Medina County / Community of D'Hanis
Flood Protection Study

Prepared for:
Medina County
Texas Water Development Board

AUGUST 2011

AVO 27663

HALFF

300 East Sonterra, Suite 230
San Antonio, Texas 78258

Halff Associates, Inc.
TBPE Registration Number 312

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EXECUTIVE SUMMARY

Introduction

The purpose of the Medina County - D'Hanis Flood Protection Study is to evaluate the flooding problems in the D'Hanis area within Medina County and develop cost effective flood reduction alternatives considering public safety and welfare. ***Exhibit 1.0*** presents the location of the community of D'Hanis. Historical flooding within the project area, including the recent floods occurring in 2002, 2004, and 2007 has caused road closures and structural damage. Three streams within the D'Hanis area analyzed (from west to east) are: Seco Creek, Parkers Tributary and Parkers Creek. Based on the Flood Insurance Rate Map (FIRM) published by the Federal Emergency Management Agency (FEMA) and dated August 15, 1980, Seco Creek and Parkers Creek have a 100 year (1% annual event) floodplain designated as Zone AE within the community of D'Hanis. ***Exhibit 2.0*** depicts the Flood Insurance Rate Map (FIRM) for the project area.

This project was funded by Medina County and the Texas Water Development Board (TWBD) under the Flood Protection Planning Grant Program (TWDB contract No. 1004831094).

Drainage Analysis

The Flood Protection Study for the D'Hanis area consists of hydrologic and hydraulic analysis reflecting existing watershed conditions and evaluated alternatives to reduce existing flooding conditions. The hydrologic component estimates the peak flows collected in the watershed and the hydraulics component estimates the water surface elevations and floodplain delineation. A summary of the hydrologic and hydraulic analysis procedures and results are as follows.

Hydrologic Analysis

The hydrologic analysis for the D'Hanis area was developed using data obtained from Medina County, United States Geological Survey (USGS), West Gulf River Forecast Center (WGRFC), and Edwards Aquifer Authority (EAA). In addition the United States Army Corps of Engineers (USACE) HEC-HMS and HEC-RAS computer programs were used to calculate and analyze peak flows. The HEC-HMS model was calibrated to reflect the July 21, 2007 storm event for the physical characteristics to simulate the 10-, 25-, 50-, and 100-year storm events.

Hydraulic Analysis

The hydraulic analysis for the D'Hanis area was developed using data obtained from Texas Department of Transportation (TxDOT), USGS, EAA, and field topographic surveys of existing drainage structures and known high water marks. The USACE HEC-RAS computer program was used to simulate the July 21, 2007 storm event water surface elevation and the 10-, 25-, 50-, and 100-year storm events.

Alternatives

In general, the following concepts to reduce flooding considered:

- Stormwater Detention Pond Facility
- Channel Modifications
- Channelization
- Culvert/Bridge Structure Upgrade
- Advanced Flood Warning Systems
- Property Buyouts of single family residential property
- Do Nothing Alternative

Depending on the extents of the study stream, some of the concepts did not apply because of the constructability, benefit-cost analysis results, and/or current use of the area. In addition, a preliminary environmental investigation was conducted with the purpose of determining possible permitting and approval requirements. For this study, three alternatives were evaluated in detail and are summarized as follows:

- **Alternative 1** – This alternative consists of providing a level of protection for the 10-year frequency, which is similar to a June 30th, 2004 storm event. Concepts considered include a flood warning system, two new diversion channels on Parkers Tributary, channel modifications on Seco Creek and Parkers Creek, and channelization on Seco Creek and Parkers Tributary.
- **Alternative 2** – This alternative is similar to Alternative 1 concepts, however the level of protection is for a 25-year frequency which is similar to a July 5th, 2002 storm event. Concepts considered include those mentioned in Alternative 1 with the addition of channelization on Parkers Creek.
- **Alternative 3** – This alternative is similar to Alternative 1 and 2 concepts, however the level of protection is for the 50-year frequency which is similar to a July 21st, 2007 storm

event. Concepts considered include those mentioned in Alternative 1 and 2 with the addition of an additional channel upstream of the relief structure west of Seco Creek.

Section 4 of this report includes a detailed description of each alternative explored as well as the probable construction costs and the benefit cost analysis results. ***Table 11.0*** summarizes the probable construction costs for alternatives considered for each study stream.

Conclusions and Recommendations

The following conclusions can be made from this project:

- D'Hanis has experienced extensive flooding resulting in damage to private property and public infrastructure.
- This drainage study developed hydrologic and hydraulic computer models that were calibrated using July 21, 2007 storm event recorded rainfall data and high water marks.
- The project determined cost effective alternatives to reduce existing flooding conditions considering stormwater detention, channel modifications, culvert/bridge structure upgrades, flood warning system, buyout of single family residential property, and do nothing.
- A comparison of computed model peak flows with recorded USGS flow data indicate that the June 30, 2004 storm event is similar to a 10-year frequency; the July 5, 2002 storm event is similar the 25-year frequency; and the July 21, 2007 storm event is similar to a 50-year frequency.
- Due to the large amount of stormwater runoff, alternatives were designed considering runoff for the 10-, 25-, and 50-year frequency, instead of the 100-year frequency.
- There have been previous discussions that the existing railroad causes flooding in the D'Hanis area. Based on analysis results, the railroad does contribute to the flooding however; it is not the main cause of flooding.
- Proposed alternatives reduced flooding in the areas mainly occupied by existing residential and non-residential structures.
- Three alternatives were evaluated in detail including determining probable construction costs and conducting a benefit cost analysis. The benefit cost analysis considered the benefit value of removing structures out of the floodplain, however, it did not consider impacts to open spaces and areas used for agriculture.
- The proposed alternatives did not consider the purchase of right-of-way or the condemnation of property for project use.

Based on project finding and conclusions, the following recommendations can be made.

- Medina County has a limited source of money that could be used to fund proposed flood reducing alternatives. An effort should be conducted to contact various state and federal agencies regarding the possible funding of proposed projects. This effort should include contacting Union Pacific Railroad, Texas Department of Transportation, Texas Water

Development Board, National Oceanic and Atmospheric Administration, Natural Resources Conservation Service, and the Federal Emergency Management Agency.

- Since the proposed alternatives do not consider the purchase of right-of-way, agreements with property owners impacted with the project should be developed regarding the use of their property. Agreements should also identify future maintenance requirements.
- Alternatives were developed with the idea that they would be implemented in a systematic approach, starting with Alternative 1 and ending with Alternative 3.
- Alternative 1 concept consists of a flood warning system, however, the specific system type or location was not determined as part of this project. A detailed investigation should be conducted to determine the specific flood warning system type, location, how the D'Hanis citizens will be notified, and operation and maintenance requirements.
- Proposed alternative concepts were developed based on a preliminary hydrologic and hydraulic analysis and using data that was available. Detailed engineering designs including topographic surveys and geotechnical evaluations should be conducted prior to construction of proposed projects.

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EXHIBITS

TABLES

1.0 EXISTING CONDITIONS

1.1 Introduction

The purpose of the Medina County - D'Hanis Flood Protection Study is to evaluate the flooding problems in the D'Hanis area within Medina County and develop cost effective flood reduction alternatives considering public safety and welfare. Historical flooding within the project area, including the floods occurring in 2002, 2004, and 2007 has caused road closures and structural damage. Three streams within the D'Hanis area analyzed (from west to east) are: Seco Creek, Parkers Tributary and Parkers Creek. Based on the Flood Insurance Rate Map (FIRM) published by the Federal Emergency Management Agency (FEMA), Seco Creek and Parkers Creek have a 100 year (1% annual event) floodplain designated as Zone AE within the community of D'Hanis.

This project was funded by Medina County and the Texas Water Development Board (TWBD) under the Flood Protection Planning Grant Program (TWDB contract No. 1004831094). Major tasks conducted as part of this project included:

- Project Coordination
- Data Collection
- Topographic Surveys
- Environmental Investigation
- Hydrologic and Hydraulic Analysis
- Public Involvement
- Conceptual Alternative Development
- Economic Analysis
- Development of Recommendations

1.2 Study Area

Medina County is located in farm and ranch country of south-central part of Texas, just west of Bexar County (City of San Antonio). The D'Hanis community is located in the west-central part of Medina County, just west of the City of Hondo. The population of Medina County is approximately 39,000 (2000 census) and D'Hanis population is approximately 700. US Highway 90 and Union Pacific Railroad cross D'Hanis in an east – west direction.

There are three major drainage channels that impact D'Hanis including Seco Creek and two of its tributaries, Parkers Creek and Parkers Tributary. The project study area is shown in ***Exhibit 1.0***. The Seco Creek watershed in the D'Hanis area consists of a drainage area of approximate 218 square miles. The current regulatory Flood Insurance Rate Map published by FEMA, dated August 15, 1980 and located in ***Exhibit 2.0*** shows the streams floodplains designated as *Zone AE* in the D'Hanis area. A *Zone AE* floodplain indicates that the floodplain was delineated using a detailed drainage analysis and base flood elevations were determined. A description of the three streams analyzed in this study is as follows.

1.2.1 Seco Creek

The community of D'Hanis is located within the Seco Creek watershed. At US Highway 90, the drainage area for Seco Creek is approximately 179 square miles. The Seco Creek watershed has two distinct characteristics, the upper portion is a steep juniper covered watershed and the lower portion can be considered as rolling agricultural land. Flow in Seco Creek drains south through the D'Hanis area and eventually outfalls into the Frio River. ***Exhibit 3.0*** depicts the watershed and Sub-basins boundaries. A drainage feature within the Seco Creek watershed includes an Edwards Aquifer Authority facility. This drainage feature is located north of the community of D'Hanis, is known as the "Seco Sinkhole", and serves as a recharge facility into the Edwards Aquifer. Inadvertently the facility provides some flood control for the downstream areas. The Seco Sinkhole is monitored and maintained by the EAA.

Seco Creek is an earthen channel which intersects three drainage crossings within the study area. These crossings from upstream to downstream are: County Road 429, Union Pacific Railroad (UPRR), and US Highway 90. The three crossings listed are all bridges. The limits of the Seco Creek for this study extend from approximately 25,000 feet north of the Union Pacific Railroad crossing to 13,000 feet south of US Highway 90 crossing. The entire length of Seco Creek studied is approximately 66,100 feet or 12.5 miles, and the existing channel consists of only open natural channel sections. Upstream of the crossing at UPRR, 5,000 feet along Seco Creek, there is a diversion channel which was constructed by the Natural Resources Conservation Service (NRCS) or formerly known as the Soil Conservation Service (SCS). West of the crossings of

UPRR and Highway 90, there is a relief structure consisting of a bridge for the UPRR crossing, 11 – 10-ft x 8-ft box culverts for US Highway 90 westbound, and a bridge for US Highway 90 eastbound. Runoff flowing through this relief structure eventually flows into Seco Creek. There are two USGS gages on Seco Creek which are currently active, and were used in this study. USGS gage 08201500 is located at Miller Ranch near Utopia, while USGS 08202700 is located at Rowe Ranch near D'Hanis.

Figure 1.0 – Seco Creek at Hwy 90 Westbound

1.2.2 Parkers Tributary

The Parkers Tributary sub-basin is approximately 1,270 acres (1.98 square miles), and lies between the Seco Creek and Parkers Creek on the eastern portion of the community of D'Hanis. Parkers Tributary collects runoff from rolling agricultural farmland. Flow in Parkers Tributary drains toward the south through the community of D'Hanis where the runoff is forced westward, and eventually outfalls into Seco Creek. Maps published by the USGS depict Parkers Tributary flowing eastward into Parkers Creek, but through field observations and topology, Parkers Tributary currently flows into Seco Creek.

Parkers Tributary is an earthen channel which intersects a total of two crossings within the study area. These crossings from upstream to downstream are UPRR and US Highway 90. The crossing at UPRR is a bridge. While the crossing at US Highway 90 consists of 10 – 6-ft x 5-ft box culverts, 3 – 10-ft x 5-ft box culverts, and 2 – 8-ft x 5-ft box culverts. The limits of the Parkers Tributary study area extend from approximately 12,500 feet north of the UPRR crossing to 3,000 feet south of US Highway 90 crossing. The entire length of Parkers Tributary studied is approximately 17,900 feet or 3.4 miles, and the existing channel consists of only open natural channel sections.

Figure 2.0 – Parkers Tributary at Hwy 90 Eastbound

1.2.3 Parkers Creek

At US Highway 90, the drainage area of Parkers Creek is approximately 27 square miles. Parkers Creek collects runoff from brush and rolling agricultural. Flow in Parkers Creek drains toward the south, east of the community of D'Hanis, and eventually outfalls into Seco Creek. Parkers Creek Dam is located within Parkers Creek sub-basin, north of the community of D'Hanis. Parkers Creek Dam serves as a recharge structure for the EAA and inadvertently also serves as a flood control for the areas downstream. This structure was constructed in the 1970's by the EAA, and is maintained by the EAA.

Parkers Creek is an earthen channel which intersects a total of two crossings within the study area. These crossings from upstream to downstream are UPRR and US Highway 90. Both crossings, UPRR and US Highway 90, are bridges. The limits of the Parkers Creek for this study extend from approximately 17,900 feet north of the UPRR crossing to 16,000 feet south of US Highway 90 crossing. The entire length of Parkers Creek studied is approximately 50,300 feet or 9.5 miles, and the existing channel consists of only open natural channel sections. West of the crossing of Parkers Creek and UPRR and Highway 90, there is a relief structure consisting of a bridge for the UPRR crossing and 6 – 8-ft x 5-ft box culverts for US Highway 90. Runoff crossing this relief structure eventually flows into Parkers Creek.

Figure 3.0 – Parkers Creek at Hwy 90 Eastbound

1.3 Data Collection

The following is a summary of data collected for the Medina County/Community of D'Hanis Flood Protection Study watersheds.

1.3.1 Medina County

Medina County provided property parcel maps and parcels abstracts for the community of D'Hanis obtained from the Medina County Appraisal District. The maps and abstracts were digitized and used as part of the Benefit Cost Analysis (BCA) for the different alternatives.

1.3.2 Edwards Aquifer Authority

The Edwards Aquifer Authority provided the as-built documents for the Seco Creek sinkhole recharge dam and diversion channel and the Parkers Creek recharge dam and reservoir. This data was used to model the drainage features in the hydraulic models.

1.3.3 Federal Emergency Management Agency (FEMA)

A copy of the HEC-2 model output was used in the development of the detail hydraulic models used to map the floodplain published in the Flood Insurance Rate Maps was obtained from FEMA. This data was used as a comparison of the computer models developed for this project.

1.3.4 Texas Department of Transportation, San Antonio District

The TxDOT San Antonio District office located in Hondo, Texas provided copies of construction drawings for the stream crossings (culverts and bridges) in the community of D'Hanis area (US Highway 90 and UPRR). The hydraulic data and bridge class structure plans were utilized to calibrate the existing conditions hydraulic model.

1.4 Site Visits

Several site visits were conducted in the community of D'Hanis area to take measurements of structure crossings, to determine high water mark elevations, and ultimately to verify if the alternatives developed were viably constructible. Parameters documented include roadway deck dimensions, railing, pier dimensions, and culvert types and dimensions. Each location was also documented with a set of digital photographs taken of the channels and the structure faces both upstream and downstream.

1.5 Public Involvement

A total of three public meetings were held to inform the public of the steps being taken to develop the Medina County / Community of D'Hanis Flood Study. The meetings were advertised in the local newspaper (Hondo Anvil Herald) and notices were placed at some of the

D'Hanis commercial establishments. Public meeting agendas, advertisements, sign-in sheets, and PowerPoint presentations are located in ***Appendix E*** within this package.

The **First Public Meeting - Public Project Kick-off Meeting**, took place on September 7, 2010 at the D'Hanis High School cafeteria. Public attendance for the first meeting was attended by 15 people including residents and county officials. Three major topics discussed in the **Public Project Kick-off Meeting:** Funding, Local Support, Study Area and Project Tasks.

The **Second Public Meeting** took place on November 4, 2010 at the D'Hanis High School cafeteria. Public attendance for the second meeting was attended by 29 including residents and county officials. The items presented to the public were as follows: present existing conditions findings, present alternatives being evaluated, and solicit public input. Two property owners expressed concerns of the impacts the alternatives will cause on their property. The concerns involve the impact that channelization will have on their water supply (ground water levels). After the public meeting they met with Medina County officials to express their concerns and submitted a proposal regarding modifications to their properties. ***Appendix F*** contains their written summary of the property owner's concerns and compromise "Seco Creek Flood Restoration Program November 4, 2010 Meeting Discovery Update". To avoid impact to their properties, this projects alternatives proposed in the second public meeting were revised to exclude channelization in the areas of concern. In a design phase of the alternatives, further evaluation of the area is needed to avoid any adverse impact.

The **Third Public Meeting** took place on March 31, 2011 at the D'Hanis High School cafeteria. The meeting was attended by 20 people including residents and county officials. The purpose of this meeting was to present project findings and recommendations. Meeting results indicated that the D'Hanis property owners were receptive to proposed alternatives and previous concerns have been addressed.

2.0 HYDROLOGY & HYDRAULICS

The Flood Protection Study for the D'Hanis area included a hydrologic and hydraulic analysis reflecting existing watershed conditions and evaluated alternatives to reduce existing flooding conditions. The hydrologic component estimates the peak flows collected in the watershed and the hydraulics component estimates the water surface elevations and floodplain delineation. A summary of the hydrologic and hydraulic analysis procedures and results are as follows.

2.1 Hydrologic Analysis

A hydrologic analysis was conducted to estimate the peak discharges of each sub-basin within the Seco Creek watershed. Technical Release 55 (TR55) Urban Hydrology for Small Watersheds published by the United States Department of Agriculture and the Soil Conservation Service was utilized for all sub-basins analyzed. The TR-55 method was used to calculate time of concentration (TC) and lag time based on slope/flow characteristics for sheet flow, shallow concentrated flow and channel flow. The SCS method was used in the hydrological (HEC-HMS) models to develop discharges using curve numbers and lag time. Calibration of the hydrologic model results considered the published USGS gage flow, West Gulf River Forecast Center (WGRFC) gridded precipitation and high water marks for the July 21, 2007 storm event. Two base hydrologic models were created, a July 21, 2007 Storm model and an Existing Conditions model.

The Seco Creek Watershed is subdivided into the Seco Creek, Parkers Creek and Parkers Tributary. Utilizing USGS 5-foot contours, the sub-basin delineations were drawn at the high point boundaries within the watershed and certain strategic areas were also utilized for drainage divides such as highway and stream crossings. The drainage areas for the sub-basins range from 1.81 square miles to 13.61 square miles. Once the drainage area boundary delineations for all sub-basins were developed, the next step was to compute the rain depths and routing. For the July 21, 2007 hydrology model, hourly rainfall data obtained from WGRFC was processed and specified hyetographs were extracted. For the Existing Conditions hydrology model, rainfall depths were computed using the computer program "Depth-Duration Frequency of Precipitation for Texas" by William H. Asquith, which performs the computational procedures documents in Depth-Duration Frequency of Precipitation for Texas 1998. Ten coordinates outlining the project area were extrapolated and the depths were determined for the 10-, 25-, 50-, and 100-year storm events. The USGS Digital Terrain Model (DTM) for the project area was used to create the HEC-RAS routing model, which is used to create the storage-discharge functions inputs using the Modified Puls routing method. The next step was to compute the TC for each sub-basin.

The general definition of time of concentration is the time it takes a drop of water to travel from the uppermost part of the watershed to the lowest point within the watershed. As discussed in the first paragraph of this section, the time of concentration has three different phases, sheet (overland) flow, shallow concentrated flow, and channel flow. All of these phases are dependent on velocity of flow in which the velocities are a function of slope and terrain characteristics and the hydraulic length. Once those velocities have been determined, the travel time associated with each phase is the hydraulic length divided by velocity. The calculation of sheet flow time of concentration used the 2-year 24 hour rainfall of 3.52 inches from Depth-Duration Frequency of Precipitation for Texas, the estimated length of sheet flow, and the estimated slope of the terrain. The calculation of shallow concentrated flow time of concentration used the average velocity calculated using the methodology in the TR55 and the estimated length of the shallow concentrated flow. The calculation of channel flow time of concentration used the velocities extracted from the HEC-RAS routing model and the estimated length of channel flow.
The time of concentration is the summation of these phases:

$$t_c = t_{sheet} + t_{shallow\ concentrated} + t_{channel}.$$

The empirical relationship between lag time and time of concentration is $L = 0.6\ t_c$. The time for travel depends on the type of conveyance, surface type, channel, pipes, etc. The watershed exhibit is located in ***Exhibit 3.0.*** ***Table 1.0*** displays the computations and results for all sub-basin Lag Times for the Existing Conditions model.

In addition, runoff curve numbers were developed using the NRCS Runoff Curve Number method. Soil Survey Geographic (SSURGO) database was obtained from the NRCS and soils data was processed and clipped to the boundaries of the sub-basins. The soil types found in the sub-basins were determined to be hydrologic soil groups A, B, C, D and X as defined by the Hydrologic Soil Category. The sub-basins were further subdivided for each corresponding land use category and soil types within the watershed. Using the land use and soil types for each sub-basin; a weighted Curve Number (CN) was determined for each of the watershed sub-basins. ***Table 2.0*** displays the Land Use summary used in the computations for the hydraulic models.

The Seco Sinkhole recharge dam and diversion channel were modeled as a diversion in HEC-HMS using the Edwards Aquifer Authority's rating curve data for the flow diverted into the sinkhole. The Parkers Creek recharge structure was modeled in HEC-HMS as a reservoir using the As-Built plans obtained from the Edwards Aquifer Authority.

Utilizing the parameters aforementioned (i.e. sub-basins, rainfall, Lag Times, Land Use, Curve Numbers and drainage features), the July 21, 2007 HEC-HMS model was created. This model was calibrated to the July 21, 2007 storm by adjusting the model to a dry antecedent moisture condition (AMC) I to simulate the historical conditions and match the modeled runoff values to the discharge reported by the USGS gages 08201500 and 08202700 located within the Seco Creek Watershed. ***Tables 3.0*** and ***3.1*** summarize the July 21, 2007 storm precipitation within the Seco Creek Watershed. ***Exhibit 4.0*** depicts the hydrologic schematic map and ***Exhibit 5.0*** depicts the total rainfall map for the July 21, 2007 storm.

With the July 21, 2007 hydrological model calibrated, the Existing Conditions hydrological model was then created. Rather than using the WGRFC specified hyetographs, the rain depths for the 10-, 25-, 50- and 100-year frequency storms were used because the WGRFC specified hyetographs are specific to historical rain events. For the Existing Conditions hydrological model the AMC II was used for more conservative peak flows. Analysis of the existing hydrological model of Seco Creek at Highway 90 revealed that the modeled 100-year peak flow without depth-area reduction was very similar to the published 100-year peak flow in the Flood Insurance Study. The implementation of a depth-area reduction in the existing hydrologic model was used to accurately simulate the peak discharge of the 10-, 25-, 50- and 100-year due to the size of the watersheds analyzed. ***Appendix A*** contains the HEC-HMS summary tables for the hydrology models. A comparison of computed flows with USGS recorded data indicate that the flows for the 10-year frequency were similar to those recorded during the June 30, 2004 storm event and flows for the 25-year frequency were similar to those recorded during the July 5, 2002 storm event.

2.2 Hydraulic Analysis

A hydraulic analysis was conducted to estimate the water surface elevations from the July 21, 2007 storm and all frequency storms on the analyzed streams. The geometry for the existing conditions hydraulic model in HEC-RAS was generated using the USGS DTM data for the project area. Field survey, verified by the TxDOT as-built plans, was used to model the hydraulic structures along the railroad, highway, and road crossings.

The Manning's "n" roughness coefficient values for the hydraulic model were obtained by analyzing aerial imagery and field observations. The streams in this study vary from exposed rock to very thick brush through the channel and overbanks. The overbanks in this study vary from natural floodplain conditions to developed areas. The roughness differential was accounted for the conditions mentioned above.

Figure 4.0 – Seco Creek thick brush in channel

Preliminary analysis of the existing conditions steady-state model revealed that Seco Creek and Parkers Creek over-flows into Parkers Tributary during storm events greater than the 10-year storm frequency. The preliminary existing conditions model also revealed that Parkers Tributary was the main source of flooding in D'Hanis for all the storm events due to the over-flow from the adjacent bodies of water and the dynamics of the physical characteristics of Parkers Tributary.

An updated steady-state HEC-RAS model was developed to model the over-flows occurring throughout the D'Hanis area. Due to the complexity of the geometry in the model, a discharge-elevation balance method was used to simulate the peak flow conveyance throughout the main channels and the over-flows.

The existing conditions hydraulic model was then calibrated to surveyed high-water marks and field data from USGS Gage 08202700 recorded during the July 21, 2007 flood event. ***Table 4.0*** summarizes the calibration of the USGS Gage and the surveyed high water marks. ***Exhibits 6.0***, ***6.1*** and ***6.2*** depicts the locations of the Existing Conditions cross sections, ***Exhibit 7.0*** depicts the extents of the July 21, 2007 flood, ***Exhibit 8.0*** depicts the 10-yr existing floodplain, ***Exhibit 9.0*** depicts the 25-yr existing floodplain, ***Exhibit 10.0*** depicts the 50-yr existing floodplain and ***Exhibit 11.0*** depicts the 100-yr existing floodplain. ***Appendix B*** contains the HEC-RAS summary tables for the hydrology models.

3.0 ENVIRONMENTAL PERMITTING

A preliminary investigation was conducted regarding existing environmental, social, and cultural conditions in the study area, and factors were identified that need to be considered for the proposed alternative solutions. Particular attention was paid to the identification of permits that may need to be obtained from governmental regulatory agencies. The proposed alternative solutions could be subject to review by the United States Army Corps of Engineers, the Federal Emergency Management Agency, the United States Fish and Wildlife Service (USFWS), the Texas Commission on Environmental Quality (TCEQ), the United States Fish and Wildlife Service (USFWS) the Texas Parks and Wildlife Department (TPWD), and the Texas Historical Commission (THC).

Under Section 404 of the Clean Water Act (CWA), and Section 10 of the Rivers and Harbors Act of 1899, the Secretary of the Army is responsible for administering a regulatory program that requires permits for the discharge of dredged or fill material into waters of the United States, including wetlands (33 CRF Part 323). Other environmental laws must be addressed in the evaluation of all permit applications, including the Endangered Species Act (ESA) and the National Historic Preservation Act (NHPA). The Secretary operates the CWA regulatory program through USACE.

3.1 Wetlands and Waters of the United States

3.1.1 Jurisdictional Determination

In response to growing potential for degradation of the nation's waters, Congress enacted the Federal Water Pollution Control Act Amendments of 1972 (later amended in 1977). The Act became commonly referred to as the Clean Water Act (CWA) and gave the United States Environmental Protection Agency (EPA) the authority to establish the basic structure for regulating the discharge of pollutants into the waters of the United States. Section 404 of the CWA authorizes the Secretary of the Army to issue permits for the discharge of dredged or fill material into waters of the United States.

The USACE has established a list of criteria within 33 Code of Federal Regulations (CFR) 328 to assist in the identification of "waters of the United States." Per 51 FR 41217, the USACE also has the discretion to determine on a case-by-case basis whether or not a particular waterbody is a "water of the United States." Under 33 CFR 328.3(a) waters of the United States include water features which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce; tidal waters; interstate waters; and impoundments of and wetlands adjacent to otherwise defined waters of the United States. Under 33 CFR 328.3a waters of the U.S. are defined as:

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: which are or could be used by interstate or foreign travelers for recreational or other purposes; from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or, which are used or could be used for industrial purpose by industries in interstate commerce;
4. All impoundments of waters otherwise defined as waters of the U.S. under the definition;
5. Tributaries of waters referenced in (1) through (4);
6. Territorial seas; and
7. Wetlands adjacent to waters (other than waters that are themselves wetlands) referenced in (1) through (6). Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA (other than cooling ponds as defined in 40 CFR 123.11(m) that meet the criteria of this definition) are not waters of the U.S.

Waters of the U.S. do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with the Environmental Protection Agency (EPA).

In 2006, the U.S. Supreme Court cases of *Rapanos v. United States* and *Carabell v. United States* added new standards for determining jurisdiction. First, all waters deemed a traditional navigable water (TNW) of the U.S. per 33 CFR 328.3a(1) and all wetlands adjacent to TNWs are considered jurisdictional. Second, if the water body is a relatively permanent water (RPW), or if the water body is a wetland that directly abuts a RPW, then it is jurisdictional. Lastly, for all other waters, including wetlands adjacent to RPWs, tributaries that are not RPWs, and the wetlands adjacent to non-RPWs, a basis of jurisdiction would be made depending on whether these features have a significant nexus with a TNW.

Wetlands are those areas which are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Adjacent wetlands are those wetlands separated from other waters of the U.S.by man-made dikes or barriers, natural river berms, beach dunes and the like.

Limits of USACE jurisdiction extend to the ordinary high water mark (OHWM) of the surface tributary system, and adjacent wetlands when present. According to the USACE, the OHWM is properly measured at the line on the shore created by the normal fluctuations of water. It is indicated by physical characteristics such as a natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area. The OHWM is meant to mark the normal high flows within the channel, not the average flood elevation that generally extends beyond the channel.

There are jurisdictional waters of the United States that are subject to USACE permitting requirements within the project area. Seco Creek, Parkers Tributary, and Parkers Creek are all considered to be jurisdictional waters of the United States. A jurisdictional determination will be completed during the design phase of the project to establish the OHWM of these three waterbodies, and identify any additional waters of the United States, including wetlands, are within the project area.

3.1.2 Section 404 Permitting Responsibilities

All three project alternatives would impact Seco Creek, Parkers Tributary, and Parkers Creek below the ordinary high water mark (OHWM). There is not a nationwide permit (NWP) to authorize the proposed activities. NWP 43 (Stormwater Management Facilities) does not authorize discharges of dredged or fill materials for the construction of new stormwater management facilities in perennial streams. An individual permit (IP) would be required for the proposed project.

Processing IPs involves three steps: pre-application consultation (for larger projects), formal permit application review, and decision-making. Pre-application consultation usually involves one or several meetings between an applicant, USACE staff, interested resource agencies (federal, state, or local), and sometimes the interested public. The basic purpose of such meetings is to provide for informal discussions about the pros and cons of a proposal relative to its effects on the aquatic environment while the applicant is still in the planning process. The process allows for a consideration of potentially less environmentally damaging alternatives available to accomplish the project purpose, to discuss measures for reducing the impacts of the project, and to inform the applicant of the factors the USACE must consider in its decision-making process.

Once a complete IP application is received, the formal review process begins. The USACE project manager prepares a public notice (if required), evaluates the impacts of the project and considers all comments received, addresses potential modifications to the project if appropriate, and drafts or oversees drafting of appropriate documentation to support a recommended permit decision. The permit decision document includes a discussion of the environmental impacts of the project, the findings of the public interest review process, and any special evaluation required by the type of activity such as determinations of compliance with the Section 404(b)(1) Guidelines.

Under Section 401 of CWA, certification of compliance with state water quality standards by the State Water Quality Agency is required for any discharge of pollutants into waters of the United States. Section 401 water quality certification is conducted by TCEQ. All Section 404 individual or nationwide permits require Section 401 water quality certification.

The TCEQ and the USACE have developed a tiered system of review for all Section 404 permit applications based on project size and the area of waters in the state affected. Generally, for small projects (Tier I) that affect less than three-acres of waters in the state, or less than 1,500 linear-feet of streams, the TCEQ has determined that incorporating certain best management practices and other requirements into the project will sufficiently address the likelihood that water quality will remain at the desired level. Any project that does not qualify for a Tier I review or for which the applicant elects not to incorporate Tier I criteria or prefers to use alternatives will be considered a Tier II project. Tier II projects are subject to a certification review by TCEQ. It is anticipated that the proposed project would be classified as a TCEQ Tier II project.

Based on the USACE Fort Worth District, Checklist for Application for Individual Department of the Army Permits (March 2003), the following is a summary of the items that applicants are required to provide for a complete individual permit application:

1. Application submitted on ENG Form 4345.
2. The applicable statutory authority or authorities (Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act of 1899, and/or Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972).
3. The name and address of the applicant.
4. The signature of the applicant, and authorized agent, if applicable. If an agent is involved, the applicant must sign an authorization for the agent to act on behalf of the applicant.
5. The purpose and need for the proposed activity.
6. The location of the proposed activity.
7. A complete description of the proposed activity, its intended purpose and use, including necessary drawings, sketches, or plans necessary for public notice on 8.5 x 11-inch sheets. The application must include sufficient information concerning the nature of the activity to generate meaningful comments. The application must include all activities the applicant plans to undertake that are reasonably related to the project (examples: coffer dams, borrow and disposal sites, access roads, equipment ramps, dredging, etc.). The application must include a description of the type of structures, if any, to be erected on fills or pile or float-supported platforms, and a description of the type, composition, and quantity of material to be discharged.
8. Plan and cross-section/elevation/profile drawings showing the general and specific site location and character of all proposed activities, including the size relationship of the proposed structures to the size of the impacted waterway and depth of water in the area.
9. For activities involving dredging in navigable waters of the United States, a description of the type, composition, and quantity of the material to be dredged, the method of dredging, and the site and plans for disposal of the dredged material.
10. For activities involving the discharge of dredged or fill material into waters of the United States, the source of the material; the purpose of the discharge; a description of the type, composition, and quantity of the material; the method of transportation of the material; and the location of the disposal site.

11. For activities involving the construction of an impoundment structure, a documentation that the structure complies with established state dam safety criteria or that the structure has been designed by qualified persons and, in appropriate cases, independently reviewed (and modified as review would indicate) by similarly qualified persons.
12. Any other available information that may assist interested parties in evaluating the likely impact of the proposed activity on factors affecting the public interest.
13. Location and dimensions of adjacent structures.
14. Project schedule.
15. Names and addresses of adjoining property owners.
16. List of authorizations required by other federal, interstate, state, or local agencies for the work, including approvals or denials already received (water quality, endangered species, etc.).
17. Jurisdictional determination.

3.1.3 Compensatory Mitigation

A fundamental precept of the Regulatory Program is the Department of the Army's mitigation policy (33 CFR Part 320.4 (r)), which applies to all Regulatory Program authorizations, including general permits. When the USACE reviews a project that would require Department of the Army authorization, its evaluation typically includes a determination of whether the applicant has taken sufficient measures to mitigate the project's likely adverse impact on the aquatic ecosystem.

In a Memorandum of Agreement (MOA) signed February 6, 1990 between the USACE and the EPA, mitigation was defined as a sequential process of avoiding, minimizing, and compensating for adverse impacts to the aquatic ecosystem.

- Avoid: Take all appropriate and practicable measures to avoid those adverse impacts to the aquatic ecosystem that are not necessary.
- Minimize: Take all appropriate and practicable measures to minimize those adverse impacts to the aquatic ecosystem that cannot reasonably be avoided.
- Compensate: Implement appropriate and practicable measures to compensate for adverse project impacts to the aquatic ecosystem that cannot reasonably be avoided or further minimized. This step is also referred to as compensatory mitigation. The purpose of compensatory mitigation is to replace those aquatic ecosystem functions that would be lost or impaired as a result of a USACE-authorized activity.

The District Engineer will normally require the implementation of all appropriate and practicable compensation as a condition of the Department of the Army authorization. Compensatory mitigation is required at minimum 1:1 ratio (acres mitigated: acres impacted) for all wetland impacts requiring a preconstruction notification for a nationwide permit unless it has been waived (determined on a case-by-case basis).

Regulatory Guidance Letter 02-2 applies to all compensatory mitigation proposals associated with permit applications submitted for approval after December 24, 2002. USACE Districts will use watershed and ecosystem approaches when determining compensatory mitigation requirements; consider the resource needs of the watersheds where the impacts will occur; and also consider the resource needs of neighboring watersheds. Mitigation and the Section 404 Regulatory Program (Draft - dated May 28, 2002) is a paper developed by the Fort Worth District that provides a description of the sequential process of mitigation, definitions of types of mitigation, mitigation options, and a checklist for the development of a mitigation plan.

The USACE and EPA proposed in the Federal Register on Tuesday, March 28, 2006, to revise regulations governing compensatory mitigation for activities authorized by permits issued by the Department of Army (33 CFR Parts 325 and 332 and 40 CFR Part 230). The proposed regulations are intended to establish performance standards and criteria for compensatory mitigation. The proposed regulations include a watershed approach to improve water quality and success of compensatory mitigation projects replacing losses of aquatic resource functions, services, and values resulting from activities authorized by Department of Army permits. The proposed mitigation regulations have not yet been finalized.

Mitigation banking is the restoration, enhancement, creation, and, in exceptional circumstances, preservation undertaken to compensate in advance for adverse impacts to the aquatic ecosystem. Mitigation banking may be appropriate when compensatory mitigation cannot be practicably achieved or would not be as environmentally beneficial at the impact site or a nearby site. The USACE, EPA, National Resources Conservation Service, United States Fish and Wildlife Service, and National Marine Fisheries Service Federal Mitigation Banking Final Policy (Federal Register: November 28, 1995 (Volume 60, Number 228)) guidance regarding the establishment, use, and operation of mitigation banks for the purpose of providing compensation for adverse impacts to wetlands and other aquatic resources is provided to clarify the manner in which mitigation banks may be used to satisfy mitigation requirements of the CWA Section 404 permit program and the wetland conservation provisions of the Food Security Act (FSA) (i.e., ``Swampbuster'' provisions). Recognizing the potential benefits mitigation banking offers for streamlining the permit evaluation process and providing more effective mitigation for authorized impacts to wetlands, the agencies encourage the establishment and appropriate use of mitigation banks in the Section 404 and "Swampbuster" programs.

Mitigation Banking in the Fort Worth District (dated December 23, 2008) describes the current status of mitigation banking in the Fort Worth District and other USACE districts in Texas. There are a number of mitigation banks operating in the Fort Worth District.

The benefits of the flood control project are expected to equally benefit the residents in the D'Hanis area.

3.2 Floodplains

According to the FEMA Flood Insurance Rate Map (FIRM) Number 4804720200 B, dated August 15, 1980; the proposed project recommendations could impact the 100-year floodplain. Modifications to the 100-year floodplain would have to be coordinated with the local floodplain administrator (Medina County) once a project design alternative is selected. Prior to construction, a request for a Conditional Letter of Map Revision (CLOMR) would be submitted to FEMA describing the proposed changes to the 100-year floodplain. To officially change the 100-year floodplain, after the project has been constructed a Letter of Map Revision (LOMR) would be submitted to FEMA.

During the CLOMR process, FEMA requires a response from the USFWS that the Service concurs that the project is in compliance under the Endangered Species Act (ESA). A letter will be submitted to the USFWS, with a description of the project, a map, and a justified determination effect. The USFWS response will be submitted to FEMA.

3.3 Threatened and Endangered Species

The ESA declares the intention of the Congress to conserve threatened and endangered species and the ecosystems on which those species depend. The ESA requires that federal agencies, in consultation with USFWS, use their authorities in furtherance of its purposes by carrying out programs for the conservation of endangered or threatened species, and by taking such action necessary to ensure that any action authorized, funded, or carried out by the Agency is not likely to jeopardize the continued existence of such endangered or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary of the Interior or Commerce, as appropriate, to be critical.

If a proposed project includes the discharge of dredged or fill material into waters of the United States, and/or work in, or affecting, a navigable water of the United States, and if federally-listed threatened or endangered species, or its critical habitat, may be affected by the proposed activity, then USACE must consult with the appropriate federal agency. USACE must consider all the direct and indirect impacts of the proposed project on the federally-listed species or its critical habitat. For the purpose of evaluating Department of the Army applications, the scope of analysis under the ESA is the permit area, which includes all waters of the United States affected by activities associated with the project, as well as any additional area of non-waters of the United States in the immediate vicinity of, directly associated with, and/or affected by, activities in waters of the United States where there is sufficient federal control and responsibility.

USACE IP applications should provide information to USACE that addresses whether proposed project may affect federally listed endangered or threatened species. There are 32 protected species within Medina County listed as endangered, threatened, or rare by the USFWS and the TPWD. Based on the habitat descriptions, there is potential for suitable habitat for several of the listed species. Prior to the permitting project the proposed project area will be surveyed for the listed species habitat by qualified wildlife biologists. The presence of suitable habitat for a threatened or endangered species is not necessarily indicative that the species will be present, however, if suitable habitat for a particular species is recognized, a survey for those species should be conducted prior to construction.

3.4 Historical and Archeological Sites

3.4.1 Historical Resources

Section 106 of NHPA requires a federal agency with jurisdiction over a federal, federally assisted, or federally licensed undertaking to take into account the effects of the agency's undertakings on properties included in, or eligible for listing in the National Register of Historic Places. The National Register of Historic Places (NRHP) is a register of historic and prehistoric sites, buildings, districts, structures, and objects significant in American history, architecture, archeology, engineering, and culture that is maintained by the Secretary of the Interior. Sites that are prehistoric (prior to 1542 in the United States) or are historic are eligible for listing in the NRHP.

Section 106 and its implementing regulations, 36 CFR Part 800: Protection of Historic Properties, effective January 11, 2001, also require that federal agencies consult with federally recognized Native American tribes in all phases of the Section 106 process when an agency undertaking may have the potential to affect Native American historic properties on or off tribal lands.

36 CFR 800 Appendix A sets forth the criteria that will be used by the Advisory Council on Historic Preservation to determine whether to begin a Section 106 review. The Advisory Council on Historic Preservation may choose to exercise its authorities under Section 106 of the NHPA to participate in an individual project. The Advisory Council on Historic Preservation is likely to enter the Section 106 process when an undertaking has substantial impacts on important historic properties; presents important questions of policy or interpretation; has the potential for presenting procedural problems; and presents issues of concern to Indian tribes or Native Hawaiian organizations.

The lead federal agency must afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on undertakings on properties included in or eligible for listing in the NRHP. The Advisory Council on Historic Preservation is an independent federal agency charged with advising the President and Congress on historic preservation matters and administering the provisions of Section 106 of the NHPA. The State Historic Preservation Officer (SHPO) is an official appointed by the Governor to administer the state historic preservation program. The SHPO consults and assists federal agencies in identifying historic properties, assessing effect upon them and considering alternatives to avoid or reduce those effects.

