	PF 1 2-Yr	7880.00	229.60	243.21		243.25	0.001140	2.86	5420.11	2065.46	0.17
Reach-1	10.11	PF 2 10-Yr	14050.00	229.60	244.41		244.47	0.001177	3.17	8010.15	2213.36	0.18
Reach-1	10.11	PF 3 25-Yr	17290.00	229.60	244.95		245.02	0.001173	3.29	9218.10	2265.66	0.18
Reach-1	10.11	PF 4 50-Yr	19740.00	229.60	245.35		245.42	0.001156	3.35	10125.51	2302.56	0.18
Reach-1	10.11	PF 5 100-Yr	22420.00	229.60	245.74		245.81	0.001154	3.42	11023.55	2333.86	0.18
Reach-1	10.11	PF 6 500-Yr	37960.00	229.60	247.78		247.87	0.001077	3.71	15945.86	2482.27	0.18
Reach-1	10.93	PF 1 2-Yr	7405.00	236.00	248.44		248.50	0.001582	3.49	4306.26	1556.57	0.23
Reach-1	10.93	PF 2 10-Yr	15850.00	236.00	250.12		250.21	0.001805	4.12	7015.76	1662.50	0.25
Reach-1	10.93	PF 3 25-Yr	19690.00	236.00	250.72		250.83	0.001866	4.34	8031.85	1691.54	0.26
Reach-1	10.93	PF 4 50-Yr	22720.00	236.00	251.15		251.27	0.001919	4.50	8759.19	1712.01	0.26
Reach-1	10.93	PF 5 100-Yr	27510.00	236.00	251.73		251.87	0.002033	4.79	9763.33	1739.89	0.27
Reach-1	10.93	PF 6 500-Yr	33680.00	236.00	252.91		253.04	0.001707	4.67	11837.64	1796.95	0.25
Reach-1	11	PF 1 2-Yr	7080.00	236.50	249.78		249.84	0.000880	3.11	4861.94	1480.18	0.18
Reach-1	11	PF 2 10-Yr	15200.00	236.50	251.67		251.75	0.001013	3.76	7737.46	1607.90	0.19
Reach-1	11	PF 3 25-Yr	18950.00	236.50	252.35		252.44	0.001067	4.01	8845.58	1670.41	0.20
Reach-1	11	PF 4 50-Yr	21610.00	236.50	252.82		252.92	0.001084	4.14	9645.54	1726.48	0.20
Reach-1	11	PF 5 100-Yr	26030.00	236.50	253.50		253.61	0.001130	4.38	10832.52	1788.98	0.21
Reach-1	11	PF 6 500-Yr	31650.00	236.50	254.57		254.69	0.001182	4.71	12855.39	1998.76	0.22
Reach-1	11.20	PF 1 2-Yr	7080.00	237.00	250.44		250.47	0.000529	2.55	6693.15	2288.54	0.14
Reach-1	11.20	PF 2 10-Yr	15200.00	237.00	252.39		252.42	0.000528	2.84	11337.29	2449.48	0.14
Reach-1	11.20	PF 3 25-Yr	18950.00	237.00	253.09		253.13	0.000532	2.95	13068.61	2486.80	0.14
Reach-1	11.20	PF 4 50-Yr	21610.00	237.00	253.57		253.61	0.000529	3.02	14270.06	2545.53	0.14
Reach-1	11.20	PF 5 100-Yr	26030.00	237.00	254.27		254.32	0.000539	3.14	16092.45	2662.95	0.14
Reach-1	11.20	PF 6 500-Yr	31650.00	237.00	255.34		255.39	0.000510	3.20	19052.86	2918.55	0.14
Reach-1	11.45	PF 1 2-Yr	7080.00	237.40	250.96		251.04	0.002013	3.09	4199.41	1983.90	0.25
Reach-1	11.45	PF 2 10-Yr	15200.00	237.40	252.84		252.91	0.001351	3.08	8181.35	2218.68	0.21
Reach-1	11.45	PF 3 25-Yr	18950.00	237.40	253.53		253.60	0.001231	3.15	9715.49	2247.76	0.21
Reach-1	11.45	PF 4 50-Yr	21610.00	237.40	253.99		254.07	0.001163	3.19	10764.86	2267.44	0.20
Reach-1	11.45	PF 5 100-Yr	26030.00	237.40	254.69		254.77	0.001095	3.28	12348.29	2289.49	0.20
Reach-1	11.45	PF 6 500-Yr	31650.00	237.40	255.72		255.80	0.000929	3.26	14717.81	2321.97	0.19
Reach-1	11.46	PF 1 2-Yr	7080.00	237.50	250.99	248.79	251.23	0.002281	3.66	1841.73	1988.01	0.27
Reach-1	11.46	PF 2 10-Yr	15200.00	237.50	252.68	250.05	253.27	0.003444	5.34	2563.81	2211.81	0.34
Reach-1	11.46	PF 3 25-Yr	18950.00	237.50	253.28	250.57	254.05	0.003878	5.96	2819.34	2237.18	0.37
Reach-1	11.46	PF 4 50-Yr	21610.00	237.50	253.68	250.99	254.58	0.004128	6.35	2990.93	2254.21	0.39
Reach-1	11.46	PF 5 100-Yr	26030.00	237.50	254.27	251.56	255.38	0.004557	6.98	3241.72	2276.23	0.41
Reach-1	11.46	PF 6 500-Yr	31650.00	237.50	255.76	252.27	255.84	0.000657	2.75	14994.29	2323.47	0.16
Reach-1	11.462		Mult Open									
Reach-1	11.465	PF 1 2-Yr	7080.00	237.60	251.16	249.18	251.50	0.002786	4.21	1609.94	1990.56	0.30

HEC-RAS Plan: 210LF New Bd River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	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)	
Reach-1	11.465	PF 2 10-Yr	15200.00	237.60	253.10	250.82	253.80	0.003552	5.70	2437.21	2454.00	0.35
Reach-1	11.465	PF 3 25-Yr	18950.00	237.60	253.78	251.41	254.65	0.003869	6.26	2723.82	2647.99	0.37
Reach-1	11.465	PF 4 50-Yr	21610.00	237.60	255.51	251.80	255.54	0.000352	2.08	15334.55	2776.48	0.11
Reach-1	11.465	PF 5 100-Yr	26030.00	237.60	256.58	252.42	256.62	0.000300	2.05	18332.84	2834.88	0.11
Reach-1	11.465	PF 6 500-Yr	31650.00	237.60	257.36	253.16	257.40	0.000315	2.20	20563.59	2880.31	0.11
Reach-1	11.47	PF 1 2-Yr	7080.00	237.70	251.62		251.67	0.001007	2.55	5327.56	2062.41	0.18
Reach-1	11.47	PF 2 10-Yr	15200.00	237.70	254.03		254.06	0.000640	2.52	11169.15	2708.40	0.15
Reach-1	11.47	PF 3 25-Yr	18950.00	237.70	254.92		254.96	0.000537	2.47	13616.25	2750.84	0.14
Reach-1	11.47	PF 4 50-Yr	21610.00	237.70	255.53		255.57	0.000485	2.44	15300.26	2777.26	0.13
Reach-1	11.47	PF 5 100-Yr	26030.00	237.70	256.60		256.64	0.000403	2.38	18291.43	2835.84	0.12
Reach-1	11.47	PF 6 500-Yr	31650.00	237.70	257.38		257.42	0.000417	2.53	20525.21	2881.31	0.13
Reach-1	11.5	PF 1 2-Yr	7080.00	238.00	252.58		252.67	0.001573	3.40	4170.58	1811.12	0.23
Reach-1	11.5	PF 2 10-Yr	15200.00	238.00	254.66		254.74	0.001150	3.47	8198.25	2073.43	0.21
Reach-1	11.5	PF 3 25-Yr	18950.00	238.00	255.46		255.54	0.001021	3.46	9872.56	2103.50	0.20
Reach-1	11.5	PF 4 50-Yr	21610.00	238.00	256.02		256.10	0.000941	3.45	11051.78	2126.80	0.19
Reach-1	11.5	PF 5 100-Yr	26030.00	238.00	257.00		257.08	0.000805	3.39	13187.88	2182.96	0.18
Reach-1	11.5	PF 6 500-Yr	31650.00	238.00	257.79		257.87	0.000808	3.56	14916.38	2225.55	0.18
Reach-1	11.88	PF 1 2-Yr	7080.00	239.00	253.92		254.04	0.001130	3.72	4281.03	1694.88	0.20
Reach-1	11.88	PF 2 10-Yr	15200.00	239.00	255.81		255.91	0.001114	4.12	8081.47	2141.21	0.21
Reach-1	11.88	PF 3 25-Yr	18950.00	239.00	256.52		256.62	0.001063	4.18	9641.31	2247.85	0.21
Reach-1	11.88	PF 4 50-Yr	21610.00	239.00	257.01		257.11	0.001016	4.19	10750.66	2280.13	0.20
Reach-1	11.88	PF 5 100-Yr	26030.00	239.00	257.87		257.97	0.000903	4.12	12723.67	2306.39	0.19
Reach-1	11.88	PF 6 500-Yr	31650.00	239.00	258.66		258.76	0.000902	4.27	14567.24	2350.38	0.19
Reach-1	12.2	PF 1 2-Yr	7080.00	241.00	256.02		256.18	0.002158	4.67	3496.73	1645.01	0.26
Reach-1	12.2	PF 2 10-Yr	15200.00	241.00	257.82		257.94	0.002034	4.45	6594.53	1797.46	0.26
Reach-1	12.2	PF 3 25-Yr	18950.00	241.00	258.46		258.58	0.001993	4.57	7796.32	1993.24	0.26
Reach-1	12.2	PF 4 50-Yr	21610.00	241.00	258.88		259.01	0.001955	4.66	8657.31	2116.44	0.26
Reach-1	12.2	PF 5 100-Yr	26030.00	241.00	259.55		259.69	0.001834	4.71	10127.27	2225.43	0.25
Reach-1	12.2	PF 6 500-Yr	31650.00	241.00	260.32		260.46	0.001769	4.84	11880.61	2364.63	0.25
Reach-1	12.21		Bridge									
Reach-1	12.22	PF 1 2-Yr	7080.00	241.00	256.11	253.51	256.49	0.003515	6.23	1988.43	953.23	0.34
Reach-1	12.22	PF 2 10-Yr	15200.00	241.00	258.12	257.14	258.44	0.003466	6.95	5358.15	1954.45	0.35
Reach-1	12.22	PF 3 25-Yr	18950.00	241.00	258.89	257.38	259.13	0.002773	6.47	6916.24	2069.19	0.31
Reach-1	12.22	PF 4 50-Yr	21610.00	241.00	259.30	257.72	259.53	0.002617	6.42	7779.18	2136.22	0.31
Reach-1	12.22	PF 5 100-Yr	26030.00	241.00	259.87	257.94	260.09	0.002523	6.47	9018.38	2268.15	0.30
Reach-1	12.22	PF 6 500-Yr	31650.00	241.00	260.54	258.36	260.76	0.002442	6.57	10610.68	2395.38	0.30
Reach-1	12.24	PF 1 2-Yr	7080.00	240.50	258.55		258.76	0.002054	5.05	3500.06	1721.49	0.26
Reach-1	12.24	PF 2 10-Yr	15200.00	240.50	260.36		260.52	0.001845	5.28	6837.60	1992.31	0.26
Reach-1	12.24	PF 3 25-Yr	18950.00	240.50	260.88		261.04	0.001924	5.53	7877.97	2046.18	0.26
Reach-1	12.24	PF 4 50-Yr	21610.00	240.50	261.24		261.41	0.001997	5.73	8640.61	2127.48	0.27
Reach-1	12.24	PF 5 100-Yr	26030.00	240.50	261.79		261.97	0.002092	6.02	9863.11	2269.35	0.28
Reach-1	12.24	PF 6 500-Yr	31650.00	240.50	262.43		262.62	0.002097	6.20	11350.82	2355.46	0.28
Reach-1	12.25	PF 1 2-Yr	7080.00	240.60	258.51	253.82	259.08	0.004104	7.12	1724.70	1720.08	0.37
Reach-1	12.25	PF 2 10-Yr	15200.00	240.60	260.12	259.27	261.08	0.006991	10.14	2610.32	1979.54	0.50
Reach-1	12.25	PF 3 25-Yr	18950.00	240.60	260.54	259.82	261.74	0.008652	11.52	2840.62	2002.14	0.55
Reach-1	12.25	PF 4 50-Yr	21610.00	240.60	260.85	260.17	262.19	0.009595	12.32	3009.44	2037.72	0.59
Reach-1	12.25	PF 5 100-Yr	26030.00	240.60	261.29	260.72	262.88	0.011201	13.59	3251.01	2161.22	0.64
Reach-1	12.25	PF 6 500-Yr	31650.00	240.60	261.78	261.33	263.70	0.013186	15.08	3519.16	2267.62	0.69
Reach-1	12.253		Bridge									
Reach-1	12.255	PF 1 2-Yr	7080.00	240.70	259.36	253.30	259.58	0.002269	4.56	2308.60	1481.36	0.27
Reach-1	12.255	PF 2 10-Yr	15200.00	240.70	261.55	258.67	261.94	0.003161	6.23	3494.38	2184.38	0.33
Reach-1	12.255	PF 3 25-Yr	18950.00	240.70	262.33	259.20	262.79	0.003479	6.83	3913.86	2411.03	0.35
Reach-1	12.255	PF 4 50-Yr	21610.00	240.70	263.01	259.55	263.50	0.003421	7.03	4284.41	2448.88	0.35
Reach-1	12.255	PF 5 100-Yr	26030.00	240.70	263.92	260.07	264.47	0.003541	7.49	4773.01	2675.14	0.36
Reach-1	12.255	PF 6 500-Yr	31650.00	240.70	265.75	260.67	265.80	0.000509	3.09	18667.81	2765.85	0.14
Reach-1	12.27	PF 1 2-Yr	7080.00	240.80	259.62		259.70	0.001158	3.19	4283.35	1530.82	0.19
Reach-1	12.27	PF 2 10-Yr	15200.00	240.80	262.04		262.11	0.000861	3.25	9213.20	2310.00	0.17
Reach-1	12.27	PF 3 25-Yr	18950.00	240.80	262.92		262.98	0.000775	3.24	11323.03	2443.00	0.17
Reach-1	12.27	PF 4 50-Yr	21610.00	240.80	263.64		263.70	0.000695	3.19	13158.24	2656.56	0.16
Reach-1	12.27	PF 5 100-Yr	26030.00	240.80	264.63		264.68	0.000585	3.08	15830.62	2733.28	0.15
Reach-1	12.27	PF 6 500-Yr	31650.00	240.80	265.78		265.83	0.000492	2.98	18998.10	2766.78	0.14
Reach-1	12.39	PF 1 2-Yr	7080.00	244.70	259.97		259.99	0.000267	1.97	8273.14	2280.67	0.12
Reach-1	12.39	PF 2 10-Yr	15200.00	244.70	262.34		262.37	0.000264	2.23	13920.23	2455.90	0.12
Reach-1	12.39	PF 3 25-Yr	18950.00	244.70	263.20		263.23	0.000265	2.34	16049.68	2496.04	0.12

HEC-RAS Plan: 210LF New Bd River: RIVER-1 Reach: Reach-1 (Continued)

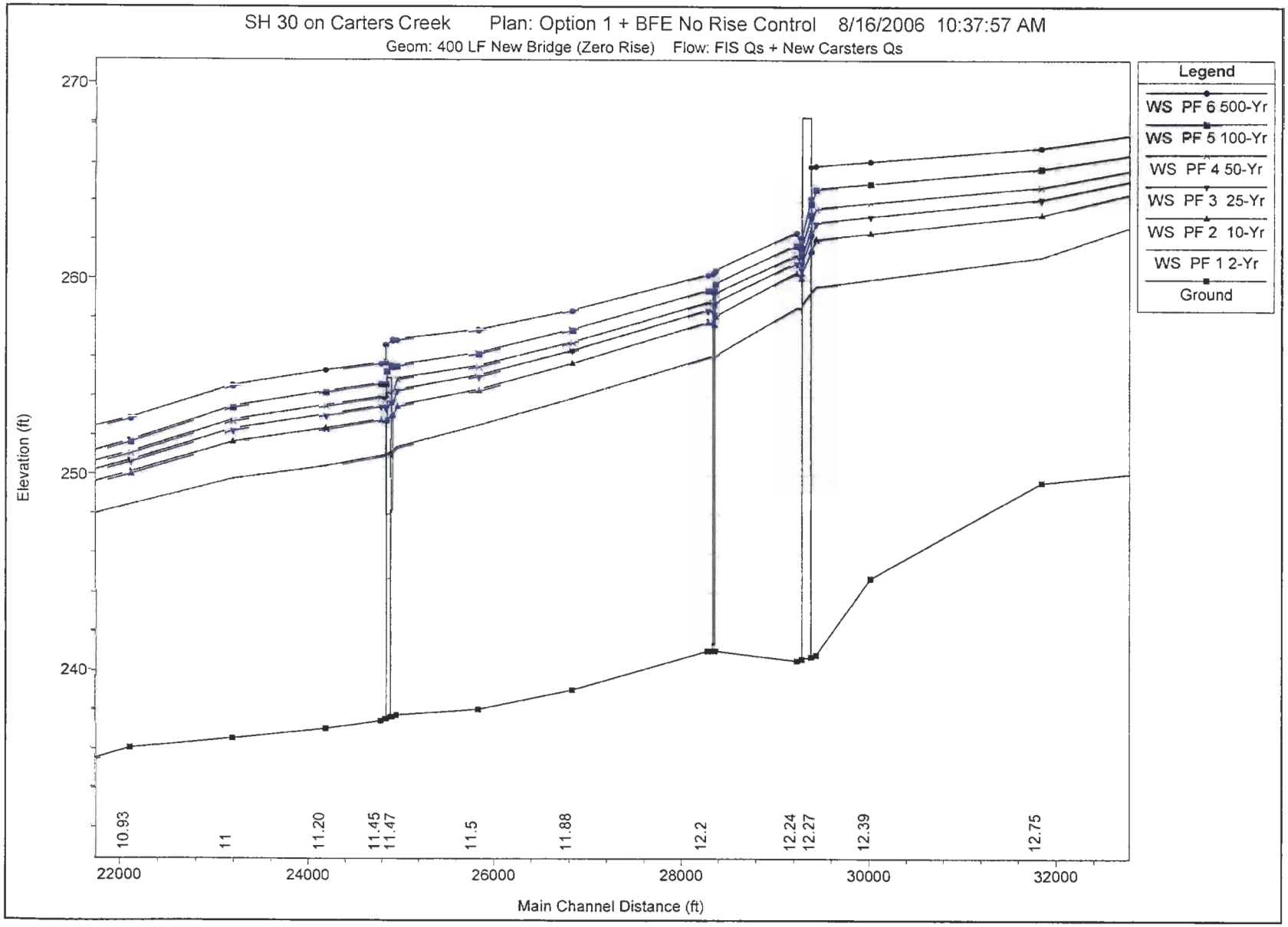
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	12.39	PF 4 50-Yr	21610.00	244.70	263.90		263.93	0.000250	2.35	17801.05	2547.36	0.12
Reach-1	12.39	PF 5 100-Yr	26030.00	244.70	264.88		264.91	0.000268	2.55	20471.96	2878.26	0.12
Reach-1	12.39	PF 6 500-Yr	31650.00	244.70	266.00		266.03	0.000251	2.59	23737.83	2930.73	0.12
Reach-1	12.75	PF 1 2-Yr	7080.00	249.60	261.12		261.30	0.003834	4.76	3362.92	2384.43	0.37
Reach-1	12.75	PF 2 10-Yr	15200.00	249.60	263.28		263.35	0.001368	3.35	9035.63	2772.64	0.23
Reach-1	12.75	PF 3 25-Yr	18950.00	249.60	264.09		264.15	0.001110	3.19	11321.72	2882.14	0.21
Reach-1	12.75	PF 4 50-Yr	21610.00	249.60	264.72		264.78	0.000979	3.17	13219.01	3152.90	0.20
Reach-1	12.75	PF 5 100-Yr	26030.00	249.60	265.66		265.71	0.000761	3.02	16251.52	3251.59	0.18
Reach-1	12.75	PF 6 500-Yr	31650.00	249.60	266.70		266.75	0.000624	2.95	19670.50	3327.19	0.17
Reach-1	13.5	PF 1 2-Yr	4370.00	251.60	267.66	265.37	267.69	0.000954	2.31	3973.97	1748.65	0.16
Reach-1	13.5	PF 2 10-Yr	7550.00	251.60	267.88	266.14	267.95	0.002186	3.57	4368.65	1788.82	0.24
Reach-1	13.5	PF 3 25-Yr	9250.00	251.60	268.11		268.20	0.002543	3.94	4777.21	1817.62	0.26
Reach-1	13.5	PF 4 50-Yr	10500.00	251.60	268.34		268.44	0.002547	4.03	5208.84	1840.38	0.26
Reach-1	13.5	PF 5 100-Yr	11900.00	251.60	268.57		268.67	0.002606	4.16	5628.45	1862.24	0.27
Reach-1	13.5	PF 6 500-Yr	19820.00	251.60	269.51		269.65	0.003261	5.03	7430.16	1991.25	0.30
Reach-1	14.2	PF 1 2-Yr	3870.00	255.50	271.82		271.97	0.001893	4.08	2260.66	1244.76	0.24
Reach-1	14.2	PF 2 10-Yr	5730.00	255.50	273.09		273.16	0.001130	3.43	3936.87	1400.62	0.19
Reach-1	14.2	PF 3 25-Yr	7100.00	255.50	273.61		273.69	0.001106	3.51	4688.29	1462.46	0.19
Reach-1	14.2	PF 4 50-Yr	8170.00	255.50	273.92		273.99	0.001148	3.64	5141.59	1498.26	0.19
Reach-1	14.2	PF 5 100-Yr	9380.00	255.50	274.25		274.33	0.001177	3.76	5643.19	1530.72	0.19
Reach-1	14.2	PF 6 500-Yr	15550.00	255.50	275.79		275.88	0.001184	4.09	8123.34	1680.50	0.20
Reach-1	14.81	PF 1 2-Yr	2600.00	262.10	275.59		275.61	0.000663	1.93	2486.45	950.18	0.14
Reach-1	14.81	PF 2 10-Yr	4710.00	262.10	276.42		276.46	0.000984	2.55	3301.77	1007.20	0.17
Reach-1	14.81	PF 3 25-Yr	5850.00	262.10	276.92		276.97	0.001006	2.70	3827.78	1080.34	0.17
Reach-1	14.81	PF 4 50-Yr	6750.00	262.10	277.30		277.35	0.001010	2.79	4242.47	1131.50	0.17
Reach-1	14.81	PF 5 100-Yr	7650.00	262.10	277.66		277.72	0.001006	2.87	4668.09	1187.52	0.18
Reach-1	14.81	PF 6 500-Yr	12800.00	262.10	279.38		279.45	0.001120	3.43	7018.13	1534.55	0.19
Reach-1	15.69	PF 1 2-Yr	2600.00	267.10	279.17		279.21	0.001154	2.37	2159.40	964.92	0.17
Reach-1	15.69	PF 2 10-Yr	4710.00	267.10	280.49		280.53	0.000987	2.51	3502.09	1069.27	0.17
Reach-1	15.69	PF 3 25-Yr	5850.00	267.10	281.02		281.06	0.000987	2.63	4081.12	1110.99	0.17
Reach-1	15.69	PF 4 50-Yr	6750.00	267.10	281.39		281.44	0.000993	2.73	4503.33	1138.62	0.17
Reach-1	15.69	PF 5 100-Yr	7650.00	267.10	281.75		281.80	0.000993	2.81	4910.94	1161.20	0.17
Reach-1	15.69	PF 6 500-Yr	12800.00	267.10	283.56		283.62	0.000946	3.12	7114.20	1267.53	0.17
Reach-1	15.7	PF 1 2-Yr	2600.00	267.90	279.10		279.50	0.005395	5.07	512.83	115.40	0.42
Reach-1	15.7	PF 2 10-Yr	4710.00	267.90	280.20		281.04	0.009398	7.32	643.26	120.08	0.56
Reach-1	15.7	PF 3 25-Yr	5850.00	267.90	280.60		281.72	0.011868	8.46	691.62	121.78	0.63
Reach-1	15.7	PF 4 50-Yr	6750.00	267.90	280.87		282.22	0.013977	9.33	723.69	123.20	0.68
Reach-1	15.7	PF 5 100-Yr	7650.00	267.90	281.10		282.70	0.016159	10.17	752.48	124.46	0.73
Reach-1	15.7	PF 6 500-Yr	12800.00	267.90	282.08	281.98	285.39	0.030027	14.60	876.70	129.76	0.99
Reach-1	15.7025		Bridge									
Reach-1	15.705	PF 1 2-Yr	2600.00	267.90	279.27	277.01	279.64	0.004850	4.88	532.57	116.12	0.40
Reach-1	15.705	PF 2 10-Yr	4710.00	267.90	280.56	278.32	281.29	0.007868	6.87	685.99	121.58	0.51
Reach-1	15.705	PF 3 25-Yr	5850.00	267.90	281.11	278.94	282.04	0.009421	7.77	753.33	124.50	0.56
Reach-1	15.705	PF 4 50-Yr	6750.00	267.90	281.52	279.39	282.61	0.010489	8.38	805.13	126.73	0.59
Reach-1	15.705	PF 5 100-Yr	7650.00	267.90	281.93	279.83	283.16	0.011381	8.92	857.45	128.95	0.61
Reach-1	15.705	PF 6 500-Yr	12800.00	267.90	286.28	281.98	286.41	0.001250	3.80	5030.19	1483.54	0.21
Reach-1	15.71	PF 1 2-Yr	2600.00	267.30	279.72		279.75	0.000767	2.01	2506.41	993.24	0.14
Reach-1	15.71	PF 2 10-Yr	4710.00	267.30	281.40		281.43	0.000555	2.01	4288.73	1124.52	0.13
Reach-1	15.71	PF 3 25-Yr	5850.00	267.30	282.17		282.20	0.000499	2.02	5173.28	1174.37	0.12
Reach-1	15.71	PF 4 50-Yr	6750.00	267.30	282.75		282.78	0.000461	2.03	5864.07	1208.35	0.12
Reach-1	15.71	PF 5 100-Yr	7650.00	267.30	283.32		283.34	0.000428	2.04	6556.37	1241.47	0.12
Reach-1	15.71	PF 6 500-Yr	12800.00	267.30	286.43		286.45	0.000281	1.99	10630.50	1363.99	0.10
Reach-1	16.31	PF 1 2-Yr	2600.00	270.90	282.01		282.04	0.000891	2.22	2657.50	1435.75	0.15
Reach-1	16.31	PF 2 10-Yr	4710.00	270.90	283.19		283.22	0.000792	2.34	4567.03	1751.95	0.15
Reach-1	16.31	PF 3 25-Yr	5850.00	270.90	283.75		283.78	0.000692	2.29	5564.44	1806.21	0.14
Reach-1	16.31	PF 4 50-Yr	6750.00	270.90	284.19		284.21	0.000623	2.25	6366.31	1848.27	0.14
Reach-1	16.31	PF 5 100-Yr	7650.00	270.90	284.63		284.65	0.000560	2.21	7189.87	1890.43	0.13
Reach-1	16.31	PF 6 500-Yr	12800.00	270.90	287.22		287.24	0.000310	1.94	12308.66	2062.42	0.10
Reach-1	16.96	PF 1 2-Yr	2600.00	275.90	285.21		285.23	0.001410	1.89	2310.06	1306.71	0.19
Reach-1	16.96	PF 2 10-Yr	4710.00	275.90	286.07		286.10	0.001337	1.95	3466.33	1385.49	0.19
Reach-1	16.96	PF 3 25-Yr	5850.00	275.90	286.42		286.46	0.001369	2.03	3962.02	1417.92	0.19
Reach-1	16.96	PF 4 50-Yr	6750.00	275.90	286.68		286.72	0.001373	2.07	4337.82	1434.70	0.19
Reach-1	16.96	PF 5 100-Yr	7650.00	275.90	286.95		286.99	0.001351	2.09	4719.41	1448.41	0.19
Reach-1	16.96	PF 6 500-Yr	12800.00	275.90	288.61		288.66	0.000969	2.25	7443.47	1814.46	0.17