USACE Individual Permit applications are reviewed on a case-by-case basis by the USACE for potential effects to prehistoric or historic properties. Permit applicants should provide information to USACE that addresses whether proposed project may affect historic properties listed, determined to be eligible, or which the prospective permittee has reason to believe may be eligible for listing, in the NHRP.

For activities that may affect historic properties listed in, or eligible for listing in, the NRHP, then the notification must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property as well as any other information required by the general permit. Determinations for eligibility for listing in the NRHP are made USACE and the SHPO. In cases of disagreements between USACE and the SHPO, the National Park Service (NPS) has the final decision. All sites are potentially eligible and retain legal protection under Section 106 until it is determined otherwise. Permittees may not begin work until notified by USACE that the requirements of the Section 106 of the NHPA and 33 CFR Part 325, Appendix C have been satisfied and that the activity is authorized.

In addition to federal laws, the Antiquities Code of Texas requires that the THC staff review any action that has the potential to disturb historic sites on public land. Actions that need review under the Antiquities Code of Texas include any construction program that takes place on land owned or controlled by a state agency or a state political subdivision, such as a city or a county. Because the proposed activities may involve construction on land owned by a public agency, the Antiquities Code applies. All cultural resources, historic and prehistoric, on public land are protected by the Code.

The THC online Texas Historical Sites Atlas was searched to identify known historic properties. No previously recorded historic properties in or immediately adjacent to the study area for any proposed alternative were identified. An examination of historic aerial maps was also made to determine the presence of historic-age properties within the study areas for the proposed alternatives, with "historic-age" being defined as fifty years of age or older. A windshield survey of the study areas for each alternative was conducted by a historian meeting the Secretary of the Interior's Qualification Standards for Historian and Architectural Historian (36 CFR Part 61) on August 26 and 27, 2008. Particular attention was paid during field investigation to an identification of historic-age irrigation systems, and to an evaluation of the historic significance and integrity of those systems. The results of the historic resources investigation are that no historic-age resources eligible for listing on the NRHP were identified in the study area for any proposed alternative. Since the last survey was conducted in 2008, an additional site survey is recommended during the permitting phase of this project to confirm that no historic-age-resources are within the study area.

3.4.2 Archeological Sites

Significant archeological sites are protected by the NHPA, in the case of federal permits, licenses, or funds, and by the Texas Antiquities Code for sites on lands belonging to or under the jurisdiction of the State of Texas or any subdivision thereof. Based on the excavation proposed with all three alternatives, an archeological survey should be conducted during the permitting phase of this project. The first step to conducting an archeological survey is to obtain a Texas Antiquities Permit from the THC. The permit should be acquired with adequate time for conducting the survey and any testing or other required work prior to construction.

3.5 Stormwater Issues

The Texas Surface Water Quality Standards are established by TCEQ. These standards protect surface water use and include measurements to assure water quality is maintained for that use. TCEQ periodically tests water quality to determine which water bodies meet set use standards established in Sections 303(d) and 305(b) of CWA.

To minimize impacts to water quality during construction, the proposed project would utilize temporary erosion and sedimentation control practices (i.e. silt fence, rock berm, and/or drainage swales). Where appropriate, these temporary erosion and sedimentation control structures would be in place prior to the initiation of construction and would be maintained throughout the duration of construction. Clearing of vegetation would be limited and/or phased to maintain a natural water quality buffer and minimize the amount of erodible earth exposed at any one time. Upon completion of earthwork operations, disturbed areas would be restored and reseeded.

The contractor would take appropriate measures to prevent, minimize, and control the spilling of fuels, lubricants, and hazardous materials in the construction staging area. All spills, including those of less than 25 gallons shall be cleaned immediately and any contaminated soil shall be immediately removed from the site and be disposed of properly. Designated areas shall be identified for spoil disposal and materials storage. These areas shall be protected from stormwater runoff. Materials resulting from the destruction of existing roads and structures shall be stored in these designated areas. All materials being removed and/or disposed of by the contractor would be done so in accordance to state and federal laws and by the approval of the Project Engineer. Any changes to ambient water quality during construction of the proposed project shall be prohibited and may result in additional water quality control measures, shall be mitigated as soon as possible, and shall be reported to TCEQ within 24 hours of becoming aware of impacts. The contractor would practice "good housekeeping" measures, as well as "grade management" techniques, to help ensure that proper precautions are in place throughout construction of the proposed project. There are no public water supply intakes within the project limits or adjacent areas. No adverse effects are expected to aquatic resources as a result of the proposed project.

3.6 Texas Pollutant Discharge Elimination System

Because this project would disturb more than one acre, the contractor would be required to comply with the TCEQ Texas Pollutant Discharge Elimination System (TPDES) General Permit for Construction Activity. The project would disturb more than five acres; therefore, a Notice of Intent (NOI) would be filed to comply with TCEQ stating that the project would have a Storm Water Pollution Prevention Plan (SWPPP) in place during construction of the proposed project. This SWPPP would utilize temporary control measures. No permanent water quality impacts are expected as a result of the proposed project.

3.7 Hazardous Material Sites

A preliminary investigation was conducted to identify sites within the project study area that could be sources of environmental contamination by hazardous waste or petroleum products during construction of proposed structural alternatives. The scope of the investigation consisted of the following tasks:

- Review of maps, aerial photographs, and available historical maps to establish current and former land use in the vicinity of each proposed alternative;
- Review of regulatory agency listings of sites within the study area for each alternative using a consultant database service;
- Field reconnaissance by a qualified environmental professional, as defined by ASTM International Standard E1527-05, on August 26 and 27, 2008, to confirm and/or supplement information pertaining to the types of land use in the study area of each

alternative, and to visually observe the periphery of the project limits and sites located within the project limits for possible concerns.

The results of the regulatory review disclosed one site. The site is recorded as an approximately 1-acre landfill located on the west bank of Seco Creek, on the east side of Rodriquez Street, consisting of old oil drums and plastic, reported in 1992. This site, which could not be positively identified during site investigation, would require additional investigation during the permitting phase of this project to determine its effect on the project. There are no other sites of environmental concern for hazardous material or petroleum product contamination that may be encountered during construction.

3.8 Socio-Economic Impacts

The project would benefit the residents in the D'Hanis area by implementing flood control within the watershed. The three alternatives are not anticipated to have any adverse or disproportionate impacts on minority-or low income populations.

4.0 ALTERNATIVE CONSIDERATION

4.1 Alternative Concepts

In general, there were seven flood reduction concepts considered for this project. Depending on the extents of the study stream, some of these concepts did not apply because of available space, economic reasons and current conditions (existing flooding problems). The following are the list of concepts that were considered:

- **Stormwater Detention Pond Facilities**
- **Channel Modifications**
- **Channelization**
- **Culvert / Bridge Structure Upgrade**
- **Flood Warning System**
- **Property Buyouts of Single Family Residential Property**
- **Do Nothing Alternative**

Stormwater Detention Pond Facilities The purpose of a stormwater detention pond is to collect stormwater runoff, temporarily detain, and then release the flow at a slower rate. This process will typically reduce downstream flooding conditions. The strategic location for a stormwater detention pond are areas where the natural terrain maximizes storm water flow catchment, empty vacant land to minimize construction and right-of-way acquisition costs, and areas where minimizing downstream impacts are of great significance. For the D'Hanis area, ideal locations for a proposed stormwater detention facility would be located within Seco Creek and upstream of D'Hanis.

Channel Modifications were explored in areas where the growth of the brush was obstructing the conveyance of flow in the stream. This concept consists of modifying the channel by removing the brush within the lower channel banks of the streams. Removal of brush will typically allow more channel conveyance and lower water surface elevations. For this project, there are many stream reaches on Seco and Parkers Creeks where this concept could be applied.

Channelization was explored for streams where the existing terrain allowed for enough grade and horizontal space to construct a new channel. The concept of channelization considers the construction of a new channel to convey flow. The limits of channelization were restricted to areas where open space is available.

Culvert/Bridge Structure Upgrade was taken into account at drainage crossings where modifications could potential result with a reduction in flooding. For this project, upgrades considered generally of excavating areas under the existing crossing. Within the project study area, TxDOT and UPRR have drainage crossings that could possibly be modified or upgraded.

Advanced Flood Warning System is equipment that can detect weather changes and stream elevations, act as a standalone data system and have the capability of sending a warning signal downstream of a possible flood. For this project, a flood warning system could be placed upstream of D'Hanis and during a flooding event; data could be sent to Medina County's emergency management and/or tied to the existing 911 system.

Property Buyouts of Single Family Residential Property concept includes the purchase of single family residential structures that are located within the existing 100-year floodplain. Cost associated with property buyouts includes the purchase of the property, demolition and removal of the structures and assistance to relocate the residence. In order for this concept to work requires that areas that are comparable in type and value are available for the displaced property owner to move. After a structure is removed, the property must remain vacant (no new structures). The property could be used as a green space.

Do Nothing concept is a solution where economical, political or unfeasible factors play a role. Those areas where the benefit/cost ratio is low, surrounding structures are minimal, flooded area covers empty, non developed land, are areas where the do nothing (no-action) concept would be a suggested option.

4.2 Additional Considerations

Development of alternatives to reduce flooding also considered the following, listed in no particular order of importance.

- **Areas of Existing Development** - The purpose of this project was to develop alternatives that reduce flooding considering public safety and welfare. Alternatives were focused for areas of existing development including the residential and commercial structures located in D'Hanis.

- **Level of Protection & Cost** – Criteria used to design flood control facilities are usually associated with a specific storm frequency, such as the 25 or the 100-year frequency. The greater the frequency usually results with more costs. Due to the large amount of flow and potential cost associated with a 100-year frequency, a decision was made low frequency storm events should be used as criteria to determine alternatives.

- **Benefit Cost** – There are many ideas regarding what is the best alternative to reduce flooding. Proposed alternatives should consider the cost to construct the project and the resulting benefit. For this project the benefit should consider the value of the property removed from the floodplain due to implementation of the alternative.

- **Agreements with Property Owners and Agencies** – The right-of-way required for the construction of flood control facilities can either be purchased or an easement established. Due to cost associated to purchase of right-of-way, a decision was made that right-of-way would not be proposed for purchase. Instead, agreements will be made with existing property owners. The agreements should allow for continue use of the property by the owner, not allow the placement of a structure in the area, and identify operation and maintenance requirements.

- **Flood Warning System** - The D'Hanis area has an unofficial flood warning system. During heavy rainfall flooding events, there are some property owners located upstream of D'Hanis that will call some residents in D'Hanis and notify them that it is flooding upstream and to expect flooding in D'Hanis. This process is adequate as long as the upstream property owners are available to observe the upstream flooding and downstream property owners can receive this information.

- **Roadway and Railroad Drainage Crossings** – The Texas Department of Transportation and Union Pacific Railroad have drainage crossings that are located in D'Hanis. Detailed information regarding their crossings should be considered as preliminary at this time. Prior to implementation of proposed changes to their structures will require contacting each entity regarding the possibility of modifications. In addition, detailed design / construction information should be obtained for each crossing to verify that proposed modification is constructible and economical feasible.

- **Impacts to Other Areas** – Proposed flood reducing alternatives were evaluated for the D'Hanis area. Any changes or modifications in a specific area can not cause adverse impacts (increase flooding conditions) in other areas of the watershed.

- **Railroad** – The railroad had been an important part for Medina County and D'Hanis and has existed for many years. As part of Union Pacific Railroad maintenance procedures, it has been reported that UPRR will come in and "raise the railroad", which impacts existing flooding conditions. Based on hydraulic analysis results conducted as part of this project, it was determined that the railroad does impact flooding conditions; however, it is not the main cause.

- **Public Comments** – Implementation of any changes should be accepted by the general public, in particular those that will be impacted by the change. Development of alternatives considered comments obtained during three public meetings conducted as part of this project.
- **Environmental Requirements** – Development of alternatives need to consider environmental, social, and cultural conditions and factors including permits and approvals from various agencies such as USACE, FEMA, TCEQ, USFWS, TPWD, and the THC (see Section 3 of this report).

4.3 Alternatives

In general, the previous described alternative concepts and considerations were explored for the community of D'Hanis Area. After conducting preliminary evaluations it was determined that stormwater detention facilities and buyout concepts would not be used for this project. The stormwater detention concept was not proposed due to the potential amount of required right-of-way and cost to acquire the right-of-way. Buyouts were explored, however, due to no viable locations in which displaced property owners could move, this concept was not incorporated into the alternatives. In addition, public comments regarding the buyout concept were not favored by the public.

In the analysis of the alternatives, it was found that a combination of the following concepts were the best solution: channel modification, channelization and cost / level of protection. The D'Hanis area has had several severe flooding events and after the study of the history of the community, it was decided to take an approach where the alternatives build up into a solution which could be achieved over time. Since the largest flooding recently is the flood of July 21, 2007, this storm event was chosen as the target event for the ultimate alternative. The July 21, 2007 flood was found to be equivalent to that of a frequency 50-year storm event.

For this project, three alternatives were developed and designed for the 10-year frequency (Alternative 1), 25-year frequency (Alternative 2) and the 50-year frequency (Alternative 3).

A hydrologic and hydraulic model was created for each alternative. The hydraulic models were calibrated in the same manner as the Existing Conditions hydraulic model, by using a discharge-elevation balance method. The alternative storage discharge functions from the HEC-RAS models were exported to create the alternative hydrologic (HEC-HMS) models. This was done to ensure that there were no adverse impacts downstream due to the reduction of storage and the change in timing that can be caused by channelization. ***Tables 1.1*, *1.2*** and ***1.3*** summarize the time of concentration for the alternatives. Refer to ***Appendix A*** and ***B*** for the hydrology and hydraulic outputs. Refer to ***Appendix C*** for the HEC-RAS profiles of the existing conditions and alternative hydraulic models.

The alternatives proposed are described below.

4.3.1 Alternative 1

Alternative 1 was developed to address a level of protection for the 10-year storm event, similar to a June 30th, 2004 flood, which impacted the Community of D'Hanis. During a 10-year storm, the Seco Creek watershed will generate approximately 27,215 cfs of runoff at Seco Creek and US Highway 90. The Parkers Creek watershed will generate approximately 2,988 cfs of runoff at Parkers Creek and US Highway 90, ***Exhibits 12.0***, ***12.1*** and ***12.2*** depict the Alternative 1 hydraulic cross section locations. This alternative consists of two diversion channels on Parkers Tributary, channelization on Parkers Tributary, channelization on Seco Creek, and channel modifications to Seco and Parkers Creek. The following are the improvements proposed and shown in ***Exhibits 13.0***, ***14.0*** and ***15.0*** for Alternative 1:

1. A flood warning system is recommended to measure water surface depths on Seco Creek. During flooding events, the system would notify D'Hanis residents regarding the potential flooding conditions. The specific flood warning system type and or location for placement of the system has not been identified at this time.
2. The diversion channels on Parkers Tributary were sized using the Bentley software Flowmaster, and the calculations are located in ***Appendix D***. The upstream diversion channel on Parkers Tributary directs 41%, or 367 cfs for the 10-yr storm, of runoff into Parkers Creek. The upstream diversion channel is a grassed lined trapezoidal channel approximately 725 feet long, with 20:1 (horizontal : vertical) side slopes, a 30 foot bottom width and depths ranging from 3 feet to 6 feet.
3. The downstream diversion channel on Parkers Tributary directs 40%, or 357 cfs for the 10-yr storm, of runoff into the relief structure west of the Parkers Creek and US Highway

90 crossing which flows west of D'Hanis High School. The downstream diversion channel is a grassed lined trapezoidal channel approximately 1,992 feet long, with 20:1 side slopes, a 140 foot bottom width and depths ranging from 2 feet to 8 feet.

4. Downstream of US Highway 90, Parkers tributary is channelized through the residential area and towards the east crossing Farm to Market Road 2200 (FM 2200) and eventually into Parkers Creek. The grassed lined trapezoidal channel crossing through the residential area is approximately 1,200 feet long, with 3:1 side slopes, a 10 foot bottom width and depths ranging from 2 feet to 8 feet. The crossing of this channel and FM 2200 will be composed of a three 48 inch corrugated metal pipe culverts.
5. The channelization west of the D'Hanis High School will be a grassed lined channel approximately 3,700 feet long, side slopes ranging from 20:1 to 40:1, bottom widths ranging from 20 feet to 160 feet and depths ranging from 3 feet to 4 feet.
6. To account for the additional runoff on Parkers Creek, channel modifications are needed from the confluence of the upstream diversion channel and Parkers Creek to the confluence of Parkers Tributary and Parkers Creek. The approximate area for the channel modifications on Parkers Creek is approximately 56 acres.
7. To account for the additional runoff on Parkers Creek, channel modifications are needed from the confluence of the upstream diversion channel and Parkers Creek to the confluence of Parkers Tributary and Parkers Creek. The approximate area for the channel modifications on Parkers Creek is approximately 65 acres.
8. To improve the conveyance on Seco Creek, channel modifications will be needed from County Road 429, to the downstream face of US Highway 90. The approximate right of-way for the channel modifications on Seco Creek is approximately 34 acres.
9. The limits of the channelization on Seco Creek are from the upstream face of the crossing with UPRR to the downstream face of the crossing with US Highway 90, channelizing through the piers of the structure crossings. The grass lined channelization is approximately 336 feet long, with 3:1 side slopes, bottom widths ranging from 400 feet to 462 feet and depths ranging from 15 feet to 17 feet.

Exhibit 16.0 illustrates the Alternative 1 typical improvement cross sections and ***Exhibit 17.0*** depicts the Alternative 1 10-year floodplain map. ***Table 5.0*** depicts the Alternative 1 Peak Discharge and Water Surface Elevations. This Alternative has no adverse impacts either upstream or downstream of the Community of D'Hanis.

4.3.2 Alternative 2

Alternative 2 builds upon Alternative 1, and was developed to address the 25-year storm which is similar to the July 05th, 2002 flood that impacted the community of D'Hanis. During a 25-year frequency storm Seco Creek sub-basins will generate approximately 41,444 cfs of runoff at Seco

Creek and US Highway 90, while Parkers Creek sub-basins will generate approximately 4,240 cfs of runoff at Parkers Creek and US Highway 90. ***Exhibits 18.0, 18.1*** and ***18.2*** depict the Alternative 2 hydraulic cross section locations. The following are the additional improvements proposed and shown in ***Exhibit 19.0*** and ***20.0*** for Alternative 2:

1. To account for the additional runoff of a 25-year storm on Parkers Creek, channelization is needed from the upstream face of the crossing of Parkers Creek and UPRR to the confluence of Parkers Tributary and Parkers Creek. The grassed lined channelization is approximately 8,500 feet long, with 3:1 side slopes, bottom widths ranging from 100 feet to 170 feet and depths ranging from 2 feet to 10 feet.
2. Additional channelization on Seco Creek is also required for the increase in runoff. Channelization limits for Alternative 3 are from approximately 560 feet upstream of the crossing of Seco Creek and UPRR and 620 feet downstream of the crossing of Seco Creek and US Highway 90. The grass lined channelization is approximately 1,350 feet long, with 3:1 side slopes, bottom widths ranging from 234 feet to 462 feet and depths ranging from 10 feet to 17 feet.

Exhibit 21.0 illustrates the Alternative 2 typical improvement cross sections and ***Exhibit 22.0*** depicts the Alternative 2 25-year floodplain map. ***Table 6.0*** depicts the Alternative 2 Peak Discharge and Water Surface Elevations. This Alternative has no adverse impacts either upstream or downstream of the Community of D'Hanis.

4.3.3 Alternative 3

Alternative 3 builds upon to Alternative 1 and Alternative 2. This Alternative was developed to address the 50-year storm which is similar to the July 21th, 2007 flood that impacted the community of D'Hanis. During a 50-year frequency storm Seco Creek sub-basins will generate approximately 55,008 cfs of runoff at Seco Creek and US Highway 90, while Parkers Creek sub-basins will generate approximately 5,401 cfs of runoff at Parkers Creek and US Highway 90. ***Exhibits 23.0***, ***23.1*** and ***23.2*** depict the Alternative 3 hydraulic cross section locations. The improvements on Parkers Creek mentioned in Alternative 2 are sufficient for the increase in discharge due to a frequency 50-year storm event. The following are the additional improvements proposed and shown in ***Exhibit 24.0*** for Alternative 3:

1. Additional channelization on Seco Creek is also required for the increase in runoff. Channelization limits for Alternative 3 are from approximately 560 feet upstream of the crossing of Seco Creek and UPRR and 130 feet downstream of the crossing of Seco

Creek and US Highway 90. The grass lined channelization is approximately 870 feet long, with 3:1 side slopes, bottom widths ranging from 234 feet to 462 feet and depths ranging from 10 feet to 17 feet.

2. The upstream portion of the SCS channel will need to be excavated to allow more runoff to split from Seco Creek. This effort requires a grass lined channel approximately 200 feet long, with 3:1 side slopes, a 130 foot bottom width and an approximate depth of 7 feet.
3. An additional channel, Relief Channel, is need east of Seco Creek to prevent the overflow from reaching the community of D'Hanis. The Relief Channel's limits are from 1,200 feet north of the relief structure of Seco Creek (beginning at County Road 429) to the relief structure. The grassed lined channel is approximately 1,300 feet long, with 3:1 side slopes, bottom widths ranging from 30 feet to 200 feet and a depth of 5 feet.

Exhibit 25.0 illustrates the Alternative 3 typical improvement cross sections and ***Exhibit 26.0*** depicts the Alternative 3 50-year floodplain map. ***Table 7.0*** depicts the Alternative 3 Peak Discharge and Water Surface Elevations. This Alternative has no adverse impacts either upstream or downstream of the Community of D'Hanis.

4.4 Probable Construction Costs

The probable construction costs were determined for each alternative including costs associated with the design and construction of the alternative. Unit cost rates were obtained from TxDOT and City of San Antonio unit cost rate tables. Alternative probable construction costs include the following:

- Construction cost
- Topographic surveys
- Mobilization
- Stormwater Pollution Control
- Traffic control
- Contingencies
- Engineering

Due to the preliminary nature of the study, all excavation computations are based on USGS topographic information, there was no survey topographic information developed for this study. ***Tables 8.0***, ***9.0*** and ***10.0*** contains itemized construction costs tables and ***Table 11.0*** summarizes alternatives probable construction costs.

4.5 Benefit Cost Analysis

A benefit cost analysis was conducted to determine which alternative provides the best benefit considering probable construction cost and the value of properties and structures removed from the floodplain. The benefit portion was based on the current (2010) appraised value for the properties and structures removed from the floodplain as a result of the alternative being implemented. A benefit cost analysis (BCA) ratio was determined by dividing the appraised values of the properties and structures removed by the target storm event by the probable construction cost. For the BCA, the structures flooded were assumed a total loss due to the vertical accuracy of the USGS terrain data of 5 feet. ***Tables 12.0*** summarize the alternative BCA ratio due to implementation of the alternatives for each individual stream. Results indicate that **Alternative 3** has the highest BCA ratios for the community of D'Hanis area. The benefit cost analysis is strictly a tool utilized in determining the best, viable alternative. There could be instances where the highest benefit cost ratio is not necessarily the best solution. The benefit cost analysis did not consider the benefits associated with the potential of future higher property values, water quality, and damages to private and public property other than structures (i.e. residences, commercial buildings, agriculture uses, etc.).

5.0 PERMITS, DESIGN AND CONSTRUCTION PHASING

The following is a summary of the permits that will be required for approval of the proposed Medina County/Community of D'Hanis Flood Protection Study, design and bidding tasks.

5.1 Permits

Implementation of the proposed project will require the acquisition of permits and approvals from various agencies. The permits that are foreseen to be necessary for this project are as follow:

- TCEQ Water Quality Standards: TCEQ water quality standards will be addressed during construction utilizing temporary erosion and sedimentation control practices.
- TCEQ TPDES Permit: Prior to construction, a Notice of Intent (NOI) would need to be filed with the TCEQ to comply with the TPDES General Permit requirements.
- Section 401 Permit (Tier II): An individual Section 401 Certification Review will be required to be filed and reviewed by the TCEQ including a copy of a USACE individual Section 404 permit. This will also include a mitigation plan.
- Section 404 Permit: An individual Section 404 permit would be required to be filed and reviewed by the USACE, EPA, TCEQ, and United States Fish and Wildlife Service.
- Antiquities Permit: An Antiquities Permit from the Texas Historical Commission for any archeological site investigations in areas of disturbance that may contain archeological sites.
- Threatened and Endangered Species: A survey will be conducted to ensure that no known threatened or endangered species are located in or around the project area. Findings would be coordinated with the Texas Parks and Wildlife Department.
- TxDOT Approvals: Modified sections of the project located within TxDOT right-of-way will require coordination and approval from TxDOT.
- FEMA CLOMR and LOMR: Prior to the construction of the project, a request for a CLOMR would be submitted to FEMA. The CLOMR would describe the proposed project and present the revised 100-year floodplain, as compared to the current effective floodplain. After the project has been constructed, a request for a LOMR to change the 100-year floodplain would be submitted to FEMA.
- Medina County: Permits that may be required by Medina County including a floodplain development permit.

5.2 Design and Bidding Phase

Prior to the construction, there are several elements that involve the design and bidding phase and are summarized as follows:

- Preliminary Design Report: Prepare a design report describing the proposed project in more detail then presented in this report. This task will include conducting detailed topographic surveys and a geotechnical evaluation to verify existing soil conditions, water table elevations, and developing recommendations regarding channel bank stabilization.
- Design Drawings: Prepare design drawings of the proposed projects that will be used for construction of the project.
- Construction Specifications: Prepare construction specifications in accordance with all ordinances and criteria set forth Medina County and other agencies.
- Utility Coordination: Contact utility companies that may have facilities that could be impacted by the proposed projects. This effort will include determination how and who will make modifications to utilities, if required.
- Right-of-Way Agreements: Meet with property owners that would be impacted by the proposed project and develop agreements and/or approval to construct the project on the property. This agreement will include maintenance procedures including who, how, and when the project will be maintained.
- Cost Estimates: Prepare the probable construction cost estimate of the proposed modifications.
- Bid Documents: Prepare documents that will be required for contractors to bid the project.
- Project Advertising: Assist the County to advertise the project for construction.
- Bid Evaluation: Evaluate submitted bids, tabulate results, and make determination on awarding the project to a contractor.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

The following conclusions can be made from this project:

- D'Hanis has experienced extensive flooding resulting in damage to private property and public infrastructure.
- This drainage study developed hydrologic and hydraulic computer models that were calibrated using July 21, 2007 storm event recorded rainfall data and high water marks.
- The project determined cost effective alternatives to reduce existing flooding conditions considering stormwater detention, channel modifications, culvert/bridge structure upgrades, flood warning system, buyout of single family residential property, and do nothing.
- A comparison of computed model peak flows with recorded USGS flow data indicate that the June 30, 2004 storm event is similar to a 10-year frequency; the July 5, 2002 storm event is similar the 25-year frequency; and the July 21, 2007 storm event is similar to a 50-year frequency.
- Due to the large amount of stormwater runoff, alternatives were designed considering runoff for the 10-, 25-, and 50-year frequency, instead of the 100-year frequency.
- There have been previous discussions that the existing railroad causes flooding in the D'Hanis area. Based on analysis results, the railroad does contribute to the flooding however; it is not the main cause of flooding.
- Proposed alternatives reduced flooding in the areas mainly occupied by existing residential and non-residential structures.
- Three alternatives were evaluated in detail including determining probable construction costs and conducting a benefit cost analysis. The benefit cost analysis considered the benefit value of removing structures out of the floodplain, however, it did not consider impacts to open spaces and areas used for agriculture.
- The proposed alternatives did not consider the purchase of right-of-way or the condemnation of property for project use.

6.2 Recommendations

Based on project finding and conclusions, the following recommendations can be made.

- Medina County has a limited source of money that could be used to fund proposed flood reducing alternatives. An effort should be conducted to contact various state and federal agencies regarding the possible funding of proposed projects. This effort should include contacting Union Pacific Railroad, Texas Department of Transportation, Texas Water Development Board, National Oceanic and Atmospheric Administration, Natural Resources Conservation Service, and the Federal Emergency Management Agency.

- Since the proposed alternatives do not consider the purchase of right-of-way, agreements with property owners impacted with the project should be developed regarding the use of their property. Agreements should also identify future maintenance requirements.
- Alternatives were developed with the idea that they would be implemented in a systematic approach, starting with Alternative 1 and ending with Alternative 3.
- Alternative 1 concept consists of a flood warning system, however, the specific system type or location was not determined as part of this project. A detailed investigation should be conducted to determine the specific flood warning system type, location, how the D'Hanis citizens will be notified, and operation and maintenance requirements.
- Proposed alternative concepts were developed based on a preliminary hydrologic and hydraulic analysis and using data that was available. Detailed engineering designs including topographic surveys and geotechnical evaluations should be conducted prior to construction of proposed projects.

scan this section

Texas Water Development Board

P.O. Box 13231, 1700 N. Congress Ave.
Austin, TX 78711-3231, www.twdb.state.tx.us
Phone (512) 463-7847, Fax (512) 475-2053

July 19, 2011

The Honorable James Barden
County Judge
Medina County Court House
1100 16th Street, Room 101
Hondo, Texas 78861

RE: Flood Protection Grant between the Texas Water Development Board (TWDB) and Medina County (County), TWDB Contract No. 1004831094, Draft Report Comments

Dear Judge Barden:

Staff members of the TWDB have completed a review of the draft report prepared under the above-referenced contract. ATTACHMENT I provides the comments resulting from this review. As stated in the TWDB contract, the County will consider incorporating draft report comments from the EXECUTIVE ADMINISTRATOR as well as other reviewers into the final report. In addition, the County will include a copy of the EXECUTIVE ADMINISTRATOR'S draft report comments in the Final Report.

The TWDB looks forward to receiving one (1) electronic copy of the entire Final Report in Portable Document Format (PDF) and six (6) bound double-sided copies. The County shall also submit one (1) electronic copy of any computer programs or models, and, if applicable, an operations manual developed under the terms of this Contract.

If you have any questions concerning the contract, please contact Ivan Ortiz, the TWDB's designated Contract Manager for this project at (512) 463-8184.

Sincerely,

Dan Harden

for Carolyn L. Brittin
Deputy Executive Administrator
Water Resources Planning and Information

Enclosures

c: Ivan Ortiz, TWDB

ATTACHMENT

Review of Draft Report for Contract No. 1004831094
Medina County / Community of D'Hanis Flood Protection Study

1. Please conduct a final edit for typos, grammar, inconsistent usage of acronyms, and abbreviations. Some of those noted as examples include, but are not limited to:

   - Section 2.1, second paragraph; citation is made of "National Resource Conservation Service", but should be Natural Resources Conservation Service;
   - Section 2.4.1, page 9; "modified pulse routing method", should be Modified Puls routing method;
   - Section 2.4.1, page 10; SSURGO acronym is used but could not locate where this is defined;
   - Section 2.4.2, page 11; "manning's" should be capitalized, Manning's "n" roughness coefficient values; and
   - Section 3.2, first sentence; seems to be missing a few words.

2. Please consider the following suggestions to improve the general organization of the report:

   - Accepted practice places the Executive Summary as a preface to the report, possibly before the Table of Contents, and not as Section 1, as in the draft report. Please consider moving the Executive Summary, as suggested;
   - Please consider the expansion of Section 1 to include additional introductory remarks such as the need for the study, description of the project area, flooding history of the project area, the study Scope of Work, a summary of the reports organization, etc., using sub-sections as necessary;
   - The information presented in Sections 2.0, 2.1, 2.2, and 2.3 may be more useful as part of the project area description. Please consider incorporating this information into Section 1 and a description of existing conditions. Section 2 would be left with the original Section 2.4 discussion of the hydrologic and hydraulic models, methodology, model calibration, and existing conditions analysis;
   - Section 3.0 provides a discussion of environmental considerations and permitting requirements relative to the proposed flood mitigation alternatives. This information may be helpful as part of the discussion of mitigation alternative development found in Section 5.0. Please consider incorporating information from this section into the evaluation of alternatives provided in Section 5.0;
   - Information presented in Sections 4.1 and 4.2, entitled Site Visits and Data Collection, may be more effective if included as a part of Section 1. Please consider incorporating these sections into the discussions in Section 1;
   - Information presented in Sections 4.3 and 4.4, entitled Alternative Concepts and Additional Discussions, may be more effective if included in Section 5.0,

Alternative Development. Please consider incorporating these sections into the discussions in Section 5.0; and

- Section 5.8, Public Involvement; may be more beneficial as part of Section 1.

3. In Section 2.4.2, page 12; Hydraulic Analysis, reference is made to Exhibits 4.0 and 5.0 (the hydrologic schematic map and the total rainfall map, respectively). Please consider moving the discussion of these exhibits to Section 2.4.1 which describes the hydrologic analysis.

4. Section 2.4.1, last paragraph; states that "rather than using the WGRFC specified hyetographs, the rain depths for the 10-, 25-, 50-, and 100-year frequency storms were used". Please provide a discussion describing why the varying rain depths were used rather than the West Gulf River Forecast Center (WGRFC) specified hyetographs.

5. Section 2.4.2, page 12; uses the term "spills" when discussing flood flows from one stream system into another. Please consider using a term other than "spills" in this section as spill is also used in Section 3.5 in the discussion of pollutant discharges.

6. The study follows standard methodologies and practice utilizing acceptable HEC modeling in the engineering aspects of hydrologic and hydraulic techniques. The hydrologic modeling parameters were determined based on the calculation and engineering judgments for the existing and ultimate conditions. Mitigation alternatives identified by the study are eligible for funding under the Board's financial assistance programs. Application requirements and eligibility criteria is identified by Board rules specified in Section 363 of the Texas Administrative Code. The report would be appropriate for use in support of an application to the Board for financing the proposed improvements. All additional information required by Board rules, 31 TAC 363.401-404, as well as necessary information to make legal findings as required by Texas Water Code Chapter 17.771-776, would be required at the time of loan application.

EXHIBITS

EXHIBITS

TABLES

TABLES

Table 1.0

Existing Conditions
Time of Concentration Summary

EXISTING CONDITIONS															
	SHEET FLOW					SHALLOW CONCENTRATED FLOW					CHANNEL FLOW				
BASIN	LENGTH (ft)	MANNING'S n	SLOPE (ft/ft)	PRECIP. (IN)*	Tc (min)	LENGTH (ft)	SLOPE (ft/ft)	SHALLOW FLOW COVER	VEL (FPS)	Tc (min)	LENGTH (ft)	V (FPS)*	Tc CHANNEL (MIN)	TOTAL Tc (MIN)	TOTAL LAG TIME MIN)
A	287	0.40	0.051	3.52	32.80	1361	0.170	Unpaved	6.7	3.41	14910	2.92	85.20	121	73
B	290	0.40	0.035	3.52	38.36	952	0.038	Unpaved	3.1	5.08	8487 10486	3.25 3.25	43.53 53.77	141	84
C	289	0.40	0.060	3.52	30.84	981	0.020	Unpaved	2.3	7.17	27499	2.74	167.27	205	123
D	256	0.40	0.018	3.52	44.82	3240	0.119	Unpaved	5.6	9.69	13451 829	2.55 2.55	87.92 5.42	148	89
E	299	0.40	0.015	3.52	55.17	1316	0.168	Unpaved	6.6	3.32	12568 957	2.90 2.90	72.23 5.50	136	82
F	285	0.40	0.018	3.52	48.83	1272	0.196	Unpaved	7.1	2.97	26394 176	1.63 1.63	269.88 1.79	323	194
G	152	0.40	0.128	3.52	13.61	1076	0.229	Unpaved	7.7	2.32	22953 12151	6.70 6.70	57.10 30.23	103	62
H	110	0.40	0.193	3.52	8.93	2039	0.131	Unpaved	5.8	5.83	15982	6.70	39.76	55	33
I	182	0.40	0.043	3.52	24.47	1382	0.226	Unpaved	7.7	3.00	20444 487	2.18 2.18	156.30 3.73	187	112
J	144	0.24	0.454	3.52	5.23	800	0.340	Unpaved	9.4	1.42	15069 6413	2.65 3.74	94.78 28.56	130	78
K	169	0.40	0.342	3.52	10.03	3023	0.113	Unpaved	5.4	9.28	5489 19656	4.65 5.80	19.67 56.51	95	57
L	229	0.40	0.054	3.52	26.74	1706	0.043	Unpaved	3.3	8.55	12544 21750	4.38 5.12	47.73 70.77	154	92
L-1	259	0.40	0.256	3.52	15.82	1294	0.211	Unpaved	7.4	2.91	24255	5.79	69.82	89	53
M	187	0.24	0.136	3.52	10.41	1337	0.056	Unpaved	3.8	5.85	23629	7.19	54.74	71	43
M-1	232	0.40	0.086	3.52	22.34	1100	0.345	Unpaved	9.5	1.93	24093	7.57	53.08	77	46
M-2	178	0.40	0.193	3.52	13.12	1082	0.283	Unpaved	8.6	2.10	25684	5.41	79.13	94	57
M-3	234	0.24	0.024	3.52	25.12	1192	0.230	Unpaved	7.7	2.57	21314	3.27	108.63	136	82
N	205	0.40	0.094	3.52	19.59	1661.47	0.0815	Unpaved	4.6	6.01	20078 11649	6.56 6.56	50.99 29.58	106	64
O	229	0.24	0.029	3.52	22.61	1982.44	0.0442	Unpaved	3.4	9.74	26989.21	5.92	76.03	108	65
O-1	181	0.4	0.232	3.52	12.31	3467.85	0.0449	Unpaved	3.4	16.91	28600.45	5.17	92.20	121	73
P	196	0.24	0.015	3.52	26.17	1638.92	0.054	Unpaved	3.7	7.29	20788.08 7758.71	5.52 6.82	62.77 18.97	115	69
Q	145	0.4	0.025	3.52	25.18	1921.71	0.015	Unpaved	2.0	16.21	35867.94 3915.02	8.01 8.01	74.62 8.14	124	74
R	273	0.4	0.006	3.52	76.08	2920.07	0.009	Unpaved	1.5	31.80	26930.78	3.23	138.91	247	148
S	169	0.4	0.015	3.52	35.00	2619.21	0.0076	Unpaved	1.4	31.04	31798.03	4.74	111.72	178	107
T	142	0.4	0.010	3.52	36.49	1713.59	0.0318	Unpaved	2.9	9.93	20948.86 13629	3.76 5.70	92.86 39.85	179	107
U	162	0.24	0.001	3.52	66.46	4503.44	0.0111	Unpaved	1.7	44.15	28350.65	2.64	178.98	290	174
V	286	0.24	0.001	3.52	104.47	10772	0.0142	Unpaved	1.9	93.38	18004.97	3.73	80.45	278	167
W	208	0.24	0.026	3.52	22.01	3615.64	0.025	Unpaved	2.6	23.62	31790.92	4.45	119.07	165	99
X	160	0.24	0.070	3.52	12.04	4689.16	0.01	Unpaved	1.6	48.44	26921.52 1719.91	1.09 2.85	413.54 10.06	484	290
Y	165	0.4	0.004	3.52	61.37	3165.41	0.0105	Unpaved	1.7	31.91	12268.98 9478.53	2.69 1.65	76.02 95.48	265	159
Z	258	0.24	0.004	3.52	55.35	2342	0.0045	Unpaved	1.1	36.06	25596.29	1.52	280.66	372	223
Z1	155	0.24	0.005	3.52	34.54	1196.4	0.009073	Unpaved	1.5	12.97	14187.78	2.29	103.34	151	91
Z2	289	0.24	0.003	3.52	67.92	8451	0.004	Unpaved	1.0	138.03	12440	2.73	75.95	282	169

* Times of concentration shown on this table correspond to the Existing Conditions hydrology model in the Medina County/Community of D'Hanis Flood Protection Study.
* Precipitation value was computed using Asquith Rainfall Prediction. 3.52" is the 2 year 24 hour rainfall.