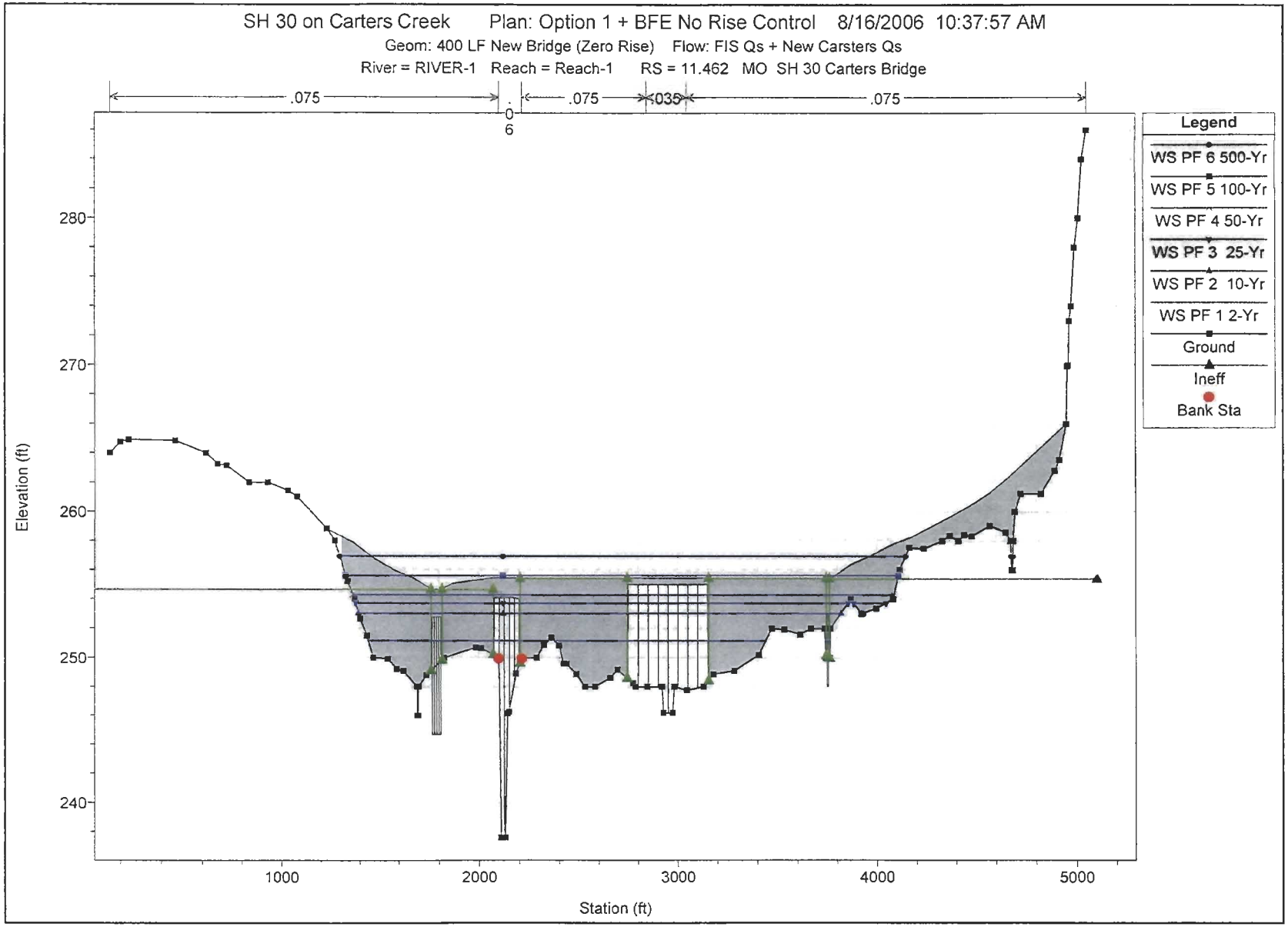
HEC-RAS Plan: 210LF New Bd River: RIVER-1 Reach: Reach-1 (Continued)

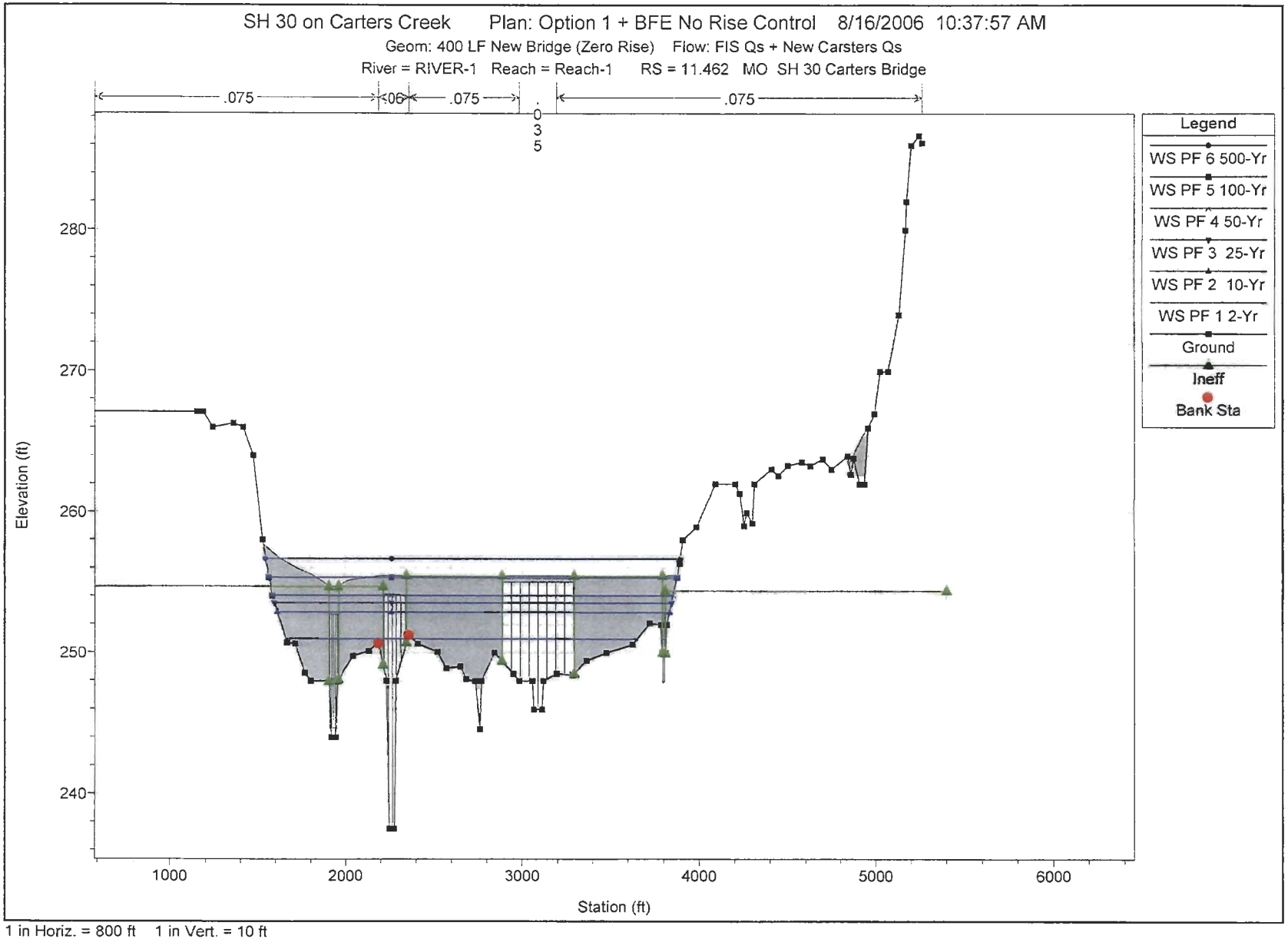
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	17.29	PF 1 2-Yr	2600.00	278.40	287.90		287.95	0.002466	2.58	1470.04	667.59	0.25
Reach-1	17.29	PF 2 10-Yr	4710.00	278.40	288.79		288.88	0.002840	3.25	2093.65	725.36	0.28
Reach-1	17.29	PF 3 25-Yr	5850.00	278.40	289.21		289.31	0.002919	3.52	2403.05	751.79	0.29
Reach-1	17.29	PF 4 50-Yr	6750.00	278.40	289.50		289.62	0.002996	3.72	2624.54	769.06	0.30
Reach-1	17.29	PF 5 100-Yr	7650.00	278.40	269.77		289.89	0.003086	3.91	2829.23	784.68	0.30
Reach-1	17.29	PF 6 500-Yr	12800.00	278.40	290.97		291.17	0.003601	4.86	3820.44	857.38	0.34
Reach-1	17.95	PF 1 2-Yr	2600.00	281.90	294.32		294.37	0.001652	2.97	1685.18	698.59	0.21
Reach-1	17.95	PF 2 10-Yr	4710.00	281.90	295.55		295.62	0.001618	3.32	2635.13	822.10	0.22
Reach-1	17.95	PF 3 25-Yr	5850.00	281.90	296.07		296.15	0.001629	3.49	3073.68	873.28	0.22
Reach-1	17.95	PF 4 50-Yr	6750.00	281.90	296.45		296.53	0.001632	3.60	3408.23	909.49	0.22
Reach-1	17.95	PF 5 100-Yr	7650.00	281.90	296.80		296.89	0.001633	3.71	3740.39	948.52	0.22
Reach-1	17.95	PF 6 500-Yr	12800.00	281.90	298.58		298.68	0.001664	4.24	5640.04	1315.33	0.23
Reach-1	18.51	PF 1 2-Yr	1280.00	288.90	298.53		298.57	0.001317	2.37	1050.10	571.03	0.18
Reach-1	18.51	PF 2 10-Yr	2110.00	288.90	299.50		299.54	0.001145	2.48	1777.07	819.45	0.18
Reach-1	18.51	PF 3 25-Yr	2240.00	288.90	299.80		299.83	0.000910	2.28	2026.17	849.60	0.16
Reach-1	18.51	PF 4 50-Yr	2900.00	288.90	300.21		300.25	0.000979	2.47	2388.76	890.49	0.17
Reach-1	18.51	PF 5 100-Yr	3200.00	288.90	300.49		300.53	0.000910	2.45	2637.82	917.51	0.16
Reach-1	18.51	PF 6 500-Yr	5270.00	288.90	302.00		302.04	0.000716	2.47	4141.66	1069.80	0.15
Reach-1	18.511	PF 1 2-Yr	1280.00	288.90	298.54		298.59	0.001301	2.36	1057.97	576.36	0.18
Reach-1	18.511	PF 2 10-Yr	2110.00	288.90	299.51		299.55	0.001128	2.46	1787.00	820.67	0.18
Reach-1	18.511	PF 3 25-Yr	2240.00	288.90	299.81		299.84	0.000901	2.27	2034.29	850.55	0.16
Reach-1	18.511	PF 4 50-Yr	2900.00	288.90	300.22		300.26	0.000968	2.46	2397.87	891.49	0.17
Reach-1	18.511	PF 5 100-Yr	3200.00	288.90	300.50		300.53	0.000901	2.44	2646.54	918.44	0.16
Reach-1	18.511	PF 6 500-Yr	5270.00	288.90	302.01		302.05	0.000712	2.47	4149.60	1070.65	0.15
Reach-1	18.512	PF 1 2-Yr	1280.00	288.90	298.55		298.60	0.001285	2.35	1085.76	581.59	0.18
Reach-1	18.512	PF 2 10-Yr	2110.00	288.90	299.52		299.56	0.001112	2.45	1796.68	821.86	0.18
Reach-1	18.512	PF 3 25-Yr	2240.00	288.90	299.81		299.85	0.000891	2.26	2042.21	851.46	0.16
Reach-1	18.512	PF 4 50-Yr	2900.00	288.90	300.23		300.27	0.000959	2.45	2406.80	892.47	0.17
Reach-1	18.512	PF 5 100-Yr	3200.00	288.90	300.51		300.54	0.000894	2.43	2655.06	919.35	0.16
Reach-1	18.512	PF 6 500-Yr	5270.00	288.90	302.02		302.05	0.000709	2.46	4157.38	1071.49	0.15
Reach-1	18.513	PF 1 2-Yr	1280.00	288.90	298.57		298.61	0.001269	2.34	1073.53	586.77	0.18
Reach-1	18.513	PF 2 10-Yr	2110.00	288.90	299.53		299.57	0.001096	2.44	1806.24	823.04	0.17
Reach-1	18.513	PF 3 25-Yr	2240.00	288.90	299.82		299.86	0.000882	2.25	2050.06	852.36	0.16
Reach-1	18.513	PF 4 50-Yr	2900.00	288.90	300.24		300.28	0.000949	2.44	2415.63	893.44	0.16
Reach-1	18.513	PF 5 100-Yr	3200.00	288.90	300.52		300.55	0.000886	2.42	2663.51	920.25	0.16
Reach-1	18.513	PF 6 500-Yr	5270.00	288.90	302.03		302.06	0.000705	2.46	4165.13	1072.32	0.15
Reach-1	19.05	PF 1 2-Yr	1280.00	298.70	303.39		303.44	0.003012	2.55	886.71	622.35	0.24
Reach-1	19.05	PF 2 10-Yr	2110.00	298.70	304.00		304.06	0.003287	2.95	1297.03	722.12	0.25
Reach-1	19.05	PF 3 25-Yr	2240.00	298.70	303.94		304.02	0.003998	3.23	1257.45	713.11	0.28
Reach-1	19.05	PF 4 50-Yr	2900.00	298.70	304.40		304.48	0.003599	3.28	1595.41	768.66	0.27
Reach-1	19.05	PF 5 100-Yr	3200.00	298.70	304.52		304.60	0.003749	3.41	1689.89	780.97	0.28
Reach-1	19.05	PF 6 500-Yr	5270.00	298.70	305.41		305.51	0.003788	3.84	2424.61	870.79	0.28
Reach-1	19.06	PF 1 2-Yr	1280.00	298.70	303.48		303.52	0.000857	2.30	940.70	636.37	0.21
Reach-1	19.06	PF 2 10-Yr	2110.00	298.70	304.09		304.15	0.000928	2.65	1365.96	737.56	0.22
Reach-1	19.06	PF 3 25-Yr	2240.00	298.70	304.06		304.12	0.001096	2.87	1340.60	731.92	0.24
Reach-1	19.06	PF 4 50-Yr	2900.00	298.70	304.50		304.57	0.001002	2.93	1675.75	779.14	0.24
Reach-1	19.06	PF 5 100-Yr	3200.00	298.70	304.63		304.70	0.001040	3.04	1775.07	791.90	0.24
Reach-1	19.06	PF 6 500-Yr	5270.00	298.70	305.52		305.61	0.001064	3.43	2521.74	881.98	0.25
Reach-1	19.0625		Bridge									
Reach-1	19.065	PF 1 2-Yr	1280.00	298.70	304.35	301.37	304.37	0.000238	1.40	1558.55	763.80	0.11
Reach-1	19.065	PF 2 10-Yr	2110.00	298.70	304.76	302.03	304.78	0.000388	1.89	1875.46	804.60	0.15
Reach-1	19.065	PF 3 25-Yr	2240.00	298.70	304.80	302.20	304.82	0.000417	1.97	1907.93	808.66	0.15
Reach-1	19.065	PF 4 50-Yr	2900.00	298.70	305.04	302.69	305.08	0.000531	2.29	2107.70	833.23	0.18
Reach-1	19.065	PF 5 100-Yr	3200.00	298.70	305.13	302.89	305.18	0.000582	2.43	2188.01	842.91	0.18
Reach-1	19.065	PF 6 500-Yr	5270.00	298.70	305.73	303.49	305.80	0.000876	3.19	2706.87	905.61	0.23
Reach-1	19.07	PF 1 2-Yr	1280.00	298.70	304.36		304.38	0.000322	1.47	1568.75	765.15	0.12
Reach-1	19.07	PF 2 10-Yr	2110.00	298.70	304.78		304.80	0.000524	1.98	1893.01	806.80	0.16
Reach-1	19.07	PF 3 25-Yr	2240.00	298.70	304.82		304.85	0.000563	2.06	1926.88	811.03	0.16
Reach-1	19.07	PF 4 50-Yr	2900.00	298.70	305.07		305.11	0.000713	2.40	2132.59	836.24	0.18
Reach-1	19.07	PF 5 100-Yr	3200.00	298.70	305.17		305.21	0.000781	2.54	2215.64	846.21	0.19
Reach-1	19.07	PF 6 500-Yr	5270.00	298.70	305.78		305.85	0.001171	3.34	2751.86	915.22	0.24

Appendix F

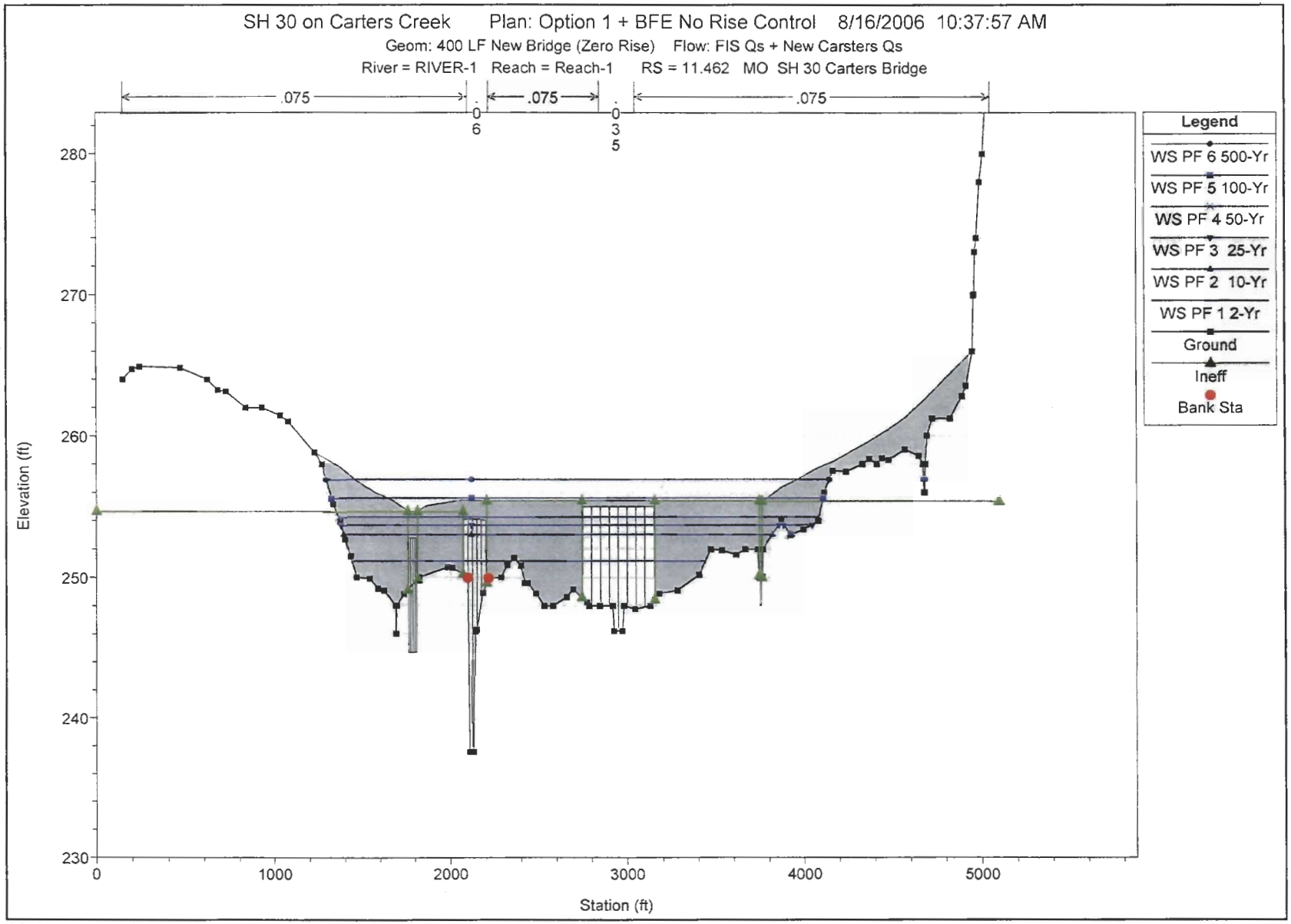
400 LF New Bridge Option


SH 30 on Carters Creek Plan: Option 1 + BFE No Rise Control 8/16/2006 10:37:57 AM
Geom: 400 LF New Bridge (Zero Rise) Flow: FIS Qs + New Carsters Qs
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Elevation (ft)
270
260
250
240
10.93
11
11.20
11.45
11.47
11.5
11.88
12.2
12.24
12.27
12.39
12.75
22000
24000
26000
28000
30000
32000
Main Channel Distance (ft)


SH 30 on Carters Creek Plan: Option 1 + BFE No Rise Control 8/16/2006 10:37:57 AM
Geom: 400 LF New Bridge (Zero Rise) Flow: FIS Qs + New Carsters Qs
River = RIVER-1 Reach = Reach-1 RS = 11.462 MO SH 30 Carters Bridge
.075
.075
.035
.075
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Ineff
Bank Sta
Elevation (ft)
280
270
260
250
240
1000
2000
3000
4000
5000
Station (ft)