Table 1.1

Alternative 1
Time of Concentration Summary

EXISTING CONDITIONS															
BASIN	SHEET FLOW					SHALLOW CONCENTRATED FLOW					CHANNEL FLOW			TOTAL TC (MIN)	TOTAL LAG TIME (MIN)
	LENGTH (FT)	MANNING'S N	SLOPE (FT/FT)	PRECIP. (IN)*	TC (MIN)	LENGTH (FT)	SLOPE (FT/FT)	SHALLOW FLOW COVER	VEL (FPS)	TC (MIN)	LENGTH (FT)	V (FPS)*	TC CHANNEL (MIN)		
A	287	0.40	0.051	3.52	32.80	1,361	0.170	Unpaved	6.7	3.41	14,910	2.92	85.20	121	73
B	290	0.40	0.035	3.52	38.36	952	0.038	Unpaved	3.1	5.08	8,487	3.25	43.53	141	84
											10,486	3.25	53.77		
C	289	0.40	0.060	3.52	30.84	981	0.020	Unpaved	2.3	7.17	27,499	2.74	167.27	205	123
D	256	0.40	0.018	3.52	44.82	3,240	0.119	Unpaved	5.6	9.69	13,451	2.55	87.92	148	89
											829	2.55	5.42		
E	299	0.40	0.015	3.52	55.17	1,316	0.168	Unpaved	6.6	3.32	12,568	2.90	72.23	136	82
											957	2.90	5.50		
F	285	0.40	0.018	3.52	48.83	1,272	0.196	Unpaved	7.1	2.97	26,394	1.63	269.88	323	194
											176	1.63	1.79		
G	152	0.40	0.128	3.52	13.61	1,076	0.229	Unpaved	7.7	2.32	22,953	6.70	57.10	103	62
											12,151	6.70	30.23		
H	110	0.40	0.193	3.52	8.93	2,039	0.131	Unpaved	5.8	5.83	15,982	6.70	39.76	55	33
I	182	0.40	0.043	3.52	24.47	1,382	0.226	Unpaved	7.7	3.00	20,444	2.18	156.30	187	112
											487	2.18	3.73		
J	144	0.24	0.454	3.52	5.23	800	0.340	Unpaved	9.4	1.42	15,069	2.65	94.78	130	78
											6,413	3.74	28.56		
K	169	0.40	0.342	3.52	10.03	3,023	0.113	Unpaved	5.4	9.28	5,489	4.65	19.67	95	57
											19,656	5.80	56.51		
L	229	0.40	0.054	3.52	26.74	1,706	0.043	Unpaved	3.3	8.55	12,544	4.38	47.73	154	92
											21,750	5.12	70.77		
L-1	259	0.40	0.256	3.52	15.82	1,294	0.211	Unpaved	7.4	2.91	24,255	5.79	69.82	89	53
M	187	0.24	0.136	3.52	10.41	1,337	0.056	Unpaved	3.8	5.85	23,629	7.19	54.74	71	43
M-1	232	0.40	0.086	3.52	22.34	1,100	0.345	Unpaved	9.5	1.93	24,093	7.57	53.08	77	46
M-2	178	0.40	0.193	3.52	13.12	1,082	0.283	Unpaved	8.6	2.10	25,684	5.41	79.13	94	57
M-3	234	0.24	0.024	3.52	25.12	1,192	0.230	Unpaved	7.7	2.57	21,314	3.27	108.63	136	82
N	205	0.40	0.094	3.52	19.59	1,661	0.082	Unpaved	4.6	6.01	20,078	6.56	50.99	106	64
											11,649	6.56	29.58		
O	229	0.24	0.029	3.52	22.61	1,982	0.044	Unpaved	3.4	9.74	26,989	5.92	76.03	108	65
O-1	181	0.4	0.232	3.52	12.31	3,468	0.045	Unpaved	3.4	16.91	28,600	5.17	92.20	121	73
P	196	0.24	0.015	3.52	26.17	1,639	0.054	Unpaved	3.7	7.29	20,788	5.52	62.77	115	69
											7,759	6.82	18.97		
Q	145	0.4	0.025	3.52	25.18	1,922	0.015	Unpaved	2.0	16.21	35,868	8.01	74.62	124	74
											3,915	8.01	8.14		
R	273	0.4	0.006	3.52	76.08	2,920	0.009	Unpaved	1.5	31.80	26,931	3.23	138.91	247	148
S	169	0.4	0.015	3.52	35.00	2,619	0.008	Unpaved	1.4	31.04	31,798	4.74	111.72	178	107
T	142	0.4	0.010	3.52	36.49	1,714	0.032	Unpaved	2.9	9.93	20,949	3.76	92.86	165	99
											13,629	8.71	26.08		
U	162	0.24	0.001	3.52	66.46	4,503	0.011	Unpaved	1.7	44.15	28,351	2.64	178.98	290	174
V	286	0.24	0.001	3.52	104.47	10,772	0.014	Unpaved	1.9	93.38	18,005	6.18	48.56	246	148
W	208	0.24	0.026	3.52	22.01	3,616	0.025	Unpaved	2.6	23.62	31,791	4.45	119.07	165	99
X	160	0.24	0.070	3.52	12.04	4,689	0.010	Unpaved	1.6	48.44	26,922	1.09	413.54	484	290
											1,720	2.85	10.06		
Y	165	0.4	0.004	3.52	61.37	3,165	0.011	Unpaved	1.7	31.91	12,269	2.69	76.02	265	159
											9,479	1.65	95.48		
Z	258	0.24	0.004	3.52	55.35	2,342	0.005	Unpaved	1.1	36.06	25,596	5.19	82.20	174	104
Z1	155	0.24	0.005	3.52	34.54	1,196	0.009	Unpaved	1.5	12.97	14,188	5.22	45.30	93	56
Z2	289	0.24	0.003	3.52	67.92	8,451	0.004	Unpaved	1.0	138.03	12,440	2.73	75.95	282	169

* Times of concentration shown on this table correspond to the Alternative 1 hydrology model in the Medina County/Community of D'Hanis Flood Protection Study.
* Precipitation value was computed using Asquith Rainfall Prediction. 3.52" is the 2 year 24 hour rainfall.

Table 1.2

Alternative 2
Time of Concentration Summary

EXISTING CONDITIONS															
BASIN	SHEET FLOW					SHALLOW CONCENTRATED FLOW					CHANNEL FLOW			TOTAL TC (MIN)	TOTAL LAG TIME (MIN)
	LENGTH (FT)	MANNING'S N	SLOPE (FT/FT)	PRECIP. (IN)*	TC (MIN)	LENGTH (FT)	SLOPE (FT/FT)	SHALLOW FLOW COVER	VEL (FPS)	TC (MIN)	LENGTH (FT)	V (FPS)*	TC CHANNEL (MIN)		
A	287	0.40	0.051	3.52	32.80	1,361	0.170	Unpaved	6.7	3.41	14,910	2.92	85.20	121	73
B	290	0.40	0.035	3.52	38.36	952	0.038	Unpaved	3.1	5.08	8,487	3.25	43.53	141	84
											10,486	3.25	53.77		
C	289	0.40	0.060	3.52	30.84	981	0.020	Unpaved	2.3	7.17	27,499	2.74	167.27	205	123
D	256	0.40	0.018	3.52	44.82	3,240	0.119	Unpaved	5.6	9.69	13,451	2.55	87.92	148	89
											829	2.55	5.42		
E	299	0.40	0.015	3.52	55.17	1,316	0.168	Unpaved	6.6	3.32	12,568	2.90	72.23	136	82
											957	2.90	5.50		
F	285	0.40	0.018	3.52	48.83	1,272	0.196	Unpaved	7.1	2.97	26,394	1.63	269.88	323	194
											176	1.63	1.79		
G	152	0.40	0.128	3.52	13.61	1,076	0.229	Unpaved	7.7	2.32	22,953	6.70	57.10	103	62
											12,151	6.70	30.23		
H	110	0.40	0.193	3.52	8.93	2,039	0.131	Unpaved	5.8	5.83	15,982	6.70	39.76	55	33
I	182	0.40	0.043	3.52	24.47	1,382	0.226	Unpaved	7.7	3.00	20,444	2.18	156.30	187	112
											487	2.18	3.73		
J	144	0.24	0.454	3.52	5.23	800	0.340	Unpaved	9.4	1.42	15,069	2.65	94.78	130	78
											6,413	3.74	28.56		
K	169	0.40	0.342	3.52	10.03	3,023	0.113	Unpaved	5.4	9.28	5,489	4.65	19.67	95	57
											19,656	5.80	56.51		
L	229	0.40	0.054	3.52	26.74	1,706	0.043	Unpaved	3.3	8.55	12,544	4.38	47.73	154	92
											21,750	5.12	70.77		
L-1	259	0.40	0.256	3.52	15.82	1,294	0.211	Unpaved	7.4	2.91	24,255	5.79	69.82	89	53
M	187	0.24	0.136	3.52	10.41	1,337	0.056	Unpaved	3.8	5.85	23,629	7.19	54.74	71	43
M-1	232	0.40	0.086	3.52	22.34	1,100	0.345	Unpaved	9.5	1.93	24,093	7.57	53.08	77	46
M-2	178	0.40	0.193	3.52	13.12	1,082	0.283	Unpaved	8.6	2.10	25,684	5.41	79.13	94	57
M-3	234	0.24	0.024	3.52	25.12	1,192	0.230	Unpaved	7.7	2.57	21,314	3.27	108.63	136	82
N	205	0.40	0.094	3.52	19.59	1,661	0.082	Unpaved	4.6	6.01	20,078	6.56	50.99	106	64
											11,649	6.56	29.58		
O	229	0.24	0.029	3.52	22.61	1,982	0.044	Unpaved	3.4	9.74	26,989	5.92	76.03	108	65
O-1	181	0.4	0.232	3.52	12.31	3,468	0.045	Unpaved	3.4	16.91	28,600	5.17	92.20	121	73
P	196	0.24	0.015	3.52	26.17	1,639	0.054	Unpaved	3.7	7.29	20,788	5.52	62.77	115	69
											7,759	6.82	18.97		
Q	145	0.4	0.025	3.52	25.18	1,922	0.015	Unpaved	2.0	16.21	35,868	8.01	74.62	124	74
											3,915	8.01	8.14		
R	273	0.4	0.006	3.52	76.08	2,920	0.009	Unpaved	1.5	31.80	26,931	3.23	138.91	247	148
S	169	0.4	0.015	3.52	35.00	2,619	0.008	Unpaved	1.4	31.04	31,798	4.74	111.72	178	107
T	142	0.4	0.010	3.52	36.49	1,714	0.032	Unpaved	2.9	9.93	20,949	3.76	92.86	166	99
											13,629	8.59	26.44		
U	162	0.24	0.001	3.52	66.46	4,503	0.011	Unpaved	1.7	44.15	28,351	2.64	178.98	290	174
V	286	0.24	0.001	3.52	104.47	10,772	0.014	Unpaved	1.9	93.38	18,005	5.84	51.38	249	150
W	208	0.24	0.026	3.52	22.01	3,616	0.025	Unpaved	2.6	23.62	31,791	4.45	119.07	165	99
X	160	0.24	0.070	3.52	12.04	4,689	0.010	Unpaved	1.6	48.44	26,922	1.09	413.54	484	290
											1,720	2.85	10.06		
Y	165	0.4	0.004	3.52	61.37	3,165	0.011	Unpaved	1.7	31.91	12,269	2.69	76.02	265	159
											9,479	1.65	95.48		
Z	258	0.24	0.004	3.52	55.35	2,342	0.005	Unpaved	1.1	36.06	25,596	5.44	78.42	170	102
Z1	155	0.24	0.005	3.52	34.54	1,196	0.009	Unpaved	1.5	12.97	14,188	6.37	37.12	85	51
Z2	289	0.24	0.003	3.52	67.92	8,451	0.004	Unpaved	1.0	138.03	12,440	2.73	75.95	282	169

* Times of concentration shown on this table correspond to the Alternative 2 hydrology model in the Medina County/Community of D'Hanis Flood Protection Study.
* Precipitation value was computed using Asquith Rainfall Prediction. 3.52" is the 2 year 24 hour rainfall.

Table 1.3

Alternative 3
Time of Concentration Summary

EXISTING CONDITIONS															
BASIN	SHEET FLOW					SHALLOW CONCENTRATED FLOW					CHANNEL FLOW			TOTAL TC (MIN)	TOTAL LAG TIME (MIN)
	LENGTH (FT)	MANNING'S N	SLOPE (FT/FT)	PRECIP. (IN)*	TC (MIN)	LENGTH (FT)	SLOPE (FT/FT)	SHALLOW FLOW COVER	VEL (FPS)	TC (MIN)	LENGTH (FT)	V (FPS)*	TC CHANNEL (MIN)		
A	287	0.40	0.051	3.52	32.80	1,361	0.170	Unpaved	6.7	3.41	14,910	2.92	85.20	121	73
B	290	0.40	0.035	3.52	38.36	952	0.038	Unpaved	3.1	5.08	8,487	3.25	43.53	141	84
											10,486	3.25	53.77		
C	289	0.40	0.060	3.52	30.84	981	0.020	Unpaved	2.3	7.17	27,499	2.74	167.27	205	123
D	256	0.40	0.018	3.52	44.82	3,240	0.119	Unpaved	5.6	9.69	13,451	2.55	87.92	148	89
											829	2.55	5.42		
E	299	0.40	0.015	3.52	55.17	1,316	0.168	Unpaved	6.6	3.32	12,568	2.90	72.23	136	82
											957	2.90	5.50		
F	285	0.40	0.018	3.52	48.83	1,272	0.196	Unpaved	7.1	2.97	26,394	1.63	269.88	323	194
											176	1.63	1.79		
G	152	0.40	0.128	3.52	13.61	1,076	0.229	Unpaved	7.7	2.32	22,953	6.70	57.10	103	62
											12,151	6.70	30.23		
H	110	0.40	0.193	3.52	8.93	2,039	0.131	Unpaved	5.8	5.83	15,982	6.70	39.76	55	33
I	182	0.40	0.043	3.52	24.47	1,382	0.226	Unpaved	7.7	3.00	20,444	2.18	156.30	187	112
											487	2.18	3.73		
J	144	0.24	0.454	3.52	5.23	800	0.340	Unpaved	9.4	1.42	15,069	2.65	94.78	130	78
											6,413	3.74	28.56		
K	169	0.40	0.342	3.52	10.03	3,023	0.113	Unpaved	5.4	9.28	5,489	4.65	19.67	95	57
											19,656	5.80	56.51		
L	229	0.40	0.054	3.52	26.74	1,706	0.043	Unpaved	3.3	8.55	12,544	4.38	47.73	154	92
											21,750	5.12	70.77		
L-1	259	0.40	0.256	3.52	15.82	1,294	0.211	Unpaved	7.4	2.91	24,255	5.79	69.82	89	53
M	187	0.24	0.136	3.52	10.41	1,337	0.056	Unpaved	3.8	5.85	23,629	7.19	54.74	71	43
M-1	232	0.40	0.086	3.52	22.34	1,100	0.345	Unpaved	9.5	1.93	24,093	7.57	53.08	77	46
M-2	178	0.40	0.193	3.52	13.12	1,082	0.283	Unpaved	8.6	2.10	25,684	5.41	79.13	94	57
M-3	234	0.24	0.024	3.52	25.12	1,192	0.230	Unpaved	7.7	2.57	21,314	3.27	108.63	136	82
N	205	0.40	0.094	3.52	19.59	1,661	0.082	Unpaved	4.6	6.01	20,078	6.56	50.99	106	64
											11,649	6.56	29.58		
O	229	0.24	0.029	3.52	22.61	1,982	0.044	Unpaved	3.4	9.74	26,989	5.92	76.03	108	65
O-1	181	0.4	0.232	3.52	12.31	3,468	0.045	Unpaved	3.4	16.91	28,600	5.17	92.20	121	73
P	196	0.24	0.015	3.52	26.17	1,639	0.054	Unpaved	3.7	7.29	20,788	5.52	62.77	115	69
											7,759	6.82	18.97		
Q	145	0.4	0.025	3.52	25.18	1,922	0.015	Unpaved	2.0	16.21	35,868	8.01	74.62	124	74
											3,915	8.01	8.14		
R	273	0.4	0.006	3.52	76.08	2,920	0.009	Unpaved	1.5	31.80	26,931	3.23	138.91	247	148
S	169	0.4	0.015	3.52	35.00	2,619	0.008	Unpaved	1.4	31.04	31,798	4.74	111.72	178	107
T	142	0.4	0.010	3.52	36.49	1,714	0.032	Unpaved	2.9	9.93	20,949	3.76	92.86	165	99
											13,629	8.68	26.17		
U	162	0.24	0.001	3.52	66.46	4,503	0.011	Unpaved	1.7	44.15	28,351	2.64	178.98	290	174
V	286	0.24	0.001	3.52	104.47	10,772	0.014	Unpaved	1.9	93.38	18,005	6.74	44.52	242	145
W	208	0.24	0.026	3.52	22.01	3,616	0.025	Unpaved	2.6	23.62	31,791	4.45	119.07	165	99
X	160	0.24	0.070	3.52	12.04	4,689	0.010	Unpaved	1.6	48.44	26,922	1.09	413.54	484	290
											1,720	2.85	10.06		
Y	165	0.4	0.004	3.52	61.37	3,165	0.011	Unpaved	1.7	31.91	12,269	2.69	76.02	265	159
											9,479	1.65	95.48		
Z	258	0.24	0.004	3.52	55.35	2,342	0.005	Unpaved	1.1	36.06	25,596	5.44	78.42	170	102
Z1	155	0.24	0.005	3.52	34.54	1,196	0.009	Unpaved	1.5	12.97	14,188	6.37	37.12	85	51
Z2	289	0.24	0.003	3.52	67.92	8,451	0.004	Unpaved	1.0	138.03	12,440	2.73	75.95	282	169

* Times of concentration shown on this table correspond to the Alternative 3 hydrology model in the Medina County/Community of D'Hanis Flood Protection Study.
* Precipitation value was computed using Asquith Rainfall Prediction. 3.52" is the 2 year 24 hour rainfall.

Table 2.0

Land Use Summary
Medina County/Community of D'Hanis Flood Protection Project

DA-ID	Drainage Area (SQ MI)	Weighted CN per Subbasin (AMC I)	Weighted CN per Subbasin (AMC II)
A	3.02	50	77
B	2.66	41	74
C	6.00	45	77
D	5.54	40	76
E	4.35	39	75
F	13.61	39	75
G	7.43	36	73
H	2.34	40	76
I	4.33	51	74
J	7.70	56	75
K	8.06	59	76
L	10.50	54	75
L-1	9.18	55	76
M	6.37	63	76
M-1	3.61	57	75
M-2	5.07	63	78
M-3	6.89	48	73
N	9.23	64	78
O	5.83	67	80
O1	9.68	67	80
P	9.47	65	79
Q	7.49	61	76
R	7.16	66	80
S	8.07	64	78
T	8.22	61	76
U	8.57	66	83
V	6.48	64	80
W	10.01	67	80
X	7.86	68	80
Y	5.83	66	79
Z	3.34	62	78
Z-1	1.81	66	82
Z-2	1.98	60	78

* Weighted curve numbers shown on this table correspond all hydrology models in the Medina County/Community of D'Hanis Flood Protection Study. See report for explanation.

Table 3.0

Medina County Flood Control Project
July 2007 Storm Summary

Rainfall Hour	Average Rainfall Depth Per Basin (in)															
	A	B	C	D	E	F	G	H	I	J	K	L	L1	M	M1	M2
20Jul2007 0100																
20Jul2007 0400										0.00	0.04	0.04	0.00	0.06	0.00	0.00
20Jul2007 0500	0.00	0.01	0.00	0.01	0.01	0.02	0.02	0.04	0.01	0.03	0.03	0.07	0.08	0.02	0.01	0.00
20Jul2007 0600	0.05	0.05	0.04	0.04	0.04	0.02	0.02	0.01	0.02	0.01	0.01	0.00	0.01	0.01	0.01	0.01
20Jul2007 0700																
20Jul2007 0800	0.02	0.00	0.03	0.03	0.01	0.01	0.02	0.00	0.00	0.00	0.01	0.00		0.02	0.01	0.01
20Jul2007 0900					0.00	0.01	0.01	0.02	0.01	0.01	0.00	0.00	0.01		0.00	0.00
20Jul2007 2200																
20Jul2007 2300	0.01	0.01	0.02	0.03	0.02	0.04	0.05	0.06	0.03	0.06	0.05	0.02	0.02	0.04	0.03	0.03
21Jul2007 0000	0.00	0.00	0.02	0.03	0.04	0.04	0.04	0.02	0.03	0.01	0.01	0.00	0.01		0.01	0.00
21Jul2007 0100	0.08	0.18	0.09	0.14	0.10	0.09	0.10	0.07	0.08	0.05	0.03	0.02	0.02	0.04	0.07	0.09
21Jul2007 0200	0.06	0.11	0.04	0.05	0.03	0.02	0.02	0.01	0.01	0.00	0.03	0.04	0.00	0.06	0.01	0.03
21Jul2007 0300	0.10	0.17	0.09	0.14	0.13	0.09	0.07	0.09	0.06	0.10	0.21	0.44	0.21	0.25	0.08	0.06
21Jul2007 0400	0.10	0.08	0.06	0.05	0.05	0.04	0.03	0.04	0.03	0.04	0.03	0.03	0.04	0.02	0.03	0.04
21Jul2007 0500	0.13	0.12	0.13	0.09	0.06	0.04	0.03	0.03	0.03	0.03	0.02	0.01	0.04	0.01	0.03	0.02
21Jul2007 0600	0.01	0.01	0.01	0.02	0.03	0.04	0.05	0.06	0.06	0.05	0.03	0.02	0.05	0.02	0.04	0.04
21Jul2007 1000	0.00	0.00	0.02	0.02	0.02	0.02	0.03	0.00	0.02	0.00	0.01	0.00	0.00	0.01	0.01	0.01
21Jul2007 1100	0.08	0.09	0.07	0.09	0.13	0.31	0.43	0.53	0.59	0.73	0.75	0.26	0.38	0.72	0.80	0.59
21Jul2007 1200	1.24	1.27	0.96	0.94	0.99	0.83	0.57	0.41	0.34	0.18	0.08	0.10	0.28	0.04	0.15	0.09
21Jul2007 1300	0.06	0.07	0.07	0.09	0.10	0.14	0.20	0.27	0.26	0.27	0.39	0.18	0.18	0.80	0.39	0.37
21Jul2007 1400	0.12	0.13	0.12	0.19	0.22	0.30	0.43	0.34	0.54	0.44	0.64	0.60	0.45	1.56	0.86	1.14
21Jul2007 1500	0.77	1.05	0.72	1.00	1.11	1.23	1.43	1.62	1.66	1.75	1.98	2.03	1.58	2.45	2.02	2.06
21Jul2007 1600	0.37	0.42	0.44	0.53	0.55	0.76	0.83	0.99	0.79	0.82	0.63	0.73	1.16	0.69	0.74	0.97
21Jul2007 1700	1.13	1.28	1.22	1.46	1.53	1.64	1.72	1.70	1.93	1.93	2.05	1.44	1.35	2.08	2.12	1.81
21Jul2007 1800	0.34	0.43	0.40	0.53	0.63	0.96	1.48	1.33	1.82	1.64	2.08	1.66	0.89	2.49	2.05	1.97
21Jul2007 1900	0.32	0.40	0.38	0.53	0.63	0.96	1.33	1.41	1.59	1.62	1.99	1.67	1.16	2.45	1.86	1.76
21Jul2007 2000	0.34	0.51	0.38	0.55	0.57	0.49	0.35	0.61	0.32	0.56	0.61	0.70	0.77	0.53	0.42	0.38
21Jul2007 2100	0.11	0.11	0.12	0.11	0.10	0.10	0.09	0.13	0.09	0.12	0.13	0.20	0.20	0.10	0.07	0.06
21Jul2007 2200	0.18	0.17	0.16	0.15	0.15	0.12	0.10	0.07	0.07	0.05	0.04	0.05	0.08	0.04	0.05	0.05
21Jul2007 2300	0.09	0.05	0.05	0.03	0.03	0.02	0.01	0.01	0.00	0.01	0.01	0.00	0.02	0.01	0.01	0.01
22Jul2007 0300	0.00		0.00													
Total Depth (in)	5.71	6.72	5.64	6.83	7.29	8.35	9.43	9.87	10.40	10.52	11.88	10.30	8.96	14.51	11.86	11.60

* The average rainfall depth in this table was created from the West Gulf River Forecast Center 4 x 4 km gridded precipitation data, and then used to create the July 21, 2007 hydrology model in the Medina County/Community of D'Hanis Flood Protection Study.

Table 3.1

Medina County Flood Control Project
July 2007 Storm Summary

Rainfall Hour	Average Rainfall Depth Per Basin (in)														
	M3	N	O	O1	P	Q	R	S	T	U	V	W	X	Y	Z
20Jul2007 0100						0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20Jul2007 0400		0.03	0.00	0.00	0.01	0.02	0.06	0.06	0.03	0.04	0.08	0.00	0.00	0.01	0.02
20Jul2007 0500	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.04	0.03	0.01	0.03	0.04	0.03
20Jul2007 0600	0.02	0.02	0.02	0.02	0.03	0.03	0.01	0.01	0.01	0.00	0.00	0.04	0.04	0.04	0.01
20Jul2007 0700		0.00	0.00		0.01	0.00						0.00	0.00		
20Jul2007 0800	0.02	0.02	0.02	0.02	0.03	0.02	0.00	0.00	0.00			0.01	0.03	0.03	0.00
20Jul2007 0900	0.00					0.00	0.00	0.00	0.00	0.01	0.01				0.00
20Jul2007 2200		0.00	0.00		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01
20Jul2007 2300	0.03	0.04	0.02	0.01	0.02	0.01	0.00		0.00			0.03	0.05	0.05	0.01
21Jul2007 0000	0.01		0.02	0.00	0.00	0.00			0.00			0.05	0.01	0.00	0.00
21Jul2007 0100	0.09	0.08	0.17	0.14	0.14	0.06	0.05	0.02	0.00	0.00	0.01	0.20	0.09	0.02	0.01
21Jul2007 0200	0.02	0.06	0.19	0.11	0.07	0.11	0.27	0.35	0.30	0.41	0.65	0.15	0.04	0.05	0.33
21Jul2007 0300	0.05	0.14	0.07	0.05	0.15	0.34	0.30	0.56	0.29	0.44	0.34	0.19	0.35	0.56	0.41
21Jul2007 0400	0.03	0.02	0.05	0.06	0.06	0.09	0.02	0.06	0.09	0.06	0.05	0.08	0.09	0.14	0.13
21Jul2007 0500	0.02	0.02	0.02	0.02	0.03	0.05	0.01	0.02	0.04	0.02	0.03	0.04	0.06	0.08	0.05
21Jul2007 0600	0.05	0.02	0.03	0.04	0.02	0.00	0.01		0.00		0.00	0.02	0.01	0.01	0.00
21Jul2007 1000	0.03	0.00	0.00	0.01		0.01	0.01	0.04	0.08	0.09	0.08	0.00	0.00	0.00	0.07
21Jul2007 1100	0.39	0.59	0.20	0.17	0.18	0.08	0.27	0.09	0.03	0.03	0.00	0.01	0.01	0.01	0.01
21Jul2007 1200	0.24	0.02	0.03	0.04	0.02	0.08	0.03	0.16	0.26	0.33	0.34	0.12	0.12	0.11	0.36
21Jul2007 1300	0.19	0.87	0.56	0.27	0.95	0.82	1.38	1.07	0.37	0.65	0.26	0.38	0.46	0.41	0.15
21Jul2007 1400	0.78	2.26	2.24	1.74	2.45	1.54	2.87	1.49	0.63	0.67	0.29	1.59	1.01	0.41	0.33
21Jul2007 1500	1.52	2.53	1.48	1.56	1.55	1.35	2.64	2.07	0.80	0.96	0.28	0.51	0.36	0.35	0.22
21Jul2007 1600	0.96	1.19	1.67	1.50	1.39	0.80	0.92	0.58	0.18	0.15	0.06	1.05	0.48	0.28	0.07
21Jul2007 1700	1.52	1.69	1.14	1.40	0.83	0.81	1.45	1.14	0.63	0.61	0.29	0.49	0.21	0.33	0.28
21Jul2007 1800	1.73	2.56	2.02	1.76	2.71	2.36	3.03	2.32	1.16	1.41	0.56	1.34	1.23	0.72	0.35
21Jul2007 1900	1.61	2.07	1.02	1.28	0.82	0.48	1.69	0.75	0.22	0.31	0.18	0.41	0.23	0.17	0.13
21Jul2007 2000	0.47	0.31	0.15	0.27	0.11	0.08	0.34	0.22	0.06	0.11	0.06	0.07	0.03	0.03	0.04
21Jul2007 2100	0.06	0.06	0.03	0.05	0.02	0.01	0.07	0.04	0.00	0.02	0.01	0.02	0.00	0.00	0.00
21Jul2007 2200	0.07	0.03	0.03	0.03	0.02	0.01	0.02	0.01	0.00	0.00		0.02	0.01	0.00	0.00
21Jul2007 2300	0.00	0.01	0.01	0.01	0.00							0.01			
22Jul2007 0300															
Total Depth (in)	9.91	14.65	11.20	10.55	11.63	9.18	15.44	11.08	5.24	6.37	3.61	6.84	4.98	3.86	3.02

* The average rainfall depth in this table was created from the West Gulf River Forecast Center 4 x 4 km gridded precipitation data, and then used to create the July 21, 2007 hydrology model in the Medina County/Community of D'Hanis Flood Protection Study.

Table 4.0

July 21, 2007 Flood
Hydrologic And Hydraulic
Calibration Comparison

Hydrologic

Stream Gage	Streamflow (cfs)	Stream Gage	Streamflow (cfs)
USGS 08201500	3,840	USGS 08202700	52,200
Modeled Storm(1)	4,258	Modeled Storm(2)	53,196

(1) 9.82% increase from USGS 08201500

(2) 1.87% increase from USGS 08202700

Hydraulic

Location	Depth (ft)
USGS 08202700	32.64
Modeled Cross Section 57184(3)	33.49

(3) 2.54% increase from USGS 08202700

High Water Mark No.	High Water Survey Elev. (ft)	July 21, 2007 Modeled Water Surface (ft)	Northing	Easting	Location
1	884.80	884.51	13668251.67	1878993.34	Fire Station
2	922.20	920.07	13679736.65	1878771.52	Residence
3	934.35	933.75	13682831.24	1877165.14	Residence- Secret Hideout
4	884.47	884.35	13668240.53	1878132.45	County Yard
5	884.51	884.33	13668265.54	1878226.01	County Yard
6	877.29	875.89	13664301.64	1875627.09	Water Treatment Plant
7	877.74	877.61	13666107.13	1876842.75	Utility box at Co. Rd. 5223
8	879.50	878.86	13666839.23	1878557.12	Residence
9	879.68	878.73	13666567.08	1879146.57	Residence
10	871.10	873.74	13663473.82	1878413.62	Residence
11	881.58	880.07	13667447.39	1880321.30	Residence
12	884.32	884.46	13668011.54	1879025.41	Post Office

* Refer to Exhibit 1.0 and the Existing Conditions hydraulic model in the Medina County/Community of D'Hanis Flood Protection Study for the water surface elevations and the locations of the high water marks.

* Elevation datum = NAVD 88, U.S. Feet

TABLE 5.0

ALTERNATIVE 1 PEAK DISCHARGE AND WATER SURFACE ELEVATIONS

STREAM	STATION	LOCATION	10-YEAR PEAK DISCHARGE (CFS) EXISTING	ALTERNATIVE 1	DIFFERENCE	10-YEAR WATER SURFACE ELEVATIONS (FT) EXISTING	ALTERNATIVE 1	DIFFERENCE
SECO CREEK	49863		27,215	27,134	-81	912.5	912.47	-0.03
SECO CREEK	48183		27,215	27,134	-81	909.93	909.91	-0.02
SECO CREEK	32739	CR 429	27,229	25,975	-1,254	882.06	880.94	-1.12
SECO CREEK	30626	UPRR	27,587	27,134	-453	879.00	877.09	-1.91
SECO CREEK	30501	US HWY 90	27,587	27,134	-453	878.26	876.97	-1.29
SECO CREEK	25698		32,904	31,366	-1,538	871.13	870.93	-0.2
PARKERS TRIBUTARY	606	CR 429	1,443	170	-1,273	881.34	879.31	-2.03
PARKERS TRIBUTARY	466	UPRR	1,443	170	-1,273	881.26	879.30	-1.96
PARKERS TRIBUTARY	325	US HWY 90	1,443	170	-1,273	880.73	879.28	-1.45
PARKERS CREEK	26759		2,988	2,988	0	929.79	929.81	0.02
PARKERS CREEK	24546		2,988	2,988	0	922.14	921.99	-0.15
PARKERS CREEK	9774	UPRR	2,498	3,354	856	892.74	892.73	-0.01
PARKERS CREEK	9593	US HWY 90	2,498	3,354	856	892.34	892.22	-0.12
PARKERS CREEK	1300		2,498	3,882	1,384	873.44	873.59	0.15
PARKERS CREEK	1150		5,448	5,448	0	862.74	862.74	0

* Shaded areas indicate an increase in water surface elevation, but still contained within the channel.

STREAM	STATION	LOCATION	100-YEAR PEAK DISCHARGE (CFS) EXISTING	ALTERNATIVE 1	DIFFERENCE	100-YEAR WATER SURFACE ELEVATIONS (FT) EXISTING	ALTERNATIVE 1	DIFFERENCE
SECO CREEK	49863		74,552	74,552	0	921.39	921.39	0
SECO CREEK	48183		68,000	68,000	0	916.69	916.69	0
SECO CREEK	32739	CR 429	53,000	68,041	15,041	885.62	885.35	-0.27
SECO CREEK	30626	UPRR	56,226	77,025	20,799	884.22	879.93	-4.29
SECO CREEK	30501	US HWY 90	56,226	77,025	20,799	880.98	879.08	-1.9
SECO CREEK	25698		67,000	66,081	-919	874.13	874.07	-0.06
PARKERS TRIBUTARY	606	CR 429	13,364	1,669	-11,695	885.98	884.51	-1.47
PARKERS TRIBUTARY	466	UPRR	13,364	1,200	-12,164	885.93	884.5	-1.43
PARKERS TRIBUTARY	325	US HWY 90	13,364	1,200	-12,164	884.89	884.45	-0.44
PARKERS CREEK	23502		4,874	4,874	0	922.87	922.72	-0.15
PARKERS CREEK	9774	UPRR	3,510	4,327	817	893.99	893.72	-0.27
PARKERS CREEK	9593	US HWY 90	3,510	4,327	817	893.61	893.19	-0.42
PARKERS CREEK	1300		11,419	9,952	-1,467	876.29	875.06	-1.23
PARKERS CREEK	1150		41,234	39,767	-1,467	868.36	868.26	-0.1

* Increase in discharge in Alternative 1 are due to increasing the capacity of the channels in order to alleviate flooding in the Community of D'Hanis.
* Refer to Appendix C and Appendix D in the Medina County/Community of D'Hanis Flood Protection Study for the hydrology and hydraulic models.

TABLE 6.0

ALTERNATIVE 2 PEAK DISCHARGE AND WATER SURFACE ELEVATIONS

STREAM	STATION	LOCATION	25-YEAR PEAK DISCHARGE (CFS) EXISTING	ALTERNATIVE 2	DIFFERENCE	25-YEAR WATER SURFACE ELEVATIONS (FT) EXISTING	ALTERNATIVE 2	DIFFERENCE
SECO CREEK	49863		41,444	41,444	0	916.56	916.56	0
SECO CREEK	48183		41,444	41,444	0	913.21	913.21	0
SECO CREEK	32739	CR 429	40,000	39,486	-514	883.89	881.63	-2.26
SECO CREEK	30626	UPRR	40,904	41,444	540	881.36	877.79	-3.57
SECO CREEK	30501	US HWY 90	40,904	41,444	540	879.85	877.47	-2.38
SECO CREEK	25698		48,658	48,303	-355	872.80	872.76	-0.04
PARKERS TRIBUTARY	606	CR 429	4,227	237	-3,990	883.89	880.07	-3.82
PARKERS TRIBUTARY	466	UPRR	4,227	237	-3,990	883.73	880.06	-3.67
PARKERS TRIBUTARY	325	US HWY 90	4,227	237	-3,990	882.79	880.04	-2.75
PARKERS CREEK	26759		4,240	4,240	0	929.95	929.97	0.02
PARKERS CREEK	24546		4,240	4,240	0	922.85	921.89	-0.96
PARKERS CREEK	9774	UPRR	2,733	4,779	2,046	893.05	891.69	-1.36
PARKERS CREEK	9593	US HWY 90	2,733	4,779	2,046	892.66	891.17	-1.49
PARKERS CREEK	1300		4,394	5,514	1,120	874.10	874.06	-0.04
PARKERS CREEK	1150		21,960	21,960	0	866.72	866.72	0

* Shaded areas indicate an increase in water surface elevation, but still contained within the channel.

STREAM	STATION	LOCATION	100-YEAR PEAK DISCHARGE (CFS) EXISTING	ALTERNATIVE 2	DIFFERENCE	100-YEAR WATER SURFACE ELEVATIONS (FT) EXISTING	ALTERNATIVE 2	DIFFERENCE
SECO CREEK	49863		74,552	74,552	0	921.39	921.39	0
SECO CREEK	48183		68,000	68,000	0	916.69	916.69	0
SECO CREEK	32739	CR 429	53,000	68,918	15,918	885.62	884.41	-1.21
SECO CREEK	30626	UPRR	56,226	77,025	20,799	884.22	880.06	-4.16
SECO CREEK	30501	US HWY 90	56,226	77,025	20,799	880.98	879.15	-1.83
SECO CREEK	25698		67,000	66,081	-919	874.13	874.07	-0.06
PARKERS TRIBUTARY	606	CR 429	13,364	1,669	-11,695	885.98	884.49	-1.49
PARKERS TRIBUTARY	466	UPRR	13,364	1,200	-12,164	885.93	884.48	-1.45
PARKERS TRIBUTARY	325	US HWY 90	13,364	1,200	-12,164	884.89	884.43	-0.46
PARKERS CREEK	23502		4,874	4,874	0	922.87	921.70	-1.17
PARKERS CREEK	9774	UPRR	3,510	6,009	2,499	893.99	892.72	-1.27
PARKERS CREEK	9593	US HWY 90	3,510	6,009	2,499	893.61	892.21	-1.4
PARKERS CREEK	1300		11,419	11,419	0	876.29	875.40	-0.89
PARKERS CREEK	1150		41,234	41,234	0	868.36	868.36	0

* Increase in discharge in Alternative 2 are due to increasing the capacity of the channels in order to alleviate flooding in the Community of D'Hanis.

* Refer to Appendix C and Appendix D in the Medina County/Community of D'Hanis Flood Protection Study for the hydrology and hydraulic models.

Table 7.0

ALTERNATIVE 3 PEAK DISCHARGE
AND WATER SURFACE ELEVATIONS

			50-YEAR PEAK DISCHARGE (CFS)			50-YEAR WATER SURFACE ELEVATIONS (FT)		
STREAM	STATION	LOCATION	EXISTING	ALTERNATIVE 3	DIFFERENCE	EXISTING	ALTERNATIVE 3	DIFFERENCE
SECO CREEK	49863		55,008	55,008	0	919.42	919.42	0
SECO CREEK	48183		55,008	55,008	0	915.18	915.18	0
SECO CREEK	32739	CR 429	51,000	49,005	-1,995	885.48	882.02	-3.46
SECO CREEK	30626	UPRR	55,747	59,288	3,541	884.10	878.36	-5.74
SECO CREEK	30501	US HWY 90	55,747	59,288	3,541	880.88	878.21	-2.67
SECO CREEK	25698		62,000	59,895	-2,105	873.79	872.27	-1.52
PARKERS TRIBUTARY	606	CR 429	8,130	292	-7,838	885.17	880.84	-4.33
PARKERS TRIBUTARY	466	UPRR	8,130	292	-7,838	885.15	880.83	-4.32
PARKERS TRIBUTARY	325	US HWY 90	8,130	292	-7,838	883.97	880.82	-3.15
PARKERS CREEK	26759		5,401	5,401	0	930.28	930.10	-0.18
PARKERS CREEK	24546		5,401	5,401	0	923.34	922.36	-0.98
PARKERS CREEK	9774	UPRR	2,843	6,057	3,214	893.20	892.76	-0.44
PARKERS CREEK	9593	US HWY 90	2,843	6,057	3,214	892.81	892.24	-0.57
PARKERS CREEK	1300		9,579	9,579	0	875.81	874.99	-0.82
PARKERS CREEK	1150		38,387	38,387	0	868.17	868.17	0

			100-YEAR PEAK DISCHARGE (CFS)			100-YEAR WATER SURFACE ELEVATIONS (FT)		
STREAM	STATION	LOCATION	EXISTING	ALTERNATIVE 3	DIFFERENCE	EXISTING	ALTERNATIVE 3	DIFFERENCE
SECO CREEK	49863		74,552	74,552	0	921.39	921.39	0
SECO CREEK	48183		68,000	68,000	0	916.69	916.69	0
SECO CREEK	32739	CR 429	53,000	65,407	12,407	885.62	883.94	-1.68
SECO CREEK	30626	UPRR	56,226	81,909	25,683	884.22	880.18	-4.04
SECO CREEK	30501	US HWY 90	56,226	81,909	25,683	880.98	879.94	-1.04
SECO CREEK	25698		67,000	66,081	-919	874.13	872.74	-1.39
PARKERS TRIBUTARY	606	CR 429	13,364	1,669	-11,695	885.98	884.49	-1.49
PARKERS TRIBUTARY	466	UPRR	13,364	1,200	-12,164	885.93	884.48	-1.45
PARKERS TRIBUTARY	325	US HWY 90	13,364	1,200	-12,164	884.89	884.43	-0.46
PARKERS CREEK	23502		4,874	4,874	0	922.87	921.70	-1.17
PARKERS CREEK	9774	UPRR	3,510	6,413	2,903	893.99	893.04	-0.95
PARKERS CREEK	9593	US HWY 90	3,510	6,413	2,903	893.61	892.53	-1.08
PARKERS CREEK	1300		11,419	11,419	0	876.29	875.40	-0.89
PARKERS CREEK	1150		41,234	41,234	0	868.36	868.36	0

* Increase in discharge in Alternative 2 are due to increasing the capacity of the channels in order to alleviate flooding in the Community of D'Hanis.
* Refer to Appendix C and Appendix D in the Medina County/Community of D'Hanis Flood Protection Study for the hydrology and hydraulic models.

TABLE 8.0

ALTERNATIVE 1
CONSTRUCTION COST

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
BASE BID					
752 2047	TREE TRIMMING AND BRUSH REMOVAL	A.C.	118	$ 4,774.03	$ 564,529
110 2002	CHANNEL EXCAVATION	C.Y.	224,768	$ 5.00	$ 1,123,838
164 2003	BROADCAST SEED (PERM) (RURAL) (CLAY)	S.Y.	241,610	$ 0.12	$ 29,358
110 2001	EXCAVATION (ROADWAY)	C.Y.	833	$ 7.00	$ 5,833
	LIME TREATED SUBGRADE 6" COMPACTED	S.Y.	438	$ 4.00	$ 1,751
	LIME (25LB/S.Y.)	TON	5	$ 150.00	$ 821
	8" HMAC TYPE B BASE	S.Y.	438	$ 50.00	$ 21,889
	2.0" HMAC TYPE D SURFACE	S.Y.	438	$ 10.00	$ 4,378
550 2009	CHAIN LINK FENCE (INSTALL) (6')	L.F.	2,237	$ 12.00	$ 26,841
460 2009	CMP (GAL STL 48 IN)	L.F.	78	$ 75.00	$ 5,850
420 009	CL C CONC (HDWL)	C.Y.	25	$ 689.95	$ 17,249
	Advanced Flood Warning System	L.S.	1	$ 30,000.00	$ 30,000
SUBTOTAL BID ITEMS					**$ 1,832,400**
MOBILIZATION, PREP ROW, INSURANCE & BOND (15%)					$ 274,900
ROW ACQUISITION*					$ 26,700
SWPPP (3%)					$ 55,000
TRAFFIC CONTROL (1%)					$ 18,400
SUBTOTAL FOR CONSTRUCTION					**$ 2,207,400**
SURVEY (5%)					$ 110,400
ENGINEERING (10%)					$ 220,800
CONTINGENCIES (15%)					$ 331,200
TOTAL CONSTRUCTION					**$ 2,870,000**

* Refer to Exhibits 13.0 to 16.0 in the Medina County/Community of D'Hanis Flood Protection Study for Alternative 1 improvements.