1 in Horiz. = 800 ft 1 in Vert. = 10 ft



1 in Horiz. = 800 ft 1 in Vert. = 10 ft

HEC-RAS Plan: NewBrg NoRis River: RIVER-1 Reach: Reach-1

Reach	River Sta	Profile	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)	
Reach-1	6.76	PF 1 2-Yr	10290.00	214.90	223.95	222.69	224.01	0.002136	3.35	6254.21	3261.67	0.30
Reach-1	6.76	PF 2 10-Yr	18020.00	214.90	224.94	223.24	225.01	0.002079	3.83	9785.04	3789.00	0.30
Reach-1	6.76	PF 3 25-Yr	22340.00	214.90	225.38	223.36	225.45	0.001970	3.94	11469.96	3869.67	0.30
Reach-1	6.76	PF 4 50-Yr	25730.00	214.90	225.69	223.41	225.77	0.001926	4.04	12685.76	4004.45	0.30
Reach-1	6.76	PF 5 100-Yr	29530.00	214.90	226.02	223.56	226.10	0.001955	4.23	14030.28	4116.00	0.30
Reach-1	6.76	PF 6 500-Yr	49370.00	214.90	227.43	224.21	227.54	0.001838	4.72	20074.06	4392.22	0.30
Reach-1	6.77	PF 1 2-Yr	10290.00	212.10	222.94	222.39	224.80	0.023570	13.81	1094.35	201.39	0.96
Reach-1	6.77	PF 2 10-Yr	18020.00	212.10	224.36	224.36	227.40	0.044060	17.20	1395.26	229.99	1.30
Reach-1	6.77	PF 3 25-Yr	22340.00	212.10	227.38	227.38	228.20	0.013260	11.25	5548.38	3825.74	0.74
Reach-1	6.77	PF 4 50-Yr	25730.00	212.10	227.55	227.55	228.36	0.013553	11.56	6210.51	3905.51	0.75
Reach-1	6.77	PF 5 100-Yr	29530.00	212.10	227.66	227.66	228.55	0.015251	12.38	6630.41	3949.07	0.80
Reach-1	6.77	PF 6 500-Yr	49370.00	212.10	228.46	228.46	229.31	0.015400	13.31	9885.49	4144.30	0.81
Reach-1	6.7725		Bridge									
Reach-1	6.775	PF 1 2-Yr	10290.00	212.10	224.41	222.39	225.38	0.014036	9.74	1407.25	230.39	0.73
Reach-1	6.775	PF 2 10-Yr	18020.00	212.10	227.92	224.35	228.15	0.004131	6.59	7665.11	4016.73	0.42
Reach-1	6.775	PF 3 25-Yr	22340.00	212.10	228.26	225.44	228.48	0.004059	6.72	9030.89	4095.67	0.42
Reach-1	6.775	PF 4 50-Yr	25730.00	212.10	228.41	227.52	228.65	0.004465	7.14	9658.01	4131.41	0.44
Reach-1	6.775	PF 5 100-Yr	29530.00	212.10	228.60	227.67	228.86	0.004705	7.44	10446.11	4167.79	0.45
Reach-1	6.775	PF 6 500-Yr	49370.00	212.10	229.30	228.40	229.66	0.006331	9.10	13405.19	4274.78	0.53
Reach-1	6.79	PF 1 2-Yr	10290.00	214.90	225.57		225.58	0.000346	1.69	12208.26	3933.03	0.13
Reach-1	6.79	PF 2 10-Yr	18020.00	214.90	228.21		228.22	0.000149	1.43	23527.91	4478.74	0.09
Reach-1	6.79	PF 3 25-Yr	22340.00	214.90	228.54		228.55	0.000189	1.66	25013.05	4515.44	0.10
Reach-1	6.79	PF 4 50-Yr	25730.00	214.90	228.72		228.74	0.000227	1.84	25833.41	4535.58	0.11
Reach-1	6.79	PF 5 100-Yr	29530.00	214.90	228.93		228.95	0.000267	2.03	26783.98	4558.81	0.12
Reach-1	6.79	PF 6 500-Yr	49370.00	214.90	229.77		229.81	0.000490	2.92	30640.53	4638.30	0.16
Reach-1	6.791	PF 1 2-Yr	10290.00	214.90	225.57		225.59	0.000345	1.69	12222.07	3935.12	0.13
Reach-1	6.791	PF 2 10-Yr	18020.00	214.90	228.21		228.22	0.000149	1.43	23534.60	4478.91	0.09
Reach-1	6.791	PF 3 25-Yr	22340.00	214.90	228.54		228.55	0.000189	1.66	25021.66	4515.65	0.10
Reach-1	6.791	PF 4 50-Yr	25730.00	214.90	228.72		228.74	0.000227	1.84	25843.79	4535.83	0.11
Reach-1	6.791	PF 5 100-Yr	29530.00	214.90	228.93		228.95	0.000267	2.03	26796.29	4559.11	0.12
Reach-1	6.791	PF 6 500-Yr	49370.00	214.90	229.77		229.82	0.000489	2.92	30663.67	4638.66	0.16
Reach-1	6.792	PF 1 2-Yr	10290.00	214.90	225.58		225.59	0.000343	1.69	12235.76	3937.18	0.13
Reach-1	6.792	PF 2 10-Yr	18020.00	214.90	228.21		228.22	0.000149	1.43	23541.30	4479.08	0.09
Reach-1	6.792	PF 3 25-Yr	22340.00	214.90	228.54		228.56	0.000189	1.66	25030.21	4515.86	0.10
Reach-1	6.792	PF 4 50-Yr	25730.00	214.90	228.72		228.74	0.000226	1.84	25854.11	4536.09	0.11
Reach-1	6.792	PF 5 100-Yr	29530.00	214.90	228.93		228.96	0.000266	2.03	26808.54	4559.40	0.12
Reach-1	6.792	PF 6 500-Yr	49370.00	214.90	229.78		229.82	0.000487	2.91	30686.67	4639.02	0.16
Reach-1	6.793	PF 1 2-Yr	10290.00	214.90	225.58		225.59	0.000342	1.68	12249.40	3939.24	0.13
Reach-1	6.793	PF 2 10-Yr	18020.00	214.90	228.21		228.22	0.000149	1.43	23548.00	4479.24	0.09
Reach-1	6.793	PF 3 25-Yr	22340.00	214.90	228.54		228.56	0.000189	1.66	25038.75	4516.07	0.10
Reach-1	6.793	PF 4 50-Yr	25730.00	214.90	228.73		228.74	0.000226	1.84	25864.42	4536.34	0.11
Reach-1	6.793	PF 5 100-Yr	29530.00	214.90	228.94		228.96	0.000268	2.03	26820.78	4559.70	0.12
Reach-1	6.793	PF 6 500-Yr	49370.00	214.90	229.78		229.83	0.000486	2.91	30709.61	4639.39	0.16
Reach-1	7.375	PF 1 2-Yr	10290.00	217.40	227.07		227.09	0.000806	1.90	10084.57	4386.85	0.16
Reach-1	7.375	PF 2 10-Yr	18020.00	217.40	228.91		228.92	0.000426	1.73	18780.35	5087.35	0.12
Reach-1	7.375	PF 3 25-Yr	22340.00	217.40	229.37		229.39	0.000453	1.87	21164.40	5196.16	0.13
Reach-1	7.375	PF 4 50-Yr	25730.00	217.40	229.67		229.69	0.000480	1.98	22728.30	5236.13	0.13
Reach-1	7.375	PF 5 100-Yr	29530.00	217.40	230.00		230.02	0.000503	2.09	24440.62	5279.56	0.13
Reach-1	7.375	PF 6 500-Yr	49370.00	217.40	231.40		231.44	0.000605	2.56	31969.55	5466.39	0.15
Reach-1	7.376	PF 1 2-Yr	10290.00	217.40	227.08		227.10	0.000798	1.90	10120.28	4393.13	0.16
Reach-1	7.376	PF 2 10-Yr	18020.00	217.40	228.91		228.93	0.000424	1.73	18802.09	5089.45	0.12
Reach-1	7.376	PF 3 25-Yr	22340.00	217.40	229.38		229.39	0.000452	1.87	21188.11	5196.77	0.13
Reach-1	7.376	PF 4 50-Yr	25730.00	217.40	229.68		229.70	0.000478	1.98	22753.63	5236.78	0.13
Reach-1	7.376	PF 5 100-Yr	29530.00	217.40	230.00		230.03	0.000501	2.08	24467.37	5280.23	0.13
Reach-1	7.376	PF 6 500-Yr	49370.00	217.40	231.40		231.44	0.000603	2.56	32003.00	5467.21	0.15
Reach-1	7.96	PF 1 2-Yr	10290.00	216.80	231.44	230.87	231.75	0.003933	6.87	4112.50	2374.90	0.39
Reach-1	7.96	PF 2 10-Yr	18020.00	216.80	231.87	231.66	232.38	0.007251	9.46	5220.32	2747.12	0.53
Reach-1	7.96	PF 3 25-Yr	22340.00	216.80	232.45	231.93	232.82	0.005887	8.73	6876.67	3029.59	0.48
Reach-1	7.96	PF 4 50-Yr	25730.00	216.80	232.86	232.07	233.18	0.005338	8.46	8136.50	3103.18	0.46
Reach-1	7.96	PF 5 100-Yr	29530.00	216.80	233.24		233.53	0.004758	8.17	9335.12	3144.22	0.44
Reach-1	7.96	PF 6 500-Yr	49370.00	216.80	234.87		235.12	0.003522	7.72	14579.58	3272.43	0.39
Reach-1	7.961	PF 1 2-Yr	10290.00	216.80	231.51		231.79	0.003611	6.59	4284.68	2426.77	0.37
Reach-1	7.961	PF 2 10-Yr	18020.00	216.80	232.06		232.46	0.005816	8.54	5750.89	2849.30	0.48
Reach-1	7.961	PF 3 25-Yr	22340.00	216.80	232.50		232.88	0.005926	8.78	7054.68	3051.95	0.48
Reach-1	7.961	PF 4 50-Yr	25730.00	216.80	232.94		233.24	0.004911	8.15	8391.27	3120.59	0.44

HEC-RAS Plan: NewBrg NoRis River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	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)	
Reach-1	7.961	PF 5 100-Yr	29530.00	216.80	233.30		233.58	0.004466	7.95	9540.48	3149.34	0.42
Reach-1	7.961	PF 6 500-Yr	49370.00	216.80	234.91		235.16	0.003429	7.63	14708.37	3275.51	0.38
Reach-1	7.962	PF 1 2-Yr	10290.00	216.80	231.57		231.82	0.003383	6.39	4419.91	2466.75	0.36
Reach-1	7.962	PF 2 10-Yr	18020.00	216.80	232.17		232.51	0.005145	8.07	6063.09	2905.26	0.45
Reach-1	7.962	PF 3 25-Yr	22340.00	216.80	232.61		232.94	0.005232	8.29	7389.64	3067.90	0.45
Reach-1	7.962	PF 4 50-Yr	25730.00	216.80	233.01		233.29	0.004570	7.89	8604.49	3125.94	0.43
Reach-1	7.962	PF 5 100-Yr	29530.00	216.80	233.36		233.62	0.004225	7.76	9723.08	3153.88	0.41
Reach-1	7.962	PF 6 500-Yr	49370.00	216.80	234.95		235.19	0.003340	7.55	14836.13	3278.57	0.38
Reach-1	7.963	PF 1 2-Yr	10290.00	216.80	231.61		231.85	0.003232	6.26	4530.94	2502.81	0.35
Reach-1	7.963	PF 2 10-Yr	18020.00	216.80	232.26		232.56	0.004686	7.73	6309.40	2948.67	0.43
Reach-1	7.963	PF 3 25-Yr	22340.00	216.80	232.70		232.99	0.004777	7.95	7642.08	3079.87	0.43
Reach-1	7.963	PF 4 50-Yr	25730.00	216.80	233.07		233.33	0.004289	7.68	8797.15	3130.77	0.41
Reach-1	7.963	PF 5 100-Yr	29530.00	216.80	233.41		233.66	0.004022	7.59	9888.40	3157.99	0.40
Reach-1	7.963	PF 6 500-Yr	49370.00	216.80	234.99		235.22	0.003257	7.47	14960.25	3281.54	0.37
Reach-1	8.82	PF 1 2-Yr	7880.00	223.90	237.08		237.12	0.000653	2.49	6672.50	2269.06	0.15
Reach-1	8.82	PF 2 10-Yr	13900.00	223.90	238.42		238.46	0.000658	2.74	9766.57	2349.03	0.16
Reach-1	8.82	PF 3 25-Yr	17200.00	223.90	238.98		239.02	0.000681	2.89	11093.35	2370.45	0.16
Reach-1	8.82	PF 4 50-Yr	19900.00	223.90	239.32		239.37	0.000733	3.07	11904.11	2383.44	0.17
Reach-1	8.82	PF 5 100-Yr	22600.00	223.90	239.68		239.73	0.000763	3.20	12756.61	2397.03	0.17
Reach-1	8.82	PF 6 500-Yr	38380.00	223.90	241.35		241.44	0.000934	3.89	16821.53	2480.12	0.19
Reach-1	9.58	PF 1 2-Yr	7880.00	229.60	240.03		240.07	0.001366	3.11	5205.39	1965.59	0.22
Reach-1	9.58	PF 2 10-Yr	13900.00	229.60	241.26		241.32	0.001302	3.33	7692.78	2044.49	0.21
Reach-1	9.58	PF 3 25-Yr	17200.00	229.60	241.85		241.91	0.001274	3.43	8896.55	2077.66	0.21
Reach-1	9.58	PF 4 50-Yr	19900.00	229.60	242.29		242.36	0.001257	3.51	9821.45	2102.79	0.21
Reach-1	9.58	PF 5 100-Yr	22600.00	229.60	242.70		242.78	0.001249	3.60	10689.19	2126.10	0.21
Reach-1	9.58	PF 6 500-Yr	38380.00	229.60	244.78		244.88	0.001302	4.17	15344.74	2424.14	0.22
Reach-1	10.11	PF 1 2-Yr	7880.00	229.60	243.21		243.25	0.001140	2.86	5420.11	2065.46	0.17
Reach-1	10.11	PF 2 10-Yr	14050.00	229.60	244.41		244.47	0.001177	3.17	8010.15	2213.36	0.18
Reach-1	10.11	PF 3 25-Yr	17290.00	229.60	244.95		245.02	0.001173	3.29	9218.10	2265.66	0.18
Reach-1	10.11	PF 4 50-Yr	19740.00	229.60	245.35		245.42	0.001156	3.35	10125.51	2302.56	0.18
Reach-1	10.11	PF 5 100-Yr	22420.00	229.60	245.74		245.81	0.001154	3.42	11023.55	2333.86	0.18
Reach-1	10.11	PF 6 500-Yr	37960.00	229.60	247.78		247.87	0.001077	3.71	15945.86	2482.27	0.18
Reach-1	10.93	PF 1 2-Yr	7405.00	236.00	248.44		248.50	0.001582	3.49	4306.26	1556.57	0.23
Reach-1	10.93	PF 2 10-Yr	15850.00	236.00	250.12		250.21	0.001805	4.12	7015.76	1662.50	0.25
Reach-1	10.93	PF 3 25-Yr	19690.00	236.00	250.72		250.83	0.001866	4.34	8031.85	1691.54	0.26
Reach-1	10.93	PF 4 50-Yr	22720.00	236.00	251.15		251.27	0.001919	4.50	8759.19	1712.01	0.26
Reach-1	10.93	PF 5 100-Yr	27510.00	236.00	251.73		251.87	0.002033	4.79	9763.33	1739.89	0.27
Reach-1	10.93	PF 6 500-Yr	33680.00	236.00	252.91		253.04	0.001707	4.67	11837.64	1796.95	0.25
Reach-1	11	PF 1 2-Yr	7080.00	236.50	249.78		249.84	0.000880	3.11	4861.94	1480.18	0.18
Reach-1	11	PF 2 10-Yr	15200.00	236.50	251.67		251.75	0.001013	3.76	7737.46	1607.90	0.19
Reach-1	11	PF 3 25-Yr	18950.00	236.50	252.35		252.44	0.001067	4.01	8845.58	1670.41	0.20
Reach-1	11	PF 4 50-Yr	21610.00	236.50	252.82		252.92	0.001084	4.14	9645.54	1726.48	0.20
Reach-1	11	PF 5 100-Yr	26030.00	236.50	253.50		253.61	0.001130	4.38	10832.52	1788.98	0.21
Reach-1	11	PF 6 500-Yr	31650.00	236.50	254.57		254.69	0.001182	4.71	12855.39	1998.76	0.22
Reach-1	11.20	PF 1 2-Yr	7080.00	237.00	250.44		250.47	0.000529	2.55	6693.15	2288.54	0.14
Reach-1	11.20	PF 2 10-Yr	15200.00	237.00	252.39		252.42	0.000528	2.84	11337.29	2449.48	0.14
Reach-1	11.20	PF 3 25-Yr	18950.00	237.00	253.09		253.13	0.000532	2.95	13068.61	2486.80	0.14
Reach-1	11.20	PF 4 50-Yr	21610.00	237.00	253.57		253.61	0.000529	3.02	14270.06	2545.53	0.14
Reach-1	11.20	PF 5 100-Yr	26030.00	237.00	254.27		254.32	0.000539	3.14	16092.45	2662.95	0.14
Reach-1	11.20	PF 6 500-Yr	31650.00	237.00	255.34		255.39	0.000510	3.20	19052.86	2918.55	0.14
Reach-1	11.45	PF 1 2-Yr	7080.00	237.40	250.96		251.04	0.002013	3.09	4199.41	1983.90	0.25
Reach-1	11.45	PF 2 10-Yr	15200.00	237.40	252.84		252.91	0.001351	3.08	8181.35	2216.68	0.21
Reach-1	11.45	PF 3 25-Yr	18950.00	237.40	253.53		253.60	0.001231	3.15	9715.49	2247.76	0.21
Reach-1	11.45	PF 4 50-Yr	21610.00	237.40	253.99		254.07	0.001163	3.19	10764.86	2267.44	0.20
Reach-1	11.45	PF 5 100-Yr	26030.00	237.40	254.69		254.77	0.001095	3.28	12348.29	2289.49	0.20
Reach-1	11.45	PF 6 500-Yr	31650.00	237.40	255.72		255.80	0.000929	3.26	14717.81	2321.97	0.19
Reach-1	11.46	PF 1 2-Yr	7080.00	237.50	251.02	248.88	251.17	0.001811	3.27	2310.67	1994.99	0.24
Reach-1	11.46	PF 2 10-Yr	15200.00	237.50	252.81	250.03	253.12	0.002420	4.52	3411.25	2217.23	0.29
Reach-1	11.46	PF 3 25-Yr	18950.00	237.50	253.46	250.44	253.85	0.002625	4.98	3811.00	2244.68	0.31
Reach-1	11.46	PF 4 50-Yr	21610.00	237.50	253.89	250.70	254.34	0.002730	5.25	4081.11	2263.23	0.31
Reach-1	11.46	PF 5 100-Yr	26030.00	237.50	254.68	251.11	254.91	0.001611	4.07	7484.98	2289.20	0.24
Reach-1	11.46	PF 6 500-Yr	31650.00	237.50	255.76	251.63	255.84	0.000657	2.75	14994.29	2323.47	0.16
Reach-1	11.462		Mult Open									
Reach-1	11.465	PF 1 2-Yr	7080.00	237.60	251.19	249.18	251.36	0.001944	3.53	2213.35	1995.99	0.25

HEC-RAS Plan: NewBrg NoRis River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	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)	
Reach-1	11.465	PF 2 10-Yr	15200.00	237.60	253.11	250.29	253.44	0.002391	4.67	3395.55	2455.03	0.29
Reach-1	11.465	PF 3 25-Yr	18950.00	237.60	253.82	250.75	254.22	0.002524	5.08	3833.77	2659.02	0.30
Reach-1	11.465	PF 4 50-Yr	21610.00	237.60	254.33	251.04	254.78	0.002542	5.29	4151.85	2722.85	0.30
Reach-1	11.465	PF 5 100-Yr	26030.00	237.60	255.57	251.50	255.62	0.000497	2.48	15483.31	2778.82	0.14
Reach-1	11.465	PF 6 500-Yr	31650.00	237.60	256.90	252.04	256.94	0.000385	2.37	19230.20	2853.24	0.12
Reach-1	11.47	PF 1 2-Yr	7080.00	237.70	251.42		251.47	0.001275	2.80	4911.06	2039.68	0.20
Reach-1	11.47	PF 2 10-Yr	15200.00	237.70	253.54		253.59	0.000855	2.80	9880.14	2586.59	0.17
Reach-1	11.47	PF 3 25-Yr	18950.00	237.70	254.34		254.39	0.000792	2.87	12023.49	2723.29	0.17
Reach-1	11.47	PF 4 50-Yr	21610.00	237.70	254.91		254.96	0.000705	2.82	13580.54	2750.23	0.16
Reach-1	11.47	PF 5 100-Yr	26030.00	237.70	255.60		255.65	0.000679	2.90	15471.21	2779.71	0.16
Reach-1	11.47	PF 6 500-Yr	31650.00	237.70	256.92		256.97	0.000512	2.73	19202.33	2854.47	0.14
Reach-1	11.5	PF 1 2-Yr	7080.00	238.00	252.55		252.64	0.001639	3.46	4105.01	1807.42	0.23
Reach-1	11.5	PF 2 10-Yr	15200.00	238.00	254.37		254.46	0.001443	3.80	7595.68	2062.50	0.23
Reach-1	11.5	PF 3 25-Yr	18950.00	238.00	255.09		255.19	0.001304	3.81	9105.55	2089.78	0.22
Reach-1	11.5	PF 4 50-Yr	21610.00	238.00	255.59		255.68	0.001221	3.82	10146.76	2108.38	0.21
Reach-1	11.5	PF 5 100-Yr	26030.00	238.00	256.25		256.35	0.001194	3.95	11547.78	2166.11	0.21
Reach-1	11.5	PF 6 500-Yr	31650.00	238.00	257.42		257.52	0.000964	3.80	14100.53	2190.52	0.20
Reach-1	11.88	PF 1 2-Yr	7080.00	239.00	253.92		254.03	0.001135	3.73	4272.47	1694.22	0.20
Reach-1	11.88	PF 2 10-Yr	15200.00	239.00	255.71		255.82	0.001201	4.26	7865.75	2132.13	0.22
Reach-1	11.88	PF 3 25-Yr	18950.00	239.00	256.36		256.48	0.001178	4.37	9289.42	2225.82	0.22
Reach-1	11.88	PF 4 50-Yr	21610.00	239.00	256.80		256.92	0.001154	4.42	10281.33	2267.17	0.21
Reach-1	11.88	PF 5 100-Yr	26030.00	239.00	257.45		257.56	0.001141	4.54	11746.48	2293.92	0.22
Reach-1	11.88	PF 6 500-Yr	31650.00	239.00	258.43		258.54	0.001007	4.46	14022.45	2336.28	0.20
Reach-1	12.2	PF 1 2-Yr	7080.00	241.00	256.02		256.18	0.002158	4.67	3496.13	1644.94	0.26
Reach-1	12.2	PF 2 10-Yr	15200.00	241.00	257.82		257.94	0.002038	4.46	6569.76	1797.14	0.26
Reach-1	12.2	PF 3 25-Yr	18950.00	241.00	258.44		258.56	0.002024	4.60	7752.78	1986.61	0.26
Reach-1	12.2	PF 4 50-Yr	21610.00	241.00	258.84		258.97	0.002006	4.71	8573.44	2108.46	0.26
Reach-1	12.2	PF 5 100-Yr	26030.00	241.00	259.44		259.58	0.001963	4.84	9883.07	2207.71	0.26
Reach-1	12.2	PF 6 500-Yr	31650.00	241.00	260.23		260.38	0.001849	4.93	11681.61	2351.93	0.26
Reach-1	12.21		Bridge									
Reach-1	12.22	PF 1 2-Yr	7080.00	241.00	256.11	253.51	256.49	0.003516	6.23	1988.16	952.62	0.34
Reach-1	12.22	PF 2 10-Yr	15200.00	241.00	258.12	257.14	258.43	0.003471	6.96	5354.81	1954.16	0.35
Reach-1	12.22	PF 3 25-Yr	18950.00	241.00	258.82	257.38	259.08	0.002935	6.63	6772.12	2060.65	0.32
Reach-1	12.22	PF 4 50-Yr	21610.00	241.00	259.29	257.72	259.52	0.002645	6.45	7749.54	2132.97	0.31
Reach-1	12.22	PF 5 100-Yr	26030.00	241.00	259.79	257.94	260.02	0.002659	6.62	8849.04	2250.57	0.31
Reach-1	12.22	PF 6 500-Yr	31650.00	241.00	260.47	258.36	260.70	0.002557	6.70	10434.45	2388.95	0.31
Reach-1	12.24	PF 1 2-Yr	7080.00	240.50	258.55		258.76	0.002054	5.05	3499.95	1721.48	0.26
Reach-1	12.24	PF 2 10-Yr	15200.00	240.50	260.36		260.52	0.001845	5.28	6837.97	1992.32	0.26
Reach-1	12.24	PF 3 25-Yr	18950.00	240.50	260.87		261.04	0.001931	5.54	7868.04	2044.76	0.26
Reach-1	12.24	PF 4 50-Yr	21610.00	240.50	261.24		261.41	0.001998	5.73	8638.79	2126.85	0.27
Reach-1	12.24	PF 5 100-Yr	26030.00	240.50	261.79		261.97	0.002098	6.02	9852.79	2268.83	0.28
Reach-1	12.24	PF 6 500-Yr	31650.00	240.50	262.42		262.61	0.002114	6.22	11318.98	2354.65	0.28
Reach-1	12.25	PF 1 2-Yr	7080.00	240.60	258.51	253.82	259.08	0.004105	7.12	1724.67	1720.08	0.37
Reach-1	12.25	PF 2 10-Yr	15200.00	240.60	260.12	259.27	261.06	0.006990	10.14	2610.44	1979.55	0.50
Reach-1	12.25	PF 3 25-Yr	18950.00	240.60	260.54	259.82	261.74	0.008678	11.54	2837.55	2001.84	0.55
Reach-1	12.25	PF 4 50-Yr	21610.00	240.60	260.85	260.17	262.19	0.009600	12.32	3008.89	2037.42	0.59
Reach-1	12.25	PF 5 100-Yr	26030.00	240.60	261.28	260.72	262.88	0.011232	13.61	3247.89	2157.04	0.64
Reach-1	12.25	PF 6 500-Yr	31650.00	240.60	261.76	261.33	263.70	0.013293	15.13	3509.31	2265.57	0.70
Reach-1	12.253		Bridge									
Reach-1	12.255	PF 1 2-Yr	7080.00	240.70	259.36	253.30	259.58	0.002269	4.56	2308.58	1481.36	0.27
Reach-1	12.255	PF 2 10-Yr	15200.00	240.70	261.55	258.67	261.94	0.003161	6.23	3494.40	2184.38	0.33
Reach-1	12.255	PF 3 25-Yr	18950.00	240.70	262.33	259.20	262.79	0.003481	6.83	3913.22	2410.99	0.35
Reach-1	12.255	PF 4 50-Yr	21610.00	240.70	263.01	259.55	263.50	0.003421	7.03	4284.36	2448.87	0.35
Reach-1	12.255	PF 5 100-Yr	26030.00	240.70	263.92	260.07	264.47	0.003542	7.49	4772.86	2675.12	0.36
Reach-1	12.255	PF 6 500-Yr	31650.00	240.70	265.77	260.67	265.82	0.000505	3.08	18713.96	2766.41	0.14
Reach-1	12.27	PF 1 2-Yr	7080.00	240.80	259.62		259.70	0.001158	3.19	4283.30	1530.61	0.19
Reach-1	12.27	PF 2 10-Yr	15200.00	240.80	262.04		262.11	0.000861	3.25	9213.27	2310.02	0.17
Reach-1	12.27	PF 3 25-Yr	18950.00	240.80	262.91		262.98	0.000776	3.24	11320.65	2442.94	0.17
Reach-1	12.27	PF 4 50-Yr	21610.00	240.80	263.64		263.70	0.000695	3.19	13158.08	2656.56	0.16
Reach-1	12.27	PF 5 100-Yr	26030.00	240.80	264.62		264.68	0.000585	3.08	15830.04	2733.27	0.15
Reach-1	12.27	PF 6 500-Yr	31650.00	240.80	265.79		265.85	0.000488	2.98	19044.55	2767.33	0.14
Reach-1	12.39	PF 1 2-Yr	7080.00	244.70	259.97		259.99	0.000267	1.97	8273.07	2280.66	0.12
Reach-1	12.39	PF 2 10-Yr	15200.00	244.70	262.34		262.37	0.000264	2.23	13920.23	2455.90	0.12
Reach-1	12.39	PF 3 25-Yr	18950.00	244.70	263.20		263.23	0.000265	2.34	16047.54	2496.00	0.12

HEC-RAS Plan: NewBrg NoRis River: RIVER-1 Reach: Reach-1 (Continued)