TABLE 9.0

ALTERNATIVE 2
CONSTRUCTION COST

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
BASE BID					
752 2047	TREE TRIMMING AND BRUSH REMOVAL	A.C.	119	$ 4,774.03	$ 566,391
110 2002	CHANNEL EXCAVATION	C.Y.	408,788	$ 5.00	$ 2,043,939
164 2003	BROADCAST SEED (PERM) (RURAL) (CLAY)	S.Y.	512,893	$ 0.12	$ 62,322
110 2001	EXCAVATION (ROADWAY)	C.Y.	833	$ 7.00	$ 5,833
	LIME TREATED SUBGRADE 6" COMPACTED	S.Y.	438	$ 4.00	$ 1,751
	LIME (25LB/S.Y.)	TON	5	$ 150.00	$ 821
	8" HMAC TYPE B BASE	S.Y.	438	$ 50.00	$ 21,889
	2.0" HMAC TYPE D SURFACE	S.Y.	438	$ 10.00	$ 4,378
550 2009	CHAIN LINK FENCE (INSTALL) (6')	L.F.	2,237	$ 12.00	$ 26,841
460 2009	CMP (GAL STL 48 IN)	L.F.	78	$ 75.00	$ 5,850
420 009	CL C CONC (HDWL)	C.Y.	25	$ 689.95	$ 17,249
	Advanced Flood Warning System	L.S.	1	$ 30,000.00	$ 30,000
SUBTOTAL BID ITEMS					**$ 2,787,300**
MOBILIZATION, PREP ROW, INSURANCE & BOND (15%)					$ 418,100
ROW ACQUISITION*					$ 26,700
SWPPP (3%)					$ 83,700
TRAFFIC CONTROL (1%)					$ 27,900
SUBTOTAL FOR CONSTRUCTION					**$ 3,343,700**
SURVEY (5%)					$ 167,200
ENGINEERING (10%)					$ 334,400
CONTINGENCIES (15%)					$ 501,600
TOTAL CONSTRUCTION					**$ 4,350,000**

* Alternative 2 includes improvents from Alternative 1.

* Refer to Exhibits 19.0 to 21.0 in the Medina County/Community of D'Hanis Flood Protection Study for the additional Alternative 2 improvements.

TABLE 10.0

ALTERNATIVE 3
CONSTRUCTION COST

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
BASE BID					
752 2047	TREE TRIMMING AND BRUSH REMOVAL	A.C.	136	$ 4,774.03	$ 648,218
110 2002	CHANNEL EXCAVATION	C.Y.	465,888	$ 5.00	$ 2,329,438
164 2003	BROADCAST SEED (PERM) (RURAL) (CLAY)	S.Y.	548,294	$ 0.12	$ 66,623
110 2001	EXCAVATION (ROADWAY)	C.Y.	833	$ 7.00	$ 5,833
	LIME TREATED SUBGRADE 6" COMPACTED	S.Y.	438	$ 4.00	$ 1,751
	LIME (25LB/S.Y.)	TON	5	$ 150.00	$ 821
	8" HMAC TYPE B BASE	S.Y.	438	$ 50.00	$ 21,889
	2.0" HMAC TYPE D SURFACE	S.Y.	438	$ 10.00	$ 4,378
550 2009	CHAIN LINK FENCE (INSTALL) (6')	L.F.	2,237	$ 12.00	$ 26,841
460 2009	CMP (GAL STL 48 IN)	L.F.	78	$ 75.00	$ 5,850
	CONCRETE STRUCTURE (MISC)	C.Y.	25	$ 1,069.80	$ 26,745
	Advanced Flood Warning System	L.S.	1	$ 30,000.00	$ 30,000
SUBTOTAL BID ITEMS					**$ 3,168,400**
MOBILIZATION, PREP ROW, INSURANCE & BOND (15%)					$ 475,300
ROW ACQUISITION*					$ 39,000
SWPPP (3%)					$ 95,100
TRAFFIC CONTROL (1%)					$ 31,700
SUBTOTAL FOR CONSTRUCTION					**$ 3,809,500**
SURVEY (5%)					$ 190,500
ENGINEERING (10%)					$ 381,000
CONTINGENCIES (15%)					$ 571,500
TOTAL CONSTRUCTION					**$ 4,960,000**

* Alternative 3 includes improvents from Alternative 1 and Alternative 2.

* Refer to Exhibits 24.0 and 25.0 in the Medina County/Community of D'Hanis Flood Protection Study for the additional Alternative 3 improvements.

TABLE 11.0 **ALTERNATIVES PROBABLE COST SUMMARY**

	DESCRIPTION	PROBABLE CONSTRUCTION COST
	ALTERNATIVE 1	
1	Channel modifications and channelization on Seco Creek	$ 720,000
2	Diversion channels on Parkers Tributary, channelization and culvert crossing on FM 2200	$ 1,660,000
3	Channel modification on Parkers Creek.	$ 490,000
	Total =	**$ 2,870,000**
	ALTERNATIVE 2	
1	Channel modifications and channelization on Seco Creek	$ 1,020,000
2	Diversion channels on Parkers Tributary, channelization and culvert crossing on FM 2200	$ 1,660,000
3	Channel modification and channelization on Parkers Creek.	$ 1,670,000
	Total =	**$ 4,350,000**
	ALTERNATIVE 3	
1	Channel modifications and channelization on Seco Creek. Channel north of relief structure.	$ 1,630,000
2	Diversion channels on Parkers Tributary, channelization and culvert crossing on FM 2200	$ 1,660,000
3	Channel modification and channelization on Parkers Creek.	$ 1,670,000
	Total =	**$ 4,960,000**

* Refer to Tables 8.0 - 10.0 in the Medina County/Community of D'Hanis Flood Protection Study for itemized construction costs.

TABLE 12.0

BENEFIT COST ANALYSIS

CONDITION	PROBABLE CONSTRUCTION COSTS	APPRAISED VALUE OF PARCELS REMOVED BY PROPOSED FLOODPLAIN	APPRAISED VALUE OF STRUCTURES REMOVED BY PROPOSED FLOODPLAIN	BENEFIT VALUE / CONSTRUCTION COST RATIO
ALTERNATIVE 1	$ 2,870,000	$ 420,020	$ 2,694,500	1.09
ALTERNATIVE 2	$ 4,350,000	$ 816,189	$ 5,024,909	1.34
ALTERNATIVE 3	$ 4,960,000	$ 1,335,433	$ 6,565,709	1.59

ALTERNATIVE 1 REFLECTS THE 10-YEAR FLOODPLAIN
ALTERNATIVE 2 REFLECTS THE 25-YEAR FLOODPLAIN
ALTERNATIVE 3 REFLECTS THE 50-YEAR FLOODPLAIN

* Refer to Tables 8.0 - 10.0 in the Medina County/Community of D'Hanis Flood Protection Study for itemized construction costs.

APPENDIX A

APPENDIX A – HEC-HMS SUMMARY TABLES

APPENDIX A.1

JULY 21, 2007 MODEL

Project: SECO WATERSHED Simulation Run: 21JUL2007

Start of Run: 20Jul2007, 00:00 Basin Model: EC Seco & Parkers Creeks
End of Run: 22Jul2007, 23:00 Meteorologic Model: 21JUL2007
Compute Time: 09Feb2011, 10:15:14 Control Specifications: 21JUL2007

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
A	3.02	407.2	21Jul2007, 17:55	1.01
B	2.66	256.1	21Jul2007, 18:20	0.81
C	6.00	428.8	21Jul2007, 20:40	0.66
D	5.54	554.7	21Jul2007, 20:30	0.78
E	4.35	509.8	21Jul2007, 20:20	0.87
F	13.61	1953.3	21Jul2007, 21:25	1.30
G	7.43	2119.6	21Jul2007, 19:25	1.46
H	2.34	941.9	21Jul2007, 19:10	2.16
I	4.33	2525.6	21Jul2007, 19:45	3.98
J	7.70	5384.0	21Jul2007, 19:25	4.76
J-A	3.02	407.2	21Jul2007, 17:55	1.01
J-B	5.68	623.8	21Jul2007, 18:55	0.91
J-C	11.68	1020.2	21Jul2007, 19:05	0.78
J-D	17.22	1523.5	21Jul2007, 19:25	0.78
J-DS	217.69	52635.4	22Jul2007, 03:15	3.61
J-E	21.57	2024.6	21Jul2007, 20:20	0.80

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
J-F	35.18	3973.0	21Jul2007, 21:25	1.00
J-G	42.61	4203.0	21Jul2007, 22:20	1.08
J-H	44.95	4260.3	21Jul2007, 22:15	1.13
J-I	49.28	5471.9	21Jul2007, 21:25	1.38
J-J	56.98	10439.2	21Jul2007, 19:45	1.84
J-K	84.72	23156.8	21Jul2007, 19:45	2.34
J-K1	56.98	8163.4	21Jul2007, 20:50	1.24
J-L	19.68	10001.0	21Jul2007, 19:50	3.92
J-L1	9.18	4083.6	21Jul2007, 19:25	3.46
J-M	106.66	36086.9	21Jul2007, 20:00	3.14
J-M1	21.94	18186.7	21Jul2007, 19:15	6.23
J-M2	15.57	10592.4	21Jul2007, 19:15	4.99
J-M2.1	11.96	7334.5	21Jul2007, 19:25	4.68
J-M3	6.89	3694.7	21Jul2007, 19:35	3.23
J-N	131.40	46770.1	21Jul2007, 20:00	3.99
J-O	15.51	12416.1	21Jul2007, 19:00	6.53
J-O1	9.68	8031.2	21Jul2007, 18:50	6.31
J-P	148.03	53558.9	21Jul2007, 21:35	4.50
J-Q	163.59	53384.7	21Jul2007, 23:05	4.57
J-R	7.16	7707.2	21Jul2007, 20:00	10.62
J-S	8.07	6262.2	21Jul2007, 19:15	6.36

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
J-T	171.81	52572.4	22Jul2007, 01:15	4.36
J-Ta	180.38	52789.6	22Jul2007, 01:15	4.24
J-Tc	182.36	52799.1	22Jul2007, 01:15	4.20
J-V	188.84	52042.4	22Jul2007, 03:15	4.04
J-W	10.01	4099.5	21Jul2007, 19:05	3.18
J-X	17.87	1100.4	21Jul2007, 21:45	1.08
J-Y	23.70	1158.8	22Jul2007, 00:35	0.97
J-Z	28.85	1143.7	22Jul2007, 05:15	0.76
J-Z1	25.51	1150.8	22Jul2007, 02:10	0.90
K	8.06	7954.3	21Jul2007, 19:10	6.31
L	10.50	6487.9	21Jul2007, 19:45	4.32
L-1	9.18	4083.6	21Jul2007, 19:25	3.46
M	6.37	8723.2	21Jul2007, 19:05	9.26
M-1	3.61	3407.2	21Jul2007, 19:00	5.99
M-2	5.07	4877.5	21Jul2007, 19:00	6.67
M-3	6.89	3694.7	21Jul2007, 19:35	3.23
N	9.23	11615.2	21Jul2007, 18:55	9.55
O	5.83	5314.4	21Jul2007, 18:40	6.89
O1	9.68	8031.2	21Jul2007, 18:50	6.31
P	9.47	9869.1	21Jul2007, 18:45	6.99
Parkers Creek Dam	10.01	189.5	21Jul2007, 23:40	0.86

APPENDIX A.2

EXISTING CONDITIONS MODEL

Project: SECO_WATERSHED_TYPE_II Analysis: 10 YR Area Reduction Run: EC 10YR

Start of Run: 15Dec2009, 00:00 Basin Model: EC Seco & Parkers Creeks
End of Run: 17Dec2009, 00:00 Meteorologic Model: 10-yr
Compute Time: 09Feb2011, 10:41:56 Control Specifications: CONTROL

Analysis Point	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak
J-DS	217.69	30768.91	15Dec2009, 23:30
J-Q	163.59	27214.64	15Dec2009, 19:55
J-T	171.81	27229.22	15Dec2009, 21:50
J-Ta	180.38	27795.89	15Dec2009, 21:45
J-Tc	182.36	27913.39	15Dec2009, 21:45
J-V	188.84	28025.90	15Dec2009, 23:30
J-Y	23.70	2988.40	15Dec2009, 19:05
J-Z	28.85	3642.09	15Dec2009, 18:30
J-Z1	25.51	3047.78	15Dec2009, 20:30
U	8.57	4231.99	15Dec2009, 15:10
Z-2	1.98	894.32	15Dec2009, 15:10

Project: SECO_WATERSHED_TYPE_II Analysis: 25 YR Area Reduction Run: EC 25YR

Start of Run: 15Dec2009, 00:00 Basin Model: EC Seco & Parkers Creeks
End of Run: 17Dec2009, 00:00 Meteorologic Model: 25-yr
Compute Time: 09Feb2011, 10:43:12 Control Specifications: CONTROL

Analysis Point	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak
J-DS	217.69	45019.39	16Dec2009, 00:40
J-Q	163.59	41443.52	15Dec2009, 20:00
J-T	171.81	41396.46	15Dec2009, 21:55
J-Ta	180.38	42064.07	15Dec2009, 21:50
J-Tc	182.36	42204.68	15Dec2009, 21:45
J-V	188.84	41798.50	16Dec2009, 00:55
J-Y	23.70	4239.65	15Dec2009, 18:50
J-Z	28.85	5176.07	15Dec2009, 18:05
J-Z1	25.51	4268.73	15Dec2009, 20:40
U	8.57	5740.16	15Dec2009, 15:10
Z-2	1.98	1245.26	15Dec2009, 15:10

Project: SECO_WATERSHED_TYPE_II Analysis: 50 YR Area Reduction Run: EC 50YR

Start of Run:	15Dec2009, 00:00	Basin Model:	EC Seco & Parkers Creeks
End of Run:	17Dec2009, 00:00	Meteorologic Model:	50-yr
Compute Time:	09Feb2011, 10:44:19	Control Specifications:	CONTROL

Analysis Point	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak
J-DS	217.69	59515.04	15Dec2009, 23:30
J-Q	163.59	55008.41	15Dec2009, 19:35
J-T	171.81	54248.85	15Dec2009, 21:50
J-Ta	180.38	54964.75	15Dec2009, 21:45
J-Tc	182.36	55113.02	15Dec2009, 21:45
J-V	188.84	54910.36	15Dec2009, 23:30
J-Y	23.70	5401.28	15Dec2009, 18:30
J-Z	28.85	6234.28	15Dec2009, 18:10
J-Z1	25.51	5425.87	15Dec2009, 20:10
U	8.57	6992.87	15Dec2009, 15:10
Z-2	1.98	1538.85	15Dec2009, 15:10

Project:	SECO_WATERSHED_TYPE_II	Analysis:	100 YR Area Reduction	Run:	EC 100YR

Start of Run:	15Dec2009, 00:00	Basin Model:	EC Seco & Parkers Creeks
End of Run:	17Dec2009, 00:00	Meteorologic Model:	100-yr
Compute Time:	13Jan2011, 16:40:29	Control Specifications:	CONTROL

Analysis Point	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak
J-DS	217.69	81232.79	15Dec2009, 23:00
J-Q	163.59	74552.13	15Dec2009, 19:10
J-T	171.81	74052.47	15Dec2009, 21:10
J-Ta	180.38	75217.17	15Dec2009, 21:05
J-Tc	182.36	75470.63	15Dec2009, 21:05
J-V	188.84	75164.91	15Dec2009, 23:00
J-Y	23.70	6873.66	15Dec2009, 18:10
J-Z	28.85	7760.40	15Dec2009, 18:20
J-Z1	25.51	6945.50	15Dec2009, 19:45
U	8.57	8545.01	15Dec2009, 15:10
Z-2	1.98	1908.26	15Dec2009, 15:10

APPENDIX A.3

ALTERNATIVE 1 MODEL

Project: SECO_WATERSHED_TYPE_II Analysis: ALT 1 10 Run: ALT 1 10 YEAR

Start of Run:	15Dec2009, 00:00	Basin Model:	ALTERNATIVE1
End of Run:	17Dec2009, 00:00	Meteorologic Model:	10-yr
Compute Time:	13Jan2011, 16:43:31	Control Specifications:	CONTROL

Analysis Point	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak
J-DS	217.69	28727.49	16Dec2009, 02:45
J-Q	163.59	27214.64	15Dec2009, 19:55
J-T	171.81	26707.00	15Dec2009, 22:55
J-Ta	180.38	27133.57	15Dec2009, 22:50
J-Tc	180.38	27133.57	15Dec2009, 22:50
J-V	186.86	26526.12	16Dec2009, 03:00
J-Y	23.70	2988.40	15Dec2009, 19:05
J-Z	30.83	2951.85	16Dec2009, 00:55
J-Z1	27.49	2959.98	15Dec2009, 22:15
U	8.57	4231.99	15Dec2009, 15:10
Z-2	1.98	894.32	15Dec2009, 15:10

Project: SECO_WATERSHED_TYPE_II Analysis: ALT 1 25 Run: ALT 1 25 YEAR

Start of Run: 15Dec2009, 00:00 Basin Model: ALTERNATIVE1
End of Run: 17Dec2009, 00:00 Meteorologic Model: 25-yr
Compute Time: 13Jan2011, 17:03:34 Control Specifications: CONTROL

Analysis Point	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak
J-DS	217.69	38363.71	16Dec2009, 04:10
J-Q	163.59	41443.52	15Dec2009, 20:00
J-T	171.81	40768.84	15Dec2009, 22:45
J-Ta	180.38	41261.83	15Dec2009, 22:40
J-Tc	180.38	41261.83	15Dec2009, 22:40
J-V	186.86	36150.02	16Dec2009, 04:10
J-Y	23.70	4239.65	15Dec2009, 18:50
J-Z	30.83	4166.97	16Dec2009, 00:25
J-Z1	27.49	4201.79	15Dec2009, 21:45
U	8.57	5740.16	15Dec2009, 15:10
Z-2	1.98	1245.26	15Dec2009, 15:10

Project: SECO_WATERSHED_TYPE_II Analysis: ALT 1 50 Run: ALT 1 50 YEAR

Start of Run: 15Dec2009, 00:00 Basin Model: ALTERNATIVE1
End of Run: 17Dec2009, 00:00 Meteorologic Model: 50-yr
Compute Time: 13Jan2011, 17:05:58 Control Specifications: CONTROL

Analysis Point	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak
J-DS	217.69	56879.69	16Dec2009, 01:30
J-Q	163.59	55008.41	15Dec2009, 19:35
J-T	171.81	53118.25	15Dec2009, 22:40
J-Ta	180.38	53598.07	15Dec2009, 22:35
J-Tc	180.38	53598.07	15Dec2009, 22:35
J-V	186.86	52721.18	16Dec2009, 01:30
J-Y	23.70	5401.28	15Dec2009, 18:30
J-Z	30.83	5209.18	16Dec2009, 00:05
J-Z1	27.49	5297.40	15Dec2009, 21:25
U	8.57	6992.87	15Dec2009, 15:10
Z-2	1.98	1538.85	15Dec2009, 15:10

Project: SECO_WATERSHED_TYPE_II Analysis: ALT 1 100 Run: ALT 1 100 YEAR

Start of Run: 15Dec2009, 00:00 Basin Model: ALTERNATIVE1
End of Run: 17Dec2009, 00:00 Meteorologic Model: 100-yr
Compute Time: 07Feb2011, 10:16:37 Control Specifications: CONTROL

Analysis Point	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak
J-DS	217.69	75614.47	16Dec2009, 01:20
J-Q	163.59	74552.13	15Dec2009, 19:10
J-T	171.81	71014.72	15Dec2009, 22:45
J-Ta	180.38	71593.73	15Dec2009, 22:40
J-Tc	180.38	71593.73	15Dec2009, 22:40
J-V	186.86	70367.02	16Dec2009, 01:25
J-Y	23.70	6873.66	15Dec2009, 18:10
J-Z	30.83	6800.41	15Dec2009, 22:35
J-Z1	27.49	6807.40	15Dec2009, 21:05
U	8.57	8545.01	15Dec2009, 15:10
Z-2	1.98	1908.26	15Dec2009, 15:10

APPENDIX A.4

ALTERNATIVE 2 MODEL

Project: SECO_WATERSHED_TYPE_II Analysis: ALT2 10 Run: ALT 2 10 YEAR

Start of Run: 15Dec2009, 00:00 Basin Model: ALTERNATIVE2
End of Run: 17Dec2009, 00:00 Meteorologic Model: 10-yr
Compute Time: 13Jan2011, 17:08:21 Control Specifications: CONTROL

Analysis Point	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak
J-DS	217.69	28729.49	16Dec2009, 02:30
J-Q	163.59	27214.64	15Dec2009, 19:55
J-T	171.81	26635.59	15Dec2009, 22:45
J-Ta	180.38	27084.52	15Dec2009, 22:40
J-Tc	180.38	27084.52	15Dec2009, 22:40
J-V	186.86	26509.26	16Dec2009, 02:50
J-Y	23.70	2988.40	15Dec2009, 19:05
J-Z	30.83	2932.15	16Dec2009, 00:45
J-Z1	27.49	2924.53	15Dec2009, 22:15
U	8.57	4231.99	15Dec2009, 15:10
Z-2	1.98	894.32	15Dec2009, 15:10

Project: SECO_WATERSHED_TYPE_II Analysis: ALT2 25 Run: ALT 2 25 YEAR

Start of Run:	15Dec2009, 00:00	Basin Model:	ALTERNATIVE2
End of Run:	17Dec2009, 00:00	Meteorologic Model:	25-yr
Compute Time:	13Jan2011, 16:45:24	Control Specifications:	CONTROL

Analysis Point	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak
J-DS	217.69	38350.10	16Dec2009, 04:05
J-Q	163.59	41443.52	15Dec2009, 20:00
J-T	171.81	40600.77	15Dec2009, 22:40
J-Ta	180.38	41109.44	15Dec2009, 22:35
J-Tc	180.38	41109.44	15Dec2009, 22:35
J-V	186.86	36136.21	16Dec2009, 04:05
J-Y	23.70	4239.65	15Dec2009, 18:50
J-Z	30.83	4141.33	16Dec2009, 00:15
J-Z1	27.49	4159.16	15Dec2009, 21:45
U	8.57	5740.16	15Dec2009, 15:10
Z-2	1.98	1245.26	15Dec2009, 15:10

Project: SECO_WATERSHED_TYPE_II   Analysis: ALT2 50   Run: ALT 2 50 YEAR

Start of Run:	15Dec2009, 00:00	Basin Model:	ALTERNATIVE2
End of Run:	17Dec2009, 00:00	Meteorologic Model:	50-yr
Compute Time:	13Jan2011, 17:10:17	Control Specifications:	CONTROL

Analysis Point	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak
J-DS	217.69	56248.83	16Dec2009, 01:35
J-Q	163.59	55008.41	15Dec2009, 19:35
J-T	171.81	52485.83	15Dec2009, 22:55
J-Ta	180.38	52919.04	15Dec2009, 22:55
J-Tc	180.38	52919.04	15Dec2009, 22:55
J-V	186.86	52216.47	16Dec2009, 01:45
J-Y	23.70	5401.28	15Dec2009, 18:30
J-Z	30.83	5177.91	15Dec2009, 23:55
J-Z1	27.49	5246.21	15Dec2009, 21:25
U	8.57	6992.87	15Dec2009, 15:10
Z-2	1.98	1538.85	15Dec2009, 15:10

Project: SECO_WATERSHED_TYPE_II Analysis: ALT2 100 Run: ALT 2 100 YEAR

Start of Run: 15Dec2009, 00:00 Basin Model: ALTERNATIVE2
End of Run: 17Dec2009, 00:00 Meteorologic Model: 100-yr
Compute Time: 13Jan2011, 16:44:42 Control Specifications: CONTROL

Analysis Point	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak
J-DS	217.69	75902.71	16Dec2009, 00:55
J-Q	163.59	74552.13	15Dec2009, 19:10
J-T	171.81	71265.87	15Dec2009, 22:10
J-Ta	180.38	72023.57	15Dec2009, 22:05
J-Tc	180.38	72023.57	15Dec2009, 22:05
J-V	186.86	70501.93	16Dec2009, 00:55
J-Y	23.70	6873.66	15Dec2009, 18:10
J-Z	30.83	6739.59	15Dec2009, 22:35
J-Z1	27.49	6747.40	15Dec2009, 21:00
U	8.57	8545.01	15Dec2009, 15:10
Z-2	1.98	1908.26	15Dec2009, 15:10

APPENDIX A.5

ALTERNATIVE 3 MODEL

Project: SECO_WATERSHED_TYPE_II Analysis: ALT 3 10 Run: ALT 3 10 YEAR

Start of Run:	15Dec2009, 00:00	Basin Model:	ALTERNATIVE3
End of Run:	17Dec2009, 00:00	Meteorologic Model:	10-yr
Compute Time:	13Jan2011, 17:12:26	Control Specifications:	CONTROL

Analysis Point	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak
J-DS	217.69	28875.74	16Dec2009, 02:10
J-Q	163.59	27214.64	15Dec2009, 19:55
J-T	171.81	26671.58	15Dec2009, 22:40
J-Ta	180.38	27129.28	15Dec2009, 22:35
J-Tc	180.38	27129.28	15Dec2009, 22:35
J-V	186.86	26562.64	16Dec2009, 02:25
J-Y	23.70	2988.40	15Dec2009, 19:05
J-Z	30.83	2932.15	16Dec2009, 00:45
J-Z1	27.49	2924.53	15Dec2009, 22:15
U	8.57	4231.99	15Dec2009, 15:10
Z-2	1.98	894.32	15Dec2009, 15:10

Project: SECO_WATERSHED_TYPE_II Analysis: ALT 3 25 Run: ALT 3 25 YEAR

Start of Run:	15Dec2009, 00:00	Basin Model:	ALTERNATIVE3
End of Run:	17Dec2009, 00:00	Meteorologic Model:	25-yr
Compute Time:	13Jan2011, 17:14:04	Control Specifications:	CONTROL

Analysis Point	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak
J-DS	217.69	41295.74	16Dec2009, 02:25
J-Q	163.59	41443.52	15Dec2009, 20:00
J-T	171.81	40766.85	15Dec2009, 22:25
J-Ta	180.38	41318.68	15Dec2009, 22:20
J-Tc	180.38	41318.68	15Dec2009, 22:20
J-V	186.86	38444.53	16Dec2009, 02:25
J-Y	23.70	4239.65	15Dec2009, 18:50
J-Z	30.83	4141.33	16Dec2009, 00:15
J-Z1	27.49	4159.16	15Dec2009, 21:45
U	8.57	5740.16	15Dec2009, 15:10
Z-2	1.98	1245.26	15Dec2009, 15:10

Project: SECO_WATERSHED_TYPE_II Analysis: ALT3 50 Run: ALT 3 50 YR

Start of Run:	15Dec2009, 00:00	Basin Model:	ALTERNATIVE3
End of Run:	17Dec2009, 00:00	Meteorologic Model:	50-yr
Compute Time:	13Jan2011, 16:46:47	Control Specifications:	CONTROL

Analysis Point	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak
J-DS	217.69	56497.52	16Dec2009, 01:20
J-Q	163.59	55008.41	15Dec2009, 19:35
J-T	171.81	52683.51	15Dec2009, 22:45
J-Ta	180.38	53152.21	15Dec2009, 22:40
J-Tc	180.38	53152.21	15Dec2009, 22:40
J-V	186.86	52367.61	16Dec2009, 01:30
J-Y	23.70	5401.28	15Dec2009, 18:30
J-Z	30.83	5177.91	15Dec2009, 23:55
J-Z1	27.49	5246.21	15Dec2009, 21:25
U	8.57	6992.87	15Dec2009, 15:10
Z-2	1.98	1538.85	15Dec2009, 15:10

Project: SECO_WATERSHED_TYPE_II Analysis: ALT3 100 Run: ALT 3 100 YR

Start of Run:	15Dec2009, 00:00	Basin Model:	ALTERNATIVE3
End of Run:	17Dec2009, 00:00	Meteorologic Model:	100-yr
Compute Time:	13Jan2011, 16:46:02	Control Specifications:	CONTROL

Analysis Point	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak
J-DS	217.69	77253.85	16Dec2009, 00:10
J-Q	163.59	74552.13	15Dec2009, 19:10
J-T	171.81	73091.77	15Dec2009, 21:20
J-Ta	180.38	74182.68	15Dec2009, 21:15
J-Tc	180.38	74182.68	15Dec2009, 21:15
J-V	186.86	71637.40	16Dec2009, 00:10
J-Y	23.70	6873.66	15Dec2009, 18:10
J-Z	30.83	6739.59	15Dec2009, 22:35
J-Z1	27.49	6747.40	15Dec2009, 21:00
U	8.57	8545.01	15Dec2009, 15:10
Z-2	1.98	1908.26	15Dec2009, 15:10

APPENDIX B

APPENDIX B – HEC-RAS SUMMARY TABLES

APPENDIX B.1 – HEC-RAS SUMMARY FOR EXISTING CONDITIONS

APPENDIX B.2 – HEC-RAS SUMMARY FOR ALTERNATIVE 1

APPENDIX B.3 – HEC-RAS SUMMARY FOR ALTERNATIVE 2

APPENDIX B.4 – HEC-RAS SUMMARY FOR ALTERNATIVE 3

APPENDIX B.1

HEC-RAS SUMMARY FOR EXISTING CONDITIONS

HEC-RAS Plan: EC_BALANCED

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
W_Trib	1	5731	2007 FLOOD	1.00	912.00	912.10	912.02	912.10	0.001807	0.19	5.20	59.01	0.11
W_Trib	1	5731	10 YEAR	1.00	912.00	912.08	912.02	912.09	0.003338	0.23	4.31	58.40	0.15
W_Trib	1	5731	25 YEAR	1.00	912.00	912.08	912.02	912.09	0.003338	0.23	4.31	58.40	0.15
W_Trib	1	5731	50 YEAR	1.00	912.00	912.08	912.02	912.09	0.003338	0.23	4.31	58.40	0.15
W_Trib	1	5731	100 YEAR	6553.00	912.00	916.63		916.71	0.002530	2.77	3388.62	1593.92	0.25
W_Trib	1	4967	2007 FLOOD	1.00	910.10	910.46	910.28	910.46	0.002625	0.37	2.69	15.01	0.15
W_Trib	1	4967	10 YEAR	1.00	910.10	910.50	910.28	910.50	0.001407	0.29	3.40	16.87	0.12
W_Trib	1	4967	25 YEAR	1.00	910.10	910.50	910.28	910.50	0.001407	0.29	3.40	16.87	0.12
W_Trib	1	4967	50 YEAR	1.00	910.10	910.50	910.28	910.50	0.001407	0.29	3.40	16.87	0.12
W_Trib	1	4967	100 YEAR	6553.00	910.10	914.12		914.21	0.004456	3.25	3224.33	1792.76	0.32
W_Trib	1	4046	2007 FLOOD	1.00	907.00	907.02		907.02	0.005699	0.13	8.61	434.58	0.16
W_Trib	1	4046	10 YEAR	1.00	907.00	907.02		907.02	0.029609	0.20	5.20	422.21	0.33
W_Trib	1	4046	25 YEAR	1.00	907.00	907.02		907.02	0.029609	0.20	5.20	422.21	0.33
W_Trib	1	4046	50 YEAR	1.00	907.00	907.02		907.02	0.029609	0.20	5.20	422.21	0.33
W_Trib	1	4046	100 YEAR	6553.00	907.00	910.18		910.28	0.004102	3.11	2978.91	1433.31	0.31
W_Trib	1	2892	2007 FLOOD	1.00	903.00	903.02	903.02	903.02	0.002329	0.09	12.54	580.27	0.10
W_Trib	1	2892	10 YEAR	1.00	903.00	903.03		903.03	0.001260	0.07	15.10	581.45	0.08
W_Trib	1	2892	25 YEAR	1.00	903.00	903.03		903.03	0.001260	0.07	15.10	581.45	0.08
W_Trib	1	2892	50 YEAR	1.00	903.00	903.03		903.03	0.001260	0.07	15.10	581.45	0.08
W_Trib	1	2892	100 YEAR	6553.00	903.00	906.13		906.20	0.003064	2.67	3495.68	1773.49	0.27
W_Trib	1	1596	2007 FLOOD	1.00	899.00	899.05		899.05	0.001228	0.11	10.61	217.93	0.09
W_Trib	1	1596	10 YEAR	1.00	899.00	899.02	899.02	899.02	0.016473	0.24	4.76	206.21	0.28
W_Trib	1	1596	25 YEAR	1.00	899.00	899.02	899.02	899.02	0.016473	0.24	4.76	206.21	0.28
W_Trib	1	1596	50 YEAR	1.00	899.00	899.02	899.02	899.02	0.016473	0.24	4.76	206.21	0.28
W_Trib	1	1596	100 YEAR	6553.00	899.00	902.64		902.69	0.002395	2.56	4427.02	2166.40	0.24
W_Trib	1	441	2007 FLOOD	1.00	894.00	894.03	894.03	894.04	0.315133	0.84	1.19	71.29	1.14
W_Trib	1	441	10 YEAR	1.00	894.00	894.31		894.31	0.000015	0.04	27.23	106.77	0.01
W_Trib	1	441	25 YEAR	1.00	894.00	895.21		895.21	0.000000	0.01	225.92	303.76	0.00
W_Trib	1	441	50 YEAR	1.00	894.00	896.00		896.00	0.000000	0.00	485.17	389.56	0.00
W_Trib	1	441	100 YEAR	6553.00	894.00	899.96		900.05	0.002169	3.47	3386.37	1224.31	0.25
Unnamed_TribSeco	1	3937	2007 FLOOD	1693.00	897.00	898.25	898.25	898.64	0.050643	5.45	388.49	529.47	0.92
Unnamed_TribSeco	1	3937	10 YEAR	4232.00	897.00	898.91	898.91	899.53	0.047381	7.21	759.90	602.13	0.96
Unnamed_TribSeco	1	3937	25 YEAR	5740.00	897.00	899.31	899.31	899.98	0.040452	7.64	1036.08	754.36	0.92
Unnamed_TribSeco	1	3937	50 YEAR	6993.00	897.00	899.51	899.51	900.25	0.040556	8.13	1191.08	772.25	0.94
Unnamed_TribSeco	1	3937	100 YEAR	8545.00	897.00	899.75	899.75	900.56	0.039753	8.59	1380.79	793.61	0.94
Unnamed_TribSeco	1	3351	2007 FLOOD	1693.00	889.00	893.00		893.05	0.001443	2.12	1189.62	590.65	0.19
Unnamed_TribSeco	1	3351	10 YEAR	4232.00	889.00	894.58		894.67	0.001846	3.01	2358.40	925.90	0.23
Unnamed_TribSeco	1	3351	25 YEAR	5740.00	889.00	895.18		895.29	0.002037	3.40	2999.23	1145.48	0.24
Unnamed_TribSeco	1	3351	50 YEAR	6993.00	889.00	895.55		895.66	0.002148	3.63	3425.90	1178.22	0.25
Unnamed_TribSeco	1	3351	100 YEAR	8545.00	889.00	895.93		896.06	0.002309	3.92	3884.44	1215.34	0.27
Unnamed_TribSeco	1	2499	2007 FLOOD	1693.00	888.00	889.06	889.06	889.43	0.049196	4.99	367.12	582.20	0.89
Unnamed_TribSeco	1	2499	10 YEAR	4232.00	888.00	889.70	889.70	890.29	0.043501	6.58	773.51	676.34	0.91
Unnamed_TribSeco	1	2499	25 YEAR	5740.00	888.00	890.10	890.10	890.73	0.035427	6.88	1076.19	885.74	0.85
Unnamed_TribSeco	1	2499	50 YEAR	6993.00	888.00	890.34	890.30	890.98	0.032490	7.10	1291.83	922.20	0.83
Unnamed_TribSeco	1	2499	100 YEAR	8545.00	888.00	890.65	890.52	891.27	0.027988	7.17	1585.94	993.81	0.79
Unnamed_TribSeco	1	2128	2007 FLOOD	1693.00	882.00	885.57	883.88	885.64	0.002387	2.37	910.65	438.62	0.24
Unnamed_TribSeco	1	2128	10 YEAR	4232.00	882.00	887.11	884.87	887.24	0.002885	3.41	1871.23	842.28	0.28
Unnamed_TribSeco	1	2128	25 YEAR	5740.00	882.00	888.02	885.40	888.15	0.002363	3.48	2790.04	1220.02	0.26
Unnamed_TribSeco	1	2128	50 YEAR	6993.00	882.00	888.28	885.70	888.43	0.002699	3.84	3108.71	1238.09	0.28
Unnamed_TribSeco	1	2128	100 YEAR	8545.00	882.00	888.77	886.32	888.92	0.002533	3.92	3725.79	1270.92	0.28
Unnamed_TribSeco	1	1774	2007 FLOOD	1693.00	881.00	884.12	883.21	884.28	0.007210	3.75	679.26	481.74	0.40
Unnamed_TribSeco	1	1774	10 YEAR	4232.00	881.00	886.09	884.32	886.19	0.003102	3.55	2177.15	1181.91	0.29
Unnamed_TribSeco	1	1774	25 YEAR	5740.00	881.00	887.44	884.68	887.50	0.001421	2.85	3979.01	2059.23	0.20
Unnamed_TribSeco	1	1774	50 YEAR	6993.00	881.00	887.57	884.86	887.64	0.001847	3.29	4165.01	2065.47	0.23
Unnamed_TribSeco	1	1774	100 YEAR	8545.00	881.00	888.26	885.47	888.31	0.001196	2.84	6198.87	2124.87	0.19
Unnamed_TribSeco	1	967	2007 FLOOD	1693.00	874.39	881.95	878.65	882.05	0.001740	2.52	671.53	480.79	0.21
Unnamed_TribSeco	1	967	10 YEAR	3874.00	874.39	884.40	880.14	884.61	0.001992	3.64	1093.50	1351.11	0.25
Unnamed_TribSeco	1	967	25 YEAR	4836.00	874.39	886.53	880.67	886.71	0.001216	3.40	1467.74	1860.46	0.20
Unnamed_TribSeco	1	967	50 YEAR	4859.00	874.39	886.58	880.69	886.75	0.001204	3.40	1476.32	1869.89	0.20
Unnamed_TribSeco	1	967	100 YEAR	5319.00	874.39	887.52	880.91	887.69	0.001025	3.35	1641.53	1907.75	0.19
Unnamed_TribSeco	1	951		Bridge									
Unnamed_TribSeco	1	857	2007 FLOOD	1693.00	874.39	881.53	878.63	881.66	0.002423	2.94	602.36	266.50	0.25
Unnamed_TribSeco	1	857	10 YEAR	3874.00	874.39	883.84	880.16	884.06	0.002459	3.95	1130.88	648.80	0.27
Unnamed_TribSeco	1	857	25 YEAR	4836.00	874.39	885.50	880.70	885.68	0.001591	3.70	1529.19	1194.99	0.23
Unnamed_TribSeco	1	857	50 YEAR	4859.00	874.39	885.54	880.71	885.72	0.001576	3.69	1538.64	1200.02	0.23
Unnamed_TribSeco	1	857	100 YEAR	5319.00	874.39	886.29	880.95	886.47	0.001347	3.62	1720.42	1245.31	0.21
Unnamed_TribSeco	1	775	2007 FLOOD	1693.00	874.39	881.27	878.62	881.42	0.003482	3.12	542.60	156.86	0.29
Unnamed_TribSeco	1	775	10 YEAR	3874.00	874.39	883.52	880.13	883.81	0.003421	4.29	929.62	244.10	0.31
Unnamed_TribSeco	1	775	25 YEAR	4836.00	874.39	885.26	880.81	885.51	0.002151	4.05	1236.10	359.39	0.26
Unnamed_TribSeco	1	775	50 YEAR	4859.00	874.39	885.31	880.82	885.55	0.002130	4.05	1243.39	373.17	0.26
Unnamed_TribSeco	1	775	100 YEAR	5319.00	874.39	886.08	881.07	886.32	0.001824	4.00	1379.77	597.57	0.24
Unnamed_TribSeco	1	767		Bridge									

HEC-RAS Plan: EC_BALANCED (Continued)