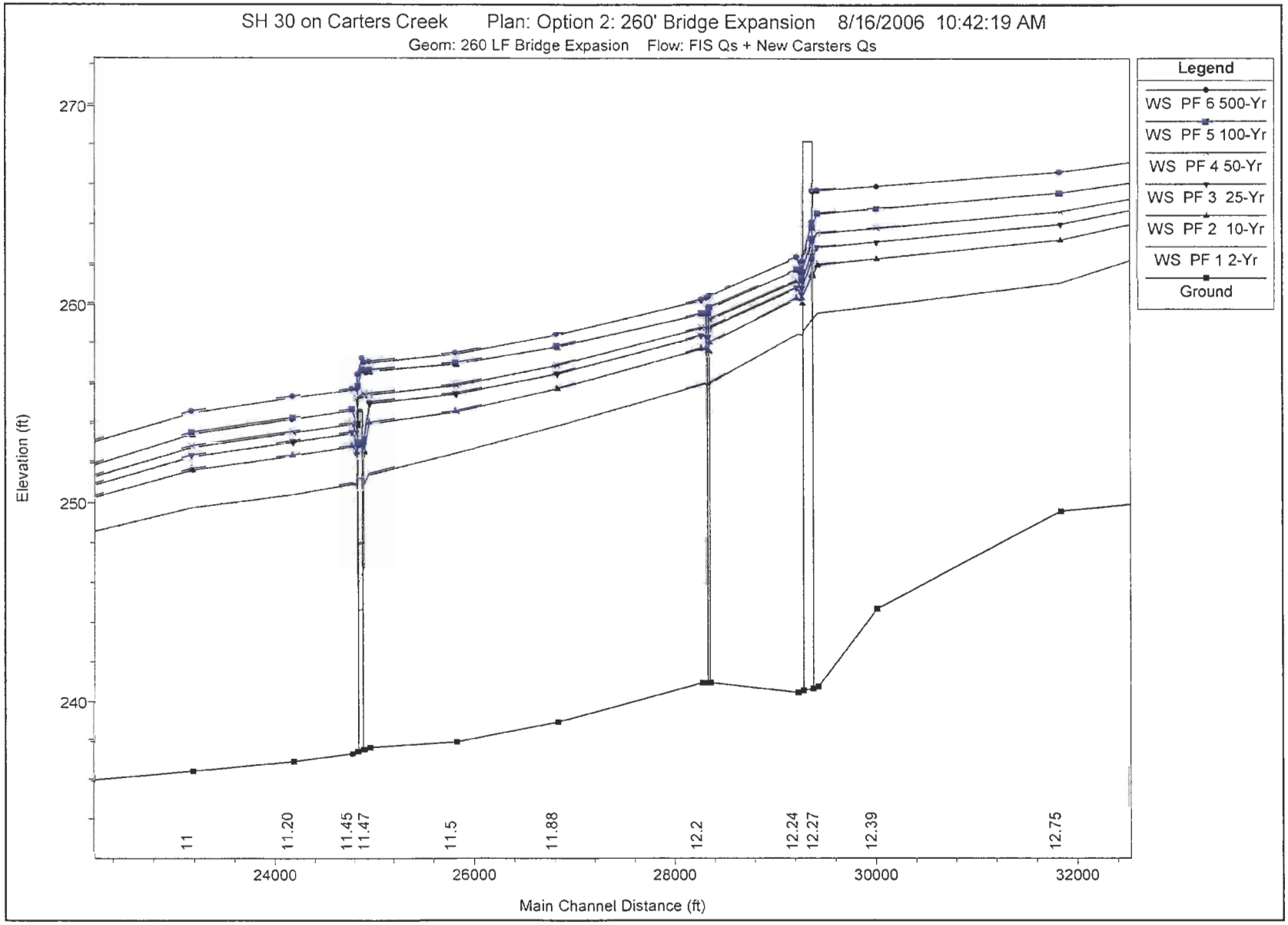
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	12.39	PF 4 50-Yr	21610.00	244.70	263.90		263.93	0.000250	2.35	17800.90	2547.33	0.12
Reach-1	12.39	PF 5 100-Yr	26030.00	244.70	264.88		264.91	0.000268	2.55	20471.43	2878.25	0.12
Reach-1	12.39	PF 6 500-Yr	31650.00	244.70	266.02		266.05	0.000250	2.58	23782.64	2931.44	0.12
Reach-1	12.75	PF 1 2-Yr	7080.00	249.60	261.12		261.30	0.003834	4.76	3362.92	2384.43	0.37
Reach-1	12.75	PF 2 10-Yr	15200.00	249.60	263.28		263.35	0.001368	3.35	9035.63	2772.64	0.23
Reach-1	12.75	PF 3 25-Yr	18950.00	249.60	264.09		264.15	0.001110	3.19	11320.23	2882.09	0.21
Reach-1	12.75	PF 4 50-Yr	21610.00	249.60	264.72		264.78	0.000979	3.17	13218.91	3152.90	0.20
Reach-1	12.75	PF 5 100-Yr	26030.00	249.60	265.66		265.71	0.000761	3.02	16251.12	3251.58	0.18
Reach-1	12.75	PF 6 500-Yr	31650.00	249.60	266.71		266.76	0.000620	2.95	19707.67	3328.08	0.17
Reach-1	13.5	PF 1 2-Yr	4370.00	251.60	267.66	265.37	267.69	0.000954	2.31	3973.97	1748.65	0.16
Reach-1	13.5	PF 2 10-Yr	7550.00	251.60	267.88	266.14	267.95	0.002186	3.57	4368.65	1788.82	0.24
Reach-1	13.5	PF 3 25-Yr	9250.00	251.60	268.11		268.20	0.002543	3.94	4777.82	1817.66	0.26
Reach-1	13.5	PF 4 50-Yr	10500.00	251.60	268.34		268.44	0.002547	4.03	5208.84	1840.38	0.26
Reach-1	13.5	PF 5 100-Yr	11900.00	251.60	268.57		268.67	0.002606	4.16	5628.51	1862.24	0.27
Reach-1	13.5	PF 6 500-Yr	19820.00	251.60	269.51		269.65	0.003264	5.03	7426.94	1990.81	0.30
Reach-1	14.2	PF 1 2-Yr	3870.00	255.50	271.82		271.97	0.001893	4.08	2260.66	1244.76	0.24
Reach-1	14.2	PF 2 10-Yr	5730.00	255.50	273.09		273.16	0.001130	3.43	3936.87	1400.62	0.19
Reach-1	14.2	PF 3 25-Yr	7100.00	255.50	273.61		273.69	0.001106	3.51	4687.97	1462.44	0.19
Reach-1	14.2	PF 4 50-Yr	8170.00	255.50	273.92		273.99	0.001148	3.64	5141.59	1498.26	0.19
Reach-1	14.2	PF 5 100-Yr	9380.00	255.50	274.25		274.33	0.001177	3.76	5643.15	1530.71	0.19
Reach-1	14.2	PF 6 500-Yr	15550.00	255.50	275.80		275.88	0.001181	4.09	8129.96	1680.89	0.20
Reach-1	14.81	PF 1 2-Yr	2600.00	262.10	275.59		275.61	0.000663	1.93	2486.45	950.18	0.14
Reach-1	14.81	PF 2 10-Yr	4710.00	262.10	276.42		276.46	0.000984	2.55	3301.77	1007.20	0.17
Reach-1	14.81	PF 3 25-Yr	5850.00	262.10	276.92		276.97	0.001006	2.70	3827.85	1080.35	0.17
Reach-1	14.81	PF 4 50-Yr	6750.00	262.10	277.30		277.35	0.001010	2.79	4242.47	1131.50	0.17
Reach-1	14.81	PF 5 100-Yr	7650.00	262.10	277.66		277.72	0.001006	2.87	4668.06	1187.52	0.18
Reach-1	14.81	PF 6 500-Yr	12800.00	262.10	279.38		279.45	0.001120	3.43	7017.57	1534.52	0.19
Reach-1	15.69	PF 1 2-Yr	2600.00	267.10	279.17		279.21	0.001154	2.37	2159.40	964.92	0.17
Reach-1	15.69	PF 2 10-Yr	4710.00	267.10	280.49		280.53	0.000987	2.51	3502.09	1069.27	0.17
Reach-1	15.69	PF 3 25-Yr	5850.00	267.10	281.02		281.06	0.000987	2.63	4081.15	1110.99	0.17
Reach-1	15.69	PF 4 50-Yr	6750.00	267.10	281.39		281.44	0.000993	2.73	4503.33	1138.62	0.17
Reach-1	15.69	PF 5 100-Yr	7650.00	267.10	281.75		281.80	0.000993	2.81	4910.90	1161.20	0.17
Reach-1	15.69	PF 6 500-Yr	12800.00	267.10	283.56		283.62	0.000946	3.12	7114.28	1267.54	0.17
Reach-1	15.7	PF 1 2-Yr	2600.00	267.90	279.10		279.50	0.005395	5.07	512.83	115.40	0.42
Reach-1	15.7	PF 2 10-Yr	4710.00	267.90	280.20		281.04	0.009398	7.32	643.26	120.08	0.56
Reach-1	15.7	PF 3 25-Yr	5850.00	267.90	280.60		281.72	0.011868	8.46	691.63	121.78	0.63
Reach-1	15.7	PF 4 50-Yr	6750.00	267.90	280.87		282.22	0.013977	9.33	723.69	123.20	0.68
Reach-1	15.7	PF 5 100-Yr	7650.00	267.90	281.10		282.70	0.016160	10.17	752.48	124.46	0.73
Reach-1	15.7	PF 6 500-Yr	12800.00	267.90	282.08	281.98	285.39	0.030025	14.60	876.71	129.76	0.99
Reach-1	15.7025		Bridge									
Reach-1	15.705	PF 1 2-Yr	2600.00	267.90	279.27	277.01	279.64	0.004850	4.88	532.57	116.12	0.40
Reach-1	15.705	PF 2 10-Yr	4710.00	267.90	280.56	278.32	281.29	0.007868	6.87	685.99	121.58	0.51
Reach-1	15.705	PF 3 25-Yr	5850.00	267.90	281.11	276.94	282.04	0.009421	7.77	753.32	124.50	0.56
Reach-1	15.705	PF 4 50-Yr	6750.00	267.90	281.52	279.39	282.61	0.010489	8.38	805.13	126.73	0.59
Reach-1	15.705	PF 5 100-Yr	7650.00	267.90	281.93	279.83	283.16	0.011381	8.92	857.44	128.95	0.61
Reach-1	15.705	PF 6 500-Yr	12800.00	267.90	286.28	281.98	286.41	0.001250	3.80	5030.15	1483.53	0.21
Reach-1	15.71	PF 1 2-Yr	2600.00	267.30	279.72		279.75	0.000767	2.01	2506.41	993.24	0.14
Reach-1	15.71	PF 2 10-Yr	4710.00	267.30	281.40		281.43	0.000555	2.01	4288.73	1124.52	0.13
Reach-1	15.71	PF 3 25-Yr	5850.00	267.30	282.17		282.20	0.000499	2.02	5173.28	1174.37	0.12
Reach-1	15.71	PF 4 50-Yr	6750.00	267.30	282.75		282.78	0.000461	2.03	5864.07	1208.35	0.12
Reach-1	15.71	PF 5 100-Yr	7650.00	267.30	283.32		283.34	0.000428	2.04	6556.37	1241.47	0.12
Reach-1	15.71	PF 6 500-Yr	12800.00	267.30	286.43		286.45	0.000281	1.99	10630.46	1363.99	0.10
Reach-1	16.31	PF 1 2-Yr	2600.00	270.90	282.01		282.04	0.000891	2.22	2657.50	1435.75	0.15
Reach-1	16.31	PF 2 10-Yr	4710.00	270.90	283.19		283.22	0.000792	2.34	4567.03	1751.95	0.15
Reach-1	16.31	PF 3 25-Yr	5850.00	270.90	283.75		283.78	0.000692	2.29	5564.44	1806.21	0.14
Reach-1	16.31	PF 4 50-Yr	6750.00	270.90	284.19		284.21	0.000623	2.25	6366.31	1848.27	0.14
Reach-1	16.31	PF 5 100-Yr	7650.00	270.90	284.63		284.65	0.000560	2.21	7189.87	1890.43	0.13
Reach-1	16.31	PF 6 500-Yr	12800.00	270.90	287.22		287.24	0.000310	1.94	12308.66	2062.42	0.10
Reach-1	16.96	PF 1 2-Yr	2600.00	275.90	285.21		285.23	0.001410	1.89	2310.06	1306.71	0.19
Reach-1	16.96	PF 2 10-Yr	4710.00	275.90	286.07		286.10	0.001337	1.95	3466.33	1385.49	0.19
Reach-1	16.96	PF 3 25-Yr	5850.00	275.90	286.42		286.46	0.001369	2.03	3962.02	1417.92	0.19
Reach-1	16.96	PF 4 50-Yr	6750.00	275.90	286.68		286.72	0.001373	2.07	4337.82	1434.70	0.19
Reach-1	16.96	PF 5 100-Yr	7650.00	275.90	286.95		286.99	0.001351	2.09	4719.41	1448.41	0.19
Reach-1	16.96	PF 6 500-Yr	12800.00	275.90	288.61		288.66	0.000969	2.25	7443.47	1814.46	0.17

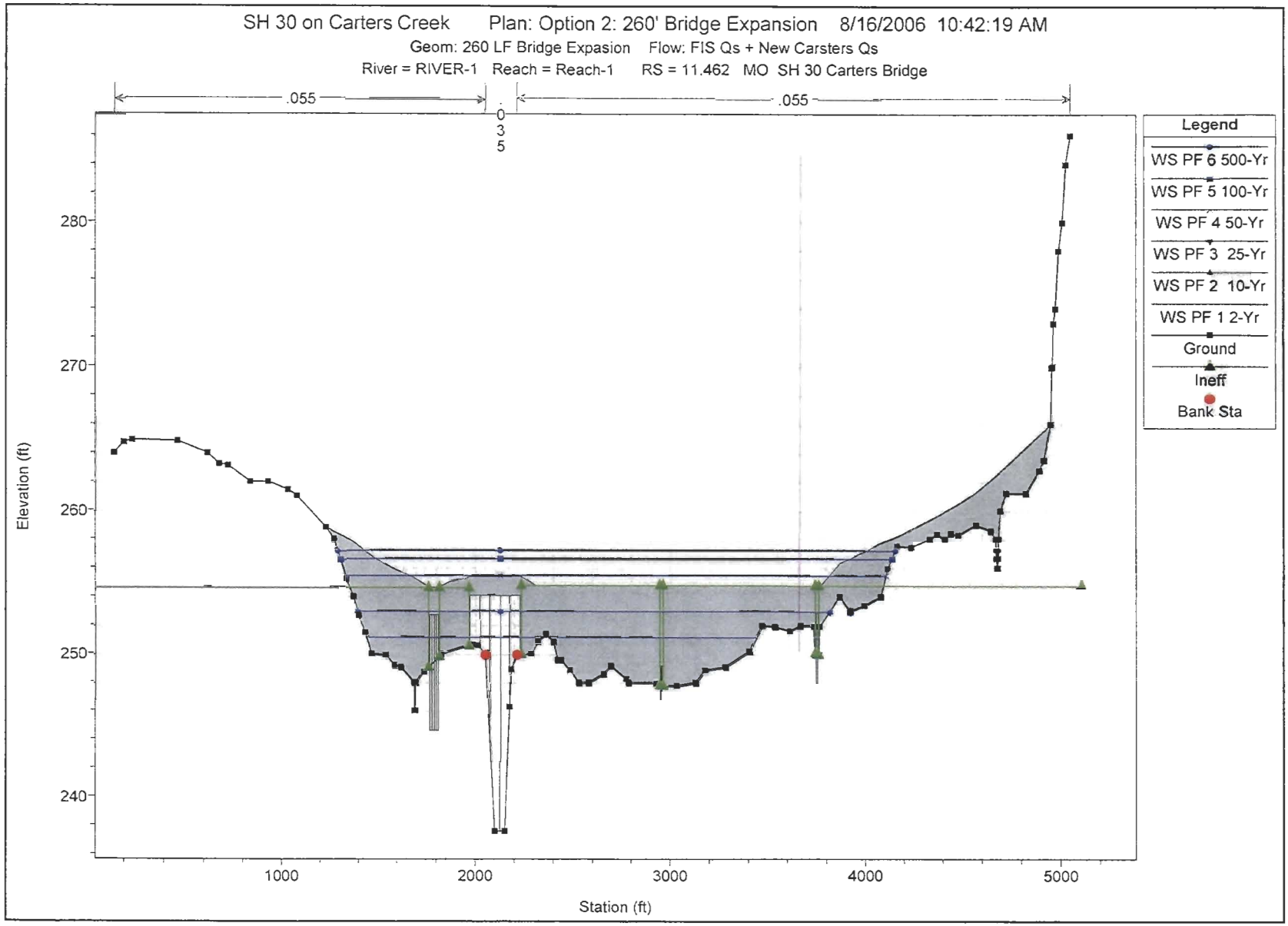
HEC-RAS Plan: NewBrg NoRis River: RIVER-1 Reach: Reach-1 (Continued)

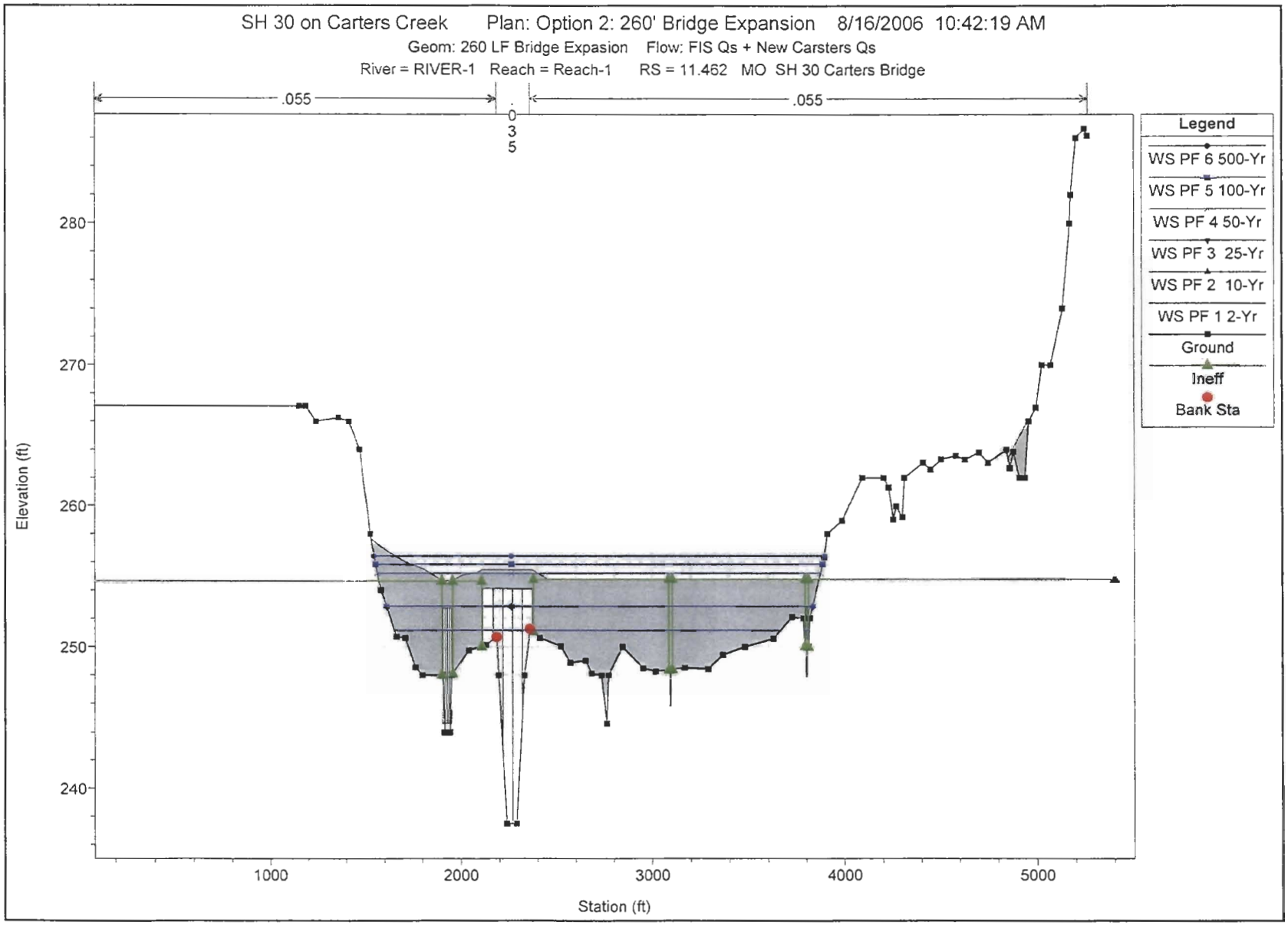
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	17.29	PF 1 2-Yr	2600.00	278.40	287.90		287.95	0.002466	2.58	1470.04	667.59	0.25
Reach-1	17.29	PF 2 10-Yr	4710.00	278.40	288.79		288.88	0.002840	3.25	2093.65	725.36	0.28
Reach-1	17.29	PF 3 25-Yr	5850.00	278.40	289.21		289.31	0.002919	3.52	2403.05	751.79	0.29
Reach-1	17.29	PF 4 50-Yr	6750.00	278.40	289.50		289.62	0.002996	3.72	2624.54	769.06	0.30
Reach-1	17.29	PF 5 100-Yr	7650.00	278.40	289.77		289.89	0.003086	3.91	2829.23	784.68	0.30
Reach-1	17.29	PF 6 500-Yr	12800.00	278.40	290.97		291.17	0.003601	4.86	3820.44	857.38	0.34
Reach-1	17.95	PF 1 2-Yr	2600.00	281.90	294.32		294.37	0.001652	2.97	1685.18	698.59	0.21
Reach-1	17.95	PF 2 10-Yr	4710.00	281.90	295.55		295.62	0.001618	3.32	2635.13	822.10	0.22
Reach-1	17.95	PF 3 25-Yr	5850.00	281.90	296.07		296.15	0.001629	3.49	3073.68	873.28	0.22
Reach-1	17.95	PF 4 50-Yr	6750.00	281.90	296.45		296.53	0.001632	3.60	3408.23	909.49	0.22
Reach-1	17.95	PF 5 100-Yr	7650.00	281.90	296.80		296.89	0.001633	3.71	3740.39	948.52	0.22
Reach-1	17.95	PF 6 500-Yr	12800.00	281.90	298.58		298.68	0.001664	4.24	5640.04	1315.33	0.23
Reach-1	18.51	PF 1 2-Yr	1280.00	288.90	298.53		298.57	0.001317	2.37	1050.10	571.03	0.18
Reach-1	18.51	PF 2 10-Yr	2110.00	288.90	299.50		299.54	0.001145	2.48	1777.07	819.45	0.18
Reach-1	18.51	PF 3 25-Yr	2240.00	288.90	299.80		299.83	0.000910	2.28	2026.17	849.60	0.16
Reach-1	18.51	PF 4 50-Yr	2900.00	288.90	300.21		300.25	0.000979	2.47	2388.76	890.49	0.17
Reach-1	18.51	PF 5 100-Yr	3200.00	288.90	300.49		300.53	0.000910	2.45	2637.82	917.51	0.16
Reach-1	18.51	PF 6 500-Yr	5270.00	288.90	302.00		302.04	0.000716	2.47	4141.66	1069.80	0.15
Reach-1	18.511	PF 1 2-Yr	1280.00	288.90	298.54		298.59	0.001301	2.36	1057.97	576.36	0.18
Reach-1	18.511	PF 2 10-Yr	2110.00	288.90	299.51		299.55	0.001128	2.46	1787.00	820.67	0.18
Reach-1	18.511	PF 3 25-Yr	2240.00	288.90	299.81		299.84	0.000901	2.27	2034.29	850.55	0.16
Reach-1	18.511	PF 4 50-Yr	2900.00	288.90	300.22		300.26	0.000968	2.46	2397.87	891.49	0.17
Reach-1	18.511	PF 5 100-Yr	3200.00	288.90	300.50		300.53	0.000901	2.44	2646.54	918.44	0.16
Reach-1	18.511	PF 6 500-Yr	5270.00	288.90	302.01		302.05	0.000712	2.47	4149.60	1070.65	0.15
Reach-1	18.512	PF 1 2-Yr	1280.00	288.90	298.55		298.60	0.001285	2.35	1065.76	581.59	0.18
Reach-1	18.512	PF 2 10-Yr	2110.00	288.90	299.52		299.56	0.001112	2.45	1796.68	821.86	0.18
Reach-1	18.512	PF 3 25-Yr	2240.00	288.90	299.81		299.85	0.000891	2.26	2042.21	851.46	0.16
Reach-1	18.512	PF 4 50-Yr	2900.00	288.90	300.23		300.27	0.000959	2.45	2406.80	892.47	0.17
Reach-1	18.512	PF 5 100-Yr	3200.00	288.90	300.51		300.54	0.000894	2.43	2655.06	919.35	0.16
Reach-1	18.512	PF 6 500-Yr	5270.00	288.90	302.02		302.05	0.000709	2.46	4157.38	1071.49	0.15
Reach-1	18.513	PF 1 2-Yr	1280.00	288.90	298.57		298.61	0.001269	2.34	1073.53	586.77	0.18
Reach-1	18.513	PF 2 10-Yr	2110.00	288.90	299.53		299.57	0.001096	2.44	1806.24	823.04	0.17
Reach-1	18.513	PF 3 25-Yr	2240.00	288.90	299.82		299.86	0.000882	2.25	2050.06	852.36	0.16
Reach-1	18.513	PF 4 50-Yr	2900.00	288.90	300.24		300.28	0.000949	2.44	2415.63	893.44	0.16
Reach-1	18.513	PF 5 100-Yr	3200.00	288.90	300.52		300.55	0.000886	2.42	2663.51	920.25	0.16
Reach-1	18.513	PF 6 500-Yr	5270.00	288.90	302.03		302.06	0.000705	2.46	4185.13	1072.32	0.15
Reach-1	19.05	PF 1 2-Yr	1280.00	298.70	303.39		303.44	0.003012	2.55	886.71	622.35	0.24
Reach-1	19.05	PF 2 10-Yr	2110.00	298.70	304.00		304.06	0.003287	2.95	1297.03	722.12	0.25
Reach-1	19.05	PF 3 25-Yr	2240.00	298.70	303.94		304.02	0.003998	3.23	1257.45	713.11	0.28
Reach-1	19.05	PF 4 50-Yr	2900.00	298.70	304.40		304.48	0.003599	3.28	1595.41	768.66	0.27
Reach-1	19.05	PF 5 100-Yr	3200.00	298.70	304.52		304.60	0.003749	3.41	1689.89	780.97	0.28
Reach-1	19.05	PF 6 500-Yr	5270.00	298.70	305.41		305.51	0.003788	3.84	2424.61	870.79	0.28
Reach-1	19.06	PF 1 2-Yr	1280.00	298.70	303.48		303.52	0.000857	2.30	940.70	636.37	0.21
Reach-1	19.06	PF 2 10-Yr	2110.00	298.70	304.09		304.15	0.000928	2.65	1365.96	737.56	0.22
Reach-1	19.06	PF 3 25-Yr	2240.00	298.70	304.06		304.12	0.001096	2.87	1340.60	731.92	0.24
Reach-1	19.06	PF 4 50-Yr	2900.00	298.70	304.50		304.57	0.001002	2.93	1675.75	779.14	0.24
Reach-1	19.06	PF 5 100-Yr	3200.00	298.70	304.63		304.70	0.001040	3.04	1775.07	791.90	0.24
Reach-1	19.06	PF 6 500-Yr	5270.00	298.70	305.52		305.61	0.001064	3.43	2521.74	881.98	0.25
Reach-1	19.0625		Bridge									
Reach-1	19.065	PF 1 2-Yr	1280.00	298.70	304.35	301.37	304.37	0.000238	1.40	1558.55	763.80	0.11
Reach-1	19.065	PF 2 10-Yr	2110.00	298.70	304.76	302.03	304.78	0.000388	1.89	1875.46	804.60	0.15
Reach-1	19.065	PF 3 25-Yr	2240.00	298.70	304.80	302.20	304.82	0.000417	1.97	1907.93	808.66	0.15
Reach-1	19.065	PF 4 50-Yr	2900.00	298.70	305.04	302.69	305.08	0.000531	2.29	2107.70	833.23	0.18
Reach-1	19.065	PF 5 100-Yr	3200.00	298.70	305.13	302.89	305.18	0.000582	2.43	2188.01	842.91	0.18
Reach-1	19.065	PF 6 500-Yr	5270.00	298.70	305.73	303.49	305.80	0.000876	3.19	2706.87	905.61	0.23
Reach-1	19.07	PF 1 2-Yr	1280.00	298.70	304.36		304.38	0.000322	1.47	1568.75	765.15	0.12
Reach-1	19.07	PF 2 10-Yr	2110.00	298.70	304.78		304.80	0.000524	1.98	1893.01	806.80	0.16
Reach-1	19.07	PF 3 25-Yr	2240.00	298.70	304.82		304.85	0.000563	2.06	1926.88	811.03	0.16
Reach-1	19.07	PF 4 50-Yr	2900.00	298.70	305.07		305.11	0.000713	2.40	2132.59	836.24	0.18
Reach-1	19.07	PF 5 100-Yr	3200.00	298.70	305.17		305.21	0.000781	2.54	2215.64	846.21	0.19
Reach-1	19.07	PF 6 500-Yr	5270.00	298.70	305.78		305.85	0.001171	3.34	2751.86	915.22	0.24