River	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)	
Unnamed_TribSeco	1	622	2007 FLOOD	1693.00	874.39	878.86	878.41	879.45	0.021798	6.28	294.59	153.31	0.69
Unnamed_TribSeco	1	622	10 YEAR	3874.00	874.39	880.17	879.83	881.25	0.024402	8.77	519.79	190.25	0.79
Unnamed_TribSeco	1	622	25 YEAR	4836.00	874.39	880.58	880.32	881.86	0.025909	9.67	600.35	202.78	0.82
Unnamed_TribSeco	1	622	50 YEAR	4859.00	874.39	880.59	880.34	881.88	0.026031	9.70	601.44	202.94	0.83
Unnamed_TribSeco	1	622	100 YEAR	5319.00	874.39	880.76	880.55	882.15	0.026761	10.10	637.69	209.33	0.84
Unnamed_TribSeco	1	562	2007 FLOOD	1693.00	874.00	878.53		878.63	0.002407	2.78	818.86	388.43	0.25
Unnamed_TribSeco	1	562	10 YEAR	3874.00	874.00	879.86		880.05	0.003428	4.03	1457.86	570.22	0.31
Unnamed_TribSeco	1	562	25 YEAR	4836.00	874.00	880.28		880.51	0.003944	4.55	1743.58	747.94	0.34
Unnamed_TribSeco	1	562	50 YEAR	4859.00	874.00	880.29		880.52	0.003967	4.57	1746.14	748.05	0.34
Unnamed_TribSeco	1	562	100 YEAR	5319.00	874.00	880.48		880.71	0.003898	4.63	1894.24	754.73	0.34
Unnamed_TribSeco	1	223	2007 FLOOD	1693.00	874.00	877.60	875.77	877.70	0.002837	2.77	843.50	477.79	0.26
Unnamed_TribSeco	1	223	10 YEAR	3874.00	874.00	876.95	876.95	877.90	0.034609	8.41	581.38	337.56	0.89
Unnamed_TribSeco	1	223	25 YEAR	4836.00	874.00	877.25	877.25	878.32	0.035425	9.10	691.84	395.32	0.91
Unnamed_TribSeco	1	223	50 YEAR	4859.00	874.00	877.71	877.25	878.43	0.020487	7.60	897.66	506.84	0.71
Unnamed_TribSeco	1	223	100 YEAR	5319.00	874.00	878.07	877.38	878.69	0.016276	7.22	1099.23	613.53	0.64
Trib_Parkers	1	13917	2007 FLOOD	83.00	921.46	922.21		922.21	0.001854	0.35	201.92	622.05	0.13
Trib_Parkers	1	13917	10 YEAR	894.00	921.46	923.36		923.38	0.001905	1.23	1199.53	1889.52	0.19
Trib_Parkers	1	13917	25 YEAR	1245.00	921.46	923.57		923.58	0.001897	1.34	1614.75	2091.06	0.19
Trib_Parkers	1	13917	50 YEAR	1539.00	921.46	923.71		923.72	0.001916	1.43	1910.91	2202.34	0.19
Trib_Parkers	1	13917	100 YEAR	1908.00	921.46	923.87		923.89	0.001874	1.50	2277.75	2333.77	0.19
Trib_Parkers	1	13112	2007 FLOOD	83.00	919.63	920.52		920.53	0.002625	0.91	129.78	296.14	0.19
Trib_Parkers	1	13112	10 YEAR	894.00	919.63	921.63		921.65	0.002041	1.53	1249.78	1826.97	0.20
Trib_Parkers	1	13112	25 YEAR	1835.00	919.63	922.15		922.16	0.001966	1.78	2423.02	3083.17	0.21
Trib_Parkers	1	13112	50 YEAR	2840.00	919.63	922.44		922.46	0.001841	1.86	3347.78	3178.78	0.20
Trib_Parkers	1	13112	100 YEAR	3908.00	919.63	922.70		922.72	0.001768	1.94	4176.91	3200.78	0.20
Trib_Parkers	1	11204	2007 FLOOD	83.00	914.00	915.18		915.18	0.002196	0.70	119.77	240.96	0.17
Trib_Parkers	1	11204	10 YEAR	894.00	914.00	916.66		916.69	0.002203	1.71	659.80	580.51	0.21
Trib_Parkers	1	11204	25 YEAR	1835.00	914.00	917.45		917.50	0.002206	2.13	1201.77	752.90	0.22
Trib_Parkers	1	11204	50 YEAR	2840.00	914.00	918.07		918.14	0.002154	2.41	1698.06	891.48	0.23
Trib_Parkers	1	11204	100 YEAR	3908.00	914.00	918.60		918.68	0.002173	2.67	2283.44	1259.60	0.24
Trib_Parkers	1	9264	2007 FLOOD	83.00	910.00	910.60		910.62	0.004773	1.03	89.49	191.45	0.25
Trib_Parkers	1	9264	10 YEAR	894.00	910.00	911.85		911.91	0.005088	2.35	516.52	470.95	0.31
Trib_Parkers	1	9264	25 YEAR	1835.00	910.00	912.55		912.64	0.005105	2.95	875.87	539.90	0.33
Trib_Parkers	1	9264	50 YEAR	2940.00	910.00	913.19		913.31	0.005243	3.50	1302.46	815.12	0.35
Trib_Parkers	1	9264	100 YEAR	3908.00	910.00	913.57		913.70	0.005178	3.76	1626.31	889.81	0.36
Trib_Parkers	1	8246	2007 FLOOD	83.00	904.00	905.06		905.07	0.003042	0.90	94.38	196.78	0.20
Trib_Parkers	1	8246	10 YEAR	894.00	904.00	906.74		906.79	0.002760	2.08	534.81	352.16	0.24
Trib_Parkers	1	8246	25 YEAR	1835.00	904.00	907.62		907.71	0.003041	2.72	1039.89	807.82	0.27
Trib_Parkers	1	8246	50 YEAR	2940.00	904.00	908.20		908.31	0.003509	3.27	1600.42	1172.05	0.30
Trib_Parkers	1	8246	100 YEAR	3908.00	904.00	908.57		908.68	0.003413	3.43	2034.07	1193.08	0.30
Trib_Parkers	1	7384	2007 FLOOD	83.00	901.00	901.37	901.37	901.50	0.096114	2.87	28.91	112.08	1.00
Trib_Parkers	1	7384	10 YEAR	894.00	901.00	902.97		903.05	0.006542	2.74	472.22	493.49	0.36
Trib_Parkers	1	7384	25 YEAR	1835.00	901.00	903.70		903.80	0.005685	3.21	914.96	743.46	0.35
Trib_Parkers	1	7384	50 YEAR	2940.00	901.00	904.27		904.38	0.005435	3.59	1534.82	1262.06	0.36
Trib_Parkers	1	7384	100 YEAR	3908.00	901.00	905.52		905.56	0.001284	2.19	3219.75	1442.52	0.18
Trib_Parkers	2	4738	2007 FLOOD	83.00	889.00	890.41	889.46	890.42	0.001176	0.76	109.01	113.82	0.14
Trib_Parkers	2	4738	10 YEAR	894.00	889.00	892.32		892.40	0.002725	2.34	448.91	253.52	0.25
Trib_Parkers	2	4738	25 YEAR	1836.00	889.00	893.50		893.62	0.002773	3.00	790.92	330.21	0.27
Trib_Parkers	2	4738	50 YEAR	2940.00	889.00	894.56	892.20	894.70	0.002627	3.42	1187.59	411.40	0.27
Trib_Parkers	2	4738	100 YEAR	10461.00	889.00	897.28		897.64	0.004596	6.05	2899.87	915.71	0.38
Trib_Parkers	2	3718	2007 FLOOD	83.00	886.00	886.39	886.39	886.49	0.103685	2.56	32.40	157.86	1.00
Trib_Parkers	2	3718	10 YEAR	894.00	886.00	887.80		887.89	0.008336	2.43	368.61	294.22	0.38
Trib_Parkers	2	3718	25 YEAR	1836.00	886.00	888.31		888.50	0.011606	3.50	529.63	335.34	0.47
Trib_Parkers	2	3718	50 YEAR	2940.00	886.00	888.52		888.90	0.020030	4.97	601.56	350.02	0.63
Trib_Parkers	2	3718	100 YEAR	10461.00	886.00	892.10		892.49	0.005569	5.30	2409.84	677.33	0.40
Trib_Parkers	2	2703	2007 FLOOD	83.00	881.00	885.14		885.14	0.000002	0.07	1231.27	496.06	0.01
Trib_Parkers	2	2703	10 YEAR	894.00	881.00	883.47		883.51	0.002619	1.67	544.36	355.55	0.23
Trib_Parkers	2	2703	25 YEAR	1836.00	881.00	884.65		884.71	0.001794	1.97	1003.03	430.65	0.20
Trib_Parkers	2	2703	50 YEAR	2940.00	881.00	886.31		886.36	0.000882	1.87	1878.27	636.27	0.15
Trib_Parkers	2	2703	100 YEAR	10461.00	881.00	888.22		888.46	0.002913	4.28	3495.67	1361.74	0.30
Trib_Parkers	2	2304	2007 FLOOD	83.00	880.00	885.14		885.14	0.000001	0.05	2138.70	686.03	0.00
Trib_Parkers	2	2304	10 YEAR	894.00	880.00	882.46		882.50	0.002426	1.55	593.82	443.89	0.22
Trib_Parkers	2	2304	25 YEAR	1836.00	880.00	884.25		884.27	0.000699	1.37	1555.97	628.19	0.13
Trib_Parkers	2	2304	50 YEAR	2940.00	880.00	886.12		886.14	0.000355	1.31	2854.97	896.69	0.10
Trib_Parkers	2	2304	100 YEAR	10461.00	880.00	887.37		887.52	0.001883	3.46	4183.20	1183.61	0.24
Trib_Parkers	2	1696	2007 FLOOD	83.00	879.00	885.14		885.14	0.000000	0.03	3737.29	1359.60	0.00
Trib_Parkers	2	1696	10 YEAR	894.00	879.00	882.01		882.02	0.000380	0.83	1148.80	543.37	0.09
Trib_Parkers	2	1696	25 YEAR	1836.00	879.00	884.06		884.07	0.000195	0.88	2529.82	940.31	0.07
Trib_Parkers	2	1696	50 YEAR	6948.00	879.00	885.72		885.78	0.000753	2.13	4539.11	1385.75	0.15
Trib_Parkers	2	1696	100 YEAR	10461.00	879.00	886.67		886.75	0.000868	2.52	5856.63	1390.37	0.17
Trib_Parkers	3	930	2007 FLOOD	11468.00	877.00	884.58		884.60	0.000653	2.17	11851.72	4687.76	0.14
Trib_Parkers	3	930	10 YEAR	1443.00	877.00	881.40		881.41	0.000349	1.07	2570.07	1879.80	0.09

HEC-RAS Plan: EC_BALANCED (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Trib_Parkers	3	930	25 YEAR	2783.00	877.00	883.91		883.92	0.000058	0.61	8887.76	3477.96	0.04
Trib_Parkers	3	930	50 YEAR	8130.00	877.00	885.23		885.23	0.000185	1.22	15011.41	5019.86	0.08
Trib_Parkers	3	930	100 YEAR	13364.00	877.00	886.05		886.06	0.000247	1.51	19267.73	5266.94	0.09
Trib_Parkers	3	606	2007 FLOOD	5068.00	877.00	884.51		884.51	0.000083	0.78	11811.07	3215.80	0.05
Trib_Parkers	3	606	10 YEAR	1443.00	877.00	881.34		881.35	0.000124	0.65	4215.01	2235.27	0.06
Trib_Parkers	3	606	25 YEAR	4227.00	877.00	883.89		883.90	0.000074	0.70	9942.64	2256.37	0.05
Trib_Parkers	3	606	50 YEAR	8130.00	877.00	885.17		885.18	0.000156	1.14	14084.03	3674.84	0.07
Trib_Parkers	3	606	100 YEAR	13364.00	877.00	885.98		885.99	0.000242	1.51	17099.51	3919.28	0.09
Trib_Parkers	3	583	2007 FLOOD	5068.00	877.00	884.51		884.51	0.000082	0.77	12163.65	3257.21	0.05
Trib_Parkers	3	583	10 YEAR	1443.00	877.00	881.34		881.34	0.000115	0.62	4354.35	2291.03	0.05
Trib_Parkers	3	583	25 YEAR	4227.00	877.00	883.89		883.89	0.000072	0.68	10255.19	2431.68	0.05
Trib_Parkers	3	583	50 YEAR	8130.00	877.00	885.17		885.18	0.000150	1.10	14460.66	3734.09	0.07
Trib_Parkers	3	583	100 YEAR	13364.00	877.00	885.97		885.98	0.000239	1.49	17511.19	4005.46	0.09
Trib_Parkers	3	466	2007 FLOOD	5068.00	877.00	884.46	880.16	884.49	0.000464	1.86	4212.01	3057.18	0.12
Trib_Parkers	3	466	10 YEAR	1443.00	877.00	881.26	878.38	881.31	0.000926	1.82	900.41	1311.97	0.16
Trib_Parkers	3	466	25 YEAR	4227.00	877.00	883.73	879.81	883.86	0.001472	3.12	1535.35	2446.49	0.21
Trib_Parkers	3	466	50 YEAR	8130.00	877.00	885.15	881.09	885.16	0.000231	1.39	11975.45	3780.59	0.09
Trib_Parkers	3	466	100 YEAR	13364.00	877.00	885.93	882.39	885.95	0.000335	1.79	14996.50	3904.95	0.11
Trib_Parkers	3	450		Mult Open									
Trib_Parkers	3	367	2007 FLOOD	5068.00	877.00	883.04	880.40	883.30	0.003481	4.35	1321.30	2214.91	0.32
Trib_Parkers	3	367	10 YEAR	1443.00	877.00	880.77	878.61	880.87	0.002331	2.55	565.01	1254.58	0.24
Trib_Parkers	3	367	25 YEAR	4227.00	877.00	882.71	880.03	882.92	0.003002	3.88	1235.68	1994.01	0.29
Trib_Parkers	3	367	50 YEAR	8130.00	877.00	883.75	881.24	884.25	0.005917	6.12	1502.71	2637.82	0.42
Trib_Parkers	3	367	100 YEAR	13364.00	877.00	884.87	882.53	884.99	0.001549	3.45	5799.53	3964.61	0.22
Trib_Parkers	3	325	2007 FLOOD	5068.00	875.67	883.15	879.72	883.16	0.000137	0.96	7976.19	2862.02	0.06
Trib_Parkers	3	325	10 YEAR	1443.00	875.67	880.73	877.69	880.79	0.001056	2.04	793.46	1830.67	0.17
Trib_Parkers	3	325	25 YEAR	4227.00	875.67	882.79	879.30	882.80	0.000194	1.12	5555.90	2670.25	0.08
Trib_Parkers	3	325	50 YEAR	8130.00	875.67	883.97	880.70	883.98	0.000202	1.26	9997.21	3444.51	0.08
Trib_Parkers	3	325	100 YEAR	13364.00	875.67	884.89	881.09	884.92	0.000315	1.70	12428.41	3568.84	0.10
Trib_Parkers	3	317		Mult Open									
Trib_Parkers	3	205	2007 FLOOD	5068.00	875.67	882.55	879.33	882.67	0.001856	3.31	2703.06	2414.86	0.23
Trib_Parkers	3	205	10 YEAR	1443.00	875.67	880.63	877.23	880.68	0.000866	1.94	832.54	599.88	0.15
Trib_Parkers	3	205	25 YEAR	4227.00	875.67	882.23	878.86	882.35	0.001854	3.19	2211.66	2210.28	0.23
Trib_Parkers	3	205	50 YEAR	8130.00	875.67	883.33	880.42	883.43	0.001829	3.47	4610.93	3152.33	0.24
Trib_Parkers	3	205	100 YEAR	13364.00	875.67	884.41	882.54	884.52	0.001753	3.75	7547.38	4035.27	0.24
Trib_Parkers	3	100	2007 FLOOD	5068.00	876.00	880.07		880.18	0.005268	4.07	2346.15	1184.11	0.37
Trib_Parkers	3	100	10 YEAR	1443.00	876.00	877.81	877.81	878.27	0.042299	6.39	345.67	474.25	0.89
Trib_Parkers	3	100	25 YEAR	4227.00	876.00	879.68		879.79	0.005669	3.94	1927.63	1001.68	0.37
Trib_Parkers	3	100	50 YEAR	8130.00	876.00	881.14		881.25	0.003863	4.11	3683.10	1372.05	0.33
Trib_Parkers	3	100	100 YEAR	13364.00	876.00	882.38		882.50	0.003434	4.50	5538.76	1621.41	0.32
Trib_Parkers	3	50	2007 FLOOD	5068.00	871.68	878.88		878.91	0.000496	1.83	4837.04	1470.99	0.12
Trib_Parkers	3	50	10 YEAR	1443.00	871.68	877.12		877.13	0.000189	0.93	2622.19	1069.31	0.07
Trib_Parkers	3	50	25 YEAR	4227.00	871.68	878.59		878.61	0.000442	1.68	4434.24	1357.15	0.12
Trib_Parkers	3	50	50 YEAR	8130.00	871.68	879.69		879.73	0.000718	2.37	6154.51	1677.17	0.15
Trib_Parkers	3	50	100 YEAR	13364.00	871.68	880.17		880.26	0.001397	3.45	7026.37	1878.65	0.21
Trib_Parkers	3	25	2007 FLOOD	5068.00	874.00	878.43		878.49	0.003463	3.46	3007.23	1617.62	0.30
Trib_Parkers	3	25	10 YEAR	1443.00	874.00	876.87		876.92	0.004058	2.73	922.21	670.92	0.30
Trib_Parkers	3	25	25 YEAR	4227.00	874.00	878.15		878.22	0.003873	3.49	2566.52	1593.40	0.31
Trib_Parkers	3	25	50 YEAR	8130.00	874.00	879.11		879.19	0.003527	3.87	4178.01	1814.85	0.31
Trib_Parkers	3	25	100 YEAR	9590.00	874.00	879.43		879.51	0.003291	3.90	4748.27	1823.48	0.30
Trib_Parkers	3	10	2007 FLOOD	5068.00	873.00	877.61	875.44	877.63	0.000839	1.71	4939.18	2017.16	0.15
Trib_Parkers	3	10	10 YEAR	1443.00	873.00	876.10	874.45	876.11	0.000719	1.18	2120.25	1683.70	0.13
Trib_Parkers	3	10	25 YEAR	4227.00	873.00	877.11	875.30	877.14	0.001133	1.83	3946.24	1954.60	0.17
Trib_Parkers	3	10	50 YEAR	8130.00	873.00	877.71	875.78	877.76	0.001915	2.63	5141.60	2029.68	0.22
Trib_Parkers	3	10	100 YEAR	9590.00	873.00	878.04	875.87	878.10	0.001969	2.80	5825.39	2277.60	0.23
Seco Creek	1	68934	2007 FLOOD	53385.00	928.30	953.64		954.57	0.001951	8.87	10836.25	2463.82	0.35
Seco Creek	1	68934	10 YEAR	27215.00	928.30	947.64		948.59	0.002549	8.04	3982.10	394.58	0.37
Seco Creek	1	68934	25 YEAR	41444.00	928.30	951.25		952.38	0.002430	9.11	6699.48	1297.96	0.38
Seco Creek	1	68934	50 YEAR	55008.00	928.30	953.94		954.85	0.001905	8.85	11619.39	2748.37	0.34
Seco Creek	1	68934	100 YEAR	74552.00	928.30	956.98		957.51	0.001182	7.64	20508.38	3089.32	0.28
Seco Creek	1	67530	2007 FLOOD	53385.00	925.89	947.53		950.22	0.005331	13.86	5115.27	487.83	0.56
Seco Creek	1	67530	10 YEAR	27215.00	925.89	941.03		943.05	0.006624	11.62	2647.33	300.91	0.59
Seco Creek	1	67530	25 YEAR	41444.00	925.89	944.91		947.31	0.005667	12.92	3963.86	393.04	0.57
Seco Creek	1	67530	50 YEAR	55008.00	925.89	947.86		950.58	0.005293	13.97	5277.74	500.63	0.56
Seco Creek	1	67530	100 YEAR	74552.00	925.89	951.51	945.89	954.40	0.004761	14.89	8039.02	1998.27	0.55
Seco Creek	1	66632	2007 FLOOD	53385.00	915.81	945.55		947.07	0.002043	10.80	7194.35	492.24	0.37
Seco Creek	1	66632	10 YEAR	27215.00	915.81	939.51		940.30	0.001419	7.58	4682.91	352.33	0.30
Seco Creek	1	66632	25 YEAR	41444.00	915.81	943.13		944.33	0.001780	9.46	6083.75	425.10	0.34
Seco Creek	1	66632	50 YEAR	55008.00	915.81	945.85		947.42	0.002075	10.97	7343.99	501.70	0.37
Seco Creek	1	66632	100 YEAR	74552.00	915.81	949.10		951.19	0.002446	12.86	9177.89	636.91	0.41
Seco Creek	1	65736	2007 FLOOD	53385.00	913.11	944.03		945.38	0.001672	9.71	6855.99	394.75	0.33

HEC-RAS Plan: EC_BALANCED (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Seco Creek	1	65736	10 YEAR	27215.00	913.11	938.55		939.18	0.001028	6.51	4851.62	334.72	0.25
Seco Creek	1	65736	25 YEAR	41444.00	913.11	941.87		942.87	0.001388	8.35	6024.76	371.67	0.30
Seco Creek	1	65736	50 YEAR	55008.00	913.11	944.30		945.69	0.001710	9.88	6962.09	397.60	0.34
Seco Creek	1	65736	100 YEAR	74552.00	913.11	947.17		949.11	0.002137	11.82	8144.12	428.06	0.38
Seco Creek	1	64909	2007 FLOOD	53385.00	913.74	942.96		944.01	0.001437	8.42	7429.51	487.97	0.30
Seco Creek	1	64909	10 YEAR	27215.00	913.74	937.87		938.35	0.000876	5.60	5282.17	371.27	0.23
Seco Creek	1	64909	25 YEAR	41444.00	913.74	940.97		941.75	0.001182	7.20	6518.36	428.80	0.27
Seco Creek	1	64909	50 YEAR	55008.00	913.74	943.20		944.29	0.001470	8.57	7549.77	495.27	0.31
Seco Creek	1	64909	100 YEAR	74552.00	913.74	945.81		947.35	0.001841	10.28	8948.94	577.79	0.35
Seco Creek	1	63802	2007 FLOOD	53385.00	915.07	940.69		942.01	0.002282	10.68	8092.79	692.69	0.39
Seco Creek	1	63802	10 YEAR	27215.00	915.07	936.52		937.16	0.001325	7.16	5629.12	507.38	0.28
Seco Creek	1	63802	25 YEAR	41444.00	915.07	939.11		940.12	0.001649	9.18	7066.16	609.38	0.34
Seco Creek	1	63802	50 YEAR	55008.00	915.07	940.88		942.25	0.002341	10.87	8225.69	703.99	0.39
Seco Creek	1	63802	100 YEAR	74552.00	915.07	942.76		944.72	0.003121	13.20	9704.52	886.67	0.46
Seco Creek	1	62771	2007 FLOOD	53385.00	914.65	939.55		940.12	0.001207	7.44	14259.76	1833.29	0.28
Seco Creek	1	62771	10 YEAR	27215.00	914.65	935.59		935.97	0.000888	5.61	8227.86	1259.78	0.23
Seco Creek	1	62771	25 YEAR	41444.00	914.65	938.06		938.55	0.001052	6.64	11732.63	1579.88	0.26
Seco Creek	1	62771	50 YEAR	55008.00	914.65	939.73		940.31	0.001227	7.54	14589.85	1867.12	0.28
Seco Creek	1	62771	100 YEAR	74552.00	914.65	941.60		942.27	0.001385	8.45	18392.02	2213.16	0.30
Seco Creek	1	61550	2007 FLOOD	53385.00	915.63	938.54		938.77	0.000820	6.04	16795.52	2156.05	0.23
Seco Creek	1	61550	10 YEAR	27215.00	915.63	934.78		934.95	0.000660	4.78	9664.13	1596.49	0.20
Seco Creek	1	61550	25 YEAR	41444.00	915.63	937.17		937.37	0.000728	5.45	13992.32	1954.75	0.21
Seco Creek	1	61550	50 YEAR	55008.00	915.63	938.70		938.94	0.000834	6.12	17147.41	2183.74	0.23
Seco Creek	1	61550	100 YEAR	74552.00	915.63	940.40		940.69	0.000983	6.98	21088.66	2455.60	0.25
Seco Creek	1	60346	2007 FLOOD	53385.00	915.68	936.39		937.17	0.002305	9.18	12470.13	2449.71	0.37
Seco Creek	1	60346	10 YEAR	27215.00	915.68	932.08		933.31	0.003449	9.46	4412.80	1193.42	0.44
Seco Creek	1	60346	25 YEAR	41444.00	915.68	934.98		935.83	0.002460	9.01	9309.75	2099.33	0.38
Seco Creek	1	60346	50 YEAR	55008.00	915.68	936.55		937.32	0.002296	9.22	12863.86	2489.62	0.37
Seco Creek	1	60346	100 YEAR	74552.00	915.68	938.23		938.95	0.002191	9.52	17348.60	2824.79	0.37
Seco Creek	1	59443	2007 FLOOD	53385.00	910.59	934.86		935.49	0.001511	7.90	13038.57	2451.80	0.31
Seco Creek	1	59443	10 YEAR	27215.00	910.59	930.15		930.92	0.001904	7.46	4540.17	684.23	0.33
Seco Creek	1	59443	25 YEAR	41444.00	910.59	933.32		934.02	0.001634	7.80	9412.70	2268.39	0.31
Seco Creek	1	59443	50 YEAR	55008.00	910.59	935.01		935.64	0.001520	7.96	13416.02	2484.36	0.31
Seco Creek	1	59443	100 YEAR	74552.00	910.59	936.63		937.28	0.001615	8.62	17868.87	2990.85	0.32
Seco Creek	1	58444	2007 FLOOD	53385.00	911.41	933.75		934.24	0.000977	6.46	14128.84	2913.94	0.25
Seco Creek	1	58444	10 YEAR	27215.00	911.41	929.35		929.66	0.000733	4.79	7086.13	579.68	0.21
Seco Creek	1	58444	25 YEAR	41444.00	911.41	932.35		932.78	0.000864	5.80	10591.29	2058.02	0.23
Seco Creek	1	58444	50 YEAR	55008.00	911.41	933.88		934.38	0.000998	6.56	14513.34	2995.60	0.25
Seco Creek	1	58444	100 YEAR	74552.00	911.41	935.32		935.89	0.001170	7.41	19291.95	3617.22	0.27
Seco Creek	1	57184	2007 FLOOD	53385.00	913.98	931.77		932.34	0.002548	9.13	13208.11	3648.89	0.39
Seco Creek	1	57184	10 YEAR	27215.00	913.98	925.83		927.37	0.007747	12.04	3206.74	580.30	0.63
Seco Creek	1	57184	25 YEAR	41444.00	913.98	929.93		930.77	0.003560	10.02	7524.94	1809.15	0.45
Seco Creek	1	57184	50 YEAR	55008.00	913.98	931.90		932.46	0.002519	9.13	13703.61	3681.29	0.38
Seco Creek	1	57184	100 YEAR	74552.00	913.98	933.33	930.46	933.82	0.002304	9.20	19300.84	4271.13	0.37
Seco Creek	1	54081	2007 FLOOD	53385.00	895.00	926.26		926.98	0.001295	8.01	15558.19	4115.65	0.26
Seco Creek	1	54081	10 YEAR	27215.00	895.00	919.09		919.62	0.001164	6.35	5947.42	404.92	0.23
Seco Creek	1	54081	25 YEAR	41444.00	895.00	923.37		924.18	0.001442	7.92	8184.99	1926.69	0.27
Seco Creek	1	54081	50 YEAR	55008.00	895.00	926.51		927.20	0.001268	7.97	16584.82	4140.32	0.25
Seco Creek	1	54081	100 YEAR	74552.00	895.00	928.73		929.24	0.001085	7.73	27341.64	5119.97	0.24
Seco Creek	1	51836	2007 FLOOD	53385.00	896.00	923.60		923.93	0.001361	7.46	18516.26	2625.79	0.26
Seco Creek	1	51836	10 YEAR	27215.00	896.00	916.26		916.56	0.001585	6.48	9422.71	1140.70	0.26
Seco Creek	1	51836	25 YEAR	41444.00	896.00	920.52		920.83	0.001449	7.09	14111.21	1795.66	0.26
Seco Creek	1	51836	50 YEAR	55008.00	896.00	923.83		924.17	0.001381	7.56	18962.73	2724.70	0.26
Seco Creek	1	51836	100 YEAR	74552.00	896.00	925.93		926.32	0.001583	8.51	24615.48	3997.70	0.28
Seco Creek	1	49863	2007 FLOOD	53385.00	893.00	919.04		920.10	0.003027	10.99	12109.00	3573.72	0.38
Seco Creek	1	49863	10 YEAR	27215.00	893.00	912.50		913.03	0.002103	7.54	6547.82	1281.79	0.30
Seco Creek	1	49863	25 YEAR	41444.00	893.00	916.56		917.29	0.002359	9.07	8892.56	1580.15	0.33
Seco Creek	1	49863	50 YEAR	55008.00	893.00	919.42		920.41	0.002852	10.77	13096.57	3624.56	0.37
Seco Creek	1	49863	100 YEAR	74552.00	893.00	921.39		922.29	0.002800	11.20	19248.32	4706.75	0.37
Seco Creek	1	48183	2007 FLOOD	53385.00	884.00	914.94		915.81	0.002123	10.25	11686.12	2383.24	0.33
Seco Creek	1	48183	10 YEAR	27215.00	884.00	909.93		910.37	0.001217	6.88	7720.54	1719.42	0.24
Seco Creek	1	48183	25 YEAR	41444.00	884.00	913.21		913.90	0.001732	8.90	10126.94	2137.48	0.29
Seco Creek	1	48183	50 YEAR	55008.00	884.00	915.18		916.14	0.002265	10.65	11936.89	2402.43	0.34
Seco Creek	1	48183	100 YEAR	68000.00	884.00	916.69		917.78	0.002560	11.69	14166.33	3174.26	0.36
Seco Creek	1	46654	2007 FLOOD	53385.00	883.12	911.68		912.24	0.002377	10.21	15403.87	2110.51	0.34
Seco Creek	1	46654	10 YEAR	27215.00	883.12	906.65		907.48	0.003045	10.12	5995.08	1784.77	0.37
Seco Creek	1	46654	25 YEAR	41444.00	883.12	909.79		910.51	0.002818	10.61	11466.78	2069.06	0.37
Seco Creek	1	46654	50 YEAR	55008.00	883.12	911.91		912.46	0.002331	10.17	15898.48	2115.76	0.34
Seco Creek	1	46654	100 YEAR	68000.00	883.12	913.64		914.09	0.002006	9.81	19764.58	2303.27	0.32
Seco Creek	1	44030	2007 FLOOD	53385.00	873.00	903.74		905.02	0.003206	12.02	10122.19	882.37	0.40
Seco Creek	1	44030	10 YEAR	27215.00	873.00	897.85		899.14	0.003325	10.50	5281.71	753.69	0.39
Seco Creek	1	44030	25 YEAR	41444.00	873.00	901.47		902.71	0.003148	11.28	8173.04	833.59	0.39
Seco Creek	1	44030	50 YEAR	55008.00	873.00	904.01		905.31	0.003214	12.11	10368.44	897.08	0.40

HEC-RAS Plan: EC_BALANCED (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Seco Creek	1	44030	100 YEAR	68000.00	873.00	906.02		907.39	0.003330	12.89	12410.41	1460.08	0.41
Seco Creek	1	42700	2007 FLOOD	53385.00	873.00	899.96		901.11	0.002713	10.07	9371.89	788.81	0.36
Seco Creek	1	42700	10 YEAR	27215.00	873.00	894.97		895.68	0.001937	7.32	5870.46	626.12	0.29
Seco Creek	1	42700	25 YEAR	41444.00	873.00	898.20		899.11	0.002277	8.78	8046.55	722.23	0.32
Seco Creek	1	42700	50 YEAR	55008.00	873.00	900.16		901.35	0.002778	10.25	9550.68	958.73	0.36
Seco Creek	1	42700	100 YEAR	68000.00	873.00	901.69		903.10	0.003184	11.41	11369.45	1562.91	0.39
Seco Creek	1	41699	2007 FLOOD	53385.00	871.00	897.47	887.17	898.46	0.002492	9.87	11700.11	2852.03	0.34
Seco Creek	1	41699	10 YEAR	27215.00	871.00	893.44	882.48	893.95	0.001433	6.68	6914.43	756.01	0.25
Seco Creek	1	41699	25 YEAR	41444.00	871.00	896.00	885.33	896.87	0.002169	8.86	8676.08	1657.03	0.32
Seco Creek	1	41699	50 YEAR	55008.00	871.00	897.64	887.40	898.64	0.002534	10.00	11967.52	2870.42	0.35
Seco Creek	1	41699	100 YEAR	68000.00	871.00	898.88	889.06	900.00	0.002849	10.94	14072.65	3325.95	0.37
Seco Creek	1	40632	2007 FLOOD	53385.00	870.00	895.61	885.71	896.17	0.001675	7.89	14218.22	3390.84	0.28
Seco Creek	1	40632	10 YEAR	27215.00	870.00	892.15	881.16	892.53	0.001172	5.97	8296.77	1113.44	0.23
Seco Creek	1	40632	25 YEAR	41444.00	870.00	894.38	884.06	894.87	0.001465	7.13	11517.40	2902.55	0.26
Seco Creek	1	40632	50 YEAR	55008.00	870.00	895.73	886.00	896.30	0.001716	8.02	14506.99	3441.39	0.28
Seco Creek	1	40632	100 YEAR	68000.00	870.00	896.73	888.00	897.37	0.001938	8.75	16939.56	3720.35	0.30
Seco Creek	1	39997	2007 FLOOD	53385.00	870.00	894.48	888.77	894.95	0.002129	8.43	14885.95	3937.51	0.31
Seco Creek	1	39997	10 YEAR	27215.00	870.00	891.30	883.89	891.66	0.001581	6.57	8242.65	1221.31	0.26
Seco Creek	1	39997	25 YEAR	41444.00	870.00	893.35	886.56	893.79	0.001927	7.75	11544.21	3338.00	0.29
Seco Creek	1	39997	50 YEAR	55008.00	870.00	894.57	887.86	895.05	0.002180	8.55	15189.95	3949.66	0.31
Seco Creek	1	39997	100 YEAR	68000.00	870.00	895.45	888.95	895.97	0.002399	9.20	18017.72	4310.48	0.33
Seco Creek	1	38985	2007 FLOOD	53385.00	870.00	891.26	889.35	892.08	0.003834	9.92	13533.42	3999.26	0.40
Seco Creek	1	38985	10 YEAR	27215.00	870.00	888.59		889.38	0.003342	8.36	6022.18	1531.47	0.37
Seco Creek	1	38985	25 YEAR	41444.00	870.00	890.18		891.06	0.003879	9.60	9628.56	3141.89	0.40
Seco Creek	1	38985	50 YEAR	55008.00	870.00	891.56	889.62	892.29	0.003451	9.52	14772.39	4093.71	0.39
Seco Creek	1	38985	100 YEAR	68000.00	870.00	892.69		893.27	0.002967	9.17	19614.96	4460.20	0.36
Seco Creek	1	37489	2007 FLOOD	53385.00	869.00	888.59		888.75	0.001315	5.53	22168.83	4327.16	0.23
Seco Creek	1	37489	10 YEAR	27215.00	869.00	885.95		886.11	0.001389	5.09	12976.78	3020.05	0.23
Seco Creek	1	37489	25 YEAR	41444.00	869.00	887.62		887.77	0.001270	5.23	18240.39	3487.22	0.23
Seco Creek	1	37489	50 YEAR	55008.00	869.00	888.89		889.05	0.001354	5.67	23531.49	4831.28	0.24
Seco Creek	1	37489	100 YEAR	68000.00	869.00	889.52		889.74	0.001809	6.71	26722.96	5094.47	0.28
Seco Creek	1	36472	2007 FLOOD	53385.00	870.41	887.78		887.85	0.000628	3.67	28449.47	4993.40	0.16
Seco Creek	1	36472	10 YEAR	27215.00	870.41	885.09		885.15	0.000667	3.36	16607.02	3686.47	0.16
Seco Creek	1	36472	25 YEAR	41444.00	870.41	886.85		886.91	0.000589	3.42	23940.07	4565.28	0.15
Seco Creek	1	36472	50 YEAR	55008.00	870.41	888.13		888.19	0.000571	3.55	30194.64	5072.94	0.15
Seco Creek	1	36472	100 YEAR	68000.00	870.41	888.53		888.61	0.000729	4.08	32239.94	5083.20	0.17
Seco Creek	1	33911	2007 FLOOD	53385.00	861.40	885.28		885.50	0.001475	6.12	23645.51	3632.77	0.23
Seco Creek	1	33911	10 YEAR	27229.00	861.40	882.91		883.07	0.001014	4.71	15678.10	2981.08	0.18
Seco Creek	1	33911	25 YEAR	41444.00	861.40	884.76		884.92	0.001085	5.17	21662.31	3517.19	0.19
Seco Creek	1	33911	50 YEAR	51000.00	861.40	886.22		886.36	0.000948	5.04	27017.44	3745.63	0.18
Seco Creek	1	33911	100 YEAR	53000.00	861.40	886.38		886.52	0.000967	5.11	27608.13	3756.63	0.18
Seco Creek	1	33369	2007 FLOOD	42000.00	859.00	884.82		884.91	0.000679	4.37	28125.85	3941.51	0.15
Seco Creek	1	33369	10 YEAR	27229.00	859.00	882.47		882.57	0.000769	4.35	19180.07	3661.81	0.16
Seco Creek	1	33369	25 YEAR	41444.00	859.00	884.28		884.39	0.000818	4.73	26018.19	3905.52	0.17
Seco Creek	1	33369	50 YEAR	51000.00	859.00	885.82		885.90	0.000698	4.55	32099.08	4053.73	0.16
Seco Creek	1	33369	100 YEAR	53000.00	859.00	885.96		886.05	0.000717	4.63	32696.79	4073.32	0.16
Seco Creek	1	32739	2007 FLOOD	48400.00	860.90	884.41	875.99	884.46	0.000691	3.78	32802.80	5349.42	0.15
Seco Creek	1	32739	10 YEAR	27229.00	860.90	882.06	874.00	882.11	0.000661	3.39	20987.01	4782.46	0.14
Seco Creek	1	32739	25 YEAR	40000.00	860.90	883.89	875.21	883.93	0.000584	3.41	30048.28	5166.00	0.14
Seco Creek	1	32739	50 YEAR	51000.00	860.90	885.48	876.00	885.52	0.000488	3.29	38636.34	5536.44	0.13
Seco Creek	1	32739	100 YEAR	53000.00	860.90	885.62	876.00	885.66	0.000499	3.34	39408.23	5547.26	0.13
Seco Creek	1	32734		Bridge									
Seco Creek	1	32699	2007 FLOOD	48400.00	860.90	884.35	876.62	884.42	0.000688	3.74	32682.25	5403.71	0.15
Seco Creek	1	32699	10 YEAR	27229.00	860.90	882.00	874.58	882.06	0.000664	3.38	20713.85	4782.26	0.14
Seco Creek	1	32699	25 YEAR	40000.00	860.90	883.84	875.54	883.90	0.000577	3.37	29946.93	5259.25	0.14
Seco Creek	1	32699	50 YEAR	51000.00	860.90	885.44	876.66	885.49	0.000481	3.25	38670.36	5593.63	0.13
Seco Creek	1	32699	100 YEAR	53000.00	860.90	885.58	876.66	885.63	0.000492	3.30	39446.80	5609.44	0.13
Seco Creek	1	31630	2007 FLOOD	48400.00	864.00	883.53		883.60	0.000930	3.80	28437.94	4857.08	0.15
Seco Creek	1	31630	10 YEAR	27229.00	864.00	881.19		881.26	0.000901	3.43	17442.11	4614.09	0.15
Seco Creek	1	31630	25 YEAR	40000.00	864.00	883.16		883.22	0.000754	3.38	26663.76	4848.48	0.14
Seco Creek	1	31630	50 YEAR	51000.00	864.00	884.91		884.95	0.000569	3.12	35192.51	4915.32	0.12
Seco Creek	1	31630	100 YEAR	53000.00	864.00	885.03		885.08	0.000584	3.17	35810.38	4918.35	0.12
Seco Creek	1	31156	2007 FLOOD	48400.00	864.00	882.85		883.00	0.002091	5.52	21331.78	4219.83	0.23
Seco Creek	1	31156	10 YEAR	27229.00	864.00	880.36		880.58	0.002852	5.84	11367.78	3496.41	0.26
Seco Creek	1	31156	25 YEAR	40000.00	864.00	882.63		882.74	0.001608	4.80	20400.64	4181.42	0.20
Seco Creek	1	31156	50 YEAR	51000.00	864.00	884.54		884.62	0.001055	4.16	29394.10	5092.16	0.16
Seco Creek	1	31156	100 YEAR	53000.00	864.00	884.66		884.74	0.001077	4.22	29992.57	5105.87	0.17
Seco Creek	1	30898	2007 FLOOD	48400.00	861.00	882.26		882.45	0.002012	5.86	24151.04	6208.51	0.23
Seco Creek	1	30898	10 YEAR	27229.00	861.00	879.59		879.88	0.002442	5.89	10388.01	3346.51	0.25
Seco Creek	1	30898	25 YEAR	40000.00	861.00	882.20		882.34	0.001427	4.93	23801.87	6201.12	0.19
Seco Creek	1	30898	50 YEAR	51000.00	861.00	884.33		884.39	0.000699	3.69	37277.61	6636.54	0.14
Seco Creek	1	30898	100 YEAR	53000.00	861.00	884.44		884.50	0.000711	3.73	38032.11	6640.74	0.14