Appendix G

260 LF Bridge Expansion Option


SH 30 on Carters Creek Plan: Option 2: 260' Bridge Expansion 8/16/2006 10:42:19 AM
Geom: 260 LF Bridge Expasion Flow: FIS Qs + New Carsters Qs
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Elevation (ft)
270
260
250
240
11
11.20
11.45
11.47
11.5
11.88
12.2
12.24
12.27
12.39
12.75
24000
26000
28000
30000
32000
Main Channel Distance (ft)


SH 30 on Carters Creek Plan: Option 2: 260' Bridge Expansion 8/16/2006 10:42:19 AM
Geom: 260 LF Bridge Expasion Flow: FIS Qs + New Carsters Qs
River = RIVER-1 Reach = Reach-1 RS = 11.462 MO SH 30 Carters Bridge
.055
.035
.055
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Ineff
Bank Sta
Elevation (ft)
280
270
260
250
240
1000
2000
3000
4000
5000
Station (ft)


SH 30 on Carters Creek Plan: Option 2: 260' Bridge Expansion 8/16/2006 10:42:19 AM
Geom: 260 LF Bridge Expasion Flow: FIS Qs + New Carsters Qs
River = RIVER-1 Reach = Reach-1 RS = 11.462 MO SH 30 Carters Bridge
.055
.035
.055
Legend
WS PF 6 500-Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Ineff
Bank Sta
Elevation (ft)
280
270
260
250
240
1000
2000
3000
4000
5000
Station (ft)

HEC-RAS Plan: Expan 260' B River: RIVER-1 Reach: Reach-1

Reach	River Sta	Profile	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)	
Reach-1	6.76	PF 1 2-Yr	10290.00	214.90	223.95	222.69	224.01	0.002136	3.35	6254.21	3261.67	0.30
Reach-1	6.76	PF 2 10-Yr	18020.00	214.90	224.94	223.24	225.01	0.002079	3.83	9785.04	3789.00	0.30
Reach-1	6.76	PF 3 25-Yr	22340.00	214.90	225.38	223.36	225.45	0.001970	3.94	11469.96	3869.67	0.30
Reach-1	6.76	PF 4 50-Yr	25730.00	214.90	225.69	223.41	225.77	0.001926	4.04	12685.76	4004.45	0.30
Reach-1	6.76	PF 5 100-Yr	29530.00	214.90	226.02	223.56	226.10	0.001955	4.23	14030.28	4116.00	0.30
Reach-1	6.76	PF 6 500-Yr	49370.00	214.90	227.43	224.21	227.54	0.001838	4.72	20074.06	4392.22	0.30
Reach-1	6.77	PF 1 2-Yr	10290.00	212.10	222.94	222.39	224.80	0.023570	13.81	1094.35	201.39	0.96
Reach-1	6.77	PF 2 10-Yr	18020.00	212.10	224.36	224.36	227.40	0.044060	17.20	1395.26	229.99	1.30
Reach-1	6.77	PF 3 25-Yr	22340.00	212.10	227.38	227.38	228.20	0.013260	11.25	5548.38	3825.74	0.74
Reach-1	6.77	PF 4 50-Yr	25730.00	212.10	227.55	227.55	228.36	0.013553	11.56	6210.51	3905.51	0.75
Reach-1	6.77	PF 5 100-Yr	29530.00	212.10	227.66	227.66	228.55	0.015251	12.38	6630.41	3949.07	0.80
Reach-1	6.77	PF 6 500-Yr	49370.00	212.10	228.46	228.46	229.31	0.015400	13.31	9885.49	4144.30	0.81
Reach-1	6.7725		Bridge									
Reach-1	6.775	PF 1 2-Yr	10290.00	212.10	224.41	222.39	225.38	0.014036	9.74	1407.25	230.39	0.73
Reach-1	6.775	PF 2 10-Yr	18020.00	212.10	227.92	224.35	228.15	0.004131	6.59	7665.11	4016.73	0.42
Reach-1	6.775	PF 3 25-Yr	22340.00	212.10	228.26	225.44	228.48	0.004059	6.72	9030.89	4095.67	0.42
Reach-1	6.775	PF 4 50-Yr	25730.00	212.10	228.41	227.52	228.65	0.004465	7.14	9658.01	4131.41	0.44
Reach-1	6.775	PF 5 100-Yr	29530.00	212.10	228.60	227.67	228.86	0.004705	7.44	10446.11	4167.79	0.45
Reach-1	6.775	PF 6 500-Yr	49370.00	212.10	229.30	228.40	229.66	0.006331	9.10	13405.19	4274.78	0.53
Reach-1	6.79	PF 1 2-Yr	10290.00	214.90	225.57		225.58	0.000346	1.69	12208.26	3933.03	0.13
Reach-1	6.79	PF 2 10-Yr	18020.00	214.90	228.21		228.22	0.000149	1.43	23527.91	4478.74	0.09
Reach-1	6.79	PF 3 25-Yr	22340.00	214.90	228.54		228.55	0.000189	1.66	25013.05	4515.44	0.10
Reach-1	6.79	PF 4 50-Yr	25730.00	214.90	228.72		228.74	0.000227	1.84	25833.41	4535.58	0.11
Reach-1	6.79	PF 5 100-Yr	29530.00	214.90	228.93		228.95	0.000267	2.03	26783.98	4558.81	0.12
Reach-1	6.79	PF 6 500-Yr	49370.00	214.90	229.77		229.81	0.000490	2.92	30640.53	4638.30	0.16
Reach-1	6.791	PF 1 2-Yr	10290.00	214.90	225.57		225.59	0.000345	1.69	12222.07	3935.12	0.13
Reach-1	6.791	PF 2 10-Yr	18020.00	214.90	228.21		228.22	0.000149	1.43	23534.60	4478.91	0.09
Reach-1	6.791	PF 3 25-Yr	22340.00	214.90	228.54		228.55	0.000189	1.66	25021.66	4515.65	0.10
Reach-1	6.791	PF 4 50-Yr	25730.00	214.90	228.72		228.74	0.000227	1.84	25843.79	4535.83	0.11
Reach-1	6.791	PF 5 100-Yr	29530.00	214.90	228.93		228.95	0.000267	2.03	26796.29	4559.11	0.12
Reach-1	6.791	PF 6 500-Yr	49370.00	214.90	229.77		229.82	0.000489	2.92	30663.67	4638.66	0.16
Reach-1	6.792	PF 1 2-Yr	10290.00	214.90	225.58		225.59	0.000343	1.69	12235.76	3937.18	0.13
Reach-1	6.792	PF 2 10-Yr	18020.00	214.90	228.21		228.22	0.000149	1.43	23541.30	4479.08	0.09
Reach-1	6.792	PF 3 25-Yr	22340.00	214.90	228.54		228.56	0.000189	1.66	25030.21	4515.86	0.10
Reach-1	6.792	PF 4 50-Yr	25730.00	214.90	228.72		228.74	0.000226	1.84	25854.11	4536.09	0.11
Reach-1	6.792	PF 5 100-Yr	29530.00	214.90	228.93		228.96	0.000266	2.03	26808.54	4559.40	0.12
Reach-1	6.792	PF 6 500-Yr	49370.00	214.90	229.78		229.82	0.000487	2.91	30686.67	4639.02	0.16
Reach-1	6.793	PF 1 2-Yr	10290.00	214.90	225.58		225.59	0.000342	1.68	12249.40	3939.24	0.13
Reach-1	6.793	PF 2 10-Yr	18020.00	214.90	228.21		228.22	0.000149	1.43	23548.00	4479.24	0.09
Reach-1	6.793	PF 3 25-Yr	22340.00	214.90	228.54		228.56	0.000189	1.66	25038.75	4516.07	0.10
Reach-1	6.793	PF 4 50-Yr	25730.00	214.90	228.73		228.74	0.000226	1.84	25864.42	4536.34	0.11
Reach-1	6.793	PF 5 100-Yr	29530.00	214.90	228.94		228.96	0.000266	2.03	26820.78	4559.70	0.12
Reach-1	6.793	PF 6 500-Yr	49370.00	214.90	229.78		229.83	0.000486	2.91	30709.61	4639.39	0.16
Reach-1	7.375	PF 1 2-Yr	10290.00	217.40	227.07		227.09	0.000806	1.90	10084.57	4386.85	0.16
Reach-1	7.375	PF 2 10-Yr	18020.00	217.40	228.91		228.92	0.000426	1.73	18780.35	5087.35	0.12
Reach-1	7.375	PF 3 25-Yr	22340.00	217.40	229.37		229.39	0.000453	1.87	21164.40	5196.16	0.13
Reach-1	7.375	PF 4 50-Yr	25730.00	217.40	229.67		229.69	0.000480	1.98	22728.30	5236.13	0.13
Reach-1	7.375	PF 5 100-Yr	29530.00	217.40	230.00		230.02	0.000503	2.09	24440.62	5279.56	0.13
Reach-1	7.375	PF 6 500-Yr	49370.00	217.40	231.40		231.44	0.000605	2.56	31969.55	5466.39	0.15
Reach-1	7.376	PF 1 2-Yr	10290.00	217.40	227.08		227.10	0.000798	1.90	10120.28	4393.13	0.16
Reach-1	7.376	PF 2 10-Yr	18020.00	217.40	228.91		228.93	0.000424	1.73	18802.09	5089.45	0.12
Reach-1	7.376	PF 3 25-Yr	22340.00	217.40	229.38		229.39	0.000452	1.87	21188.11	5196.77	0.13
Reach-1	7.376	PF 4 50-Yr	25730.00	217.40	229.68		229.70	0.000478	1.98	22753.63	5236.78	0.13
Reach-1	7.376	PF 5 100-Yr	29530.00	217.40	230.00		230.03	0.000501	2.08	24467.37	5280.23	0.13
Reach-1	7.376	PF 6 500-Yr	49370.00	217.40	231.40		231.44	0.000603	2.56	32003.00	5467.21	0.15
Reach-1	7.96	PF 1 2-Yr	10290.00	216.80	231.44	230.87	231.75	0.003933	6.87	4112.50	2374.90	0.39
Reach-1	7.96	PF 2 10-Yr	18020.00	216.80	231.87	231.66	232.38	0.007251	9.46	5220.32	2747.12	0.53
Reach-1	7.96	PF 3 25-Yr	22340.00	216.80	232.45	231.93	232.82	0.005887	8.73	6876.67	3029.59	0.48
Reach-1	7.96	PF 4 50-Yr	25730.00	216.80	232.86	232.07	233.18	0.005338	8.46	8136.50	3103.18	0.46
Reach-1	7.96	PF 5 100-Yr	29530.00	216.80	233.24		233.53	0.004758	8.17	9335.12	3144.22	0.44
Reach-1	7.96	PF 6 500-Yr	49370.00	216.80	234.87		235.12	0.003522	7.72	14579.58	3272.43	0.39
Reach-1	7.961	PF 1 2-Yr	10290.00	216.80	231.51		231.79	0.003611	6.59	4284.68	2426.77	0.37
Reach-1	7.961	PF 2 10-Yr	18020.00	216.80	232.06		232.46	0.005816	8.54	5750.89	2849.30	0.48
Reach-1	7.961	PF 3 25-Yr	22340.00	216.80	232.50		232.88	0.005926	8.76	7054.68	3051.95	0.48
Reach-1	7.961	PF 4 50-Yr	25730.00	216.80	232.94		233.24	0.004911	8.15	8391.27	3120.59	0.44

HEC-RAS Plan: Expan 260' B River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	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)	
Reach-1	7.961	PF 5 100-Yr	29530.00	216.80	233.30		233.58	0.004466	7.95	9540.48	3149.34	0.42
Reach-1	7.961	PF 6 500-Yr	49370.00	216.80	234.91		235.16	0.003429	7.63	14708.37	3275.51	0.38
Reach-1	7.962	PF 1 2-Yr	10290.00	216.80	231.57		231.82	0.003383	6.39	4419.91	2466.75	0.36
Reach-1	7.962	PF 2 10-Yr	18020.00	216.80	232.17		232.51	0.005145	8.07	6063.09	2905.26	0.45
Reach-1	7.962	PF 3 25-Yr	22340.00	216.80	232.61		232.94	0.005232	8.29	7389.64	3067.90	0.45
Reach-1	7.962	PF 4 50-Yr	25730.00	216.80	233.01		233.29	0.004570	7.89	8604.49	3125.94	0.43
Reach-1	7.962	PF 5 100-Yr	29530.00	216.80	233.36		233.62	0.004225	7.76	9723.08	3153.88	0.41
Reach-1	7.962	PF 6 500-Yr	49370.00	216.80	234.95		235.19	0.003340	7.55	14836.13	3278.57	0.38
Reach-1	7.963	PF 1 2-Yr	10290.00	216.80	231.61		231.85	0.003232	6.26	4530.94	2502.81	0.35
Reach-1	7.963	PF 2 10-Yr	18020.00	216.80	232.26		232.56	0.004686	7.73	6309.40	2948.67	0.43
Reach-1	7.963	PF 3 25-Yr	22340.00	216.80	232.70		232.99	0.004777	7.95	7642.08	3079.87	0.43
Reach-1	7.963	PF 4 50-Yr	25730.00	216.80	233.07		233.33	0.004289	7.68	8797.15	3130.77	0.41
Reach-1	7.963	PF 5 100-Yr	29530.00	216.80	233.41		233.66	0.004022	7.59	9888.40	3157.99	0.40
Reach-1	7.963	PF 6 500-Yr	49370.00	216.80	234.99		235.22	0.003257	7.47	14960.25	3281.54	0.37
Reach-1	8.82	PF 1 2-Yr	7880.00	223.90	237.08		237.12	0.000653	2.49	6672.50	2269.06	0.15
Reach-1	8.82	PF 2 10-Yr	13900.00	223.90	238.42		238.46	0.000658	2.74	9766.57	2349.03	0.16
Reach-1	8.82	PF 3 25-Yr	17200.00	223.90	238.98		239.02	0.000681	2.89	11093.35	2370.45	0.16
Reach-1	8.82	PF 4 50-Yr	19900.00	223.90	239.32		239.37	0.000733	3.07	11904.11	2383.44	0.17
Reach-1	8.82	PF 5 100-Yr	22600.00	223.90	239.68		239.73	0.000763	3.20	12756.61	2397.03	0.17
Reach-1	8.82	PF 6 500-Yr	38380.00	223.90	241.35		241.44	0.000934	3.89	16821.53	2480.12	0.19
Reach-1	9.58	PF 1 2-Yr	7880.00	229.60	240.03		240.07	0.001366	3.11	5205.39	1965.59	0.22
Reach-1	9.58	PF 2 10-Yr	13900.00	229.60	241.26		241.32	0.001302	3.33	7692.78	2044.49	0.21
Reach-1	9.58	PF 3 25-Yr	17200.00	229.60	241.85		241.91	0.001274	3.43	8896.55	2077.66	0.21
Reach-1	9.58	PF 4 50-Yr	19900.00	229.60	242.29		242.36	0.001257	3.51	9821.45	2102.79	0.21
Reach-1	9.58	PF 5 100-Yr	22600.00	229.60	242.70		242.78	0.001249	3.60	10689.19	2126.10	0.21
Reach-1	9.58	PF 6 500-Yr	38380.00	229.60	244.78		244.88	0.001302	4.17	15344.74	2424.14	0.22
Reach-1	10.11	PF 1 2-Yr	7880.00	229.60	243.21		243.25	0.001140	2.86	5420.11	2065.46	0.17
Reach-1	10.11	PF 2 10-Yr	14050.00	229.60	244.41		244.47	0.001177	3.17	8010.15	2213.36	0.18
Reach-1	10.11	PF 3 25-Yr	17290.00	229.60	244.95		245.02	0.001173	3.29	9218.10	2265.66	0.18
Reach-1	10.11	PF 4 50-Yr	19740.00	229.60	245.35		245.42	0.001156	3.35	10125.51	2302.56	0.18
Reach-1	10.11	PF 5 100-Yr	22420.00	229.60	245.74		245.81	0.001154	3.42	11023.55	2333.86	0.18
Reach-1	10.11	PF 6 500-Yr	37960.00	229.60	247.78		247.87	0.001077	3.71	15945.86	2482.27	0.18
Reach-1	10.93	PF 1 2-Yr	7405.00	236.00	248.44		248.50	0.001582	3.49	4306.26	1556.57	0.23
Reach-1	10.93	PF 2 10-Yr	15850.00	236.00	250.12		250.21	0.001805	4.12	7015.76	1662.50	0.25
Reach-1	10.93	PF 3 25-Yr	19690.00	236.00	250.72		250.83	0.001866	4.34	8031.85	1691.54	0.26
Reach-1	10.93	PF 4 50-Yr	22720.00	236.00	251.15		251.27	0.001919	4.50	8759.19	1712.01	0.26
Reach-1	10.93	PF 5 100-Yr	27510.00	236.00	251.73		251.87	0.002033	4.79	9763.33	1739.89	0.27
Reach-1	10.93	PF 6 500-Yr	33680.00	236.00	252.91		253.04	0.001707	4.67	11837.64	1796.95	0.25
Reach-1	11	PF 1 2-Yr	7080.00	236.50	249.78		249.84	0.000880	3.11	4861.94	1480.18	0.18
Reach-1	11	PF 2 10-Yr	15200.00	236.50	251.67		251.75	0.001013	3.76	7737.46	1607.90	0.19
Reach-1	11	PF 3 25-Yr	18950.00	236.50	252.35		252.44	0.001067	4.01	8845.58	1670.41	0.20
Reach-1	11	PF 4 50-Yr	21610.00	236.50	252.82		252.92	0.001084	4.14	9645.54	1726.48	0.20
Reach-1	11	PF 5 100-Yr	26030.00	236.50	253.50		253.61	0.001130	4.38	10832.52	1788.98	0.21
Reach-1	11	PF 6 500-Yr	31650.00	236.50	254.57		254.69	0.001182	4.71	12855.39	1998.76	0.22
Reach-1	11.20	PF 1 2-Yr	7080.00	237.00	250.44		250.47	0.000529	2.55	6693.15	2288.54	0.14
Reach-1	11.20	PF 2 10-Yr	15200.00	237.00	252.39		252.42	0.000528	2.84	11337.29	2449.48	0.14
Reach-1	11.20	PF 3 25-Yr	18950.00	237.00	253.09		253.13	0.000532	2.95	13068.61	2486.80	0.14
Reach-1	11.20	PF 4 50-Yr	21610.00	237.00	253.57		253.61	0.000529	3.02	14270.06	2545.53	0.14
Reach-1	11.20	PF 5 100-Yr	26030.00	237.00	254.27		254.32	0.000539	3.14	16092.45	2662.95	0.14
Reach-1	11.20	PF 6 500-Yr	31650.00	237.00	255.34		255.39	0.000510	3.20	19052.86	2918.55	0.14
Reach-1	11.45	PF 1 2-Yr	7080.00	237.40	250.96		251.04	0.002013	3.09	4199.41	1983.90	0.25
Reach-1	11.45	PF 2 10-Yr	15200.00	237.40	252.84		252.91	0.001351	3.08	8181.35	2218.68	0.21
Reach-1	11.45	PF 3 25-Yr	18950.00	237.40	253.53		253.60	0.001231	3.15	9715.49	2247.76	0.21
Reach-1	11.45	PF 4 50-Yr	21610.00	237.40	253.99		254.07	0.001163	3.19	10764.86	2267.44	0.20
Reach-1	11.45	PF 5 100-Yr	26030.00	237.40	254.69		254.77	0.001095	3.28	12348.29	2289.49	0.20
Reach-1	11.45	PF 6 500-Yr	31650.00	237.40	255.72		255.80	0.000929	3.26	14717.81	2321.97	0.19
Reach-1	11.46	PF 1 2-Yr	7080.00	237.50	250.90	244.67	251.21	0.000729	4.65	1812.34	1976.52	0.28
Reach-1	11.46	PF 2 10-Yr	15200.00	237.50	252.52	248.32	253.38	0.001693	7.88	2388.33	2205.13	0.44
Reach-1	11.46	PF 3 25-Yr	18950.00	237.50	253.07	249.53	254.21	0.002114	9.14	2586.83	2228.54	0.50
Reach-1	11.46	PF 4 50-Yr	21610.00	237.50	253.44	250.02	254.78	0.002393	9.95	2718.77	2244.10	0.54
Reach-1	11.46	PF 5 100-Yr	26030.00	237.50	253.96	251.83	255.66	0.002875	11.26	2906.50	2266.24	0.59
Reach-1	11.46	PF 6 500-Yr	31650.00	237.50	255.72	252.76	255.84	0.000347	4.31	15340.26	2322.21	0.21
Reach-1	11.462		Mult Open									
Reach-1	11.465	PF 1 2-Yr	7080.00	237.60	250.92	244.77	251.32	0.000961	5.20	1521.02	1937.28	0.32

HEC-RAS Plan: Expan 260' B River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	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)	
Reach-1	11.465	PF 2 10-Yr	15200.00	237.60	252.59	248.70	253.68	0.002096	8.72	2121.90	2392.57	0.49
Reach-1	11.465	PF 3 25-Yr	18950.00	237.60	253.23	250.44	254.63	0.002511	9.96	2353.09	2496.48	0.55
Reach-1	11.465	PF 4 50-Yr	21610.00	237.60	255.44	251.66	255.49	0.000189	3.11	15681.39	2773.44	0.15
Reach-1	11.465	PF 5 100-Yr	26030.00	237.60	256.64	252.57	256.70	0.000155	2.99	19058.72	2838.30	0.14
Reach-1	11.465	PF 6 500-Yr	31650.00	237.60	257.06	253.55	257.12	0.000192	3.40	20255.28	2862.73	0.16
Reach-1	11.47	PF 1 2-Yr	7080.00	237.70	251.44		251.49	0.001250	2.78	4945.09	2040.73	0.20
Reach-1	11.47	PF 2 10-Yr	15200.00	237.70	254.01		254.05	0.000648	2.53	11124.89	2707.62	0.15
Reach-1	11.47	PF 3 25-Yr	18950.00	237.70	255.05		255.08	0.000497	2.39	13963.67	2756.81	0.14
Reach-1	11.47	PF 4 50-Yr	21610.00	237.70	255.48		255.52	0.000500	2.47	15151.24	2775.12	0.14
Reach-1	11.47	PF 5 100-Yr	26030.00	237.70	256.68		256.71	0.000388	2.35	18506.83	2840.25	0.12
Reach-1	11.47	PF 6 500-Yr	31650.00	237.70	257.10		257.15	0.000471	2.65	19726.50	2865.14	0.14
Reach-1	11.5	PF 1 2-Yr	7080.00	238.00	252.55		252.64	0.001635	3.45	4109.51	1807.67	0.23
Reach-1	11.5	PF 2 10-Yr	15200.00	238.00	254.65		254.73	0.001158	3.48	8178.07	2073.06	0.21
Reach-1	11.5	PF 3 25-Yr	18950.00	238.00	255.55		255.62	0.000964	3.39	10059.77	2106.83	0.19
Reach-1	11.5	PF 4 50-Yr	21610.00	238.00	255.98		256.06	0.000964	3.48	10967.67	2122.93	0.19
Reach-1	11.5	PF 5 100-Yr	26030.00	238.00	257.06		257.14	0.000779	3.35	13322.95	2184.08	0.18
Reach-1	11.5	PF 6 500-Yr	31650.00	238.00	257.56		257.66	0.000899	3.70	14417.59	2193.15	0.19
Reach-1	11.88	PF 1 2-Yr	7080.00	239.00	253.92		254.03	0.001131	3.72	4278.96	1694.72	0.20
Reach-1	11.88	PF 2 10-Yr	15200.00	239.00	255.81		255.91	0.001117	4.13	8073.37	2140.76	0.21
Reach-1	11.88	PF 3 25-Yr	18950.00	239.00	256.56		256.66	0.001035	4.14	9736.91	2252.05	0.20
Reach-1	11.88	PF 4 50-Yr	21610.00	239.00	256.99		257.09	0.001028	4.21	10707.53	2278.94	0.20
Reach-1	11.88	PF 5 100-Yr	26030.00	239.00	257.91		258.00	0.000884	4.08	12813.22	2307.53	0.19
Reach-1	11.88	PF 6 500-Yr	31650.00	239.00	258.52		258.62	0.000966	4.39	14224.81	2341.53	0.20
Reach-1	12.2	PF 1 2-Yr	7080.00	241.00	256.02		256.18	0.002158	4.67	3496.58	1644.99	0.26
Reach-1	12.2	PF 2 10-Yr	15200.00	241.00	257.82		257.94	0.002035	4.46	6593.65	1797.40	0.26
Reach-1	12.2	PF 3 25-Yr	18950.00	241.00	258.47		258.59	0.001983	4.58	7811.29	1995.51	0.26
Reach-1	12.2	PF 4 50-Yr	21610.00	241.00	258.87		259.00	0.001960	4.66	8649.30	2115.68	0.26
Reach-1	12.2	PF 5 100-Yr	26030.00	241.00	259.57		259.70	0.001820	4.70	10154.58	2227.40	0.25
Reach-1	12.2	PF 6 500-Yr	31650.00	241.00	260.26		260.41	0.001820	4.90	11752.38	2356.45	0.25
Reach-1	12.21		Bridge									
Reach-1	12.22	PF 1 2-Yr	7080.00	241.00	256.11	253.51	256.49	0.003515	6.23	1988.37	953.10	0.34
Reach-1	12.22	PF 2 10-Yr	15200.00	241.00	258.12	257.14	258.44	0.003467	6.95	5357.49	1954.39	0.35
Reach-1	12.22	PF 3 25-Yr	18950.00	241.00	258.90	257.38	259.14	0.002763	6.46	6925.65	2069.75	0.31
Reach-1	12.22	PF 4 50-Yr	21610.00	241.00	259.30	257.72	259.53	0.002620	6.42	7776.06	2135.88	0.31
Reach-1	12.22	PF 5 100-Yr	26030.00	241.00	259.87	257.94	260.10	0.002508	6.45	9038.12	2270.18	0.30
Reach-1	12.22	PF 6 500-Yr	31650.00	241.00	260.49	258.38	260.72	0.002516	6.65	10496.96	2391.23	0.30
Reach-1	12.24	PF 1 2-Yr	7080.00	240.50	258.55		258.76	0.002054	5.05	3500.06	1721.49	0.26
Reach-1	12.24	PF 2 10-Yr	15200.00	240.50	260.36		260.52	0.001845	5.28	6837.66	1992.32	0.26
Reach-1	12.24	PF 3 25-Yr	18950.00	240.50	260.88		261.04	0.001924	5.53	7877.28	2046.08	0.26
Reach-1	12.24	PF 4 50-Yr	21610.00	240.50	261.24		261.41	0.001997	5.73	8640.42	2127.41	0.27
Reach-1	12.24	PF 5 100-Yr	26030.00	240.50	261.79		261.97	0.002091	6.02	9864.49	2269.42	0.28
Reach-1	12.24	PF 6 500-Yr	31650.00	240.50	262.42		262.61	0.002108	6.21	11329.91	2354.93	0.28
Reach-1	12.25	PF 1 2-Yr	7080.00	240.60	258.51	253.82	259.08	0.004104	7.12	1724.70	1720.08	0.37
Reach-1	12.25	PF 2 10-Yr	15200.00	240.60	260.12	259.27	261.08	0.006991	10.14	2610.34	1979.54	0.50
Reach-1	12.25	PF 3 25-Yr	18950.00	240.60	260.54	259.82	261.74	0.008654	11.52	2840.40	2002.12	0.55
Reach-1	12.25	PF 4 50-Yr	21610.00	240.60	260.85	260.17	262.19	0.009596	12.32	3009.38	2037.68	0.59
Reach-1	12.25	PF 5 100-Yr	26030.00	240.60	261.29	260.72	262.88	0.011197	13.59	3251.43	2161.78	0.64
Reach-1	12.25	PF 6 500-Yr	31650.00	240.60	261.76	261.33	263.70	0.013256	15.12	3512.70	2266.28	0.70
Reach-1	12.253		Bridge									
Reach-1	12.255	PF 1 2-Yr	7080.00	240.70	259.36	253.30	259.58	0.002269	4.56	2308.60	1481.36	0.27
Reach-1	12.255	PF 2 10-Yr	15200.00	240.70	261.55	258.67	261.94	0.003161	6.23	3494.38	2184.38	0.33
Reach-1	12.255	PF 3 25-Yr	18950.00	240.70	262.33	259.20	262.79	0.003479	6.83	3913.83	2411.03	0.35
Reach-1	12.255	PF 4 50-Yr	21610.00	240.70	263.01	259.55	263.50	0.003421	7.03	4284.41	2448.88	0.35
Reach-1	12.255	PF 5 100-Yr	26030.00	240.70	263.92	260.07	264.47	0.003541	7.49	4773.02	2675.14	0.36
Reach-1	12.255	PF 6 500-Yr	31650.00	240.70	265.76	260.67	265.82	0.000506	3.08	18706.26	2766.32	0.14
Reach-1	12.27	PF 1 2-Yr	7080.00	240.80	259.62		259.70	0.001158	3.19	4283.35	1530.82	0.19
Reach-1	12.27	PF 2 10-Yr	15200.00	240.80	262.04		262.11	0.000861	3.25	9213.20	2310.00	0.17
Reach-1	12.27	PF 3 25-Yr	18950.00	240.80	262.92		262.98	0.000775	3.24	11322.88	2443.00	0.17
Reach-1	12.27	PF 4 50-Yr	21610.00	240.80	263.64		263.70	0.000695	3.19	13158.24	2656.56	0.16
Reach-1	12.27	PF 5 100-Yr	26030.00	240.80	264.63		264.68	0.000585	3.08	15830.71	2733.28	0.15
Reach-1	12.27	PF 6 500-Yr	31650.00	240.80	265.79		265.84	0.000489	2.98	19036.78	2767.24	0.14
Reach-1	12.39	PF 1 2-Yr	7080.00	244.70	259.97		259.99	0.000267	1.97	8273.14	2280.67	0.12
Reach-1	12.39	PF 2 10-Yr	15200.00	244.70	262.34		262.37	0.000264	2.23	13920.23	2455.90	0.12
Reach-1	12.39	PF 3 25-Yr	18950.00	244.70	263.20		263.23	0.000265	2.34	16049.53	2496.04	0.12

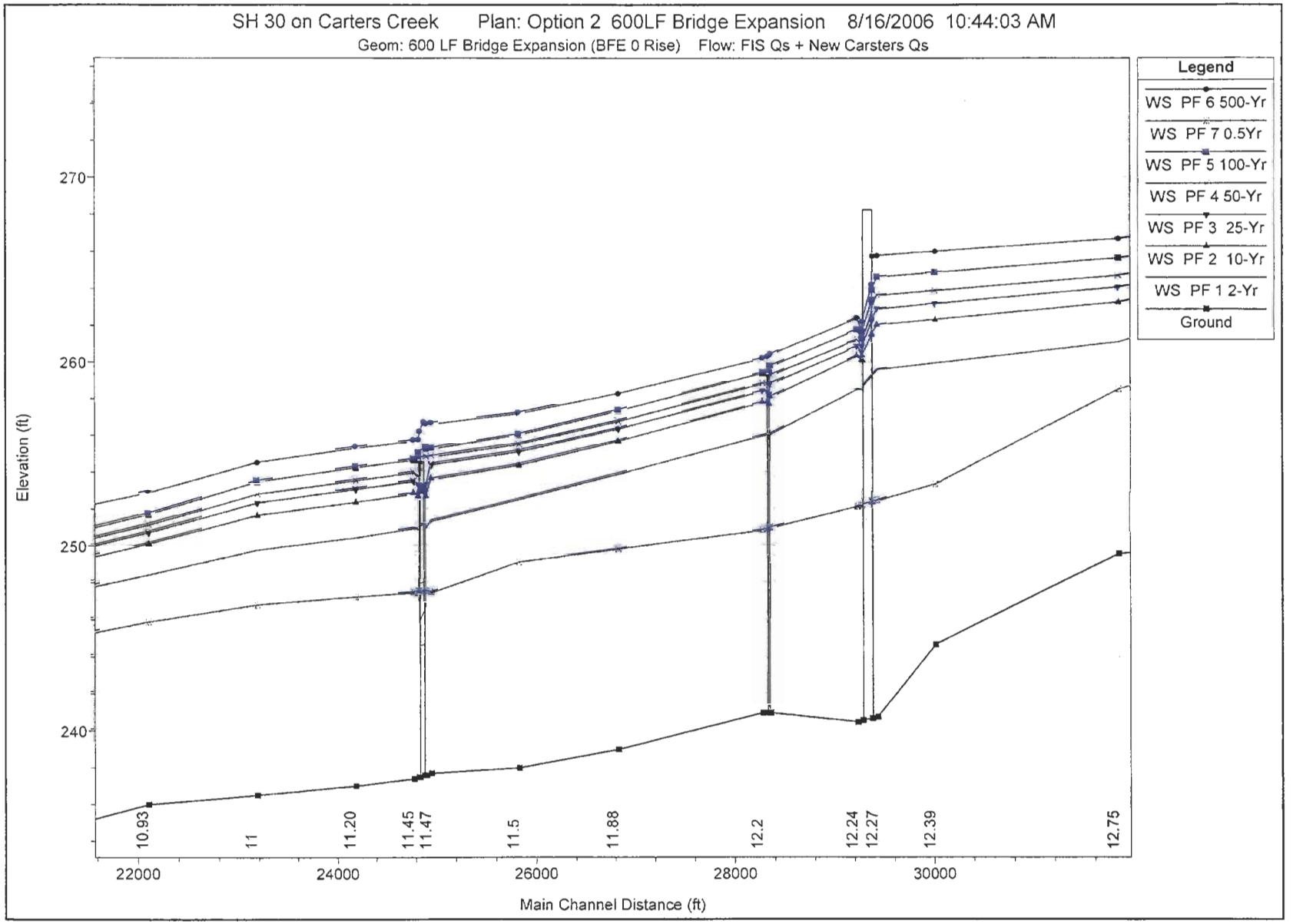
HEC-RAS Plan: Expan 260' B River: RIVER-1 Reach: Reach-1 (Continued)

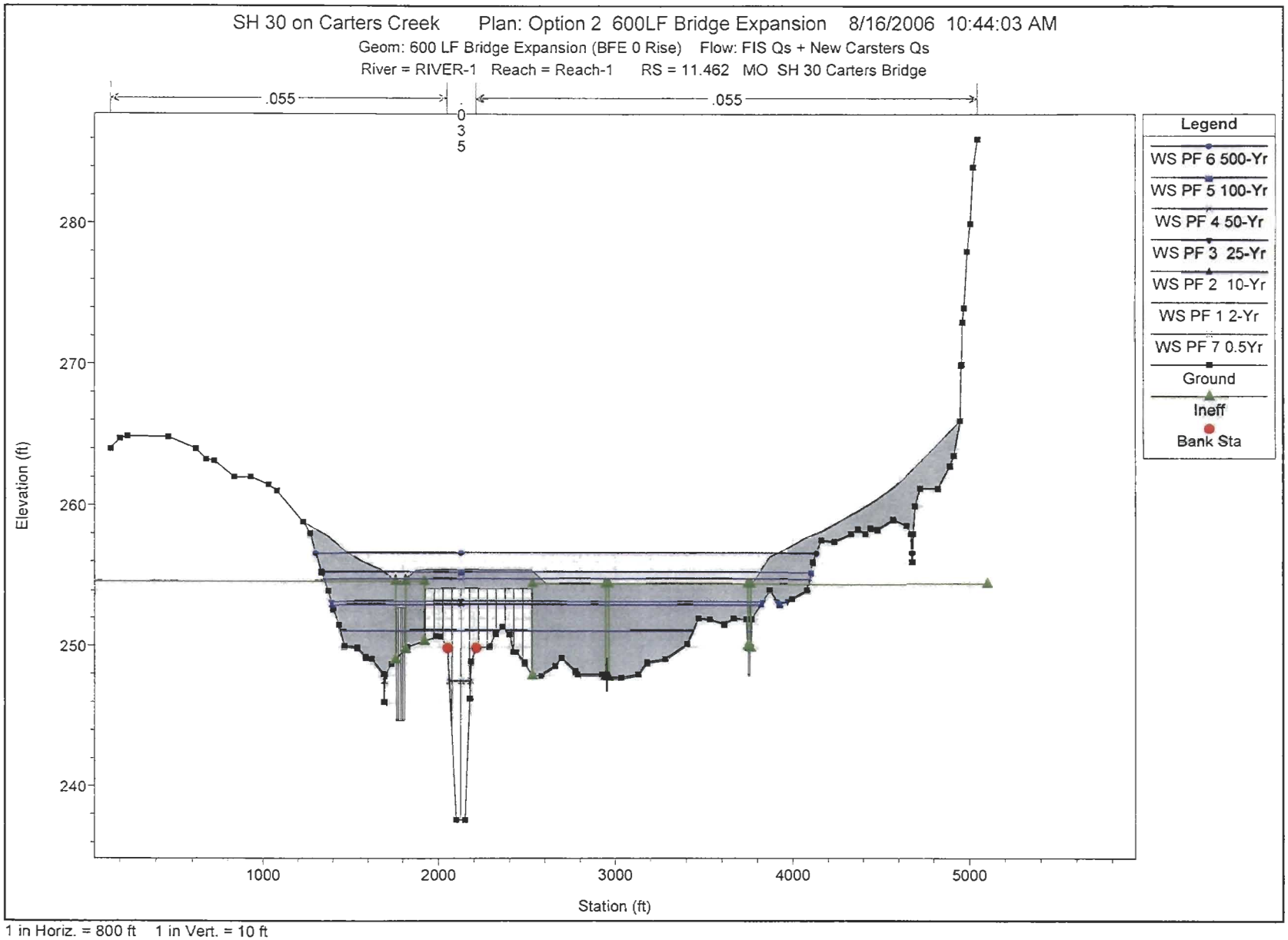
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	12.39	PF 4 50-Yr	21610.00	244.70	263.90		263.93	0.000250	2.35	17801.05	2547.36	0.12
Reach-1	12.39	PF 5 100-Yr	26030.00	244.70	264.88		264.91	0.000268	2.55	20472.04	2878.26	0.12
Reach-1	12.39	PF 6 500-Yr	31650.00	244.70	266.01		266.05	0.000250	2.58	23775.22	2931.32	0.12
Reach-1	12.75	PF 1 2-Yr	7080.00	249.60	261.12		261.30	0.003834	4.76	3362.92	2384.43	0.37
Reach-1	12.75	PF 2 10-Yr	15200.00	249.60	263.28		263.35	0.001368	3.35	9035.63	2772.64	0.23
Reach-1	12.75	PF 3 25-Yr	18950.00	249.60	264.09		264.15	0.001110	3.19	11321.55	2882.14	0.21
Reach-1	12.75	PF 4 50-Yr	21610.00	249.60	264.72		264.78	0.000979	3.17	13219.01	3152.90	0.20
Reach-1	12.75	PF 5 100-Yr	26030.00	249.60	265.66		265.71	0.000761	3.02	16251.52	3251.59	0.18
Reach-1	12.75	PF 6 500-Yr	31650.00	249.60	266.71		266.76	0.000621	2.95	19701.58	3327.94	0.17
Reach-1	13.5	PF 1 2-Yr	4370.00	251.60	267.66	265.37	267.69	0.000954	2.31	3973.97	1748.65	0.16
Reach-1	13.5	PF 2 10-Yr	7550.00	251.60	267.88	266.14	267.95	0.002186	3.57	4368.65	1788.82	0.24
Reach-1	13.5	PF 3 25-Yr	9250.00	251.60	268.11		268.20	0.002543	3.94	4777.21	1817.62	0.26
Reach-1	13.5	PF 4 50-Yr	10500.00	251.60	268.34		268.44	0.002547	4.03	5208.84	1840.38	0.26
Reach-1	13.5	PF 5 100-Yr	11900.00	251.60	268.57		268.67	0.002606	4.16	5628.45	1862.24	0.27
Reach-1	13.5	PF 6 500-Yr	19820.00	251.60	269.51		269.65	0.003264	5.03	7427.43	1990.87	0.30
Reach-1	14.2	PF 1 2-Yr	3870.00	255.50	271.82		271.97	0.001693	4.08	2260.66	1244.76	0.24
Reach-1	14.2	PF 2 10-Yr	5730.00	255.50	273.09		273.16	0.001130	3.43	3936.87	1400.62	0.19
Reach-1	14.2	PF 3 25-Yr	7100.00	255.50	273.61		273.69	0.001106	3.51	4688.29	1462.46	0.19
Reach-1	14.2	PF 4 50-Yr	8170.00	255.50	273.92		273.99	0.001148	3.64	5141.59	1498.26	0.19
Reach-1	14.2	PF 5 100-Yr	9380.00	255.50	274.25		274.33	0.001177	3.76	5643.19	1530.72	0.19
Reach-1	14.2	PF 6 500-Yr	15550.00	255.50	275.79		275.88	0.001184	4.09	8124.01	1680.54	0.20
Reach-1	14.81	PF 1 2-Yr	2600.00	262.10	275.59		275.61	0.000663	1.93	2486.45	950.18	0.14
Reach-1	14.81	PF 2 10-Yr	4710.00	262.10	276.42		276.46	0.000984	2.55	3301.77	1007.20	0.17
Reach-1	14.81	PF 3 25-Yr	5850.00	262.10	276.92		276.97	0.001006	2.70	3827.78	1080.34	0.17
Reach-1	14.81	PF 4 50-Yr	6750.00	262.10	277.30		277.35	0.001010	2.79	4242.47	1131.50	0.17
Reach-1	14.81	PF 5 100-Yr	7650.00	262.10	277.66		277.72	0.001006	2.87	4668.09	1187.52	0.18
Reach-1	14.81	PF 6 500-Yr	12800.00	262.10	279.38		279.45	0.001120	3.43	7018.08	1534.55	0.19
Reach-1	15.69	PF 1 2-Yr	2600.00	267.10	279.17		279.21	0.001154	2.37	2159.40	964.92	0.17
Reach-1	15.69	PF 2 10-Yr	4710.00	267.10	280.49		280.53	0.000987	2.51	3502.09	1069.27	0.17
Reach-1	15.69	PF 3 25-Yr	5850.00	267.10	281.02		281.06	0.000987	2.63	4081.12	1110.99	0.17
Reach-1	15.69	PF 4 50-Yr	6750.00	267.10	281.39		281.44	0.000993	2.73	4503.33	1138.62	0.17
Reach-1	15.69	PF 5 100-Yr	7650.00	267.10	281.75		281.80	0.000993	2.81	4910.94	1161.20	0.17
Reach-1	15.69	PF 6 500-Yr	12800.00	267.10	283.56		283.62	0.000946	3.12	7114.20	1267.53	0.17
Reach-1	15.7	PF 1 2-Yr	2600.00	267.90	279.10		279.50	0.005395	5.07	512.83	115.40	0.42
Reach-1	15.7	PF 2 10-Yr	4710.00	267.90	280.20		281.04	0.009398	7.32	643.26	120.08	0.56
Reach-1	15.7	PF 3 25-Yr	5850.00	267.90	280.60		281.72	0.011868	8.46	691.62	121.78	0.63
Reach-1	15.7	PF 4 50-Yr	6750.00	267.90	280.87		282.22	0.013977	9.33	723.69	123.20	0.68
Reach-1	15.7	PF 5 100-Yr	7650.00	267.90	281.10		282.70	0.016159	10.17	752.48	124.46	0.73
Reach-1	15.7	PF 6 500-Yr	12800.00	267.90	282.08	281.98	285.39	0.030027	14.60	876.70	129.76	0.99
Reach-1	15.7025		Bridge									
Reach-1	15.705	PF 1 2-Yr	2600.00	267.90	279.27	277.01	279.64	0.004850	4.88	532.57	116.12	0.40
Reach-1	15.705	PF 2 10-Yr	4710.00	267.90	280.56	278.32	281.29	0.007868	6.87	685.99	121.58	0.51
Reach-1	15.705	PF 3 25-Yr	5850.00	267.90	281.11	278.94	282.04	0.009421	7.77	753.33	124.50	0.56
Reach-1	15.705	PF 4 50-Yr	6750.00	267.90	281.52	279.39	282.61	0.010489	8.38	805.13	126.73	0.59
Reach-1	15.705	PF 5 100-Yr	7650.00	267.90	281.93	279.83	283.16	0.011381	8.92	857.45	128.95	0.61
Reach-1	15.705	PF 6 500-Yr	12800.00	267.90	286.28	281.98	286.41	0.001250	3.80	5030.19	1483.54	0.21
Reach-1	15.71	PF 1 2-Yr	2600.00	267.30	279.72		279.75	0.000767	2.01	2506.41	993.24	0.14
Reach-1	15.71	PF 2 10-Yr	4710.00	267.30	281.40		281.43	0.000555	2.01	4288.73	1124.52	0.13
Reach-1	15.71	PF 3 25-Yr	5850.00	267.30	282.17		282.20	0.000499	2.02	5173.28	1174.37	0.12
Reach-1	15.71	PF 4 50-Yr	6750.00	267.30	282.75		282.78	0.000461	2.03	5864.07	1208.35	0.12
Reach-1	15.71	PF 5 100-Yr	7650.00	267.30	283.32		283.34	0.000428	2.04	6556.37	1241.47	0.12
Reach-1	15.71	PF 6 500-Yr	12800.00	267.30	286.43		286.45	0.000281	1.99	10630.50	1363.99	0.10
Reach-1	16.31	PF 1 2-Yr	2600.00	270.90	282.01		282.04	0.000891	2.22	2657.50	1435.75	0.15
Reach-1	16.31	PF 2 10-Yr	4710.00	270.90	283.19		283.22	0.000792	2.34	4567.03	1751.95	0.15
Reach-1	16.31	PF 3 25-Yr	5850.00	270.90	283.75		283.78	0.000692	2.29	5564.44	1806.21	0.14
Reach-1	16.31	PF 4 50-Yr	6750.00	270.90	284.19		284.21	0.000623	2.25	6366.31	1848.27	0.14
Reach-1	16.31	PF 5 100-Yr	7650.00	270.90	284.63		284.65	0.000560	2.21	7189.87	1890.43	0.13
Reach-1	16.31	PF 6 500-Yr	12800.00	270.90	287.22		287.24	0.000310	1.94	12308.66	2062.42	0.10
Reach-1	16.96	PF 1 2-Yr	2600.00	275.90	285.21		285.23	0.001410	1.89	2310.06	1306.71	0.19
Reach-1	16.96	PF 2 10-Yr	4710.00	275.90	286.07		286.10	0.001337	1.95	3466.33	1385.49	0.19
Reach-1	16.96	PF 3 25-Yr	5850.00	275.90	286.42		286.46	0.001369	2.03	3962.02	1417.92	0.19
Reach-1	16.96	PF 4 50-Yr	6750.00	275.90	286.68		286.72	0.001373	2.07	4337.82	1434.70	0.19
Reach-1	16.96	PF 5 100-Yr	7650.00	275.90	286.95		286.99	0.001351	2.09	4719.41	1448.41	0.19
Reach-1	16.96	PF 6 500-Yr	12800.00	275.90	288.61		288.66	0.000969	2.25	7443.47	1814.46	0.17

HEC-RAS Plan: Expan 260' B River: RIVER-1 Reach: Reach-1 (Continued)

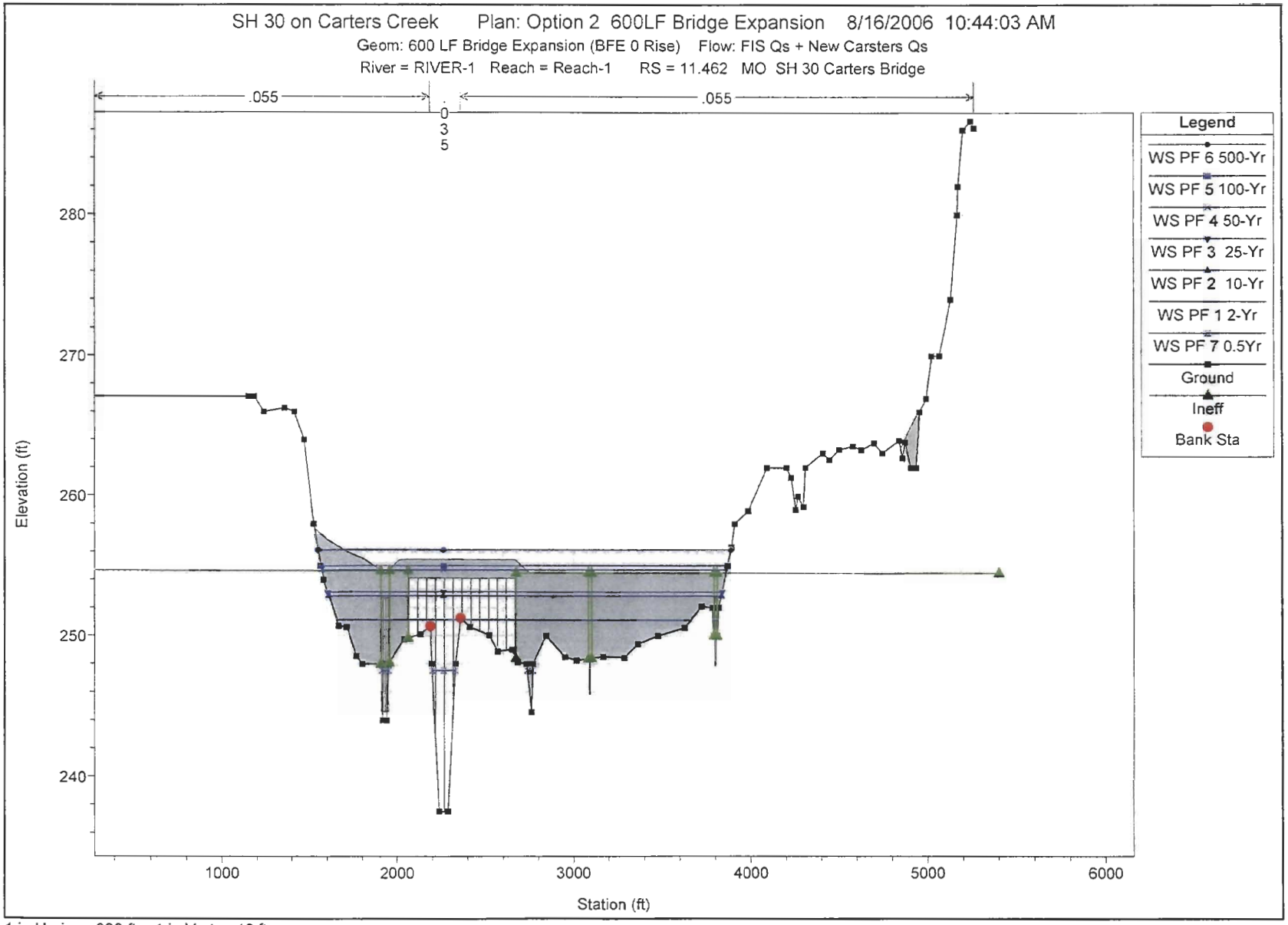
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	17.29	PF 1 2-Yr	2600.00	278.40	287.90		287.95	0.002466	2.58	1470.04	667.59	0.25
Reach-1	17.29	PF 2 10-Yr	4710.00	278.40	288.79		288.88	0.002840	3.25	2093.65	725.36	0.28
Reach-1	17.29	PF 3 25-Yr	5850.00	278.40	289.21		289.31	0.002919	3.52	2403.05	751.79	0.29
Reach-1	17.29	PF 4 50-Yr	6750.00	278.40	289.50		289.62	0.002996	3.72	2624.54	769.06	0.30
Reach-1	17.29	PF 5 100-Yr	7650.00	278.40	289.77		289.89	0.003086	3.91	2829.23	784.68	0.30
Reach-1	17.29	PF 6 500-Yr	12800.00	278.40	290.97		291.17	0.003601	4.86	3820.44	857.38	0.34
Reach-1	17.95	PF 1 2-Yr	2600.00	281.90	294.32		294.37	0.001652	2.97	1685.18	698.59	0.21
Reach-1	17.95	PF 2 10-Yr	4710.00	281.90	295.55		295.62	0.001618	3.32	2635.13	822.10	0.22
Reach-1	17.95	PF 3 25-Yr	5850.00	281.90	296.07		296.15	0.001629	3.49	3073.68	873.28	0.22
Reach-1	17.95	PF 4 50-Yr	6750.00	281.90	296.45		296.53	0.001632	3.60	3408.23	909.49	0.22
Reach-1	17.95	PF 5 100-Yr	7650.00	281.90	296.80		296.89	0.001633	3.71	3740.39	948.52	0.22
Reach-1	17.95	PF 6 500-Yr	12800.00	281.90	298.58		298.68	0.001664	4.24	5640.04	1315.33	0.23
Reach-1	18.51	PF 1 2-Yr	1280.00	288.90	298.53		298.57	0.001317	2.37	1050.10	571.03	0.18
Reach-1	18.51	PF 2 10-Yr	2110.00	288.90	299.50		299.54	0.001145	2.48	1777.07	819.45	0.18
Reach-1	18.51	PF 3 25-Yr	2240.00	288.90	299.80		299.83	0.000910	2.28	2026.17	849.60	0.16
Reach-1	18.51	PF 4 50-Yr	2900.00	288.90	300.21		300.25	0.000979	2.47	2388.76	890.49	0.17
Reach-1	18.51	PF 5 100-Yr	3200.00	288.90	300.49		300.53	0.000910	2.45	2637.82	917.51	0.16
Reach-1	18.51	PF 6 500-Yr	5270.00	288.90	302.00		302.04	0.000716	2.47	4141.66	1069.80	0.15
Reach-1	18.511	PF 1 2-Yr	1280.00	288.90	298.54		298.59	0.001301	2.36	1057.97	576.36	0.18
Reach-1	18.511	PF 2 10-Yr	2110.00	288.90	299.51		299.55	0.001128	2.46	1787.00	820.67	0.18
Reach-1	18.511	PF 3 25-Yr	2240.00	288.90	299.81		299.84	0.000901	2.27	2034.29	850.55	0.16
Reach-1	18.511	PF 4 50-Yr	2900.00	288.90	300.22		300.26	0.000968	2.46	2397.87	891.49	0.17
Reach-1	18.511	PF 5 100-Yr	3200.00	288.90	300.50		300.53	0.000901	2.44	2646.54	918.44	0.16
Reach-1	18.511	PF 6 500-Yr	5270.00	288.90	302.01		302.05	0.000712	2.47	4149.60	1070.65	0.15
Reach-1	18.512	PF 1 2-Yr	1280.00	288.90	298.55		298.60	0.001285	2.35	1065.76	581.59	0.18
Reach-1	18.512	PF 2 10-Yr	2110.00	288.90	299.52		299.56	0.001112	2.45	1796.68	821.86	0.18
Reach-1	18.512	PF 3 25-Yr	2240.00	288.90	299.81		299.85	0.000891	2.26	2042.21	851.46	0.16
Reach-1	18.512	PF 4 50-Yr	2900.00	288.90	300.23		300.27	0.000959	2.45	2406.80	892.47	0.17
Reach-1	18.512	PF 5 100-Yr	3200.00	288.90	300.51		300.54	0.000894	2.43	2655.06	919.35	0.16
Reach-1	18.512	PF 6 500-Yr	5270.00	288.90	302.02		302.05	0.000709	2.46	4157.38	1071.49	0.15
Reach-1	18.513	PF 1 2-Yr	1280.00	288.90	298.57		298.61	0.001269	2.34	1073.53	586.77	0.18
Reach-1	18.513	PF 2 10-Yr	2110.00	288.90	299.53		299.57	0.001096	2.44	1806.24	823.04	0.17
Reach-1	18.513	PF 3 25-Yr	2240.00	288.90	299.82		299.86	0.000882	2.25	2050.06	852.36	0.16
Reach-1	18.513	PF 4 50-Yr	2900.00	288.90	300.24		300.28	0.000949	2.44	2415.63	893.44	0.16
Reach-1	18.513	PF 5 100-Yr	3200.00	288.90	300.52		300.55	0.000886	2.42	2663.51	920.25	0.16
Reach-1	18.513	PF 6 500-Yr	5270.00	288.90	302.03		302.06	0.000705	2.46	4165.13	1072.32	0.15
Reach-1	19.05	PF 1 2-Yr	1280.00	298.70	303.39		303.44	0.003012	2.55	886.71	622.35	0.24
Reach-1	19.05	PF 2 10-Yr	2110.00	298.70	304.00		304.06	0.003287	2.95	1297.03	722.12	0.25
Reach-1	19.05	PF 3 25-Yr	2240.00	298.70	303.94		304.02	0.003998	3.23	1257.45	713.11	0.28
Reach-1	19.05	PF 4 50-Yr	2900.00	298.70	304.40		304.48	0.003599	3.28	1595.41	768.66	0.27
Reach-1	19.05	PF 5 100-Yr	3200.00	298.70	304.52		304.60	0.003749	3.41	1689.89	780.97	0.28
Reach-1	19.05	PF 6 500-Yr	5270.00	298.70	305.41		305.51	0.003788	3.84	2424.61	870.79	0.28
Reach-1	19.06	PF 1 2-Yr	1280.00	298.70	303.48		303.52	0.000857	2.30	940.70	636.37	0.21
Reach-1	19.06	PF 2 10-Yr	2110.00	298.70	304.09		304.15	0.000928	2.65	1365.96	737.56	0.22
Reach-1	19.06	PF 3 25-Yr	2240.00	298.70	304.06		304.12	0.001096	2.87	1340.60	731.92	0.24
Reach-1	19.06	PF 4 50-Yr	2900.00	298.70	304.50		304.57	0.001002	2.93	1675.75	779.14	0.24
Reach-1	19.06	PF 5 100-Yr	3200.00	298.70	304.63		304.70	0.001040	3.04	1775.07	791.90	0.24
Reach-1	19.06	PF 6 500-Yr	5270.00	298.70	305.52		305.61	0.001064	3.43	2521.74	881.98	0.25
Reach-1	19.0625		Bridge									
Reach-1	19.065	PF 1 2-Yr	1280.00	298.70	304.35	301.37	304.37	0.000238	1.40	1558.55	763.80	0.11
Reach-1	19.065	PF 2 10-Yr	2110.00	298.70	304.76	302.03	304.78	0.000388	1.89	1875.46	804.60	0.15
Reach-1	19.065	PF 3 25-Yr	2240.00	298.70	304.80	302.20	304.82	0.000417	1.97	1907.93	808.66	0.15
Reach-1	19.065	PF 4 50-Yr	2900.00	298.70	305.04	302.69	305.08	0.000531	2.29	2107.70	833.23	0.18
Reach-1	19.065	PF 5 100-Yr	3200.00	298.70	305.13	302.89	305.18	0.000582	2.43	2188.01	842.91	0.18
Reach-1	19.065	PF 6 500-Yr	5270.00	298.70	305.73	303.49	305.80	0.000876	3.19	2706.87	905.61	0.23
Reach-1	19.07	PF 1 2-Yr	1280.00	298.70	304.36		304.38	0.000322	1.47	1568.75	765.15	0.12
Reach-1	19.07	PF 2 10-Yr	2110.00	298.70	304.78		304.80	0.000524	1.98	1893.01	806.80	0.16
Reach-1	19.07	PF 3 25-Yr	2240.00	298.70	304.82		304.85	0.000563	2.06	1926.88	811.03	0.16
Reach-1	19.07	PF 4 50-Yr	2900.00	298.70	305.07		305.11	0.000713	2.40	2132.59	836.24	0.18
Reach-1	19.07	PF 5 100-Yr	3200.00	298.70	305.17		305.21	0.000781	2.54	2215.64	846.21	0.19
Reach-1	19.07	PF 6 500-Yr	5270.00	298.70	305.78		305.85	0.001171	3.34	2751.86	915.22	0.24