HEC-RAS Plan: EC_BALANCED (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Seco Creek	1	30626	2007 FLOOD	48400.00	857.00	881.02	871.01	881.69	0.003602	8.63	8987.72	5838.77	0.31
Seco Creek	1	30626	10 YEAR	27587.00	857.00	879.00	867.66	879.32	0.001822	5.78	7510.24	1400.94	0.22
Seco Creek	1	30626	25 YEAR	40904.00	857.00	881.36	870.09	881.81	0.002387	7.09	9266.06	6000.60	0.26
Seco Creek	1	30626	50 YEAR	55747.00	857.00	884.10	872.88	884.19	0.000736	4.23	34163.71	6559.47	0.14
Seco Creek	1	30626	100 YEAR	56226.00	857.00	884.22	872.93	884.31	0.000708	4.17	34856.11	6591.71	0.14
Seco Creek	1	30610		Mult Open									
Seco Creek	1	30556	2007 FLOOD	48400.00	856.00	879.37	872.79	880.35	0.006216	11.02	7512.40	3476.79	0.41
Seco Creek	1	30556	10 YEAR	27587.00	856.00	878.45	868.62	878.83	0.002508	6.81	6992.34	1439.41	0.26
Seco Creek	1	30556	25 YEAR	40904.00	856.00	880.40	870.63	880.99	0.003540	8.57	8091.10	5374.84	0.31
Seco Creek	1	30556	50 YEAR	55747.00	856.00	882.09	873.64	882.87	0.004476	10.09	9594.14	6136.92	0.35
Seco Creek	1	30556	100 YEAR	56226.00	856.00	882.20	873.70	882.98	0.004446	10.08	9681.91	6171.31	0.35
Seco Creek	1	30501	2007 FLOOD	48400.00	856.07	878.78	871.81		0.007231	11.69	7114.82	1492.07	0.44
Seco Creek	1	30501	10 YEAR	27587.00	856.07	878.26	868.93	878.66	0.002653	6.97	6836.85	1399.71	0.26
Seco Creek	1	30501	25 YEAR	40904.00	856.07	879.85	871.48	880.49	0.004056	9.03	7697.29	3189.98	0.33
Seco Creek	1	30501	50 YEAR	55747.00	856.07	880.88	874.40	881.89	0.006029	11.34	8357.06	5498.45	0.41
Seco Creek	1	30501	100 YEAR	56226.00	856.07	880.98	874.44	881.98	0.006007	11.35	8421.60	5627.64	0.41
Seco Creek	1	30493		Mult Open									
Seco Creek	1	30349	2007 FLOOD	48400.00	857.00	878.86	873.68	879.89	0.007332	11.54	7229.11	3099.80	0.44
Seco Creek	1	30349	10 YEAR	27587.00	857.00	877.52	870.23	877.95	0.003339	7.46	6473.68	1424.24	0.29
Seco Creek	1	30349	25 YEAR	40904.00	857.00	878.53	872.54	879.32	0.005665	10.04	7046.78	2677.67	0.39
Seco Creek	1	30349	50 YEAR	55747.00	857.00	879.20	874.44	880.48	0.008970	12.89	7421.65	4017.73	0.49
Seco Creek	1	30349	100 YEAR	56226.00	857.00	879.40	874.49	880.66	0.008701	12.78	7536.49	4182.52	0.48
Seco Creek	1	30292	2007 FLOOD	48400.00	857.00	878.73		878.98	0.003686	8.13	20420.57	6528.66	0.31
Seco Creek	1	30292	10 YEAR	27587.00	857.00	877.37		877.64	0.003100	7.13	12237.97	5502.07	0.28
Seco Creek	1	30292	25 YEAR	40904.00	857.00	878.39		878.65	0.003485	7.82	18238.37	6478.33	0.30
Seco Creek	1	30292	50 YEAR	55747.00	857.00	879.10		879.34	0.003571	8.09	22899.07	6582.54	0.31
Seco Creek	1	30292	100 YEAR	60000.00	857.00	879.32		879.54	0.003488	8.05	24304.27	6596.00	0.30
Seco Creek	1	29802	2007 FLOOD	50093.00	857.00	877.61		877.70	0.001844	5.54	28892.71	8369.95	0.22
Seco Creek	1	29802	10 YEAR	31461.00	857.00	876.11		876.26	0.002468	6.09	17454.42	6876.83	0.25
Seco Creek	1	29802	25 YEAR	45740.00	857.00	877.12		877.24	0.002334	6.13	24810.04	8234.40	0.24
Seco Creek	1	29802	50 YEAR	60606.00	857.00	877.82		877.93	0.002295	6.22	30641.24	8426.16	0.24
Seco Creek	1	29802	100 YEAR	65319.00	857.00	878.05		878.17	0.002248	6.21	32649.27	8462.84	0.24
Seco Creek	1	28576	2007 FLOOD	61561.00	857.00	875.89		875.99	0.001159	4.53	36557.03	7983.30	0.19
Seco Creek	1	28576	10 YEAR	32904.00	857.00	873.47		873.65	0.001884	5.22	18207.01	6599.69	0.24
Seco Creek	1	28576	25 YEAR	48658.00	857.00	875.16		875.25	0.001213	4.50	30663.08	7947.45	0.19
Seco Creek	1	28576	50 YEAR	62000.00	857.00	875.92		876.01	0.001155	4.52	36764.61	7983.68	0.19
Seco Creek	1	28576	100 YEAR	67000.00	857.00	876.19		876.28	0.001140	4.54	38896.39	8001.11	0.19
Seco Creek	1	25698	2007 FLOOD	61561.00	854.11	873.74		874.00	0.002088	6.13	27862.28	7857.14	0.26
Seco Creek	1	25698	10 YEAR	32904.00	854.11	871.13		871.34	0.001659	4.91	13962.51	2749.86	0.22
Seco Creek	1	25698	25 YEAR	48658.00	854.11	872.80		873.11	0.002310	6.22	20745.13	6902.36	0.27
Seco Creek	1	25698	50 YEAR	62000.00	854.11	873.79		874.04	0.002061	6.11	28207.58	7857.88	0.26
Seco Creek	1	25698	100 YEAR	67000.00	854.11	874.13		874.36	0.001956	6.02	30912.60	7863.66	0.25
Seco Creek	1	22915	2007 FLOOD	61561.00	845.07	870.62		870.71	0.000734	4.21	37340.75	5886.37	0.16
Seco Creek	1	22915	10 YEAR	32904.00	845.07	869.41		869.46	0.000350	2.80	30352.22	5536.24	0.11
Seco Creek	1	22915	25 YEAR	48658.00	845.07	870.18		870.25	0.000552	3.60	34775.06	5825.64	0.14
Seco Creek	1	22915	50 YEAR	62000.00	845.07	870.79		870.88	0.000695	4.11	38343.42	5911.57	0.15
Seco Creek	1	22915	100 YEAR	67000.00	845.07	871.20		871.29	0.000689	4.15	40852.80	6749.25	0.15
Seco Creek	1	18148	2007 FLOOD	31500.00	845.09	867.67		867.72	0.000483	3.06	28195.49	6505.32	0.12
Seco Creek	1	18148	10 YEAR	30000.00	845.09	867.45		867.51	0.000498	3.08	26775.11	6463.94	0.13
Seco Creek	1	18148	25 YEAR	32000.00	845.09	867.73		867.79	0.000479	3.05	28629.21	6521.19	0.12
Seco Creek	1	18148	50 YEAR	34000.00	845.09	868.00		868.06	0.000461	3.03	30392.93	6535.13	0.12
Seco Creek	1	18148	100 YEAR	38000.00	845.09	868.50		868.55	0.000435	2.99	33680.38	6560.38	0.12
Seco Creek	1	14626	2007 FLOOD	31500.00	841.35	864.03		864.56	0.002224	7.18	11395.30	3160.77	0.27
Seco Creek	1	14626	10 YEAR	30000.00	841.35	863.69		864.24	0.002296	7.21	10353.68	2987.00	0.28
Seco Creek	1	14626	25 YEAR	32000.00	841.35	864.14		864.66	0.002202	7.16	11740.81	3217.78	0.27
Seco Creek	1	14626	50 YEAR	34000.00	841.35	864.57		865.05	0.002086	7.07	13170.91	3376.89	0.27
Seco Creek	1	14626	100 YEAR	38000.00	841.35	865.33		865.75	0.001918	6.93	15927.11	3924.07	0.26
Seco Creek	1	11674	2007 FLOOD	31500.00	835.92	858.83		859.09	0.001517	5.68	12218.08	1579.99	0.22
Seco Creek	1	11674	10 YEAR	30000.00	835.92	858.45		858.71	0.001509	5.59	11638.13	1504.93	0.22
Seco Creek	1	11674	25 YEAR	32000.00	835.92	858.93		859.20	0.001528	5.71	12384.33	1603.78	0.22
Seco Creek	1	11674	50 YEAR	34000.00	835.92	859.51		859.78	0.001504	5.78	13355.08	1742.00	0.22
Seco Creek	1	11674	100 YEAR	38000.00	835.92	860.18		860.48	0.001637	6.16	14578.99	1966.69	0.23
Seco Creek	1	10238	2007 FLOOD	31500.00	833.88	856.79		857.05	0.001334	5.34	12007.86	1514.14	0.21
Seco Creek	1	10238	10 YEAR	30000.00	833.88	856.44		856.70	0.001307	5.23	11496.62	1434.73	0.21
Seco Creek	1	10238	25 YEAR	32000.00	833.88	856.87		857.14	0.001348	5.39	12137.92	1527.75	0.21
Seco Creek	1	10238	50 YEAR	34000.00	833.88	857.49		857.76	0.001326	5.45	13109.54	1659.60	0.21
Seco Creek	1	10238	100 YEAR	38000.00	833.88	857.88		858.20	0.001538	5.94	13791.03	1794.28	0.23
Seco Creek	1	9209	2007 FLOOD	31500.00	834.65	854.97		855.34	0.002090	6.28	10674.39	2318.18	0.26
Seco Creek	1	9209	10 YEAR	30000.00	834.65	854.66		855.02	0.002030	6.13	9990.49	2204.55	0.25
Seco Creek	1	9209	25 YEAR	32000.00	834.65	855.03		855.41	0.002111	6.33	10833.82	2343.83	0.26
Seco Creek	1	9209	50 YEAR	34000.00	834.65	855.53		855.96	0.002322	6.76	12213.51	3259.19	0.27

HEC-RAS Plan: EC_BALANCED (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Seco Creek	1	9209	100 YEAR	36000.00	834.65	855.84		856.26	0.002333	6.85	13249.72	3437.53	0.28
Seco Creek	1	6260	2007 FLOOD	31500.00	832.93	849.69		849.89	0.001624	4.85	13939.55	2297.49	0.22
Seco Creek	1	6260	10 YEAR	30000.00	832.93	849.45		849.65	0.001630	4.80	13391.09	2286.00	0.22
Seco Creek	1	6260	25 YEAR	32000.00	832.93	849.89		850.07	0.001544	4.77	14392.43	2306.93	0.22
Seco Creek	1	6260	50 YEAR	34000.00	832.93	850.18		850.37	0.001549	4.83	15065.96	2320.90	0.22
Seco Creek	1	6260	100 YEAR	36000.00	832.93	850.47		850.66	0.001546	4.89	15753.24	2335.07	0.22
Seco Creek	1	2900	2007 FLOOD	31500.00	824.79	844.10		844.33	0.001714	5.43	12814.89	2116.60	0.23
Seco Creek	1	2900	10 YEAR	30000.00	824.79	843.72		843.97	0.001786	5.46	12034.44	2045.79	0.24
Seco Creek	1	2900	25 YEAR	32000.00	824.79	844.30		844.55	0.001786	5.59	13249.55	2143.70	0.24
Seco Creek	1	2900	50 YEAR	34000.00	824.79	844.78		845.02	0.001669	5.50	14285.53	2168.10	0.23
Seco Creek	1	2900	100 YEAR	36000.00	824.79	845.29		845.51	0.001552	5.40	15400.64	2206.27	0.22
Seco Creek	1	1260	2007 FLOOD	31500.00	820.75	840.41	831.57	840.98	0.002481	6.34	6040.63	552.90	0.28
Seco Creek	1	1260	10 YEAR	30000.00	820.75	839.99	831.33	840.54	0.002481	6.23	5809.73	540.63	0.28
Seco Creek	1	1260	25 YEAR	32000.00	820.75	840.55	831.65	841.13	0.002482	6.38	6117.51	557.25	0.28
Seco Creek	1	1260	50 YEAR	34000.00	820.75	841.11	831.94	841.71	0.002482	6.52	6437.01	582.97	0.28
Seco Creek	1	1260	100 YEAR	36000.00	820.75	841.70	832.27	842.33	0.002482	6.67	6801.98	648.63	0.28
Relief_Parkers	1	3303	2007 FLOOD	1.00	892.02	892.09		892.09	0.007026	0.20	5.04	79.09	0.14
Relief_Parkers	1	3303	10 YEAR	1.00	892.02	892.09		892.09	0.009045	0.22	4.65	78.37	0.16
Relief_Parkers	1	3303	25 YEAR	1.00	892.02	892.09		892.09	0.008055	0.21	4.82	78.70	0.15
Relief_Parkers	1	3303	50 YEAR	1.00	892.02	892.08		892.08	0.013041	0.24	4.15	77.42	0.18
Relief_Parkers	1	3303	100 YEAR	1.00	892.02	892.09		892.09	0.007069	0.20	5.03	79.07	0.14
Relief_Parkers	1	2628	2007 FLOOD	1.00	887.00	887.14		887.14	0.007677	0.22	4.58	66.86	0.15
Relief_Parkers	1	2628	10 YEAR	1.00	887.00	887.15		887.15	0.004914	0.18	5.42	72.69	0.12
Relief_Parkers	1	2628	25 YEAR	1.00	887.00	887.14		887.14	0.006045	0.20	5.01	69.93	0.13
Relief_Parkers	1	2628	50 YEAR	1.00	887.00	887.16		887.16	0.003011	0.15	6.51	79.69	0.09
Relief_Parkers	1	2628	100 YEAR	1.00	887.00	887.14		887.14	0.007533	0.22	4.62	67.10	0.15
Relief_Parkers	1	1845	2007 FLOOD	1.00	883.04	884.90		884.90	0.000000	0.00	262.47	278.76	0.00
Relief_Parkers	1	1845	10 YEAR	1.00	883.04	883.32		883.32	0.007459	0.32	3.15	25.65	0.16
Relief_Parkers	1	1845	25 YEAR	1.00	883.04	883.95		883.95	0.000005	0.02	55.35	152.54	0.01
Relief_Parkers	1	1845	50 YEAR	1.00	883.04	885.32		885.32	0.000000	0.00	421.33	434.53	0.00
Relief_Parkers	1	1845	100 YEAR	1.00	883.04	886.17		886.17	0.000000	0.00	853.11	648.08	0.00
Relief_Parkers	1	1573	2007 FLOOD	1.00	882.00	884.90		884.90	0.000000	0.00	583.97	464.64	0.00
Relief_Parkers	1	1573	10 YEAR	1.00	882.00	882.24		882.24	0.000413	0.11	8.94	75.61	0.06
Relief_Parkers	1	1573	25 YEAR	1.00	882.00	883.95		883.95	0.000000	0.01	226.98	265.95	0.00
Relief_Parkers	1	1573	50 YEAR	1.00	882.00	885.32		885.32	0.000000	0.00	884.55	905.75	0.00
Relief_Parkers	1	1573	100 YEAR	1.00	882.00	886.17		886.17	0.000000	0.00	1704.78	1035.18	0.00
Relief_Parkers	1	1210	2007 FLOOD	1.00	881.79	884.90		884.90	0.000000	0.00	1820.90	981.97	0.00
Relief_Parkers	1	1210	10 YEAR	1.00	881.79	881.89	881.89	881.91	0.130758	1.11	0.90	18.17	0.88
Relief_Parkers	1	1210	25 YEAR	1.00	881.79	883.95		883.95	0.000000	0.00	939.14	704.11	0.00
Relief_Parkers	1	1210	50 YEAR	1.00	881.79	885.32		885.32	0.000000	0.00	2233.53	1004.36	0.00
Relief_Parkers	1	1210	100 YEAR	1.00	881.79	886.17		886.17	0.000000	0.00	3122.99	1148.02	0.00
Parkers_Spill	1	1124	2007 FLOOD	1.00	889.00	889.15		889.15	0.001761	0.18	5.48	65.92	0.11
Parkers_Spill	1	1124	10 YEAR	549.00	889.00	890.72		890.78	0.004498	2.08	338.54	311.75	0.29
Parkers_Spill	1	1124	25 YEAR	946.00	889.00	891.14		891.23	0.005433	2.68	474.74	367.66	0.33
Parkers_Spill	1	1124	50 YEAR	1182.00	889.00	891.37		891.47	0.005585	2.91	563.83	414.48	0.34
Parkers_Spill	1	1124	100 YEAR	2903.00	889.00	892.65		892.79	0.004737	3.63	1124.61	463.84	0.34
Parkers_Spill	1	790	2007 FLOOD	1.00	887.00	887.15	887.15	887.20	0.183183	1.72	0.58	7.75	1.11
Parkers_Spill	1	790	10 YEAR	549.00	887.00	888.98		889.04	0.006100	2.35	333.90	361.69	0.33
Parkers_Spill	1	790	25 YEAR	946.00	887.00	889.57		889.63	0.004250	2.42	555.66	391.83	0.29
Parkers_Spill	1	790	50 YEAR	1182.00	887.00	889.83		889.89	0.003974	2.53	660.18	399.35	0.29
Parkers_Spill	1	790	100 YEAR	2903.00	887.00	891.25		891.35	0.003874	3.37	1313.86	559.21	0.30
Parkers_Spill	1	504	2007 FLOOD	1.00	886.00	886.16		886.16	0.000119	0.07	14.34	96.69	0.03
Parkers_Spill	1	504	10 YEAR	549.00	886.00	888.43		888.44	0.001000	1.26	607.65	437.50	0.15
Parkers_Spill	1	504	25 YEAR	946.00	886.00	889.03		889.05	0.001129	1.56	874.18	503.87	0.16
Parkers_Spill	1	504	50 YEAR	1182.00	886.00	889.29		889.32	0.001184	1.69	1005.76	508.00	0.17
Parkers_Spill	1	504	100 YEAR	2903.00	886.00	890.62		890.68	0.001549	2.45	1707.70	554.44	0.20
Parkers_Spill	1	191	2007 FLOOD	1.00	886.00	886.12		886.12	0.000155	0.06	15.98	154.71	0.03
Parkers_Spill	1	191	10 YEAR	549.00	886.00	887.99		888.03	0.001866	1.53	402.75	265.26	0.19
Parkers_Spill	1	191	25 YEAR	946.00	886.00	888.51	887.04	888.57	0.002246	1.96	600.91	401.88	0.22
Parkers_Spill	1	191	50 YEAR	1182.00	886.00	888.74	887.23	888.80	0.002424	2.16	692.21	409.05	0.23
Parkers_Spill	1	191	100 YEAR	2903.00	886.00	889.87	887.97	889.99	0.003287	3.16	1273.40	556.92	0.28
Parkers_Spill	1	31	2007 FLOOD	1.00	886.00	886.02	886.02	886.03	0.164199	0.47	2.06	115.45	0.77
Parkers_Spill	1	31	10 YEAR	549.00	886.00	886.75	886.75	887.06	0.110219	4.65	122.65	197.18	1.17
Parkers_Spill	1	31	25 YEAR	946.00	886.00	887.09	887.09	887.44	0.104382	5.97	204.89	305.04	1.22
Parkers_Spill	1	31	50 YEAR	1182.00	886.00	887.21	887.21	887.61	0.099036	6.43	243.17	322.69	1.22
Parkers_Spill	1	31	100 YEAR	2903.00	886.00	887.88	887.88	888.49	0.078372	8.34	492.87	410.80	1.19
Parkers Creek	1	32760	2007 FLOOD	1159.00	930.47	934.26		934.27	0.000355	1.16	1403.57	653.08	0.11
Parkers Creek	1	32760	10 YEAR	2988.00	930.47	935.83		935.87	0.000508	1.79	2613.47	895.76	0.14
Parkers Creek	1	32760	25 YEAR	4240.00	930.47	936.56		936.61	0.000582	2.09	3320.04	1045.33	0.15
Parkers Creek	1	32760	50 YEAR	5401.00	930.47	937.12		937.18	0.000633	2.32	3929.32	1154.50	0.16
Parkers Creek	1	32760	100 YEAR	6874.00	930.47	937.72		937.79	0.000686	2.57	4663.78	1281.59	0.17
Parkers Creek	1	32036	2007 FLOOD	1159.00	930.40	933.98		933.99	0.000434	1.02	1586.38	840.99	0.10

HEC-RAS Plan: EC_BALANCED (Continued)

River	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)	
Parkers Creek	1	32036	10 YEAR	2988.00	930.40	935.47		935.49	0.000535	1.47	3055.04	1122.35	0.12
Parkers Creek	1	32036	25 YEAR	4240.00	930.40	936.16		936.19	0.000581	1.68	3874.18	1241.32	0.13
Parkers Creek	1	32036	50 YEAR	5401.00	930.40	936.68		936.72	0.000620	1.85	4550.58	1333.84	0.13
Parkers Creek	1	32036	100 YEAR	6874.00	930.40	937.26		937.29	0.000663	2.04	5344.74	1438.62	0.14
Parkers Creek	1	31398	2007 FLOOD	1159.00	930.54	933.68		933.69	0.000493	1.04	1672.03	996.06	0.11
Parkers Creek	1	31398	10 YEAR	2988.00	930.54	935.13		935.15	0.000529	1.41	3442.95	1417.12	0.12
Parkers Creek	1	31398	25 YEAR	4240.00	930.54	935.81		935.83	0.000540	1.57	4446.75	1561.78	0.12
Parkers Creek	1	31398	50 YEAR	5401.00	930.54	936.32		936.34	0.000558	1.70	5273.33	1675.66	0.13
Parkers Creek	1	31398	100 YEAR	6874.00	930.54	936.87		936.90	0.000578	1.84	6233.11	1792.53	0.13
Parkers Creek	1	30362	2007 FLOOD	1159.00	930.16	933.11		933.12	0.000622	1.12	1446.47	810.19	0.12
Parkers Creek	1	30362	10 YEAR	2988.00	930.16	934.47		934.49	0.000779	1.64	2799.75	1165.80	0.14
Parkers Creek	1	30362	25 YEAR	4240.00	930.16	935.11		935.14	0.000844	1.88	3606.45	1363.03	0.15
Parkers Creek	1	30362	50 YEAR	5401.00	930.16	935.58		935.62	0.000893	2.06	4292.44	1508.76	0.16
Parkers Creek	1	30362	100 YEAR	6874.00	930.16	936.11		936.15	0.000929	2.24	5117.33	1651.68	0.16
Parkers Creek	1	29440	2007 FLOOD	1159.00	929.44	932.65		932.66	0.000417	1.00	1778.38	952.01	0.10
Parkers Creek	1	29440	10 YEAR	2988.00	929.44	933.80		933.82	0.000697	1.59	3033.33	1231.45	0.14
Parkers Creek	1	29440	25 YEAR	4240.00	929.44	934.35		934.38	0.000811	1.86	3748.94	1365.42	0.15
Parkers Creek	1	29440	50 YEAR	5401.00	929.44	934.75		934.79	0.000912	2.08	4324.77	1466.87	0.16
Parkers Creek	1	29440	100 YEAR	6874.00	929.44	935.20		935.25	0.001050	2.36	5017.21	1654.41	0.17
Parkers Creek	1	28707	2007 FLOOD	1159.00	930.16	932.35		932.35	0.000397	0.75	2389.68	1694.42	0.09
Parkers Creek	1	28707	10 YEAR	2988.00	930.16	933.37		933.38	0.000488	1.09	4254.82	1966.26	0.11
Parkers Creek	1	28707	25 YEAR	4240.00	930.16	933.87		933.89	0.000533	1.25	5280.84	2119.92	0.12
Parkers Creek	1	28707	50 YEAR	5401.00	930.16	934.23		934.24	0.000591	1.40	6045.10	2225.26	0.12
Parkers Creek	1	28707	100 YEAR	6874.00	930.16	934.61		934.62	0.000662	1.58	6914.61	2355.68	0.13
Parkers Creek	1	26759	2007 FLOOD	1159.00	928.79	929.51	929.51	929.67	0.071138	4.62	424.96	1135.67	1.00
Parkers Creek	1	26759	10 YEAR	2988.00	928.79	929.79	929.79	930.09	0.083275	6.32	756.10	1229.30	1.15
Parkers Creek	1	26759	25 YEAR	4240.00	928.79	929.95	929.95	930.31	0.082257	6.99	961.09	1294.24	1.17
Parkers Creek	1	26759	50 YEAR	5401.00	928.79	930.28		930.55	0.043173	6.03	1410.05	1424.06	0.89
Parkers Creek	1	26759	100 YEAR	6874.00	928.79	930.88		931.04	0.016832	4.76	2367.83	1773.81	0.59
Parkers Creek	1	24546	2007 FLOOD	1159.00	914.00	919.65		919.67	0.000420	1.42	1024.16	291.67	0.11
Parkers Creek	1	24546	10 YEAR	2988.00	914.00	922.14		922.20	0.000590	2.17	1877.17	393.78	0.14
Parkers Creek	1	24546	25 YEAR	4240.00	914.00	922.85		922.94	0.000835	2.74	2170.76	434.69	0.17
Parkers Creek	1	24546	50 YEAR	5401.00	914.00	923.34		923.46	0.001081	3.24	2392.61	469.12	0.19
Parkers Creek	1	24546	100 YEAR	6874.00	914.00	923.95		924.11	0.001295	3.70	2686.26	485.95	0.21
Parkers Creek	1	23502	2007 FLOOD	1159.00	914.00	919.10		919.13	0.000653	1.56	871.55	292.24	0.13
Parkers Creek	1	23502	10 YEAR	2988.00	914.00	921.41		921.48	0.000814	2.31	1758.11	599.55	0.16
Parkers Creek	1	23502	25 YEAR	3650.00	914.00	921.99		922.06	0.000838	2.48	2127.91	704.87	0.16
Parkers Creek	1	23502	50 YEAR	4100.00	914.00	922.35		922.43	0.000860	2.59	2387.37	720.66	0.17
Parkers Creek	1	23502	100 YEAR	4874.00	914.00	922.87		922.95	0.000868	2.72	2766.87	744.57	0.17
Parkers Creek	1	22450	2007 FLOOD	1159.00	914.00	916.09	916.09	916.87	0.045956	7.97	195.54	132.11	0.98
Parkers Creek	1	22450	10 YEAR	2988.00	914.00	917.58	917.58	918.76	0.037863	10.37	430.70	186.71	0.97
Parkers Creek	1	22450	25 YEAR	3650.00	914.00	917.94	917.94	919.26	0.038204	11.11	500.03	198.26	0.99
Parkers Creek	1	22450	50 YEAR	4100.00	914.00	918.19	918.19	919.58	0.037277	11.45	551.72	206.62	0.99
Parkers Creek	1	22450	100 YEAR	4874.00	914.00	918.57	918.57	920.07	0.036886	12.06	632.10	218.55	1.00
Parkers Creek	1	20486	2007 FLOOD	1159.00	895.23	905.62		905.63	0.000128	0.97	1418.51	225.46	0.06
Parkers Creek	1	20486	10 YEAR	2988.00	895.23	909.56		909.59	0.000207	1.58	2458.93	307.09	0.08
Parkers Creek	1	20486	25 YEAR	3650.00	895.23	910.53		910.57	0.000231	1.74	2768.96	330.63	0.08
Parkers Creek	1	20486	50 YEAR	4100.00	895.23	910.99		911.03	0.000258	1.88	2923.42	351.70	0.09
Parkers Creek	1	20486	100 YEAR	4874.00	895.23	911.86		911.91	0.000287	2.07	3241.75	382.91	0.09
Parkers Creek	1	17737	2007 FLOOD	1159.00	895.35	904.99		905.04	0.000420	1.90	700.26	123.60	0.12
Parkers Creek	1	17737	10 YEAR	2988.00	895.35	908.49		908.62	0.000716	3.14	1271.98	218.33	0.16
Parkers Creek	1	17737	25 YEAR	3650.00	895.35	909.31		909.48	0.000821	3.52	1520.05	468.28	0.17
Parkers Creek	1	17737	50 YEAR	4000.00	895.35	909.68		909.85	0.000847	3.64	1704.55	526.67	0.18
Parkers Creek	1	17737	100 YEAR	4874.00	895.35	910.39		910.58	0.000951	4.00	2281.23	1049.67	0.19
Parkers Creek	1	16155	2007 FLOOD	1159.00	895.08	904.23		904.29	0.000548	1.94	629.67	115.84	0.13
Parkers Creek	1	16155	10 YEAR	2988.00	895.08	907.11		907.27	0.001020	3.33	1177.93	361.30	0.19
Parkers Creek	1	16155	25 YEAR	3650.00	895.08	907.80		907.98	0.001093	3.61	1453.08	431.40	0.20
Parkers Creek	1	16155	50 YEAR	4000.00	895.08	908.07		908.27	0.001191	3.83	1578.81	635.83	0.20
Parkers Creek	1	16155	100 YEAR	4874.00	895.08	908.61		908.83	0.001309	4.15	2047.74	947.24	0.22
Parkers Creek	1	15610	2007 FLOOD	1159.00	895.98	903.89		903.95	0.000679	2.06	604.37	135.19	0.14
Parkers Creek	1	15610	10 YEAR	2988.00	895.98	906.53		906.68	0.001142	3.36	1236.05	350.87	0.20
Parkers Creek	1	15610	25 YEAR	3650.00	895.98	907.14		907.33	0.001307	3.75	1495.32	693.13	0.21
Parkers Creek	1	15610	50 YEAR	4000.00	895.98	907.38		907.57	0.001355	3.88	1679.43	855.88	0.22
Parkers Creek	1	15610	100 YEAR	4874.00	895.98	907.87		908.07	0.001453	4.15	2163.95	1209.28	0.23
Parkers Creek	1	14804	2007 FLOOD	1159.00	897.00	903.37		903.41	0.000658	1.73	757.68	227.83	0.14
Parkers Creek	1	14804	10 YEAR	2988.00	897.00	905.75		905.84	0.000918	2.64	1598.11	535.59	0.17
Parkers Creek	1	14804	25 YEAR	3650.00	897.00	906.26		906.37	0.001039	2.93	1991.51	1123.63	0.18
Parkers Creek	1	14804	50 YEAR	4000.00	897.00	906.47		906.58	0.001070	3.03	2248.81	1352.74	0.19
Parkers Creek	1	14804	100 YEAR	4874.00	897.00	906.92		907.03	0.001101	3.18	2943.92	1766.17	0.19
Parkers Creek	1	13499	2007 FLOOD	1159.00	897.00	902.20		902.25	0.001262	1.74	670.19	240.67	0.17
Parkers Creek	1	13499	10 YEAR	3047.00	897.00	904.24		904.34	0.001473	2.62	1427.53	1038.94	0.20
Parkers Creek	1	13499	25 YEAR	3679.00	897.00	904.73		904.82	0.001359	2.68	1999.89	1286.10	0.20
Parkers Creek	1	13499	50 YEAR	4025.00	897.00	904.91		905.01	0.001356	2.73	2254.62	1431.04	0.20

HEC-RAS Plan: EC_BALANCED (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Parkers Creek	1	13493	100 YEAR	4945.00	897.00	905.32		905.42	0.001383	2.89	2884.15	1587.10	0.20
Parkers Creek	1	11935	2007 FLOOD	1159.00	895.00	897.82		898.06	0.009002	4.06	332.36	186.35	0.45
Parkers Creek	1	11935	10 YEAR	3047.00	895.00	899.81		900.12	0.006358	5.00	831.65	312.51	0.41
Parkers Creek	1	11935	25 YEAR	3679.00	895.00	900.13		900.55	0.007837	5.82	973.46	614.74	0.46
Parkers Creek	1	11935	50 YEAR	4025.00	895.00	900.27		900.70	0.008088	6.02	1055.04	632.32	0.47
Parkers Creek	1	11935	100 YEAR	4945.00	895.00	900.66		901.10	0.007823	6.23	1314.10	665.53	0.47
Parkers Creek	1	11044	2007 FLOOD	1159.00	889.10	894.90		895.00	0.001754	2.66	557.88	213.38	0.22
Parkers Creek	1	11044	10 YEAR	3047.00	889.10	897.38		897.50	0.001616	3.40	2069.76	1395.73	0.22
Parkers Creek	1	11044	25 YEAR	3679.00	889.10	897.73		897.83	0.001520	3.40	2560.43	1443.01	0.22
Parkers Creek	1	11044	50 YEAR	4025.00	889.10	897.90		898.00	0.001477	3.40	2809.36	1460.86	0.22
Parkers Creek	1	11044	100 YEAR	4945.00	889.10	898.27		898.37	0.001517	3.56	3392.48	1654.57	0.22
Parkers Creek	1	10643	2007 FLOOD	1159.00	888.00	893.92		894.10	0.002894	3.46	366.94	103.51	0.28
Parkers Creek	1	10643	10 YEAR	3047.00	888.00	896.60		896.76	0.002078	3.96	1771.11	1308.63	0.26
Parkers Creek	1	10643	25 YEAR	3679.00	888.00	896.98		897.13	0.001995	4.00	2316.67	1565.34	0.25
Parkers Creek	1	10643	50 YEAR	4025.00	888.00	897.17		897.31	0.001970	4.04	2622.48	1709.59	0.25
Parkers Creek	1	10643	100 YEAR	4945.00	888.00	897.62		897.73	0.001660	3.85	3415.88	1782.63	0.23
Parkers Creek	1	10392	2007 FLOOD	1159.00	887.05	893.06		893.28	0.003735	3.74	330.77	101.14	0.31
Parkers Creek	1	10392	10 YEAR	3047.00	887.05	896.03		896.22	0.002290	4.12	1673.71	1259.45	0.27
Parkers Creek	1	10392	25 YEAR	3679.00	887.05	896.51		896.65	0.001839	3.85	2404.94	1725.61	0.24
Parkers Creek	1	10392	50 YEAR	4025.00	887.05	896.74		896.85	0.001660	3.73	2794.54	1780.22	0.23
Parkers Creek	1	10392	100 YEAR	4945.00	887.05	897.26		897.35	0.001367	3.53	3770.78	2001.88	0.21
Parkers Creek	1	10183	2007 FLOOD	1159.00	883.25	891.06		891.16	0.001389	2.64	452.17	98.49	0.20
Parkers Creek	1	10183	10 YEAR	3047.00	883.25	893.64		893.93	0.002419	4.49	804.06	201.52	0.28
Parkers Creek	1	10183	25 YEAR	3679.00	883.25	894.04		894.42	0.002927	5.11	893.86	305.04	0.31
Parkers Creek	1	10183	50 YEAR	4025.00	883.25	894.23		894.66	0.003226	5.44	971.98	507.51	0.33
Parkers Creek	1	10183	100 YEAR	4945.00	883.25	895.01		895.43	0.003082	5.63	1494.61	895.88	0.32
Parkers Creek	1	10004	2007 FLOOD	1159.00	883.00	890.85		890.93	0.001134	2.38	502.02	118.34	0.18
Parkers Creek	1	10004	10 YEAR	3047.00	883.00	893.28		893.52	0.002039	4.07	994.48	486.20	0.25
Parkers Creek	1	10004	25 YEAR	3679.00	883.00	893.65		893.93	0.002322	4.48	1186.55	542.42	0.27
Parkers Creek	1	10004	50 YEAR	4025.00	883.00	893.82		894.12	0.002477	4.69	1281.95	573.65	0.28
Parkers Creek	1	10004	100 YEAR	4945.00	883.00	894.65		894.92	0.002199	4.71	1958.13	993.16	0.27
Parkers Creek	1	9774	2007 FLOOD	1159.00	883.00	890.47	886.51	890.59	0.001975	2.77	423.76	105.79	0.23
Parkers Creek	1	9774	10 YEAR	2498.00	883.00	892.74	888.27	892.93	0.001986	3.63	905.33	371.60	0.24
Parkers Creek	1	9774	25 YEAR	2733.00	883.00	893.05	888.50	893.24	0.001894	3.66	1019.30	1097.23	0.24
Parkers Creek	1	9774	50 YEAR	2843.00	883.00	893.20	888.63	893.38	0.001854	3.67	1070.55	1102.41	0.24
Parkers Creek	1	9774	100 YEAR	3510.00	883.00	893.99	889.43	894.17	0.001655	3.71	1358.72	1126.63	0.23
Parkers Creek	1	9758		Bridge									
Parkers Creek	1	9658	2007 FLOOD	1159.00	883.00	890.22	886.30	890.30	0.001443	2.29	509.39	144.85	0.19
Parkers Creek	1	9658	10 YEAR	2498.00	883.00	892.53	887.82	892.63	0.001145	2.71	1223.71	623.14	0.19
Parkers Creek	1	9658	25 YEAR	2733.00	883.00	892.85	888.02	892.95	0.001095	2.74	1342.88	719.52	0.18
Parkers Creek	1	9658	50 YEAR	2843.00	883.00	893.00	888.12	893.09	0.001075	2.75	1396.35	780.22	0.18
Parkers Creek	1	9658	100 YEAR	3510.00	883.00	893.80	888.64	893.90	0.000987	2.83	1695.56	1168.53	0.18
Parkers Creek	1	9593	2007 FLOOD	1159.00	882.98	890.07	886.43	890.19	0.001829	2.78	448.49	148.05	0.22
Parkers Creek	1	9593	10 YEAR	2498.00	882.98	892.34	888.08	892.51	0.001780	3.54	905.69	610.77	0.23
Parkers Creek	1	9593	25 YEAR	2733.00	882.98	892.66	888.32	892.84	0.001745	3.61	991.54	702.07	0.23
Parkers Creek	1	9593	50 YEAR	2843.00	882.98	892.81	888.42	892.98	0.001728	3.63	1030.25	754.90	0.23
Parkers Creek	1	9593	100 YEAR	3510.00	882.98	893.61	889.02	893.79	0.001649	3.80	1246.97	1084.85	0.23
Parkers Creek	1	9585		Bridge									
Parkers Creek	1	9421	2007 FLOOD	1159.00	882.98	889.02	887.10	889.29	0.006744	4.15	279.46	83.98	0.40
Parkers Creek	1	9421	10 YEAR	2498.00	882.98	891.06	888.64	891.49	0.007464	5.28	473.22	106.52	0.44
Parkers Creek	1	9421	25 YEAR	2733.00	882.98	891.35	888.88	891.80	0.007520	5.42	504.53	109.81	0.45
Parkers Creek	1	9421	50 YEAR	2843.00	882.98	891.48	888.98	891.94	0.007547	5.48	518.85	111.29	0.45
Parkers Creek	1	9421	100 YEAR	3510.00	882.98	892.20	889.55	892.73	0.007713	5.83	602.08	119.49	0.46
Parkers Creek	1	7969	2007 FLOOD	1159.00	876.00	883.25		883.27	0.000151	0.88	1438.66	304.52	0.06
Parkers Creek	1	7969	10 YEAR	2498.00	876.00	885.45		885.48	0.000231	1.33	2188.73	377.91	0.08
Parkers Creek	1	7969	25 YEAR	2733.00	876.00	885.76		885.79	0.000242	1.40	2306.55	390.23	0.08
Parkers Creek	1	7969	50 YEAR	2843.00	876.00	885.90		885.93	0.000247	1.43	2360.03	395.70	0.09
Parkers Creek	1	7969	100 YEAR	3510.00	876.00	886.66		886.69	0.000276	1.59	2670.81	423.45	0.09
Parkers Creek	1	5702	2007 FLOOD	1159.00	877.00	882.33		882.38	0.000944	1.92	780.28	265.79	0.16
Parkers Creek	1	5702	10 YEAR	2498.00	877.00	884.22		884.31	0.001105	2.62	1341.89	336.39	0.18
Parkers Creek	1	5702	25 YEAR	2733.00	877.00	884.49		884.58	0.001124	2.72	1433.95	361.19	0.19
Parkers Creek	1	5702	50 YEAR	2843.00	877.00	884.61		884.70	0.001134	2.76	1479.05	395.25	0.19
Parkers Creek	1	5702	100 YEAR	3510.00	877.00	885.28		885.38	0.001179	3.00	1797.20	535.40	0.19
Parkers Creek	1	4875	2007 FLOOD	1159.00	877.00	881.14		881.23	0.002217	2.56	554.98	217.18	0.24
Parkers Creek	1	4875	10 YEAR	2498.00	877.00	882.96		883.10	0.002187	3.33	1023.17	294.92	0.25
Parkers Creek	1	4875	25 YEAR	2733.00	877.00	883.22		883.37	0.002274	3.50	1105.15	342.62	0.26
Parkers Creek	1	4875	50 YEAR	2843.00	877.00	883.33		883.49	0.002284	3.56	1146.01	360.58	0.26
Parkers Creek	1	4875	100 YEAR	3510.00	877.00	883.98		884.17	0.002334	3.86	1405.27	459.68	0.27
Parkers Creek	1	2961	2007 FLOOD	1159.00	873.00	877.38		877.43	0.001212	2.00	672.73	251.76	0.18
Parkers Creek	1	2961	10 YEAR	2498.00	873.00	879.35		879.43	0.001151	2.54	1283.35	398.16	0.18
Parkers Creek	1	2961	25 YEAR	2733.00	873.00	879.60		879.68	0.001150	2.62	1385.03	407.40	0.19

HEC-RAS Plan: EC_BALANCED (Continued)