Appendix H
600 LF Bridge Expansion Option


SH 30 on Carters Creek Plan: Option 2 600LF Bridge Expansion 8/16/2006 10:44:03 AM
Geom: 600 LF Bridge Expansion (BFE 0 Rise) Flow: FIS Qs + New Carsters Qs
Legend
WS PF 6 500-Yr
WS PF 7 0.5Yr
WS PF 5 100-Yr
WS PF 4 50-Yr
WS PF 3 25-Yr
WS PF 2 10-Yr
WS PF 1 2-Yr
Ground
Elevation (ft)
270
260
250
240
10.93
11
11.20
11.45
11.47
11.5
11.88
12.2
12.24
12.27
12.39
12.75
22000
24000
26000
28000
30000
Main Channel Distance (ft)



1 in Horiz. = 800 ft 1 in Vert. = 10 ft



1 in Horiz. = 800 ft 1 in Vert. = 10 ft

HEC-RAS Plan: 600' BG Exp River: RIVER-1 Reach: Reach-1

Reach	River Sta	Profile	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)	
Reach-1	6.76	PF 1 2-Yr	10290.00	214.90	223.95	222.69	224.01	0.002136	3.35	6254.21	3261.67	0.30
Reach-1	6.76	PF 2 10-Yr	18020.00	214.90	224.94	223.24	225.01	0.002079	3.83	9785.04	3789.00	0.30
Reach-1	6.76	PF 3 25-Yr	22340.00	214.90	225.38	223.36	225.45	0.001970	3.94	11469.96	3869.67	0.30
Reach-1	6.76	PF 4 50-Yr	25730.00	214.90	225.69	223.41	225.77	0.001926	4.04	12685.76	4004.45	0.30
Reach-1	6.76	PF 5 100-Yr	29530.00	214.90	226.02	223.56	226.10	0.001955	4.23	14030.28	4116.00	0.30
Reach-1	6.76	PF 6 500-Yr	49370.00	214.90	227.43	224.21	227.54	0.001838	4.72	20074.06	4392.22	0.30
Reach-1	6.77	PF 1 2-Yr	10290.00	212.10	222.94	222.39	224.80	0.023570	13.81	1094.35	201.39	0.96
Reach-1	6.77	PF 2 10-Yr	18020.00	212.10	224.36	224.36	227.40	0.044060	17.20	1395.26	229.99	1.30
Reach-1	6.77	PF 3 25-Yr	22340.00	212.10	227.38	227.38	228.20	0.013260	11.25	5548.38	3825.74	0.74
Reach-1	6.77	PF 4 50-Yr	25730.00	212.10	227.55	227.55	228.36	0.013553	11.56	6210.51	3905.51	0.75
Reach-1	6.77	PF 5 100-Yr	29530.00	212.10	227.66	227.66	228.55	0.015251	12.38	6630.41	3949.07	0.80
Reach-1	6.77	PF 6 500-Yr	49370.00	212.10	228.46	228.46	229.31	0.015400	13.31	9885.49	4144.30	0.81
Reach-1	6.7725		Bridge									
Reach-1	6.775	PF 1 2-Yr	10290.00	212.10	224.41	222.39	225.38	0.014036	9.74	1407.25	230.39	0.73
Reach-1	6.775	PF 2 10-Yr	18020.00	212.10	227.92	224.35	228.15	0.004131	6.59	7665.11	4016.73	0.42
Reach-1	6.775	PF 3 25-Yr	22340.00	212.10	228.26	225.44	228.48	0.004059	6.72	9030.89	4095.67	0.42
Reach-1	6.775	PF 4 50-Yr	25730.00	212.10	228.41	227.52	228.65	0.004465	7.14	9658.01	4131.41	0.44
Reach-1	6.775	PF 5 100-Yr	29530.00	212.10	228.60	227.67	228.86	0.004705	7.44	10446.11	4167.79	0.45
Reach-1	6.775	PF 6 500-Yr	49370.00	212.10	229.30	228.40	229.66	0.006331	9.10	13405.19	4274.78	0.53
Reach-1	6.79	PF 1 2-Yr	10290.00	214.90	225.57		225.58	0.000346	1.69	12208.26	3933.03	0.13
Reach-1	6.79	PF 2 10-Yr	18020.00	214.90	228.21		228.22	0.000149	1.43	23527.91	4478.74	0.09
Reach-1	6.79	PF 3 25-Yr	22340.00	214.90	228.54		228.55	0.000189	1.66	25013.05	4515.44	0.10
Reach-1	6.79	PF 4 50-Yr	25730.00	214.90	228.72		228.74	0.000227	1.84	25833.41	4535.58	0.11
Reach-1	6.79	PF 5 100-Yr	29530.00	214.90	228.93		228.95	0.000267	2.03	26783.98	4558.81	0.12
Reach-1	6.79	PF 6 500-Yr	49370.00	214.90	229.77		229.81	0.000490	2.92	30640.53	4638.30	0.16
Reach-1	6.791	PF 1 2-Yr	10290.00	214.90	225.57		225.59	0.000345	1.69	12222.07	3935.12	0.13
Reach-1	6.791	PF 2 10-Yr	18020.00	214.90	228.21		228.22	0.000149	1.43	23534.60	4478.91	0.09
Reach-1	6.791	PF 3 25-Yr	22340.00	214.90	228.54		228.55	0.000189	1.66	25021.66	4515.65	0.10
Reach-1	6.791	PF 4 50-Yr	25730.00	214.90	228.72		228.74	0.000227	1.84	25843.79	4535.83	0.11
Reach-1	6.791	PF 5 100-Yr	29530.00	214.90	228.93		228.95	0.000267	2.03	26796.29	4559.11	0.12
Reach-1	6.791	PF 6 500-Yr	49370.00	214.90	229.77		229.82	0.000489	2.92	30663.67	4638.66	0.16
Reach-1	6.792	PF 1 2-Yr	10290.00	214.90	225.58		225.59	0.000343	1.69	12235.76	3937.18	0.13
Reach-1	6.792	PF 2 10-Yr	18020.00	214.90	228.21		228.22	0.000149	1.43	23541.30	4479.08	0.09
Reach-1	6.792	PF 3 25-Yr	22340.00	214.90	228.54		228.56	0.000189	1.66	25030.21	4515.86	0.10
Reach-1	6.792	PF 4 50-Yr	25730.00	214.90	228.72		228.74	0.000226	1.84	25854.11	4536.09	0.11
Reach-1	6.792	PF 5 100-Yr	29530.00	214.90	228.93		228.96	0.000266	2.03	26808.54	4559.40	0.12
Reach-1	6.792	PF 6 500-Yr	49370.00	214.90	229.78		229.82	0.000487	2.91	30686.67	4639.02	0.16
Reach-1	6.793	PF 1 2-Yr	10290.00	214.90	225.58		225.59	0.000342	1.68	12249.40	3939.24	0.13
Reach-1	6.793	PF 2 10-Yr	18020.00	214.90	228.21		228.22	0.000149	1.43	23548.00	4479.24	0.09
Reach-1	6.793	PF 3 25-Yr	22340.00	214.90	228.54		228.56	0.000189	1.66	25038.75	4516.07	0.10
Reach-1	6.793	PF 4 50-Yr	25730.00	214.90	228.73		228.74	0.000226	1.84	25864.42	4536.34	0.11
Reach-1	6.793	PF 5 100-Yr	29530.00	214.90	228.94		228.96	0.000266	2.03	26820.78	4559.70	0.12
Reach-1	6.793	PF 6 500-Yr	49370.00	214.90	229.78		229.83	0.000486	2.91	30709.61	4639.39	0.16
Reach-1	7.375	PF 1 2-Yr	10290.00	217.40	227.07		227.09	0.000806	1.90	10084.57	4386.85	0.16
Reach-1	7.375	PF 2 10-Yr	18020.00	217.40	228.91		228.92	0.000426	1.73	18780.35	5087.35	0.12
Reach-1	7.375	PF 3 25-Yr	22340.00	217.40	229.37		229.39	0.000453	1.87	21164.40	5196.16	0.13
Reach-1	7.375	PF 4 50-Yr	25730.00	217.40	229.67		229.69	0.000480	1.98	22728.30	5236.13	0.13
Reach-1	7.375	PF 5 100-Yr	29530.00	217.40	230.00		230.02	0.000503	2.09	24440.62	5279.56	0.13
Reach-1	7.375	PF 6 500-Yr	49370.00	217.40	231.40		231.44	0.000605	2.56	31969.55	5466.39	0.15
Reach-1	7.376	PF 1 2-Yr	10290.00	217.40	227.08		227.10	0.000798	1.90	10120.28	4393.13	0.16
Reach-1	7.376	PF 2 10-Yr	18020.00	217.40	228.91		228.93	0.000424	1.73	18802.09	5089.45	0.12
Reach-1	7.376	PF 3 25-Yr	22340.00	217.40	229.38		229.39	0.000452	1.87	21188.11	5196.77	0.13
Reach-1	7.376	PF 4 50-Yr	25730.00	217.40	229.68		229.70	0.000478	1.98	22753.63	5236.78	0.13
Reach-1	7.376	PF 5 100-Yr	29530.00	217.40	230.00		230.03	0.000501	2.08	24467.37	5280.23	0.13
Reach-1	7.376	PF 6 500-Yr	49370.00	217.40	231.40		231.44	0.000603	2.56	32003.00	5467.21	0.15
Reach-1	7.96	PF 1 2-Yr	10290.00	216.80	231.44	230.87	231.75	0.003933	6.87	4112.50	2374.90	0.39
Reach-1	7.96	PF 2 10-Yr	18020.00	216.80	231.87	231.66	232.38	0.007251	9.46	5220.32	2747.12	0.53
Reach-1	7.96	PF 3 25-Yr	22340.00	216.80	232.45	231.93	232.82	0.005887	8.73	6876.67	3029.59	0.48
Reach-1	7.96	PF 4 50-Yr	25730.00	216.80	232.86	232.07	233.18	0.005338	8.46	8136.50	3103.16	0.46
Reach-1	7.96	PF 5 100-Yr	29530.00	216.80	233.24		233.53	0.004758	8.17	9335.12	3144.22	0.44
Reach-1	7.96	PF 6 500-Yr	49370.00	216.80	234.87		235.12	0.003522	7.72	14579.58	3272.43	0.39
Reach-1	7.961	PF 1 2-Yr	10290.00	216.80	231.51		231.79	0.003611	6.59	4284.68	2426.77	0.37
Reach-1	7.961	PF 2 10-Yr	18020.00	216.80	232.06		232.46	0.005816	8.54	5750.89	2849.30	0.48
Reach-1	7.961	PF 3 25-Yr	22340.00	216.80	232.50		232.88	0.005926	8.78	7054.68	3051.95	0.48
Reach-1	7.961	PF 4 50-Yr	25730.00	216.80	232.94		233.24	0.004911	8.15	8391.27	3120.59	0.44

HEC-RAS Plan: 600' BG Exp River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	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)	
Reach-1	7.961	PF 5 100-Yr	29530.00	216.80	233.30		233.58	0.004466	7.95	9540.48	3149.34	0.42
Reach-1	7.961	PF 6 500-Yr	49370.00	216.80	234.91		235.16	0.003429	7.63	14708.37	3275.51	0.38
Reach-1	7.962	PF 1 2-Yr	10290.00	216.80	231.57		231.82	0.003383	6.39	4419.91	2466.75	0.36
Reach-1	7.962	PF 2 10-Yr	18020.00	216.80	232.17		232.51	0.005145	8.07	6063.09	2905.26	0.45
Reach-1	7.962	PF 3 25-Yr	22340.00	216.80	232.61		232.94	0.005232	8.29	7389.64	3067.90	0.45
Reach-1	7.962	PF 4 50-Yr	25730.00	216.80	233.01		233.29	0.004570	7.89	8604.49	3125.94	0.43
Reach-1	7.962	PF 5 100-Yr	29530.00	216.80	233.36		233.62	0.004225	7.76	9723.08	3153.88	0.41
Reach-1	7.962	PF 6 500-Yr	49370.00	216.80	234.95		235.19	0.003340	7.55	14836.13	3278.57	0.38
Reach-1	7.963	PF 1 2-Yr	10290.00	216.80	231.61		231.85	0.003232	6.26	4530.94	2502.81	0.35
Reach-1	7.963	PF 2 10-Yr	18020.00	216.80	232.26		232.56	0.004686	7.73	6309.40	2948.67	0.43
Reach-1	7.963	PF 3 25-Yr	22340.00	216.80	232.70		232.99	0.004777	7.95	7642.08	3079.87	0.43
Reach-1	7.963	PF 4 50-Yr	25730.00	216.80	233.07		233.33	0.004289	7.68	8797.15	3130.77	0.41
Reach-1	7.963	PF 5 100-Yr	29530.00	216.80	233.41		233.66	0.004022	7.59	9888.40	3157.99	0.40
Reach-1	7.963	PF 6 500-Yr	49370.00	216.80	234.99		235.22	0.003257	7.47	14960.25	3281.54	0.37
Reach-1	8.82	PF 1 2-Yr	7880.00	223.90	237.08		237.12	0.000653	2.49	6672.50	2269.06	0.15
Reach-1	8.82	PF 2 10-Yr	13900.00	223.90	238.42		238.46	0.000658	2.74	9766.57	2349.03	0.16
Reach-1	8.82	PF 3 25-Yr	17200.00	223.90	238.98		239.02	0.000681	2.89	11093.35	2370.45	0.16
Reach-1	8.82	PF 4 50-Yr	19900.00	223.90	239.32		239.37	0.000733	3.07	11904.11	2383.44	0.17
Reach-1	8.82	PF 5 100-Yr	22600.00	223.90	239.68		239.73	0.000763	3.20	12756.61	2397.03	0.17
Reach-1	8.82	PF 6 500-Yr	38380.00	223.90	241.35		241.44	0.000934	3.89	16821.53	2480.12	0.19
Reach-1	9.58	PF 1 2-Yr	7860.00	229.60	240.03		240.07	0.001366	3.11	5205.39	1965.59	0.22
Reach-1	9.58	PF 2 10-Yr	13900.00	229.60	241.26		241.32	0.001302	3.33	7692.78	2044.49	0.21
Reach-1	9.58	PF 3 25-Yr	17200.00	229.60	241.85		241.91	0.001274	3.43	8896.55	2077.66	0.21
Reach-1	9.58	PF 4 50-Yr	19900.00	229.60	242.29		242.36	0.001257	3.51	9821.45	2102.79	0.21
Reach-1	9.58	PF 5 100-Yr	22600.00	229.60	242.70		242.78	0.001249	3.60	10689.19	2126.10	0.21
Reach-1	9.58	PF 6 500-Yr	38380.00	229.60	244.78		244.88	0.001302	4.17	15344.74	2424.14	0.22
Reach-1	10.11	PF 1 2-Yr	7880.00	229.60	243.21		243.25	0.001140	2.86	5420.11	2065.46	0.17
Reach-1	10.11	PF 2 10-Yr	14050.00	229.60	244.41		244.47	0.001177	3.17	8010.15	2213.36	0.18
Reach-1	10.11	PF 3 25-Yr	17290.00	229.60	244.95		245.02	0.001173	3.29	9218.10	2265.66	0.18
Reach-1	10.11	PF 4 50-Yr	19740.00	229.60	245.35		245.42	0.001156	3.35	10125.51	2302.56	0.18
Reach-1	10.11	PF 5 100-Yr	22420.00	229.60	245.74		245.81	0.001154	3.42	11023.55	2333.86	0.18
Reach-1	10.11	PF 6 500-Yr	37960.00	229.60	247.78		247.87	0.001077	3.71	15945.86	2482.27	0.18
Reach-1	10.93	PF 1 2-Yr	7405.00	236.00	248.44		248.50	0.001582	3.49	4306.26	1556.57	0.23
Reach-1	10.93	PF 2 10-Yr	15850.00	236.00	250.12		250.21	0.001805	4.12	7015.76	1662.50	0.25
Reach-1	10.93	PF 3 25-Yr	19690.00	236.00	250.72		250.83	0.001866	4.34	8031.85	1691.54	0.26
Reach-1	10.93	PF 4 50-Yr	22720.00	236.00	251.15		251.27	0.001919	4.50	8759.19	1712.01	0.26
Reach-1	10.93	PF 5 100-Yr	27510.00	236.00	251.73		251.87	0.002033	4.79	9763.33	1739.89	0.27
Reach-1	10.93	PF 6 500-Yr	33680.00	236.00	252.91		253.04	0.001707	4.67	11837.64	1796.95	0.25
Reach-1	11	PF 1 2-Yr	7080.00	236.50	249.78		249.84	0.000880	3.11	4861.94	1480.18	0.18
Reach-1	11	PF 2 10-Yr	15200.00	236.50	251.67		251.75	0.001013	3.76	7737.46	1607.90	0.19
Reach-1	11	PF 3 25-Yr	18950.00	236.50	252.35		252.44	0.001067	4.01	8845.58	1670.41	0.20
Reach-1	11	PF 4 50-Yr	21610.00	236.50	252.82		252.92	0.001084	4.14	9645.54	1726.48	0.20
Reach-1	11	PF 5 100-Yr	26030.00	236.50	253.50		253.61	0.001130	4.38	10832.52	1788.98	0.21
Reach-1	11	PF 6 500-Yr	31650.00	236.50	254.57		254.69	0.001182	4.71	12855.39	1998.76	0.22
Reach-1	11.20	PF 1 2-Yr	7080.00	237.00	250.44		250.47	0.000529	2.55	6693.15	2288.54	0.14
Reach-1	11.20	PF 2 10-Yr	15200.00	237.00	252.39		252.42	0.000528	2.84	11337.29	2449.48	0.14
Reach-1	11.20	PF 3 25-Yr	18950.00	237.00	253.09		253.13	0.000532	2.95	13068.61	2486.80	0.14
Reach-1	11.20	PF 4 50-Yr	21610.00	237.00	253.57		253.61	0.000529	3.02	14270.06	2545.53	0.14
Reach-1	11.20	PF 5 100-Yr	26030.00	237.00	254.27		254.32	0.000539	3.14	16092.45	2662.95	0.14
Reach-1	11.20	PF 6 500-Yr	31650.00	237.00	255.34		255.39	0.000510	3.20	19052.86	2918.55	0.14
Reach-1	11.45	PF 1 2-Yr	7080.00	237.40	250.96		251.04	0.002013	3.09	4199.41	1983.90	0.25
Reach-1	11.45	PF 2 10-Yr	15200.00	237.40	252.84		252.91	0.001351	3.08	8181.35	2218.68	0.21
Reach-1	11.45	PF 3 25-Yr	18950.00	237.40	253.53		253.60	0.001231	3.15	9715.49	2247.76	0.21
Reach-1	11.45	PF 4 50-Yr	21610.00	237.40	253.99		254.07	0.001163	3.19	10764.86	2267.44	0.20
Reach-1	11.45	PF 5 100-Yr	26030.00	237.40	254.69		254.77	0.001095	3.28	12348.29	2289.49	0.20
Reach-1	11.45	PF 6 500-Yr	31650.00	237.40	255.72		255.80	0.000929	3.26	14717.81	2321.97	0.19
Reach-1	11.46	PF 1 2-Yr	7080.00	237.50	250.92	244.67	251.19	0.000671	4.46	2205.54	1979.24	0.27
Reach-1	11.46	PF 2 10-Yr	15200.00	237.50	252.66	248.00	253.22	0.001236	6.79	3416.31	2210.89	0.38
Reach-1	11.46	PF 3 25-Yr	18950.00	237.50	253.29	249.84	253.97	0.001418	7.59	3859.09	2237.71	0.41
Reach-1	11.46	PF 4 50-Yr	21610.00	237.50	253.72	251.40	254.47	0.001518	8.06	4160.15	2255.94	0.43
Reach-1	11.46	PF 5 100-Yr	26030.00	237.50	254.70	252.03	254.82	0.000383	4.29	12972.81	2289.76	0.22
Reach-1	11.46	PF 6 500-Yr	31650.00	237.50	255.72	252.72	255.84	0.000347	4.31	15340.26	2322.21	0.21
Reach-1	11.462		Mult Open									
Reach-1	11.465	PF 1 2-Yr	7080.00	237.60	250.93	244.78	251.29	0.000877	4.98	1837.43	1940.30	0.31