River	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)	
Parkers Creek	1	2961	50 YEAR	2843.00	873.00	879.75		879.83	0.001120	2.62	1447.82	413.00	0.18
Parkers Creek	1	2961	100 YEAR	3510.00	873.00	880.32		880.41	0.001216	2.89	1714.07	516.67	0.19
Parkers Creek	1	1319	2007 FLOOD	1159.00	869.21	875.07		875.17	0.001653	2.75	627.65	269.33	0.21
Parkers Creek	1	1319	10 YEAR	2498.00	869.21	876.66		876.81	0.002131	3.74	1234.96	596.23	0.26
Parkers Creek	1	1319	25 YEAR	2733.00	869.21	876.82		876.98	0.002227	3.89	1338.23	666.96	0.26
Parkers Creek	1	1319	50 YEAR	2843.00	869.21	877.11		877.27	0.002137	3.91	1562.87	913.93	0.26
Parkers Creek	1	1319	100 YEAR	3510.00	869.21	877.56		877.70	0.002039	3.98	1891.01	1002.04	0.25
Parkers Creek	1	1300	2007 FLOOD	1159.00	869.00	872.63		872.64	0.000210	0.75	3268.84	1918.04	0.07
Parkers Creek	1	1300	10 YEAR	2498.00	869.00	873.44		873.44	0.000317	1.06	5143.77	2572.95	0.09
Parkers Creek	1	1300	25 YEAR	4394.00	869.00	874.10		874.11	0.000401	1.32	6863.53	2625.45	0.11
Parkers Creek	1	1300	50 YEAR	9579.00	869.00	875.81		875.82	0.000376	1.56	11466.51	2740.24	0.11
Parkers Creek	1	1300	100 YEAR	11419.00	869.00	876.29		876.30	0.000377	1.63	12774.92	2757.08	0.11
Parkers Creek	1	1250	2007 FLOOD	1159.00	868.09	872.08		872.10	0.000949	1.65	1569.99	1818.87	0.15
Parkers Creek	1	1250	10 YEAR	2498.00	868.09	870.93	870.93	871.87	0.039786	8.30	391.16	271.52	0.93
Parkers Creek	1	1250	25 YEAR	4394.00	868.09	872.96		873.01	0.002255	2.95	3310.17	2020.02	0.25
Parkers Creek	1	1250	50 YEAR	9579.00	868.09	875.03		875.07	0.000879	2.37	7572.44	2080.32	0.16
Parkers Creek	1	1250	100 YEAR	11419.00	868.09	875.52		875.56	0.000835	2.43	8592.30	2086.09	0.16
Parkers Creek	1	1200	2007 FLOOD	1159.00	860.10	871.97		871.97	0.000026	0.59	3913.08	864.62	0.03
Parkers Creek	1	1200	10 YEAR	2498.00	860.10	868.70		868.74	0.000488	2.01	2037.06	408.30	0.13
Parkers Creek	1	1200	25 YEAR	4394.00	860.10	871.52		871.57	0.000478	2.43	3531.77	852.37	0.13
Parkers Creek	1	1200	50 YEAR	9579.00	860.10	873.60		873.69	0.000829	3.61	5359.50	909.59	0.18
Parkers Creek	1	1200	100 YEAR	11419.00	860.10	873.98		874.09	0.001002	4.04	5704.32	920.58	0.20
Parkers Creek	1	1150	2007 FLOOD	31220.00	859.43	867.66		867.85	0.003708	5.50	11471.37	3374.51	0.35
Parkers Creek	1	1150	10 YEAR	5448.00	859.43	862.74	862.26	863.11	0.015470	5.85	1461.97	1038.30	0.60
Parkers Creek	1	1150	25 YEAR	21960.00	859.43	866.72		866.89	0.003642	5.01	8503.44	2734.96	0.34
Parkers Creek	1	1150	50 YEAR	38387.00	859.43	868.17		868.37	0.003720	5.75	13213.10	3449.23	0.35
Parkers Creek	1	1150	100 YEAR	41234.00	859.43	868.36		868.57	0.003725	5.84	13876.77	3483.26	0.35
Parkers Creek	1	1100	2007 FLOOD	31220.00	849.94	860.37		860.59	0.002448	5.19	12649.77	4001.78	0.29
Parkers Creek	1	1100	10 YEAR	5448.00	849.94	856.69		856.76	0.001010	2.44	2985.64	804.90	0.17
Parkers Creek	1	1100	25 YEAR	21960.00	849.94	859.47		859.69	0.002448	4.86	9102.16	3632.16	0.29
Parkers Creek	1	1100	50 YEAR	38387.00	849.94	860.97		861.18	0.002401	5.35	15062.41	4099.74	0.29
Parkers Creek	1	1100	100 YEAR	41234.00	849.94	861.19		861.40	0.002385	5.40	15976.63	4140.63	0.29
Parkers Creek	1	1050	2007 FLOOD	31220.00	849.92	857.87		857.92	0.001173	3.06	18595.44	4338.69	0.19
Parkers Creek	1	1050	10 YEAR	5448.00	849.92	853.22		853.37	0.006851	4.02	2191.08	1325.96	0.40
Parkers Creek	1	1050	25 YEAR	21960.00	849.92	857.01		857.05	0.001145	2.80	14904.39	4231.91	0.19
Parkers Creek	1	1050	50 YEAR	38387.00	849.92	858.47		858.54	0.001177	3.23	21248.71	4422.72	0.20
Parkers Creek	1	1050	100 YEAR	41234.00	849.92	858.68		858.74	0.001195	3.30	22154.90	4452.78	0.20
Parkers Creek	1	1000	2007 FLOOD	31220.00	839.36	854.48		854.71	0.001729	5.62	15020.49	5003.60	0.26
Parkers Creek	1	1000	10 YEAR	5448.00	839.36	847.68		847.79	0.001235	3.10	2641.19	577.15	0.20
Parkers Creek	1	1000	25 YEAR	21960.00	839.36	853.04		853.39	0.002378	6.14	8698.21	3467.86	0.30
Parkers Creek	1	1000	50 YEAR	38387.00	839.36	855.26		855.45	0.001577	5.56	19636.60	6962.23	0.25
Parkers Creek	1	1000	100 YEAR	41234.00	839.36	855.64		855.80	0.001401	5.33	22409.38	7527.44	0.24
Parkers Creek	1	950	2007 FLOOD	31220.00	839.28	852.60		852.71	0.001033	4.02	16645.17	3824.89	0.20
Parkers Creek	1	950	10 YEAR	5448.00	839.28	846.25		846.30	0.000810	2.26	4324.13	1324.80	0.16
Parkers Creek	1	950	25 YEAR	21960.00	839.28	850.97		851.07	0.001040	3.69	11991.43	2172.48	0.19
Parkers Creek	1	950	50 YEAR	38387.00	839.28	853.47		853.57	0.001005	4.14	20832.40	5859.32	0.20
Parkers Creek	1	950	100 YEAR	43234.00	839.28	853.95		854.05	0.000987	4.20	23992.35	6826.69	0.20
Parkers Creek	1	900	2007 FLOOD	31220.00	839.37	851.17		851.47	0.002627	5.87	9870.34	2130.87	0.31
Parkers Creek	1	900	10 YEAR	5448.00	839.37	845.23		845.34	0.002010	3.10	2603.27	804.91	0.24
Parkers Creek	1	900	25 YEAR	21960.00	839.37	849.58		849.84	0.002594	5.26	7245.65	1375.54	0.30
Parkers Creek	1	900	50 YEAR	38387.00	839.37	852.04		852.35	0.002644	6.19	12105.73	3728.46	0.31
Parkers Creek	1	900	100 YEAR	43234.00	839.37	852.57		852.87	0.002523	6.22	14584.75	5302.40	0.31
Parkers Creek	1	850	2007 FLOOD	31220.00	839.66	850.92		851.12	0.002029	5.05	11418.24	2544.36	0.27
Parkers Creek	1	850	10 YEAR	5448.00	839.66	844.87		845.00	0.002833	3.47	2421.46	922.54	0.28
Parkers Creek	1	850	25 YEAR	21960.00	839.66	849.31		849.48	0.002085	4.60	8164.56	1671.88	0.27
Parkers Creek	1	850	50 YEAR	38387.00	839.66	851.78		851.99	0.002074	5.37	13835.38	3123.29	0.28
Parkers Creek	1	850	100 YEAR	43234.00	839.66	852.31		852.52	0.002103	5.57	15627.66	3696.81	0.28
Parkers Creek	1	800	2007 FLOOD	31220.00	828.29	842.86	838.37	843.46	0.004164	8.40	8224.74	2113.11	0.40
Parkers Creek	1	800	10 YEAR	5448.00	828.29	835.43	832.84	835.74	0.004161	4.96	1559.79	422.51	0.35
Parkers Creek	1	800	25 YEAR	21960.00	828.29	841.16	836.99	841.72	0.004164	7.69	5575.90	1199.61	0.39
Parkers Creek	1	800	50 YEAR	38387.00	828.29	843.66	839.02	844.26	0.004164	8.73	10013.00	2321.74	0.41
Parkers Creek	1	800	100 YEAR	43234.00	828.29	844.13	840.73	844.73	0.004164	8.92	11133.01	2402.63	0.41

APPENDIX B.2

HEC-RAS SUMMARY FOR ALTERNATIVE 1

HEC-RAS Plan: ALT 1

River	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)	
W_Trib	1	5731	10 YEAR	1.00	912.00	912.08	912.02	912.09	0.003365	0.23	4.30	58.39	0.15
W_Trib	1	5731	25 YEAR	1.00	912.00	912.10	912.02	912.10	0.001770	0.19	5.23	59.03	0.11
W_Trib	1	5731	50 YEAR	1.00	912.00	912.08	912.02	912.09	0.003365	0.23	4.30	58.39	0.15
W_Trib	1	5731	100 YEAR	6553.00	912.00	916.63		916.72	0.002616	2.76	3395.43	1594.16	0.25
W_Trib	1	4967	10 YEAR	1.00	910.10	910.50	910.28	910.50	0.001407	0.29	3.40	16.87	0.12
W_Trib	1	4967	25 YEAR	1.00	910.10	910.46	910.28	910.46	0.002625	0.37	2.69	15.01	0.15
W_Trib	1	4967	50 YEAR	1.00	910.10	910.50	910.28	910.50	0.001407	0.29	3.40	16.87	0.12
W_Trib	1	4967	100 YEAR	6553.00	910.10	914.11		914.20	0.004527	3.27	3207.37	1792.58	0.33
W_Trib	1	4046	10 YEAR	1.00	907.00	907.02		907.02	0.029609	0.20	5.20	422.21	0.33
W_Trib	1	4046	25 YEAR	1.00	907.00	907.02		907.02	0.005699	0.13	8.61	434.58	0.16
W_Trib	1	4046	50 YEAR	1.00	907.00	907.02		907.02	0.029609	0.20	5.20	422.21	0.33
W_Trib	1	4046	100 YEAR	6553.00	907.00	910.20		910.30	0.003989	3.08	3007.44	1434.87	0.31
W_Trib	1	2892	10 YEAR	1.00	903.00	903.03		903.03	0.001260	0.07	15.10	581.45	0.08
W_Trib	1	2892	25 YEAR	1.00	903.00	903.02	903.02	903.02	0.002329	0.09	12.54	580.27	0.10
W_Trib	1	2892	50 YEAR	1.00	903.00	903.03		903.03	0.001260	0.07	15.10	581.45	0.08
W_Trib	1	2892	100 YEAR	6553.00	903.00	906.09		906.17	0.003220	2.71	3436.73	1771.11	0.27
W_Trib	1	1596	10 YEAR	1.00	899.00	899.02	899.02	899.02	0.016473	0.24	4.76	206.21	0.28
W_Trib	1	1596	25 YEAR	1.00	899.00	899.05		899.05	0.001228	0.11	10.61	217.93	0.09
W_Trib	1	1596	50 YEAR	1.00	899.00	899.02	899.02	899.02	0.016473	0.24	4.76	206.21	0.28
W_Trib	1	1596	100 YEAR	6553.00	899.00	902.70		902.74	0.002209	2.49	4542.24	2168.37	0.23
W_Trib	1	441	10 YEAR	1.00	894.00	894.21	894.03	894.21	0.000066	0.06	17.16	97.25	0.02
W_Trib	1	441	25 YEAR	1.00	894.00	894.03	894.03	894.04	0.315133	0.84	1.19	71.29	1.14
W_Trib	1	441	50 YEAR	1.00	894.00	895.18		895.18	0.000000	0.01	216.90	302.24	0.00
W_Trib	1	441	100 YEAR	6553.00	894.00	899.62		899.74	0.003047	3.95	2978.81	1171.57	0.30
Unnamed_TribSeco	1	3937	10 YEAR	4232.00	897.00	898.91	898.91	899.53	0.047381	7.21	759.90	602.13	0.96
Unnamed_TribSeco	1	3937	25 YEAR	5740.00	897.00	899.31	899.31	899.98	0.040452	7.64	1036.08	754.36	0.92
Unnamed_TribSeco	1	3937	50 YEAR	6993.00	897.00	899.51	899.51	900.25	0.040556	8.13	1191.08	772.25	0.94
Unnamed_TribSeco	1	3937	100 YEAR	8545.00	897.00	899.75	899.75	900.56	0.039769	8.59	1380.60	793.58	0.94
Unnamed_TribSeco	1	3351	10 YEAR	4232.00	889.00	894.58		894.67	0.001846	3.01	2358.40	925.90	0.23
Unnamed_TribSeco	1	3351	25 YEAR	5740.00	889.00	895.19		895.29	0.002032	3.40	3001.81	1145.74	0.24
Unnamed_TribSeco	1	3351	50 YEAR	6993.00	889.00	895.52		895.63	0.002214	3.68	3386.33	1175.29	0.26
Unnamed_TribSeco	1	3351	100 YEAR	8545.00	889.00	895.89		896.02	0.002398	3.97	3826.80	1209.10	0.27
Unnamed_TribSeco	1	2499	10 YEAR	4232.00	888.00	889.70	889.70	890.29	0.043501	6.58	773.51	676.34	0.91
Unnamed_TribSeco	1	2499	25 YEAR	5740.00	888.00	890.10	890.10	890.73	0.035427	6.88	1076.19	885.74	0.85
Unnamed_TribSeco	1	2499	50 YEAR	6993.00	888.00	890.42	890.30	890.99	0.028162	6.76	1362.91	945.43	0.78
Unnamed_TribSeco	1	2499	100 YEAR	8545.00	888.00	890.76		891.30	0.023350	6.73	1695.03	1008.80	0.73
Unnamed_TribSeco	1	2128	10 YEAR	4232.00	882.00	887.10	884.87	887.24	0.002893	3.42	1869.23	841.29	0.28
Unnamed_TribSeco	1	2128	25 YEAR	5740.00	882.00	887.66	885.40	887.81	0.002979	3.74	2395.28	1021.16	0.29
Unnamed_TribSeco	1	2128	50 YEAR	6993.00	882.00	888.16	885.70	888.32	0.003035	4.01	2963.27	1229.88	0.30
Unnamed_TribSeco	1	2128	100 YEAR	8545.00	882.00	888.55	886.32	888.72	0.003105	4.24	3445.06	1255.54	0.30
Unnamed_TribSeco	1	1774	10 YEAR	4232.00	881.00	886.07	884.32	886.18	0.003152	3.57	2164.23	1175.03	0.29
Unnamed_TribSeco	1	1774	25 YEAR	5740.00	881.00	886.68	884.68	886.78	0.002870	3.70	2849.17	1566.52	0.28
Unnamed_TribSeco	1	1774	50 YEAR	6993.00	881.00	887.17	884.86	887.28	0.002906	3.95	3557.97	2037.92	0.29
Unnamed_TribSeco	1	1774	100 YEAR	8545.00	881.00	887.62	885.47	887.72	0.002605	3.93	4247.35	2068.23	0.28
Unnamed_TribSeco	1	967	10 YEAR	3875.00	874.39	884.35	880.14	884.56	0.002044	3.66	1084.66	1325.61	0.25
Unnamed_TribSeco	1	967	25 YEAR	4533.00	874.39	885.11	880.51	885.33	0.001944	3.83	1217.10	1682.57	0.25
Unnamed_TribSeco	1	967	50 YEAR	4853.00	874.39	885.70	880.67	885.92	0.001712	3.79	1321.92	1731.32	0.23
Unnamed_TribSeco	1	967	100 YEAR	5313.00	874.39	886.28	880.90	886.51	0.001619	3.86	1423.50	1810.67	0.23
Unnamed_TribSeco	1	951		Bridge									
Unnamed_TribSeco	1	857	10 YEAR	3875.00	874.39	883.77	880.16	884.00	0.002564	4.01	1114.35	644.82	0.28
Unnamed_TribSeco	1	857	25 YEAR	4533.00	874.39	884.34	880.53	884.59	0.002522	4.20	1251.57	786.84	0.28
Unnamed_TribSeco	1	857	50 YEAR	4853.00	874.39	884.61	880.70	884.86	0.002498	4.29	1316.18	802.80	0.28
Unnamed_TribSeco	1	857	100 YEAR	5313.00	874.39	884.98	880.96	885.25	0.002463	4.41	1406.64	910.26	0.28
Unnamed_TribSeco	1	775	10 YEAR	3875.00	874.39	883.44	880.13	883.73	0.003598	4.36	915.03	240.65	0.32
Unnamed_TribSeco	1	775	25 YEAR	4533.00	874.39	883.99	880.59	884.32	0.003576	4.62	1012.53	283.49	0.33
Unnamed_TribSeco	1	775	50 YEAR	4853.00	874.39	884.26	880.81	884.60	0.003559	4.74	1058.50	296.28	0.33
Unnamed_TribSeco	1	775	100 YEAR	5313.00	874.39	884.62	881.08	884.99	0.003533	4.90	1122.67	312.90	0.33
Unnamed_TribSeco	1	767		Bridge									
Unnamed_TribSeco	1	622	10 YEAR	3875.00	874.39	880.72	879.84	881.47	0.014765	7.45	628.22	207.50	0.63
Unnamed_TribSeco	1	622	25 YEAR	4533.00	874.39	881.13	880.17	881.93	0.014165	7.75	716.14	225.08	0.62
Unnamed_TribSeco	1	622	50 YEAR	4853.00	874.39	881.26	880.33	882.11	0.014639	8.01	743.25	232.36	0.63
Unnamed_TribSeco	1	622	100 YEAR	5313.00	874.39	881.45	880.54	882.37	0.015116	8.35	783.92	241.45	0.65
Unnamed_TribSeco	1	562	10 YEAR	3875.00	874.00	880.62		880.73	0.001817	3.21	1996.57	761.16	0.23
Unnamed_TribSeco	1	562	25 YEAR	4533.00	874.00	881.06		881.17	0.001712	3.27	2347.37	912.68	0.23
Unnamed_TribSeco	1	562	50 YEAR	4853.00	874.00	881.19		881.31	0.001773	3.37	2475.28	980.65	0.23
Unnamed_TribSeco	1	562	100 YEAR	5313.00	874.00	881.40		881.51	0.001797	3.47	2680.13	1042.40	0.23
Unnamed_TribSeco	1	223	10 YEAR	3875.00	874.00	880.17	876.94	880.22	0.001000	2.39	2827.71	1487.22	0.17
Unnamed_TribSeco	1	223	25 YEAR	4533.00	874.00	880.65	877.22	880.70	0.001001	2.51	3631.17	1792.29	0.17
Unnamed_TribSeco	1	223	50 YEAR	4853.00	874.00	880.77	877.24	880.83	0.001002	2.55	3859.00	1822.63	0.17

HEC-RAS Plan: ALT 1 (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Unnamed_TribSeco	1	223	100 YEAR	5313.00	874.00	880.99	877.38	881.04	0.001002	2.60	4254.71	1901.14	0.18
Trib_Parkers	1	13917	10 YEAR	894.00	921.46	923.36		923.38	0.001905	1.23	1199.53	1889.52	0.19
Trib_Parkers	1	13917	25 YEAR	1245.00	921.46	923.57		923.58	0.001905	1.35	1611.69	2089.75	0.19
Trib_Parkers	1	13917	50 YEAR	1539.00	921.46	923.71		923.72	0.001917	1.43	1910.64	2202.24	0.19
Trib_Parkers	1	13917	100 YEAR	1921.00	921.46	923.88		923.89	0.001875	1.50	2289.16	2337.74	0.19
Trib_Parkers	1	13112	10 YEAR	894.00	919.63	921.63		921.65	0.002041	1.53	1249.78	1826.97	0.20
Trib_Parkers	1	13112	25 YEAR	1485.00	919.63	921.97		921.99	0.001977	1.69	1938.70	2360.42	0.20
Trib_Parkers	1	13112	50 YEAR	2440.00	919.63	922.34		922.35	0.001875	1.83	3007.74	3170.22	0.20
Trib_Parkers	1	13112	100 YEAR	3908.00	919.63	922.70		922.72	0.001768	1.94	4176.91	3200.78	0.20
Trib_Parkers	1	11204	10 YEAR	894.00	914.00	916.66		916.69	0.002203	1.71	659.76	580.49	0.21
Trib_Parkers	1	11204	25 YEAR	1485.00	914.00	917.19		917.24	0.002232	2.01	1013.22	722.80	0.22
Trib_Parkers	1	11204	50 YEAR	2440.00	914.00	917.84		917.90	0.002152	2.30	1505.36	794.25	0.23
Trib_Parkers	1	11204	100 YEAR	3908.00	914.00	918.60		918.68	0.002178	2.67	2281.06	1259.17	0.24
Trib_Parkers	1	9264	10 YEAR	527.00	910.00	911.46		911.51	0.005101	1.99	348.88	396.56	0.30
Trib_Parkers	1	9264	25 YEAR	1485.00	910.00	912.33		912.41	0.005056	2.75	755.60	524.98	0.33
Trib_Parkers	1	9264	50 YEAR	2440.00	910.00	912.94		913.05	0.005202	3.29	1102.17	710.87	0.35
Trib_Parkers	1	9264	100 YEAR	2440.00	910.00	912.94		913.05	0.005202	3.29	1102.17	710.87	0.35
Trib_Parkers	1	8246	10 YEAR	527.00	904.00	906.18		906.22	0.002870	1.76	356.09	297.33	0.24
Trib_Parkers	1	8246	25 YEAR	1485.00	904.00	907.33		907.41	0.003162	2.60	823.46	654.99	0.27
Trib_Parkers	1	8246	50 YEAR	2440.00	904.00	907.97		908.06	0.003152	2.96	1345.52	969.11	0.28
Trib_Parkers	1	8246	100 YEAR	2440.00	904.00	907.96		908.06	0.003164	2.97	1342.98	967.84	0.28
Trib_Parkers	1	7384	10 YEAR	527.00	901.00	902.64		902.69	0.004689	2.04	340.71	361.41	0.29
Trib_Parkers	1	7384	25 YEAR	1485.00	901.00	903.26		903.39	0.008696	3.50	636.37	594.33	0.43
Trib_Parkers	1	7384	50 YEAR	2440.00	901.00	904.07		904.19	0.005816	3.56	1289.59	1256.94	0.37
Trib_Parkers	1	7384	100 YEAR	2440.00	901.00	904.94		904.97	0.001118	1.86	2411.59	1355.11	0.17
Trib_Parkers	2	4738	10 YEAR	527.00	889.00	891.45		891.52	0.003826	2.15	262.70	184.40	0.28
Trib_Parkers	2	4738	25 YEAR	869.00	889.00	892.62	890.69	892.68	0.001695	1.98	528.50	266.48	0.20
Trib_Parkers	2	4738	50 YEAR	1824.00	889.00	893.53		893.65	0.002634	2.94	802.86	331.77	0.26
Trib_Parkers	2	4738	100 YEAR	8377.00	889.00	896.69		897.03	0.004499	5.68	2414.33	746.14	0.37
Trib_Parkers	2	3718	10 YEAR	170.00	886.00	886.82		886.85	0.009026	1.48	114.79	203.82	0.35
Trib_Parkers	2	3718	25 YEAR	869.00	886.00	887.10	887.10	887.47	0.070221	4.87	178.34	247.18	1.01
Trib_Parkers	2	3718	50 YEAR	1824.00	886.00	888.22		888.43	0.013787	3.68	498.52	329.60	0.51
Trib_Parkers	2	3718	100 YEAR	8377.00	886.00	891.42		891.77	0.005954	5.02	1976.98	614.75	0.40
Trib_Parkers	2	2703	10 YEAR	170.00	881.00	882.33		882.34	0.002625	0.90	188.17	277.74	0.19
Trib_Parkers	2	2703	25 YEAR	869.00	881.00	884.05		884.07	0.000903	1.20	759.33	385.14	0.14
Trib_Parkers	2	2703	50 YEAR	1824.00	881.00	884.74		884.79	0.001583	1.89	1043.55	439.53	0.19
Trib_Parkers	2	2703	100 YEAR	8377.00	881.00	887.70		887.89	0.002606	3.83	2862.13	917.53	0.28
Trib_Parkers	2	2304	10 YEAR	170.00	880.00	881.38		881.39	0.002174	0.83	204.45	296.68	0.18
Trib_Parkers	2	2304	25 YEAR	869.00	880.00	883.90		883.90	0.000236	0.74	1339.78	593.64	0.07
Trib_Parkers	2	2304	50 YEAR	1824.00	880.00	884.40		884.43	0.000582	1.28	1654.04	635.00	0.12
Trib_Parkers	2	2304	100 YEAR	8377.00	880.00	886.96		887.08	0.001583	3.04	3715.30	1118.87	0.22
Trib_Parkers	2	1696	10 YEAR	170.00	879.00	879.95		879.96	0.002545	0.81	209.26	353.83	0.19
Trib_Parkers	2	1696	25 YEAR	869.00	879.00	883.84		883.84	0.000052	0.44	2340.40	830.04	0.04
Trib_Parkers	2	1696	50 YEAR	1824.00	879.00	884.24		884.25	0.000163	0.83	2714.95	1035.70	0.07
Trib_Parkers	2	1696	100 YEAR	9377.00	879.00	886.29		886.37	0.000903	2.48	5327.60	1390.37	0.17
Trib_Parkers	2	930	10 YEAR	170.00	877.00	879.34		879.35	0.000140	0.41	542.99	418.20	0.05
Trib_Parkers	2	930	25 YEAR	869.00	877.00	883.81		883.81	0.000010	0.25	6257.22	1813.29	0.02
Trib_Parkers	2	930	50 YEAR	1824.00	877.00	884.11		884.12	0.000048	0.56	7113.53	3428.99	0.04
Trib_Parkers	2	930	100 YEAR	11877.00	877.00	884.59		884.64	0.001185	2.92	8745.99	3428.99	0.19
Trib_Parkers	2	606	10 YEAR	170.00	877.00	879.31		879.32	0.000065	0.30	923.54	993.40	0.04
Trib_Parkers	2	606	25 YEAR	869.00	877.00	883.81		883.81	0.000007	0.21	6039.29	1193.85	0.01
Trib_Parkers	2	606	50 YEAR	1569.00	877.00	884.10		884.10	0.000028	0.44	6503.78	2279.93	0.03
Trib_Parkers	2	606	100 YEAR	1669.00	877.00	884.51		884.51	0.000022	0.40	7433.21	2279.93	0.03
Trib_Parkers	2	583	10 YEAR	170.00	877.00	879.31		879.31	0.000081	0.32	891.21	1057.72	0.04
Trib_Parkers	2	583	25 YEAR	869.00	877.00	883.81		883.81	0.000006	0.20	6444.04	1317.13	0.01
Trib_Parkers	2	583	50 YEAR	1569.00	877.00	884.10		884.10	0.000026	0.41	6924.33	2212.29	0.03
Trib_Parkers	2	583	100 YEAR	1669.00	877.00	884.51		884.51	0.000020	0.38	7826.32	2212.29	0.03
Trib_Parkers	2	466	10 YEAR	170.00	877.00	879.30	877.34	879.30	0.000052	0.46	366.39	613.98	0.05
Trib_Parkers	2	466	25 YEAR	869.00	877.00	883.79	877.98	883.80	0.000036	0.80	1087.55	1558.31	0.05
Trib_Parkers	2	466	50 YEAR	1000.00	877.00	884.08	878.08	884.10	0.000042	0.88	1134.17	2072.74	0.06
Trib_Parkers	2	466	100 YEAR	1200.00	877.00	884.50	878.22	884.51	0.000017	0.58	3728.64	2072.74	0.04
Trib_Parkers	2	450		Bridge									
Trib_Parkers	2	367	10 YEAR	170.00	877.00	879.28	877.58	879.29	0.000077	0.52	325.89	790.84	0.06
Trib_Parkers	2	367	25 YEAR	869.00	877.00	883.77	878.22	883.78	0.000041	0.83	1046.51	1793.50	0.06
Trib_Parkers	2	367	50 YEAR	1000.00	877.00	884.06	878.32	884.07	0.000047	0.92	1091.99	2388.53	0.06
Trib_Parkers	2	367	100 YEAR	1200.00	877.00	884.45	878.44	884.45	0.000011	0.44	4725.63	2388.53	0.03
Trib_Parkers	2	325	10 YEAR	170.00	875.67	879.28	876.53	879.28	0.000027	0.41	415.29	855.66	0.04
Trib_Parkers	2	325	25 YEAR	869.00	875.67	883.78	877.25	883.78	0.000002	0.18	8755.21	2410.99	0.01
Trib_Parkers	2	325	50 YEAR	1000.00	875.67	884.06	877.36	884.06	0.000002	0.20	9455.09	2491.77	0.01

HEC-RAS Plan: ALT 1 (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Trib_Parkers	2	325	100 YEAR	1200.00	875.67	884.45	877.51	884.45	0.000002	0.22	10429.50	2491.77	0.01
Trib_Parkers	2	317		Culvert									
Trib_Parkers	2	205	10 YEAR	170.00	875.67	879.27	876.05	879.27	0.000017	0.34	502.11	154.46	0.03
Trib_Parkers	2	205	25 YEAR	869.00	875.67	883.77	876.80	883.78	0.000010	0.43	5229.79	2590.90	0.03
Trib_Parkers	2	205	50 YEAR	1000.00	875.67	884.06	876.91	884.06	0.000010	0.44	5992.79	2731.32	0.03
Trib_Parkers	2	205	100 YEAR	1200.00	875.67	884.45	877.06	884.45	0.000010	0.46	7059.04	2731.32	0.03
Trib_Parkers	2	204	10 YEAR	170.00	875.67	879.10		879.19	0.001518	2.44	69.54	30.57	0.29
Trib_Parkers	2	204	25 YEAR	869.00	875.67	883.59		883.71	0.000722	2.99	373.81	120.00	0.23
Trib_Parkers	2	204	50 YEAR	1000.00	875.67	883.85		883.99	0.000785	3.22	405.23	120.00	0.24
Trib_Parkers	2	204	100 YEAR	1200.00	875.67	884.20		884.37	0.000878	3.54	447.82	120.00	0.25
Trib_Parkers	2	203	10 YEAR	170.00	875.54	879.00		879.09	0.001460	2.41	70.54	30.77	0.28
Trib_Parkers	2	203	25 YEAR	869.00	875.54	883.54		883.66	0.000701	2.96	374.57	120.00	0.22
Trib_Parkers	2	203	50 YEAR	1000.00	875.54	883.80		883.94	0.000766	3.19	405.45	120.00	0.24
Trib_Parkers	2	203	100 YEAR	1200.00	875.54	884.15		884.31	0.000863	3.52	447.23	120.00	0.25
Trib_Parkers	2	202	10 YEAR	170.00	874.87	878.60		878.67	0.001076	2.15	78.91	32.36	0.24
Trib_Parkers	2	202	25 YEAR	869.00	874.87	883.33		883.44	0.000589	2.75	383.88	120.00	0.21
Trib_Parkers	2	202	50 YEAR	1000.00	874.87	883.57		883.70	0.000661	3.00	411.89	120.00	0.22
Trib_Parkers	2	202	100 YEAR	1200.00	874.87	883.88		884.04	0.000770	3.35	449.31	120.00	0.24
Trib_Parkers	2	201	10 YEAR	170.00	874.80	878.56	876.53	878.63	0.001034	2.12	80.07	32.57	0.24
Trib_Parkers	2	201	25 YEAR	869.00	874.80	883.32	878.95	883.42	0.000577	2.73	385.36	120.00	0.20
Trib_Parkers	2	201	50 YEAR	1000.00	874.80	883.55	879.25	883.67	0.000649	2.98	413.08	120.00	0.22
Trib_Parkers	2	201	100 YEAR	1200.00	874.80	883.85	879.67	884.01	0.000759	3.33	450.04	120.00	0.24
Trib_Parkers	2	200.5		Culvert									
Trib_Parkers	2	200	10 YEAR	170.00	874.72	877.80		877.93	0.002346	2.87	59.31	28.49	0.35
Trib_Parkers	2	200	25 YEAR	869.00	874.72	881.10		881.44	0.002769	4.67	186.04	48.30	0.42
Trib_Parkers	2	200	50 YEAR	1000.00	874.72	881.49		881.86	0.002822	4.88	205.10	50.61	0.43
Trib_Parkers	2	200	100 YEAR	1200.00	874.72	882.02		882.43	0.002875	5.15	234.48	120.00	0.44
Trib_Parkers	2	199	10 YEAR	170.00	874.63	877.70		877.83	0.002373	2.88	59.05	28.44	0.35
Trib_Parkers	2	199	25 YEAR	869.00	874.63	880.98		881.32	0.002833	4.71	184.47	48.10	0.42
Trib_Parkers	2	199	50 YEAR	1000.00	874.63	881.36		881.74	0.002890	4.92	203.29	50.39	0.43
Trib_Parkers	2	199	100 YEAR	1200.00	874.63	881.89		882.31	0.002957	5.20	230.87	53.58	0.44
Trib_Parkers	2	198	10 YEAR	170.00	874.46	877.49		877.62	0.002522	2.94	57.76	28.16	0.36
Trib_Parkers	2	198	25 YEAR	869.00	874.46	880.71		881.07	0.003045	4.84	179.58	47.49	0.44
Trib_Parkers	2	198	50 YEAR	1000.00	874.46	881.08		881.48	0.003110	5.06	197.81	49.74	0.45
Trib_Parkers	2	198	100 YEAR	1200.00	874.46	881.60		882.05	0.003184	5.34	224.58	52.87	0.46
Trib_Parkers	2	197	10 YEAR	170.00	874.32	877.30		877.44	0.002689	3.01	56.42	27.88	0.37
Trib_Parkers	2	197	25 YEAR	869.00	874.32	880.47	878.47	880.85	0.003274	4.97	174.81	46.88	0.45
Trib_Parkers	2	197	50 YEAR	1000.00	874.32	880.83	878.77	881.25	0.003348	5.20	192.45	49.09	0.46
Trib_Parkers	2	197	100 YEAR	1200.00	874.32	881.35	879.19	881.82	0.003431	5.49	218.43	52.16	0.47
Trib_Parkers	2	196	10 YEAR	170.00	873.90	875.89		876.33	0.013249	5.36	31.70	21.92	0.79
Trib_Parkers	2	196	25 YEAR	869.00	873.90	878.05	878.05	879.40	0.017946	9.34	93.09	34.89	1.01
Trib_Parkers	2	196	50 YEAR	1000.00	873.90	878.36	878.36	879.79	0.017532	9.60	104.15	36.74	1.00
Trib_Parkers	2	196	100 YEAR	1200.00	873.90	878.78	878.78	880.33	0.017190	10.00	120.05	39.25	1.01
Trib_Parkers	3	50	10 YEAR	810.00	872.07	874.74		874.78	0.001015	1.67	484.35	288.31	0.23
Trib_Parkers	3	50	25 YEAR	1485.00	872.07	875.38		875.45	0.001116	2.10	854.74	788.07	0.25
Trib_Parkers	3	50	50 YEAR	2597.00	872.07	876.33		876.40	0.000826	2.29	1686.12	1008.04	0.23
Trib_Parkers	3	50	100 YEAR	3200.00	872.07	876.64		876.72	0.000837	2.46	2004.12	1022.82	0.23
Trib_Parkers	3	25	10 YEAR	810.00	871.67	874.32		874.37	0.001039	1.69	480.15	287.14	0.23
Trib_Parkers	3	25	25 YEAR	1485.00	871.67	874.83		874.91	0.001635	2.34	635.65	327.61	0.30
Trib_Parkers	3	25	50 YEAR	2597.00	871.67	875.87		875.97	0.001378	2.54	1021.86	492.32	0.28
Trib_Parkers	3	25	100 YEAR	3200.00	871.67	876.16		876.28	0.001442	2.80	1192.72	648.22	0.29
Trib_Parkers	3	10	10 YEAR	810.00	871.15	874.08		874.09	0.000265	0.99	824.14	479.71	0.12
Trib_Parkers	3	10	25 YEAR	1485.00	871.15	874.33		874.37	0.000606	1.61	949.98	507.19	0.19
Trib_Parkers	3	10	50 YEAR	2597.00	871.15	875.51		875.56	0.000425	1.77	1926.69	1278.50	0.17
Trib_Parkers	3	10	100 YEAR	3200.00	871.15	875.77		875.83	0.000482	1.98	2268.27	1376.11	0.18
Seco Split	1	2779	10 YEAR	1159.90	878.89	881.84		882.34	0.019917	5.72	210.82	108.16	0.66
Seco Split	1	2779	25 YEAR	2705.69	878.89	883.62		884.33	0.014409	7.06	435.70	142.08	0.61
Seco Split	1	2779	50 YEAR	3972.79	878.89	884.73		885.57	0.012707	7.77	603.20	158.76	0.60
Seco Split	1	2779	100 YEAR	5283.87	878.89	885.73		886.67	0.011672	8.37	771.59	178.83	0.59
Seco Split	1	2453	10 YEAR	1159.90	875.00	879.18		879.39	0.004926	3.91	361.01	130.72	0.35
Seco Split	1	2453	25 YEAR	2705.69	875.00	881.21		881.56	0.005220	5.35	660.94	167.80	0.39
Seco Split	1	2453	50 YEAR	3972.79	875.00	882.56		882.98	0.004959	5.99	907.43	198.21	0.39
Seco Split	1	2453	100 YEAR	5283.87	875.00	883.68		884.17	0.004909	6.57	1145.77	228.77	0.40
Seco Split	1	1748	10 YEAR	1159.90	872.08	878.87		878.88	0.000234	1.15	1574.29	492.48	0.08
Seco Split	1	1748	25 YEAR	2705.69	872.08	880.89		880.91	0.000298	1.58	2915.46	712.59	0.10
Seco Split	5	1748	50 YEAR	3972.79	872.08	882.28		882.31	0.000306	1.78	4087.94	1030.01	0.10
Seco Split	1	1748	100 YEAR	5283.87	872.08	883.50		883.52	0.000272	1.82	5464.38	1246.78	0.10
Seco Split	1	1707	10 YEAR	1159.90	872.00	878.86		878.87	0.000177	1.01	1800.30	531.58	0.07

HEC-RAS Plan: ALT 1 (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Seco Split	1	1707	25 YEAR	2705.69	872.00	880.88		880.90	0.000256	1.47	3103.73	732.18	0.09
Seco Split	1	1707	50 YEAR	3972.79	872.00	882.27		882.29	0.000254	1.63	4382.79	1037.97	0.09
Seco Split	1	1707	100 YEAR	5283.87	872.00	883.49		883.51	0.000225	1.66	5858.49	1356.06	0.09
Seco Split	1	294	10 YEAR	1159.90	867.00	878.78		878.78	0.000031	0.64	2530.12	327.75	0.03
Seco Split	1	294	25 YEAR	2705.69	867.00	880.68		880.69	0.000091	1.21	3190.54	364.22	0.06
Seco Split	1	294	50 YEAR	3972.79	867.00	882.01		882.04	0.000132	1.55	3687.93	381.14	0.07
Seco Split	1	294	100 YEAR	5283.87	867.00	883.17		883.21	0.000199	2.00	4181.41	551.94	0.09
Seco Creek	1	68934	10 YEAR	27134.00	928.30	947.62		948.56	0.002549	8.03	3973.05	394.05	0.37
Seco Creek	1	68934	25 YEAR	41444.00	928.30	951.25		952.38	0.002430	9.11	6699.48	1297.96	0.38
Seco Creek	1	68934	50 YEAR	55008.00	928.30	953.94		954.85	0.001905	8.85	11619.39	2748.37	0.34
Seco Creek	1	68934	100 YEAR	74552.00	928.30	956.98		957.51	0.001182	7.64	20508.38	3089.32	0.28
Seco Creek	1	67530	10 YEAR	27134.00	925.89	941.00		943.02	0.006636	11.61	2639.41	300.45	0.59
Seco Creek	1	67530	25 YEAR	41444.00	925.89	944.91		947.31	0.005667	12.92	3963.86	393.04	0.57
Seco Creek	1	67530	50 YEAR	55008.00	925.89	947.86		950.58	0.005293	13.97	5277.74	500.63	0.56
Seco Creek	1	67530	100 YEAR	74552.00	925.89	951.51	945.89	954.40	0.004761	14.89	8039.02	1998.27	0.55
Seco Creek	1	66632	10 YEAR	27134.00	915.81	939.48		940.27	0.001417	7.56	4674.08	351.86	0.29
Seco Creek	1	66632	25 YEAR	41444.00	915.81	943.13		944.33	0.001780	9.46	6083.75	425.10	0.34
Seco Creek	1	66632	50 YEAR	55008.00	915.81	945.85		947.42	0.002075	10.97	7343.99	501.70	0.37
Seco Creek	1	66632	100 YEAR	74552.00	915.81	949.10		951.19	0.002446	12.86	9177.89	636.91	0.41
Seco Creek	1	65736	10 YEAR	27134.00	913.11	938.53		939.15	0.001026	6.50	4843.78	334.44	0.25
Seco Creek	1	65736	25 YEAR	41444.00	913.11	941.87		942.87	0.001388	8.35	6024.76	371.67	0.30
Seco Creek	1	65736	50 YEAR	55008.00	913.11	944.30		945.69	0.001710	9.88	6962.09	397.60	0.34
Seco Creek	1	65736	100 YEAR	74552.00	913.11	947.17		949.11	0.002137	11.82	8144.12	428.06	0.38
Seco Creek	1	64909	10 YEAR	27134.00	913.74	937.85		938.32	0.000875	5.59	5273.88	370.87	0.23
Seco Creek	1	64909	25 YEAR	41444.00	913.74	940.97		941.75	0.001182	7.20	6518.36	428.80	0.27
Seco Creek	1	64909	50 YEAR	55008.00	913.74	943.20		944.29	0.001470	8.57	7549.77	495.27	0.31
Seco Creek	1	64909	100 YEAR	74552.00	913.74	945.81		947.35	0.001841	10.28	8948.94	577.79	0.35
Seco Creek	1	63802	10 YEAR	27134.00	915.07	936.50		937.13	0.001323	7.15	5619.10	506.74	0.28
Seco Creek	1	63802	25 YEAR	41444.00	915.07	939.11		940.12	0.001849	9.18	7066.16	609.38	0.34
Seco Creek	1	63802	50 YEAR	55008.00	915.07	940.88		942.25	0.002341	10.87	8225.69	703.99	0.39
Seco Creek	1	63802	100 YEAR	74552.00	915.07	942.76		944.72	0.003121	13.20	9704.52	888.87	0.46
Seco Creek	1	62771	10 YEAR	27134.00	914.65	935.57		935.95	0.000888	5.60	8203.35	1257.25	0.23
Seco Creek	1	62771	25 YEAR	41444.00	914.65	938.06		938.55	0.001052	6.64	11732.63	1579.88	0.26
Seco Creek	1	62771	50 YEAR	55008.00	914.65	939.73		940.31	0.001227	7.54	14589.85	1867.12	0.28
Seco Creek	1	62771	100 YEAR	74552.00	914.65	941.60		942.27	0.001385	8.45	18392.02	2213.16	0.30
Seco Creek	1	61550	10 YEAR	27134.00	915.63	934.76		934.94	0.000660	4.77	9633.41	1588.47	0.20
Seco Creek	1	61550	25 YEAR	41444.00	915.63	937.17		937.37	0.000728	5.45	13992.32	1954.75	0.21
Seco Creek	1	61550	50 YEAR	55008.00	915.63	938.70		938.94	0.000834	6.12	17147.41	2183.74	0.23
Seco Creek	1	61550	100 YEAR	74552.00	915.63	940.40		940.69	0.000983	6.98	21088.66	2455.60	0.25
Seco Creek	1	60346	10 YEAR	27134.00	915.68	932.06		933.29	0.003460	9.46	4384.33	1187.03	0.44
Seco Creek	1	60346	25 YEAR	41444.00	915.68	934.98		935.83	0.002460	9.01	9309.75	2099.33	0.38
Seco Creek	1	60346	50 YEAR	55008.00	915.68	936.55		937.32	0.002296	9.22	12863.86	2489.62	0.37
Seco Creek	1	60346	100 YEAR	74552.00	915.68	938.23		938.95	0.002191	9.52	17348.60	2824.79	0.37
Seco Creek	1	59443	10 YEAR	27134.00	910.59	930.13		930.89	0.001904	7.45	4523.95	672.00	0.33
Seco Creek	1	59443	25 YEAR	41444.00	910.59	933.32		934.02	0.001634	7.80	9412.70	2268.39	0.31
Seco Creek	1	59443	50 YEAR	55008.00	910.59	935.01		935.64	0.001520	7.96	13416.02	2484.36	0.31
Seco Creek	1	59443	100 YEAR	74552.00	910.59	936.63		937.28	0.001615	8.62	17868.87	2990.85	0.32
Seco Creek	1	58444	10 YEAR	27134.00	911.41	929.33		929.64	0.000733	4.79	7072.41	579.25	0.21
Seco Creek	1	58444	25 YEAR	41444.00	911.41	932.35		932.78	0.000864	5.80	10591.29	2058.02	0.23
Seco Creek	1	58444	50 YEAR	55008.00	911.41	933.88		934.38	0.000998	6.56	14513.34	2995.60	0.25
Seco Creek	1	58444	100 YEAR	74552.00	911.41	935.32		935.89	0.001170	7.41	19291.95	3617.22	0.27
Seco Creek	1	57184	10 YEAR	27134.00	913.98	925.80		927.35	0.007785	12.05	3189.42	575.59	0.63
Seco Creek	1	57184	25 YEAR	41444.00	913.98	929.93		930.77	0.003560	10.02	7524.94	1809.15	0.45
Seco Creek	1	57184	50 YEAR	55008.00	913.98	931.90		932.46	0.002519	9.13	13703.61	3681.29	0.38
Seco Creek	1	57184	100 YEAR	74552.00	913.98	933.33	930.40	933.82	0.002304	9.20	19300.84	4271.13	0.37
Seco Creek	1	54081	10 YEAR	27134.00	895.00	919.06		919.59	0.001163	6.35	5935.30	404.21	0.23
Seco Creek	1	54081	25 YEAR	41444.00	895.00	923.37		924.18	0.001442	7.92	8184.99	1926.69	0.27
Seco Creek	1	54081	50 YEAR	55008.00	895.00	926.51		927.20	0.001268	7.97	16584.82	4140.32	0.25
Seco Creek	1	54081	100 YEAR	74552.00	895.00	928.73		929.24	0.001085	7.73	27341.64	5119.97	0.24
Seco Creek	1	51836	10 YEAR	27134.00	896.00	916.24		916.53	0.001585	6.48	9395.16	1117.23	0.26
Seco Creek	1	51836	25 YEAR	41444.00	896.00	920.52		920.83	0.001449	7.09	14111.21	1795.66	0.26
Seco Creek	1	51836	50 YEAR	55008.00	896.00	923.83		924.17	0.001381	7.56	18962.73	2724.70	0.26
Seco Creek	1	51836	100 YEAR	74552.00	896.00	925.93		926.32	0.001583	8.51	24615.48	3997.70	0.28
Seco Creek	1	49863	10 YEAR	27134.00	893.00	912.47		913.00	0.002103	7.53	6532.04	1280.14	0.30
Seco Creek	1	49863	25 YEAR	41444.00	893.00	916.56		917.29	0.002359	9.07	8892.56	1580.15	0.33
Seco Creek	1	49863	50 YEAR	55008.00	893.00	919.42		920.41	0.002852	10.77	13096.57	3624.56	0.37
Seco Creek	1	49863	100 YEAR	74552.00	893.00	921.39		922.29	0.002800	11.20	19248.32	4706.75	0.37
Seco Creek	1	48183	10 YEAR	27134.00	884.00	909.91		910.34	0.001215	6.87	7704.94	1716.38	0.24
Seco Creek	1	48183	25 YEAR	41444.00	884.00	913.21		913.90	0.001732	8.90	10126.94	2137.48	0.29
Seco Creek	1	48183	50 YEAR	55008.00	884.00	915.18		916.14	0.002265	10.65	11936.89	2402.43	0.34