HEC-RAS Plan: 600' BG Exp River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	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)	
Reach-1	11.465	PF 2 10-Yr	15200.00	237.60	252.67	248.85	253.41	0.001573	7.60	3040.52	2399.23	0.43
Reach-1	11.465	PF 3 25-Yr	18950.00	237.60	253.33	251.21	254.19	0.001761	8.39	3501.02	2528.50	0.46
Reach-1	11.465	PF 4 50-Yr	21610.00	237.60	254.79	251.99	254.86	0.000266	3.56	13905.39	2744.67	0.18
Reach-1	11.465	PF 5 100-Yr	26030.00	237.60	255.24	252.64	255.32	0.000304	3.90	15130.55	2765.51	0.20
Reach-1	11.465	PF 6 500-Yr	31650.00	237.60	256.61	253.33	256.69	0.000233	3.66	18954.91	2836.18	0.17
Reach-1	11.47	PF 1 2-Yr	7080.00	237.70	251.38		251.43	0.001337	2.86	4831.19	2037.21	0.21
Reach-1	11.47	PF 2 10-Yr	15200.00	237.70	253.63		253.67	0.000802	2.73	10097.99	2608.63	0.17
Reach-1	11.47	PF 3 25-Yr	18950.00	237.70	254.44		254.49	0.000739	2.79	12294.66	2728.00	0.16
Reach-1	11.47	PF 4 50-Yr	21610.00	237.70	254.86		254.90	0.000730	2.86	13426.64	2747.58	0.16
Reach-1	11.47	PF 5 100-Yr	26030.00	237.70	255.31		255.37	0.000802	3.09	14674.98	2768.27	0.17
Reach-1	11.47	PF 6 500-Yr	31650.00	237.70	256.66		256.71	0.000580	2.86	18451.71	2839.13	0.15
Reach-1	11.5	PF 1 2-Yr	7080.00	238.00	252.54		252.64	0.001649	3.47	4095.58	1806.88	0.23
Reach-1	11.5	PF 2 10-Yr	15200.00	238.00	254.41		254.50	0.001396	3.75	7681.06	2064.05	0.22
Reach-1	11.5	PF 3 25-Yr	18950.00	238.00	255.15		255.24	0.001254	3.76	9224.10	2091.90	0.22
Reach-1	11.5	PF 4 50-Yr	21610.00	238.00	255.56		255.65	0.001249	3.85	10073.60	2107.08	0.22
Reach-1	11.5	PF 5 100-Yr	26030.00	238.00	256.07		256.17	0.001328	4.11	11151.86	2134.79	0.23
Reach-1	11.5	PF 6 500-Yr	31650.00	238.00	257.22		257.32	0.001065	3.95	13659.96	2186.87	0.21
Reach-1	11.88	PF 1 2-Yr	7080.00	239.00	253.92		254.03	0.001136	3.73	4271.33	1694.13	0.20
Reach-1	11.88	PF 2 10-Yr	15200.00	239.00	255.72		255.83	0.001189	4.24	7892.52	2132.92	0.21
Reach-1	11.88	PF 3 25-Yr	18950.00	239.00	256.38		256.49	0.001163	4.34	9334.00	2228.62	0.21
Reach-1	11.88	PF 4 50-Yr	21610.00	239.00	256.79		256.90	0.001165	4.44	10247.30	2266.23	0.22
Reach-1	11.88	PF 5 100-Yr	26030.00	239.00	257.36		257.48	0.001198	4.63	11551.63	2291.42	0.22
Reach-1	11.88	PF 6 500-Yr	31650.00	239.00	258.31		258.43	0.001066	4.57	13748.66	2329.17	0.21
Reach-1	12.2	PF 1 2-Yr	7080.00	241.00	256.02		256.18	0.002159	4.67	3496.08	1644.93	0.26
Reach-1	12.2	PF 2 10-Yr	15200.00	241.00	257.82		257.94	0.002043	4.46	6583.89	1796.76	0.26
Reach-1	12.2	PF 3 25-Yr	18950.00	241.00	258.44		258.56	0.002025	4.60	7750.47	1986.26	0.26
Reach-1	12.2	PF 4 50-Yr	21610.00	241.00	258.83		258.97	0.002010	4.71	8567.51	2107.90	0.26
Reach-1	12.2	PF 5 100-Yr	26030.00	241.00	259.43		259.57	0.001986	4.86	9842.14	2204.72	0.26
Reach-1	12.2	PF 6 500-Yr	31650.00	241.00	260.20		260.34	0.001888	4.97	11588.71	2345.97	0.26
Reach-1	12.21		Bridge									
Reach-1	12.22	PF 1 2-Yr	7080.00	241.00	256.11	253.51	256.49	0.003516	6.23	1988.16	952.62	0.34
Reach-1	12.22	PF 2 10-Yr	15200.00	241.00	258.11	257.14	258.43	0.003478	6.96	5350.76	1953.81	0.35
Reach-1	12.22	PF 3 25-Yr	18950.00	241.00	258.82	257.38	259.08	0.002937	6.64	6770.74	2060.57	0.32
Reach-1	12.22	PF 4 50-Yr	21610.00	241.00	259.29	257.72	259.52	0.002647	6.45	7747.79	2132.78	0.31
Reach-1	12.22	PF 5 100-Yr	26030.00	241.00	259.78	257.94	260.01	0.002681	6.64	8822.14	2247.77	0.31
Reach-1	12.22	PF 6 500-Yr	31650.00	241.00	260.43	258.36	260.67	0.002613	6.76	10352.49	2385.96	0.31
Reach-1	12.24	PF 1 2-Yr	7080.00	240.50	258.55		258.76	0.002054	5.05	3499.95	1721.48	0.26
Reach-1	12.24	PF 2 10-Yr	15200.00	240.50	260.36		260.52	0.001845	5.28	6838.51	1992.34	0.25
Reach-1	12.24	PF 3 25-Yr	18950.00	240.50	260.87		261.04	0.001931	5.54	7868.04	2044.76	0.26
Reach-1	12.24	PF 4 50-Yr	21610.00	240.50	261.24		261.41	0.001998	5.73	8638.73	2126.83	0.27
Reach-1	12.24	PF 5 100-Yr	26030.00	240.50	261.79		261.97	0.002099	6.03	9851.40	2268.76	0.28
Reach-1	12.24	PF 6 500-Yr	31650.00	240.50	262.41		262.60	0.002122	6.23	11305.33	2354.30	0.28
Reach-1	12.25	PF 1 2-Yr	7080.00	240.60	258.51	253.82	259.08	0.004105	7.12	1724.67	1720.08	0.37
Reach-1	12.25	PF 2 10-Yr	15200.00	240.60	260.12	259.27	261.08	0.006989	10.14	2610.61	1979.57	0.50
Reach-1	12.25	PF 3 25-Yr	18950.00	240.60	260.54	259.82	261.74	0.008678	11.54	2837.55	2001.84	0.55
Reach-1	12.25	PF 4 50-Yr	21610.00	240.60	260.85	260.17	262.19	0.009600	12.32	3008.85	2037.41	0.59
Reach-1	12.25	PF 5 100-Yr	26030.00	240.60	261.28	260.72	262.88	0.011236	13.61	3247.47	2156.47	0.64
Reach-1	12.25	PF 6 500-Yr	31650.00	240.60	261.75	261.33	263.70	0.013340	15.15	3505.08	2264.69	0.70
Reach-1	12.253		Bridge									
Reach-1	12.255	PF 1 2-Yr	7080.00	240.70	259.36	253.30	259.58	0.002269	4.56	2308.58	1481.36	0.27
Reach-1	12.255	PF 2 10-Yr	15200.00	240.70	261.55	258.67	261.94	0.003161	6.23	3494.43	2184.38	0.33
Reach-1	12.255	PF 3 25-Yr	18950.00	240.70	262.33	259.20	262.79	0.003481	6.83	3913.22	2410.99	0.35
Reach-1	12.255	PF 4 50-Yr	21610.00	240.70	263.01	259.55	263.50	0.003421	7.03	4284.34	2448.87	0.35
Reach-1	12.255	PF 5 100-Yr	26030.00	240.70	263.92	260.07	264.47	0.003542	7.49	4772.64	2675.12	0.36
Reach-1	12.255	PF 6 500-Yr	31650.00	240.70	265.77	260.67	265.82	0.000505	3.08	18719.68	2766.48	0.14
Reach-1	12.27	PF 1 2-Yr	7080.00	240.80	259.62		259.70	0.001158	3.19	4283.30	1530.81	0.19
Reach-1	12.27	PF 2 10-Yr	15200.00	240.80	262.04		262.11	0.000861	3.25	9213.34	2310.04	0.17
Reach-1	12.27	PF 3 25-Yr	18950.00	240.80	262.91		262.98	0.000776	3.24	11320.65	2442.94	0.17
Reach-1	12.27	PF 4 50-Yr	21610.00	240.80	263.64		263.70	0.000695	3.19	13158.00	2656.56	0.16
Reach-1	12.27	PF 5 100-Yr	26030.00	240.80	264.62		264.68	0.000585	3.08	15829.96	2733.27	0.15
Reach-1	12.27	PF 6 500-Yr	31650.00	240.80	265.80		265.85	0.000488	2.97	19050.29	2767.40	0.14
Reach-1	12.39	PF 1 2-Yr	7080.00	244.70	259.97		259.99	0.000267	1.97	8273.07	2280.66	0.12
Reach-1	12.39	PF 2 10-Yr	15200.00	244.70	262.34		262.37	0.000264	2.23	13920.31	2455.90	0.12
Reach-1	12.39	PF 3 25-Yr	18950.00	244.70	263.20		263.23	0.000265	2.34	16047.54	2496.00	0.12

HEC-RAS Plan: 600' BG Exp River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	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)	
Reach-1	12.39	PF 4 50-Yr	21610.00	244.70	263.90		263.93	0.000250	2.35	17800.82	2547.32	0.12
Reach-1	12.39	PF 5 100-Yr	26030.00	244.70	264.88		264.91	0.000268	2.55	20471.34	2878.25	0.12
Reach-1	12.39	PF 6 500-Yr	31650.00	244.70	266.02		266.05	0.000250	2.58	23788.19	2931.53	0.12
Reach-1	12.75	PF 1 2-Yr	7080.00	249.60	261.12		261.30	0.003834	4.76	3362.92	2384.43	0.37
Reach-1	12.75	PF 2 10-Yr	15200.00	249.60	263.28		263.35	0.001368	3.35	9035.72	2772.65	0.23
Reach-1	12.75	PF 3 25-Yr	18950.00	249.60	264.09		264.15	0.001110	3.19	11320.23	2882.09	0.21
Reach-1	12.75	PF 4 50-Yr	21610.00	249.60	264.72		264.78	0.000979	3.17	13218.81	3152.90	0.20
Reach-1	12.75	PF 5 100-Yr	26030.00	249.60	265.66		265.71	0.000761	3.02	16251.03	3251.58	0.18
Reach-1	12.75	PF 6 500-Yr	31650.00	249.60	266.72		266.77	0.000620	2.95	19712.34	3328.20	0.17
Reach-1	13.5	PF 1 2-Yr	4370.00	251.60	267.66	265.37	267.69	0.000954	2.31	3973.97	1748.65	0.16
Reach-1	13.5	PF 2 10-Yr	7550.00	251.60	267.88	266.14	267.95	0.002186	3.57	4368.65	1788.82	0.24
Reach-1	13.5	PF 3 25-Yr	9250.00	251.60	268.11		268.20	0.002543	3.94	4777.82	1817.66	0.26
Reach-1	13.5	PF 4 50-Yr	10500.00	251.60	268.34		268.44	0.002546	4.03	5208.90	1840.38	0.26
Reach-1	13.5	PF 5 100-Yr	11900.00	251.60	268.57		268.67	0.002606	4.16	5628.51	1862.24	0.27
Reach-1	13.5	PF 6 500-Yr	19820.00	251.60	269.51		269.65	0.003265	5.03	7426.52	1990.75	0.30
Reach-1	14.2	PF 1 2-Yr	3870.00	255.50	271.82		271.97	0.001893	4.08	2260.66	1244.76	0.24
Reach-1	14.2	PF 2 10-Yr	5730.00	255.50	273.09		273.16	0.001130	3.43	3936.87	1400.62	0.19
Reach-1	14.2	PF 3 25-Yr	7100.00	255.50	273.61		273.69	0.001106	3.51	4687.97	1462.44	0.19
Reach-1	14.2	PF 4 50-Yr	8170.00	255.50	273.92		273.99	0.001148	3.64	5141.50	1498.25	0.19
Reach-1	14.2	PF 5 100-Yr	9380.00	255.50	274.25		274.33	0.001177	3.76	5643.15	1530.71	0.19
Reach-1	14.2	PF 6 500-Yr	15550.00	255.50	275.79		275.88	0.001183	4.09	8124.22	1680.56	0.20
Reach-1	14.81	PF 1 2-Yr	2600.00	262.10	275.59		275.61	0.000663	1.93	2486.45	950.18	0.14
Reach-1	14.81	PF 2 10-Yr	4710.00	262.10	276.42		276.46	0.000984	2.55	3301.77	1007.20	0.17
Reach-1	14.81	PF 3 25-Yr	5850.00	262.10	276.92		276.97	0.001006	2.70	3827.85	1080.35	0.17
Reach-1	14.81	PF 4 50-Yr	6750.00	262.10	277.30		277.35	0.001010	2.79	4242.43	1131.50	0.17
Reach-1	14.81	PF 5 100-Yr	7650.00	262.10	277.66		277.72	0.001006	2.87	4668.06	1187.52	0.18
Reach-1	14.81	PF 6 500-Yr	12800.00	262.10	279.38		279.45	0.001120	3.43	7018.08	1534.55	0.19
Reach-1	15.69	PF 1 2-Yr	2600.00	267.10	279.17		279.21	0.001154	2.37	2159.40	964.92	0.17
Reach-1	15.69	PF 2 10-Yr	4710.00	267.10	280.49		280.53	0.000987	2.51	3502.09	1069.27	0.17
Reach-1	15.69	PF 3 25-Yr	5850.00	267.10	281.02		281.06	0.000987	2.63	4081.15	1110.99	0.17
Reach-1	15.69	PF 4 50-Yr	6750.00	267.10	281.39		281.44	0.000993	2.73	4503.36	1138.62	0.17
Reach-1	15.69	PF 5 100-Yr	7650.00	267.10	281.75		281.80	0.000993	2.81	4910.90	1161.20	0.17
Reach-1	15.69	PF 6 500-Yr	12800.00	267.10	283.56		283.62	0.000946	3.12	7114.20	1267.53	0.17
Reach-1	15.7	PF 1 2-Yr	2600.00	267.90	279.10		279.50	0.005395	5.07	512.83	115.40	0.42
Reach-1	15.7	PF 2 10-Yr	4710.00	267.90	280.20		281.04	0.009398	7.32	643.26	120.08	0.56
Reach-1	15.7	PF 3 25-Yr	5850.00	267.90	280.60		281.72	0.011868	8.46	691.63	121.78	0.63
Reach-1	15.7	PF 4 50-Yr	6750.00	267.90	280.87		282.22	0.013977	9.33	723.70	123.20	0.68
Reach-1	15.7	PF 5 100-Yr	7650.00	267.90	281.10		282.70	0.016160	10.17	752.48	124.46	0.73
Reach-1	15.7	PF 6 500-Yr	12800.00	267.90	282.08	281.98	285.39	0.030027	14.60	876.70	129.76	0.99
Reach-1	15.7025		Bridge									
Reach-1	15.705	PF 1 2-Yr	2600.00	267.90	279.27	277.01	279.64	0.004850	4.88	532.57	116.12	0.40
Reach-1	15.705	PF 2 10-Yr	4710.00	267.90	280.56	278.32	281.29	0.007868	6.87	685.99	121.58	0.51
Reach-1	15.705	PF 3 25-Yr	5850.00	267.90	281.11	278.94	282.04	0.009421	7.77	753.32	124.50	0.56
Reach-1	15.705	PF 4 50-Yr	6750.00	267.90	281.52	279.39	282.61	0.010489	8.38	805.13	126.73	0.59
Reach-1	15.705	PF 5 100-Yr	7650.00	267.90	281.93	279.83	283.16	0.011381	8.92	857.44	128.95	0.61
Reach-1	15.705	PF 6 500-Yr	12800.00	267.90	286.28	281.98	286.41	0.001250	3.80	5030.19	1483.54	0.21
Reach-1	15.71	PF 1 2-Yr	2600.00	267.30	279.72		279.75	0.000767	2.01	2506.41	993.24	0.14
Reach-1	15.71	PF 2 10-Yr	4710.00	267.30	281.40		281.43	0.000555	2.01	4288.73	1124.52	0.13
Reach-1	15.71	PF 3 25-Yr	5850.00	267.30	282.17		282.20	0.000499	2.02	5173.28	1174.37	0.12
Reach-1	15.71	PF 4 50-Yr	6750.00	267.30	282.75		282.78	0.000461	2.03	5864.07	1208.35	0.12
Reach-1	15.71	PF 5 100-Yr	7650.00	267.30	283.32		283.34	0.000428	2.04	6556.37	1241.47	0.12
Reach-1	15.71	PF 6 500-Yr	12800.00	267.30	286.43		286.45	0.000281	1.99	10630.50	1363.99	0.10
Reach-1	16.31	PF 1 2-Yr	2600.00	270.90	282.01		282.04	0.000891	2.22	2657.50	1435.75	0.15
Reach-1	16.31	PF 2 10-Yr	4710.00	270.90	283.19		283.22	0.000792	2.34	4567.03	1751.95	0.15
Reach-1	16.31	PF 3 25-Yr	5850.00	270.90	283.75		283.78	0.000692	2.29	5564.44	1806.21	0.14
Reach-1	16.31	PF 4 50-Yr	6750.00	270.90	284.19		284.21	0.000623	2.25	6366.31	1848.27	0.14
Reach-1	16.31	PF 5 100-Yr	7650.00	270.90	284.63		284.65	0.000560	2.21	7189.87	1890.43	0.13
Reach-1	16.31	PF 6 500-Yr	12800.00	270.90	287.22		287.24	0.000310	1.94	12308.66	2062.42	0.10
Reach-1	16.96	PF 1 2-Yr	2600.00	275.90	285.21		285.23	0.001410	1.89	2310.06	1306.71	0.19
Reach-1	16.96	PF 2 10-Yr	4710.00	275.90	286.07		286.10	0.001337	1.95	3466.33	1385.49	0.19
Reach-1	16.96	PF 3 25-Yr	5850.00	275.90	286.42		286.46	0.001369	2.03	3962.02	1417.92	0.19
Reach-1	16.96	PF 4 50-Yr	6750.00	275.90	286.68		286.72	0.001373	2.07	4337.82	1434.70	0.19
Reach-1	16.96	PF 5 100-Yr	7650.00	275.90	286.95		286.99	0.001351	2.09	4719.41	1448.41	0.19
Reach-1	16.96	PF 6 500-Yr	12800.00	275.90	288.61		288.66	0.000969	2.25	7443.47	1814.46	0.17

HEC-RAS Plan: 600' BG Exp River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	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)	
Reach-1	17.29	PF 1 2-Yr	2600.00	278.40	287.90		287.95	0.002466	2.58	1470.04	667.59	0.25
Reach-1	17.29	PF 2 10-Yr	4710.00	278.40	288.79		288.88	0.002840	3.25	2093.65	725.36	0.28
Reach-1	17.29	PF 3 25-Yr	5850.00	278.40	289.21		289.31	0.002919	3.52	2403.05	751.79	0.29
Reach-1	17.29	PF 4 50-Yr	6750.00	278.40	289.50		289.62	0.002996	3.72	2624.54	769.06	0.30
Reach-1	17.29	PF 5 100-Yr	7650.00	278.40	289.77		289.89	0.003086	3.91	2829.23	784.68	0.30
Reach-1	17.29	PF 6 500-Yr	12800.00	278.40	290.97		291.17	0.003601	4.86	3820.44	857.38	0.34
Reach-1	17.95	PF 1 2-Yr	2600.00	281.90	294.32		294.37	0.001652	2.97	1685.18	698.59	0.21
Reach-1	17.95	PF 2 10-Yr	4710.00	281.90	295.55		295.62	0.001618	3.32	2635.13	822.10	0.22
Reach-1	17.95	PF 3 25-Yr	5850.00	281.90	296.07		296.15	0.001629	3.49	3073.68	873.28	0.22
Reach-1	17.95	PF 4 50-Yr	6750.00	281.90	296.45		296.53	0.001632	3.60	3408.23	909.49	0.22
Reach-1	17.95	PF 5 100-Yr	7650.00	281.90	296.80		296.89	0.001633	3.71	3740.39	948.52	0.22
Reach-1	17.95	PF 6 500-Yr	12800.00	281.90	298.58		298.68	0.001664	4.24	5640.04	1315.33	0.23
Reach-1	18.51	PF 1 2-Yr	1280.00	288.90	298.53		298.57	0.001317	2.37	1050.10	571.03	0.18
Reach-1	18.51	PF 2 10-Yr	2110.00	288.90	299.50		299.54	0.001145	2.48	1777.07	819.45	0.18
Reach-1	18.51	PF 3 25-Yr	2240.00	288.90	299.80		299.83	0.000910	2.28	2026.17	849.60	0.16
Reach-1	18.51	PF 4 50-Yr	2900.00	288.90	300.21		300.25	0.000979	2.47	2388.76	890.49	0.17
Reach-1	18.51	PF 5 100-Yr	3200.00	288.90	300.49		300.53	0.000910	2.45	2637.82	917.51	0.16
Reach-1	18.51	PF 6 500-Yr	5270.00	288.90	302.00		302.04	0.000716	2.47	4141.66	1069.80	0.15
Reach-1	18.511	PF 1 2-Yr	1280.00	288.90	298.54		298.59	0.001301	2.36	1057.97	576.36	0.18
Reach-1	18.511	PF 2 10-Yr	2110.00	288.90	299.51		299.55	0.001128	2.46	1787.00	820.67	0.18
Reach-1	18.511	PF 3 25-Yr	2240.00	288.90	299.81		299.84	0.000901	2.27	2034.29	850.55	0.16
Reach-1	18.511	PF 4 50-Yr	2900.00	288.90	300.22		300.26	0.000968	2.46	2397.87	891.49	0.17
Reach-1	18.511	PF 5 100-Yr	3200.00	288.90	300.50		300.53	0.000901	2.44	2646.54	918.44	0.16
Reach-1	18.511	PF 6 500-Yr	5270.00	288.90	302.01		302.05	0.000712	2.47	4149.60	1070.65	0.15
Reach-1	18.512	PF 1 2-Yr	1280.00	288.90	298.55		298.60	0.001285	2.35	1065.76	581.59	0.18
Reach-1	18.512	PF 2 10-Yr	2110.00	288.90	299.52		299.56	0.001112	2.45	1796.68	821.86	0.18
Reach-1	18.512	PF 3 25-Yr	2240.00	288.90	299.81		299.85	0.000891	2.26	2042.21	851.46	0.16
Reach-1	18.512	PF 4 50-Yr	2900.00	288.90	300.23		300.27	0.000959	2.45	2406.80	892.47	0.17
Reach-1	18.512	PF 5 100-Yr	3200.00	288.90	300.51		300.54	0.000894	2.43	2655.06	919.35	0.16
Reach-1	18.512	PF 6 500-Yr	5270.00	288.90	302.02		302.05	0.000709	2.46	4157.38	1071.49	0.15
Reach-1	18.513	PF 1 2-Yr	1280.00	288.90	298.57		298.61	0.001269	2.34	1073.53	586.77	0.18
Reach-1	18.513	PF 2 10-Yr	2110.00	288.90	299.53		299.57	0.001096	2.44	1806.24	823.04	0.17
Reach-1	18.513	PF 3 25-Yr	2240.00	288.90	299.82		299.86	0.000882	2.25	2050.06	852.36	0.16
Reach-1	18.513	PF 4 50-Yr	2900.00	288.90	300.24		300.28	0.000949	2.44	2415.63	893.44	0.16
Reach-1	18.513	PF 5 100-Yr	3200.00	288.90	300.52		300.55	0.000886	2.42	2663.51	920.25	0.16
Reach-1	18.513	PF 6 500-Yr	5270.00	288.90	302.03		302.06	0.000705	2.46	4165.13	1072.32	0.15
Reach-1	19.05	PF 1 2-Yr	1280.00	298.70	303.39		303.44	0.003012	2.55	886.71	622.35	0.24
Reach-1	19.05	PF 2 10-Yr	2110.00	298.70	304.00		304.06	0.003287	2.95	1297.03	722.12	0.25
Reach-1	19.05	PF 3 25-Yr	2240.00	298.70	303.94		304.02	0.003998	3.23	1257.45	713.11	0.28
Reach-1	19.05	PF 4 50-Yr	2900.00	298.70	304.40		304.48	0.003599	3.28	1595.41	768.66	0.27
Reach-1	19.05	PF 5 100-Yr	3200.00	298.70	304.52		304.60	0.003749	3.41	1689.89	780.97	0.28
Reach-1	19.05	PF 6 500-Yr	5270.00	298.70	305.41		305.51	0.003788	3.84	2424.61	870.79	0.28
Reach-1	19.06	PF 1 2-Yr	1280.00	298.70	303.48		303.52	0.000857	2.30	940.70	636.37	0.21
Reach-1	19.06	PF 2 10-Yr	2110.00	298.70	304.09		304.15	0.000928	2.65	1365.96	737.56	0.22
Reach-1	19.06	PF 3 25-Yr	2240.00	298.70	304.06		304.12	0.001096	2.87	1340.60	731.92	0.24
Reach-1	19.06	PF 4 50-Yr	2900.00	298.70	304.50		304.57	0.001002	2.93	1675.75	779.14	0.24
Reach-1	19.06	PF 5 100-Yr	3200.00	298.70	304.63		304.70	0.001040	3.04	1775.07	791.90	0.24
Reach-1	19.06	PF 6 500-Yr	5270.00	298.70	305.52		305.61	0.001064	3.43	2521.74	881.98	0.25
Reach-1	19.0625		Bridge									
Reach-1	19.065	PF 1 2-Yr	1280.00	298.70	304.35	301.37	304.37	0.000238	1.40	1558.55	763.80	0.11
Reach-1	19.065	PF 2 10-Yr	2110.00	298.70	304.76	302.03	304.78	0.000388	1.89	1875.46	804.60	0.15
Reach-1	19.065	PF 3 25-Yr	2240.00	298.70	304.80	302.20	304.82	0.000417	1.97	1907.93	808.66	0.15
Reach-1	19.065	PF 4 50-Yr	2900.00	298.70	305.04	302.69	305.08	0.000531	2.29	2107.70	833.23	0.18
Reach-1	19.065	PF 5 100-Yr	3200.00	298.70	305.13	302.89	305.18	0.000582	2.43	2188.01	842.91	0.18
Reach-1	19.065	PF 6 500-Yr	5270.00	298.70	305.73	303.49	305.80	0.000876	3.19	2706.87	905.61	0.23
Reach-1	19.07	PF 1 2-Yr	1280.00	298.70	304.36		304.38	0.000322	1.47	1568.75	765.15	0.12
Reach-1	19.07	PF 2 10-Yr	2110.00	298.70	304.78		304.80	0.000524	1.98	1893.01	806.80	0.16
Reach-1	19.07	PF 3 25-Yr	2240.00	298.70	304.82		304.85	0.000563	2.06	1926.88	811.03	0.16
Reach-1	19.07	PF 4 50-Yr	2900.00	298.70	305.07		305.11	0.000713	2.40	2132.59	836.24	0.18
Reach-1	19.07	PF 5 100-Yr	3200.00	298.70	305.17		305.21	0.000781	2.54	2215.64	846.21	0.19
Reach-1	19.07	PF 6 500-Yr	5270.00	298.70	305.78		305.85	0.001171	3.34	2751.86	915.22	0.24

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