HEC-RAS Plan: ALT 1 (Continued)

River	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)	
Seco Creek	1	48183	100 YEAR	68000.00	884.00	916.69		917.78	0.002560	11.69	14166.33	3174.26	0.36
Seco Creek	1	46654	10 YEAR	27134.00	883.12	906.63		907.45	0.003043	10.10	5981.39	1779.64	0.37
Seco Creek	1	46654	25 YEAR	41444.00	883.12	909.79		910.51	0.002618	10.61	11466.78	2069.06	0.37
Seco Creek	1	46654	50 YEAR	55008.00	883.12	911.91		912.46	0.002331	10.17	15898.48	2115.76	0.34
Seco Creek	1	46654	100 YEAR	68000.00	883.12	913.64		914.09	0.002006	9.81	19764.58	2303.27	0.32
Seco Creek	1	44030	10 YEAR	27134.00	873.00	897.83		899.11	0.003326	10.50	5264.33	753.11	0.39
Seco Creek	1	44030	25 YEAR	41444.00	873.00	901.47		902.71	0.003149	11.28	8172.99	833.59	0.39
Seco Creek	1	44030	50 YEAR	55008.00	873.00	904.02		905.31	0.003213	12.11	10369.48	897.95	0.40
Seco Creek	1	44030	100 YEAR	68000.00	873.00	906.02		907.39	0.003330	12.89	12410.32	1460.05	0.41
Seco Creek	1	42700	10 YEAR	27134.00	873.00	894.96		895.64	0.001934	7.31	5858.58	625.58	0.29
Seco Creek	1	42700	25 YEAR	41444.00	873.00	898.20		899.11	0.002277	8.78	8046.47	722.22	0.32
Seco Creek	1	42700	50 YEAR	55008.00	873.00	900.16		901.35	0.002777	10.25	9553.10	959.01	0.36
Seco Creek	1	42700	100 YEAR	68000.00	873.00	901.69		903.10	0.003184	11.41	11369.45	1562.91	0.39
Seco Creek	1	41699	10 YEAR	27134.00	871.00	893.43	882.46	893.93	0.001429	6.66	6905.54	753.82	0.25
Seco Creek	1	41699	25 YEAR	41444.00	871.00	896.00	885.33	896.87	0.002170	8.86	8675.83	1656.34	0.32
Seco Creek	1	41699	50 YEAR	55008.00	871.00	897.64	887.40	898.64	0.002530	9.99	11977.55	2871.09	0.35
Seco Creek	1	41699	100 YEAR	68000.00	871.00	898.88	889.06	900.00	0.002849	10.94	14072.87	3326.02	0.37
Seco Creek	1	40632	10 YEAR	27134.00	870.00	892.13	881.13	892.52	0.001169	5.96	8284.59	1109.96	0.23
Seco Creek	1	40632	25 YEAR	41444.00	870.00	894.38	884.06	894.87	0.001465	7.13	11516.38	2902.51	0.26
Seco Creek	1	40632	50 YEAR	55008.00	870.00	895.75	886.00	896.31	0.001708	8.00	14539.22	3446.62	0.28
Seco Creek	1	40632	100 YEAR	68000.00	870.00	896.73	888.00	897.37	0.001938	8.75	16940.03	3720.39	0.30
Seco Creek	1	39997	10 YEAR	27134.00	870.00	891.29	883.86	891.65	0.001576	6.56	8231.77	1220.80	0.26
Seco Creek	1	39997	25 YEAR	41444.00	870.00	893.35	886.56	893.79	0.001928	7.75	11542.15	3337.90	0.29
Seco Creek	1	39997	50 YEAR	55008.00	870.00	894.60	887.86	895.07	0.002162	8.52	15261.18	3952.50	0.31
Seco Creek	1	39997	100 YEAR	68000.00	870.00	895.45	888.95	895.97	0.002399	9.20	18018.72	4310.51	0.33
Seco Creek	1	38985	10 YEAR	27134.00	870.00	888.60		889.38	0.003299	8.31	6048.40	1536.88	0.37
Seco Creek	1	38985	25 YEAR	41444.00	870.00	890.19		891.07	0.003856	9.57	9666.21	3153.03	0.40
Seco Creek	1	38985	50 YEAR	55008.00	870.00	891.38	889.62	892.19	0.003802	9.93	14040.23	4030.99	0.40
Seco Creek	1	38985	100 YEAR	68000.00	870.00	892.68		893.26	0.002980	9.19	19577.95	4457.89	0.36
Seco Creek	1	37489	10 YEAR	27134.00	869.00	885.81		885.99	0.001511	5.27	12544.21	3009.05	0.24
Seco Creek	1	37489	25 YEAR	41444.00	869.00	887.43		887.60	0.001397	5.44	17601.11	3446.58	0.24
Seco Creek	1	37489	50 YEAR	55008.00	869.00	888.66		888.82	0.001353	5.62	22458.03	4342.79	0.24
Seco Creek	1	37489	100 YEAR	68000.00	869.00	889.71		889.90	0.001646	6.44	27659.21	5133.31	0.26
Seco Creek	1	36472	10 YEAR	27134.00	870.41	884.85		884.91	0.000767	3.30	15750.40	3365.83	0.16
Seco Creek	1	36472	25 YEAR	41444.00	870.41	886.56		886.63	0.000679	3.36	22638.88	4525.97	0.16
Seco Creek	1	36472	50 YEAR	55008.00	870.41	887.82		887.89	0.000652	3.48	28643.20	5003.19	0.15
Seco Creek	1	36472	100 YEAR	68000.00	870.41	888.82		888.90	0.000644	3.60	33731.12	5180.97	0.15
Seco Creek	2	33911	10 YEAR	25975.10	861.40	882.12		882.35	0.001359	5.32	13071.05	2711.91	0.21
Seco Creek	2	33911	25 YEAR	38509.32	861.40	884.15		884.34	0.001256	5.46	18933.42	3182.40	0.21
Seco Creek	2	33911	50 YEAR	51036.22	861.40	885.36		885.56	0.001384	5.94	22933.34	3393.32	0.22
Seco Creek	2	33911	100 YEAR	60333.13	861.40	886.47		886.66	0.001293	5.92	26741.11	3439.06	0.21
Seco Creek	2	33369	10 YEAR	25975.10	859.00	881.54		881.71	0.000963	4.50	14991.55	2932.32	0.18
Seco Creek	2	33369	25 YEAR	38509.32	859.00	883.61		883.75	0.000895	4.63	21970.71	3521.76	0.17
Seco Creek	2	33369	50 YEAR	51036.22	859.00	884.74		884.90	0.001020	5.12	26050.64	3620.27	0.19
Seco Creek	2	33369	100 YEAR	57833.13	859.00	885.94		886.07	0.000864	4.87	30405.23	3669.23	0.17
Seco Creek	2	32739	10 YEAR	25975.10	860.90	880.94	873.69	881.10	0.000963	5.17	13402.49	2704.92	0.22
Seco Creek	2	32739	25 YEAR	38509.32	860.90	883.08	874.95	883.20	0.000809	5.14	21129.77	3809.25	0.20
Seco Creek	2	32739	50 YEAR	51036.22	860.90	884.17	876.00	884.30	0.000847	5.45	25310.92	3839.11	0.21
Seco Creek	2	32739	100 YEAR	68041.13	860.90	885.35	877.00	885.50	0.000927	5.91	29855.26	3879.21	0.22
Seco Creek	2	32734		Bridge									
Seco Creek	2	32699	10 YEAR	25975.10	860.90	880.78	873.66	880.97	0.000975	4.85	12522.27	2700.33	0.21
Seco Creek	2	32699	25 YEAR	38509.32	860.90	882.96	875.34	883.11	0.000801	4.79	20352.21	3807.90	0.20
Seco Creek	2	32699	50 YEAR	51036.22	860.90	884.05	876.39	884.21	0.000845	5.12	24543.46	3846.30	0.21
Seco Creek	2	32699	100 YEAR	68041.13	860.90	885.23	877.59	885.40	0.000926	5.58	29075.36	3885.41	0.22
Seco Creek	2	31630	10 YEAR	25975.10	864.00	879.55		879.80	0.001271	5.21	9138.83	1482.97	0.24
Seco Creek	2	31630	25 YEAR	38509.32	864.00	881.52		881.88	0.001659	6.48	14864.62	4191.90	0.28
Seco Creek	2	31630	50 YEAR	51036.22	864.00	882.74		883.04	0.001471	6.41	20012.35	4240.69	0.27
Seco Creek	2	31630	100 YEAR	68041.13	864.00	883.89		884.18	0.001482	6.71	24885.89	4240.69	0.27
Seco Creek	3	31156	10 YEAR	27134.00	864.00	877.98		878.71	0.004453	9.26	5902.23	1313.08	0.45
Seco Creek	3	31156	25 YEAR	41214.00	864.00	879.91		880.62	0.004369	10.04	9851.62	3052.09	0.45
Seco Creek	3	31156	50 YEAR	55577.00	864.00	881.48		881.99	0.003350	9.39	15707.20	4036.01	0.40
Seco Creek	3	31156	100 YEAR	73792.99	864.00	882.72		883.17	0.003084	9.45	20781.28	4195.51	0.39
Seco Creek	3	30898	10 YEAR	27134.00	861.00	876.61		877.58	0.004023	9.47	5258.71	1023.08	0.43
Seco Creek	3	30898	25 YEAR	41214.00	861.00	877.87		879.26	0.005665	11.87	6600.99	1108.31	0.52
Seco Creek	3	30898	50 YEAR	55577.00	861.00	878.84	877.74	880.62	0.007198	13.91	8217.18	1946.59	0.59
Seco Creek	3	30898	100 YEAR	73792.99	861.00	879.87	879.87	881.78	0.008071	15.32	11331.13	3470.29	0.63
Seco Creek	3	30626	10 YEAR	27134.00	857.00	877.09	862.21	877.23	0.000133	2.98	9200.55	928.73	0.12
Seco Creek	3	30626	25 YEAR	43325.00	857.00	878.44	864.09	878.75	0.000268	4.43	9961.33	1273.13	0.18
Seco Creek	3	30626	50 YEAR	59673.00	857.00	879.43	865.69	879.96	0.000431	5.80	10520.32	2288.67	0.22

HEC-RAS Plan: ALT 1 (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Seco Creek	3	30626	100 YEAR	77024.99	857.00	879.93	867.31	880.76	0.000663	7.31	10802.84	2517.52	0.28
Seco Creek	3	30610		Mult Open									
Seco Creek	3	30556	10 YEAR	27134.00	856.00	876.97	862.12	877.16	0.000175	3.52	8197.52	869.73	0.14
Seco Creek	3	30556	25 YEAR	43325.00	856.00	878.18	864.31	878.60	0.000363	5.26	8863.70	1419.87	0.20
Seco Creek	3	30556	50 YEAR	59673.00	856.00	878.97	866.23	879.71	0.000602	6.95	9310.76	1597.62	0.27
Seco Creek	3	30556	100 YEAR	77024.99	856.00	879.13	868.03	880.34	0.000977	8.90	9400.89	2739.10	0.34
Seco Creek	3	30501	10 YEAR	27134.00	856.07	876.97	861.97	877.14	0.000160	3.35	8556.18	814.73	0.13
Seco Creek	3	30501	25 YEAR	43325.00	856.07	878.17	864.06	878.55	0.000331	5.01	9207.05	1352.00	0.20
Seco Creek	3	30501	50 YEAR	59673.00	856.07	878.94	865.92	879.61	0.000552	6.63	9626.50	1526.61	0.25
Seco Creek	3	30501	100 YEAR	77024.99	856.07	879.08	867.68		0.000898	8.49	9705.77	2947.19	0.32
Seco Creek	3	30493		Mult Open									
Seco Creek	3	30349	10 YEAR	27134.00	857.00	876.88	862.88	877.07	0.000187	3.54	8248.91	926.00	0.14
Seco Creek	3	30349	25 YEAR	43325.00	857.00	877.98	864.99	878.41	0.000389	5.31	8846.60	1726.21	0.21
Seco Creek	3	30349	50 YEAR	59673.00	857.00	878.60	866.82	879.36	0.000662	7.07	9182.92	2747.95	0.28
Seco Creek	3	30349	100 YEAR	77024.99	857.00	879.14	868.60	880.33	0.001007	8.87	9474.90	3946.36	0.34
Seco Creek	3	30292	10 YEAR	27134.00	857.00	876.43		876.90	0.001860	7.10	8182.47	2781.43	0.30
Seco Creek	3	30292	25 YEAR	43325.00	857.00	877.62		878.26	0.002700	8.94	13656.67	5581.70	0.37
Seco Creek	3	30292	50 YEAR	59673.00	857.00	878.54		879.25	0.003246	10.13	19222.86	6505.91	0.41
Seco Creek	3	30292	100 YEAR	77024.99	857.00	879.14		879.84	0.003506	10.74	23155.45	6585.00	0.42
Seco Creek	3	29802	10 YEAR	31366.00	857.00	875.55		875.89	0.002126	7.57	13955.84	5688.94	0.32
Seco Creek	3	29802	25 YEAR	47858.00	857.00	876.73		877.01	0.002060	7.79	21883.14	7330.32	0.32
Seco Creek	3	29802	50 YEAR	66666.00	857.00	877.49		877.78	0.002383	8.61	27897.40	8338.23	0.35
Seco Creek	3	29802	100 YEAR	82337.99	857.00	877.93		878.24	0.002664	9.24	31563.92	8445.66	0.37
Seco Creek	3	28576	10 YEAR	31366.00	857.00	873.23		873.40	0.001881	5.16	16584.00	6445.98	0.24
Seco Creek	3	28576	25 YEAR	48303.00	857.00	875.05		875.14	0.001135	4.33	29817.68	7945.89	0.19
Seco Creek	3	28576	50 YEAR	59895.00	857.00	875.72		875.81	0.001074	4.33	35189.02	7980.79	0.18
Seco Creek	3	28576	100 YEAR	66080.99	857.00	876.05		876.14	0.001053	4.34	37833.88	7999.14	0.18
Seco Creek	3	25698	10 YEAR	31366.00	854.11	870.93		871.13	0.001607	4.80	13432.45	2622.57	0.22
Seco Creek	3	25698	25 YEAR	48303.00	854.11	872.76		873.07	0.002339	6.25	20428.21	6854.88	0.27
Seco Creek	3	25698	50 YEAR	59895.00	854.11	873.65		873.91	0.002096	6.13	27106.57	7655.63	0.26
Seco Creek	3	25698	100 YEAR	66080.99	854.11	874.07		874.30	0.001976	6.04	30412.04	7862.59	0.25
Seco Creek	3	22915	10 YEAR	31366.00	845.07	869.27		869.32	0.000337	2.73	29603.47	5458.73	0.11
Seco Creek	3	22915	25 YEAR	48303.00	845.07	870.00		870.08	0.000589	3.70	33726.98	5800.49	0.14
Seco Creek	3	22915	50 YEAR	59895.00	845.07	870.71		870.80	0.000670	4.03	37678.09	5899.44	0.15
Seco Creek	3	22915	100 YEAR	66080.99	845.07	871.11		871.20	0.000694	4.15	40268.23	6517.37	0.15
Seco Creek	3	18148	10 YEAR	29251.00	845.09	867.33		867.39	0.000508	3.10	26036.45	6452.90	0.13
Seco Creek	3	18148	25 YEAR	29645.00	845.09	867.39		867.45	0.000503	3.09	26436.25	6462.05	0.13
Seco Creek	3	18148	50 YEAR	33895.00	845.09	867.99		868.04	0.000462	3.03	30303.19	6534.49	0.12
Seco Creek	3	18148	100 YEAR	37080.99	845.09	868.38		868.43	0.000442	3.00	32893.63	6552.72	0.12
Seco Creek	3	14626	10 YEAR	29251.00	841.35	863.51		864.07	0.002319	7.21	9822.18	2802.27	0.28
Seco Creek	3	14626	25 YEAR	29645.00	841.35	863.61		864.16	0.002304	7.20	10091.50	2867.82	0.28
Seco Creek	3	14626	50 YEAR	33895.00	841.35	864.55		865.03	0.002092	7.07	13097.42	3368.79	0.27
Seco Creek	3	14626	100 YEAR	37080.99	841.35	865.14		865.56	0.001974	6.99	15185.04	3783.17	0.26
Seco Creek	3	11674	10 YEAR	29251.00	835.92	858.27		858.53	0.001500	5.54	11368.13	1470.47	0.22
Seco Creek	3	11674	25 YEAR	29645.00	835.92	858.37		858.63	0.001504	5.56	11511.24	1488.53	0.22
Seco Creek	3	11674	50 YEAR	33895.00	835.92	859.49		859.76	0.001503	5.77	13312.42	1735.58	0.22
Seco Creek	3	11674	100 YEAR	37080.99	835.92	860.00		860.29	0.001598	6.05	14237.77	1873.72	0.23
Seco Creek	3	10238	10 YEAR	29251.00	833.88	856.28		856.54	0.001285	5.16	11275.23	1397.94	0.21
Seco Creek	3	10238	25 YEAR	29645.00	833.88	856.37		856.62	0.001296	5.19	11393.55	1417.72	0.21
Seco Creek	3	10238	50 YEAR	33895.00	833.88	857.46		857.73	0.001323	5.44	13074.17	1652.37	0.21
Seco Creek	3	10238	100 YEAR	37080.99	833.88	857.76		858.07	0.001493	5.83	13583.12	1748.20	0.22
Seco Creek	3	9209	10 YEAR	29251.00	834.65	854.53		854.88	0.002008	6.06	9695.14	2168.69	0.25
Seco Creek	3	9209	25 YEAR	29645.00	834.65	854.60		854.96	0.002019	6.09	9854.96	2188.17	0.25
Seco Creek	3	9209	50 YEAR	33895.00	834.65	855.51		855.94	0.002324	6.76	12145.39	3178.33	0.27
Seco Creek	3	9209	100 YEAR	35080.99	834.65	855.72		856.16	0.002355	6.85	12857.87	3436.34	0.28
Seco Creek	3	6260	10 YEAR	29251.00	832.93	849.33		849.52	0.001635	4.78	13109.60	2279.82	0.22
Seco Creek	3	6260	25 YEAR	29645.00	832.93	849.39		849.59	0.001633	4.79	13257.37	2283.30	0.22
Seco Creek	3	6260	50 YEAR	33895.00	832.93	850.16		850.35	0.001550	4.83	15028.00	2320.12	0.22
Seco Creek	3	6260	100 YEAR	35080.99	832.93	850.34		850.53	0.001549	4.87	15434.02	2328.50	0.22
Seco Creek	3	2900	10 YEAR	29251.00	824.79	843.55		843.80	0.001811	5.46	11681.90	2003.41	0.24
Seco Creek	3	2900	25 YEAR	29645.00	824.79	843.65		843.90	0.001791	5.45	11886.26	2030.58	0.24
Seco Creek	3	2900	50 YEAR	33895.00	824.79	844.78		845.01	0.001662	5.49	14276.93	2167.90	0.23
Seco Creek	3	2900	100 YEAR	35080.99	824.79	845.09		845.31	0.001586	5.42	14951.95	2189.73	0.22
Seco Creek	3	1260	10 YEAR	29251.00	820.75	839.82	831.22	840.36	0.002451	6.15	5721.74	535.97	0.27
Seco Creek	3	1260	25 YEAR	29645.00	820.75	839.94	831.26	840.48	0.002451	6.18	5782.90	539.19	0.27
Seco Creek	3	1260	50 YEAR	33895.00	820.75	841.14	831.95	841.73	0.002452	6.49	6453.29	584.25	0.28
Seco Creek	3	1260	100 YEAR	35080.99	820.75	841.50	832.13	842.11	0.002452	6.58	6672.50	625.99	0.28
Relief_Parkers	1	3303	10 YEAR	358.00	892.02	893.24		893.30	0.007781	2.04	225.63	443.41	0.36

HEC-RAS Plan: ALT 1 (Continued)

River	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)	
Relief_Parkers	1	3303	25 YEAR	616.00	892.02	893.53		893.60	0.007614	2.38	364.43	518.55	0.37
Relief_Parkers	1	3303	50 YEAR	616.00	892.02	893.53		893.60	0.007614	2.38	364.43	518.55	0.37
Relief_Parkers	1	3303	100 YEAR	616.00	892.02	893.53		893.60	0.007614	2.38	364.43	518.55	0.37
Relief_Parkers	1	2628	10 YEAR	358.00	887.00	888.17		888.19	0.004230	1.37	298.80	478.30	0.26
Relief_Parkers	1	2628	25 YEAR	616.00	887.00	888.47		888.50	0.004065	1.63	443.95	488.80	0.26
Relief_Parkers	1	2628	50 YEAR	616.00	887.00	888.47		888.50	0.004064	1.63	443.98	488.80	0.26
Relief_Parkers	1	2628	100 YEAR	616.00	887.00	888.47		888.50	0.004063	1.63	444.04	488.80	0.26
Relief_Parkers	1	1845	10 YEAR	358.00	883.04	884.93		884.96	0.003257	1.61	269.03	295.80	0.24
Relief_Parkers	1	1845	25 YEAR	616.00	883.04	885.36		885.41	0.003208	1.92	441.48	437.60	0.25
Relief_Parkers	1	1845	50 YEAR	616.00	883.04	885.70		885.72	0.001502	1.47	591.64	459.77	0.18
Relief_Parkers	1	1845	100 YEAR	616.00	883.04	886.54		886.55	0.000352	0.89	1105.72	723.18	0.09
Relief_Parkers	1	1573	10 YEAR	358.00	882.00	884.06		884.11	0.002614	1.76	264.77	339.41	0.23
Relief_Parkers	1	1573	25 YEAR	616.00	882.00	884.46		884.52	0.003049	2.16	407.29	372.15	0.25
Relief_Parkers	1	1573	50 YEAR	616.00	882.00	885.43		885.45	0.000538	1.15	989.66	913.43	0.11
Relief_Parkers	1	1573	100 YEAR	616.00	882.00	886.49		886.49	0.000089	0.57	2033.08	1042.80	0.05
Relief_Parkers	1	1210	10 YEAR	358.00	881.79	883.06		883.08	0.002161	1.14	428.73	519.86	0.19
Relief_Parkers	1	1210	25 YEAR	616.00	881.79	883.32		883.35	0.002790	1.49	569.66	557.22	0.22
Relief_Parkers	1	1210	50 YEAR	1342.00	881.79	885.35		885.36	0.000325	0.93	2267.45	1005.22	0.09
Relief_Parkers	1	1210	100 YEAR	2000.00	881.79	886.47		886.47	0.000205	0.89	3472.54	1243.87	0.07
Relief_Parkers	2	1160	10 YEAR	358.00	879.35	881.51		881.52	0.000852	0.85	486.95	552.93	0.12
Relief_Parkers	2	1160	25 YEAR	616.00	879.35	882.35		882.35	0.000387	0.78	1042.74	756.95	0.09
Relief_Parkers	2	1160	50 YEAR	1342.00	879.35	885.22		885.22	0.000057	0.52	4069.12	1589.93	0.04
Relief_Parkers	2	1160	100 YEAR	2000.00	879.35	886.37		886.37	0.000047	0.53	6070.31	1837.95	0.04
Relief_Parkers	2	1110	10 YEAR	358.00	879.00	881.46		881.46	0.000142	0.37	1191.72	1012.20	0.05
Relief_Parkers	2	1110	25 YEAR	616.00	879.00	882.32		882.32	0.000078	0.37	2090.58	1059.22	0.04
Relief_Parkers	2	1110	50 YEAR	1597.00	879.00	885.21		885.21	0.000028	0.37	5408.66	1617.80	0.03
Relief_Parkers	2	1110	100 YEAR	2000.00	879.00	886.36		886.36	0.000020	0.36	7594.36	2303.23	0.02
Relief_Parkers	2	1060	10 YEAR	358.00	879.00	881.46		881.46	0.000128	0.37	1207.97	977.47	0.05
Relief_Parkers	2	1060	25 YEAR	616.00	879.00	882.32		882.32	0.000074	0.37	2055.16	985.72	0.04
Relief_Parkers	2	1060	50 YEAR	1597.00	879.00	885.21		885.21	0.000030	0.38	5379.07	1694.03	0.03
Relief_Parkers	2	1060	100 YEAR	2000.00	879.00	886.36		886.36	0.000021	0.37	7695.07	2334.00	0.03
Relief_Parkers	2	1010	10 YEAR	358.00	879.00	881.39	879.85	881.44	0.002017	1.83	195.45	560.68	0.21
Relief_Parkers	2	1010	25 YEAR	616.00	879.00	882.22	880.21	882.30	0.002202	2.34	263.62	636.18	0.23
Relief_Parkers	2	1010	50 YEAR	1597.00	879.00	885.20	881.28	885.21	0.000091	0.73	4160.88	1737.90	0.05
Relief_Parkers	2	1010	100 YEAR	2000.00	879.00	886.36	881.66	886.36	0.000049	0.60	6227.47	1861.71	0.04
Relief_Parkers	2	1000		Bridge									
Relief_Parkers	2	960	10 YEAR	358.00	879.00	880.33	879.85	880.50	0.014352	3:30	108.48	381.58	0.51
Relief_Parkers	2	960	25 YEAR	616.00	879.00	881.11	880.21	881.31	0.009031	3.57	172.62	464.55	0.43
Relief_Parkers	2	960	50 YEAR	1597.00	879.00	883.55	881.28	883.83	0.004682	4.29	372.34	760.73	0.35
Relief_Parkers	2	960	100 YEAR	2000.00	879.00	884.36	881.66	884.68	0.004229	4.55	439.35	977.27	0.35
Relief_Parkers	2	910	10 YEAR	358.00	878.08	880.08	879.01	880.18	0.004989	2.56	139.80	408.98	0.32
Relief_Parkers	2	910	25 YEAR	616.00	878.08	880.91	879.42	881.06	0.004638	3.11	197.90	433.38	0.33
Relief_Parkers	2	910	50 YEAR	1597.00	878.08	883.39	880.61	883.68	0.003807	4.29	371.88	685.63	0.33
Relief_Parkers	2	910	100 YEAR	2000.00	878.08	884.20	881.02	884.54	0.003731	4.67	428.22	993.23	0.33
Relief_Parkers	2	900		Culvert									
Relief_Parkers	2	860	10 YEAR	358.00	878.08	879.39	879.01	879.63	0.020203	3.90	91.90	408.76	0.60
Relief_Parkers	2	860	25 YEAR	616.00	878.08	880.00	879.42	880.33	0.016881	4.59	134.31	421.40	0.58
Relief_Parkers	2	860	50 YEAR	1597.00	878.08	882.01	880.61	882.54	0.010358	5.80	275.42	575.37	0.52
Relief_Parkers	2	860	100 YEAR	2000.00	878.08	882.42	881.02	883.09	0.011730	6.59	303.68	584.28	0.56
Relief_Parkers	2	810	10 YEAR	358.00	873.27	876.31		876.34	0.001983	1.47	244.27	141.23	0.20
Relief_Parkers	2	810	25 YEAR	616.00	873.27	877.08		877.12	0.001999	1.69	365.07	172.79	0.20
Relief_Parkers	2	810	50 YEAR	1597.00	873.27	877.98		878.10	0.004023	2.88	648.37	477.40	0.30
Relief_Parkers	2	810	100 YEAR	2000.00	873.27	878.30		878.44	0.003950	3.07	811.05	523.36	0.31
Parkers_Spill	1	1124	10 YEAR	283.00	889.00	890.40		890.43	0.003143	1.49	238.26	306.68	0.23
Parkers_Spill	1	1124	25 YEAR	600.00	889.00	890.78		890.84	0.004679	2.17	355.25	312.58	0.30
Parkers_Spill	1	1124	50 YEAR	886.00	889.00	891.09		891.17	0.005228	2.58	454.92	347.91	0.33
Parkers_Spill	1	1124	100 YEAR	2087.00	889.00	892.08		892.20	0.005210	3.38	865.58	442.63	0.35
Parkers_Spill	1	790	10 YEAR	283.00	887.00	888.42		888.52	0.013434	2.59	141.25	293.99	0.46
Parkers_Spill	1	790	25 YEAR	600.00	887.00	889.06		889.12	0.005701	2.35	364.49	365.77	0.33
Parkers_Spill	1	790	50 YEAR	886.00	887.00	889.47		889.53	0.004608	2.44	516.77	387.86	0.30
Parkers_Spill	1	790	100 YEAR	2087.00	887.00	890.67		890.75	0.003620	2.93	1019.34	455.10	0.29
Parkers_Spill	1	504	10 YEAR	283.00	886.00	887.85		887.86	0.000872	0.97	375.74	319.32	0.13
Parkers_Spill	1	504	25 YEAR	600.00	886.00	888.53		888.55	0.000974	1.28	653.89	439.39	0.15
Parkers_Spill	1	504	50 YEAR	886.00	886.00	888.94		888.96	0.001055	1.48	834.78	446.72	0.16
Parkers_Spill	1	504	100 YEAR	2087.00	886.00	890.10		890.14	0.001354	2.11	1424.59	535.31	0.19
Parkers_Spill	1	191	10 YEAR	283.00	886.00	887.49		887.51	0.001482	1.12	273.26	246.79	0.16
Parkers_Spill	1	191	25 YEAR	600.00	886.00	888.09		888.13	0.001981	1.63	432.96	367.44	0.20
Parkers_Spill	1	191	50 YEAR	886.00	886.00	888.45	886.99	888.50	0.002196	1.91	575.87	400.23	0.22
Parkers_Spill	1	191	100 YEAR	2087.00	886.00	889.44	887.74	889.53	0.002982	2.78	1032.72	550.17	0.27

HEC-RAS Plan: ALT 1 (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Parkers_Spill	1	31	10 YEAR	283.00	886.00	886.51	886.51	886.72	0.125225	3.54	77.07	182.90	1.15
Parkers_Spill	1	31	25 YEAR	600.00	886.00	886.79	886.79	887.12	0.108986	4.81	130.38	199.50	1.18
Parkers_Spill	1	31	50 YEAR	886.00	886.00	887.05	887.05	887.40	0.106372	5.84	194.66	300.14	1.22
Parkers_Spill	1	31	100 YEAR	2087.00	886.00	887.60	887.60	888.12	0.086745	7.67	379.18	378.82	1.21
Parkers Creek	1	32760	10 YEAR	2988.00	930.47	935.83		935.86	0.000510	1.79	2609.16	894.86	0.14
Parkers Creek	1	32760	25 YEAR	4240.00	930.47	936.56		936.60	0.000584	2.10	3313.67	1043.86	0.15
Parkers Creek	1	32760	50 YEAR	5401.00	930.47	937.12		937.17	0.000634	2.32	3925.02	1153.45	0.16
Parkers Creek	1	32760	100 YEAR	6874.00	930.47	937.72		937.78	0.000688	2.57	4656.35	1279.93	0.17
Parkers Creek	1	32036	10 YEAR	2988.00	930.40	935.46		935.48	0.000539	1.47	3047.44	1121.00	0.12
Parkers Creek	1	32036	25 YEAR	4240.00	930.40	936.15		936.18	0.000585	1.69	3863.88	1240.01	0.13
Parkers Creek	1	32036	50 YEAR	5401.00	930.40	936.68		936.71	0.000623	1.85	4543.67	1332.81	0.13
Parkers Creek	1	32036	100 YEAR	6874.00	930.40	937.25		937.29	0.000667	2.04	5333.07	1437.34	0.14
Parkers Creek	1	31398	10 YEAR	2988.00	930.54	935.12		935.14	0.000534	1.42	3429.29	1415.24	0.12
Parkers Creek	1	31398	25 YEAR	4240.00	930.54	935.80		935.82	0.000545	1.57	4428.75	1559.04	0.12
Parkers Creek	1	31398	50 YEAR	5401.00	930.54	936.31		936.33	0.000561	1.70	5261.48	1674.19	0.13
Parkers Creek	1	31398	100 YEAR	6874.00	930.54	936.86		936.89	0.000583	1.85	6213.65	1789.84	0.13
Parkers Creek	1	30362	10 YEAR	2988.00	930.16	934.45		934.48	0.000795	1.65	2777.04	1159.89	0.14
Parkers Creek	1	30362	25 YEAR	4240.00	930.16	935.08		935.12	0.000862	1.89	3575.81	1356.09	0.15
Parkers Creek	1	30362	50 YEAR	5401.00	930.16	935.57		935.61	0.000904	2.07	4271.37	1505.78	0.16
Parkers Creek	1	30362	100 YEAR	6874.00	930.16	936.09		936.13	0.000943	2.25	5084.53	1645.25	0.17
Parkers Creek	1	29440	10 YEAR	2988.00	929.44	933.75		933.78	0.000730	1.62	2979.96	1221.05	0.14
Parkers Creek	1	29440	25 YEAR	4240.00	929.44	934.30		934.33	0.000850	1.89	3681.66	1353.07	0.15
Parkers Creek	1	29440	50 YEAR	5401.00	929.44	934.72		934.76	0.000937	2.10	4279.68	1459.18	0.16
Parkers Creek	1	29440	100 YEAR	6874.00	929.44	935.16		935.20	0.001086	2.39	4945.97	1638.48	0.18
Parkers Creek	1	28707	10 YEAR	2988.00	930.16	933.32		933.33	0.000479	1.03	4158.31	1947.46	0.11
Parkers Creek	1	28707	25 YEAR	4240.00	930.16	933.82		933.83	0.000523	1.20	5167.26	2104.80	0.11
Parkers Creek	1	28707	50 YEAR	5401.00	930.16	934.21		934.22	0.000555	1.32	6004.15	2218.55	0.12
Parkers Creek	1	28707	100 YEAR	6874.00	930.16	934.57		934.59	0.000633	1.50	6828.53	2345.27	0.13
Parkers Creek	1	26759	10 YEAR	2988.00	928.79	929.81	929.81	930.11	0.079667	5.90	757.17	1238.42	1.11
Parkers Creek	1	26759	25 YEAR	4240.00	928.79	929.97	929.97	930.34	0.078921	6.57	961.75	1302.25	1.14
Parkers Creek	1	26759	50 YEAR	5401.00	928.79	930.10	930.10	930.52	0.077527	7.06	1139.91	1354.95	1.15
Parkers Creek	1	26759	100 YEAR	6874.00	928.79	930.67		930.89	0.025932	5.31	1974.32	1610.11	0.71
Parkers Creek	1	24546	10 YEAR	2988.00	914.00	921.99		922.04	0.000536	1.90	1817.67	385.85	0.13
Parkers Creek	1	24546	25 YEAR	4240.00	914.00	922.93		923.01	0.000663	2.30	2206.31	440.33	0.15
Parkers Creek	1	24546	50 YEAR	5401.00	914.00	923.37		923.48	0.000869	2.74	2408.92	470.07	0.17
Parkers Creek	1	24546	100 YEAR	6874.00	914.00	923.75		923.90	0.001173	3.27	2588.03	480.39	0.20
Parkers Creek	1	23502	10 YEAR	2988.00	914.00	921.29		921.36	0.000809	2.19	1688.36	589.67	0.16
Parkers Creek	1	23502	25 YEAR	4000.00	914.00	922.15		922.23	0.000850	2.45	2244.05	716.37	0.16
Parkers Creek	1	23502	50 YEAR	4500.00	914.00	922.49		922.57	0.000853	2.53	2489.54	723.71	0.16
Parkers Creek	1	23502	100 YEAR	4874.00	914.00	922.72		922.81	0.000860	2.59	2660.13	733.03	0.17
Parkers Creek	1	22450	10 YEAR	2988.00	914.00	917.49	917.49	918.64	0.040535	9.58	414.18	184.31	0.92
Parkers Creek	1	22450	25 YEAR	4000.00	914.00	918.01	918.01	919.37	0.041198	10.60	514.10	200.57	0.94
Parkers Creek	1	22450	50 YEAR	4500.00	914.00	918.26	918.26	919.69	0.040481	10.95	566.44	208.94	0.94
Parkers Creek	1	22450	100 YEAR	4874.00	914.00	918.46	918.46	919.92	0.039425	11.14	608.25	215.22	0.94
Parkers Creek	1	20486	10 YEAR	2988.00	895.23	909.22		909.26	0.000231	1.63	2356.13	299.28	0.08
Parkers Creek	1	20486	25 YEAR	4000.00	895.23	910.20		910.25	0.000306	1.98	2659.26	322.23	0.09
Parkers Creek	1	20486	50 YEAR	4500.00	895.23	910.84		910.89	0.000323	2.09	2870.80	342.63	0.10
Parkers Creek	1	20486	100 YEAR	4874.00	895.23	912.27		912.32	0.000258	1.99	3404.05	400.93	0.09
Parkers Creek	1	17737	10 YEAR	3354.00	895.35	907.98		908.19	0.000687	3.88	1165.62	201.20	0.20
Parkers Creek	1	17737	25 YEAR	4000.00	895.35	908.73		908.97	0.000755	4.25	1325.06	227.67	0.22
Parkers Creek	1	17737	50 YEAR	4500.00	895.35	909.25		909.53	0.000822	4.56	1489.75	451.82	0.23
Parkers Creek	1	17737	100 YEAR	6342.00	895.35	910.63		910.96	0.000943	5.24	2534.72	1068.23	0.25
Parkers Creek	1	16155	10 YEAR	3354.00	895.08	906.70		906.93	0.000923	4.00	1052.13	265.93	0.23
Parkers Creek	1	16155	25 YEAR	4000.00	895.08	907.29		907.58	0.001036	4.42	1244.29	382.59	0.25
Parkers Creek	1	16155	50 YEAR	4500.00	895.08	907.75		908.05	0.001067	4.62	1430.32	425.81	0.25
Parkers Creek	1	16155	100 YEAR	6342.00	895.08	908.87		909.24	0.001258	5.36	2311.11	1037.38	0.28
Parkers Creek	1	15610	10 YEAR	3354.00	895.98	906.14		906.38	0.001104	4.17	1102.76	324.00	0.25
Parkers Creek	1	15610	25 YEAR	4000.00	895.98	906.69		906.97	0.001194	4.51	1292.17	361.59	0.26
Parkers Creek	1	15610	50 YEAR	4500.00	895.98	907.08		907.41	0.001309	4.86	1453.78	626.10	0.27
Parkers Creek	1	15610	100 YEAR	6342.00	895.98	908.02		908.46	0.001658	5.82	2383.60	1685.47	0.31
Parkers Creek	1	14804	10 YEAR	3354.00	897.00	905.39		905.54	0.000931	3.34	1412.29	482.59	0.22
Parkers Creek	1	14804	25 YEAR	4000.00	897.00	905.90		906.07	0.000976	3.58	1678.95	570.56	0.23
Parkers Creek	1	14804	50 YEAR	4500.00	897.00	906.23		906.43	0.001046	3.82	1960.96	1095.91	0.24
Parkers Creek	1	14804	100 YEAR	6342.00	897.00	907.07		907.28	0.001152	4.28	3245.81	2100.96	0.25
Parkers Creek	1	13499	10 YEAR	3354.00	897.00	903.94		904.09	0.001352	3.14	1201.23	370.07	0.25
Parkers Creek	1	13499	25 YEAR	4029.00	897.00	904.42		904.58	0.001347	3.34	1624.62	1143.16	0.25
Parkers Creek	1	13499	50 YEAR	4525.00	897.00	904.79		904.94	0.001223	3.32	2080.64	1325.44	0.24
Parkers Creek	1	13499	100 YEAR	6413.00	897.00	905.55		905.71	0.001243	3.64	3246.37	1673.03	0.25
Parkers Creek	1	11935	10 YEAR	3354.00	895.00	899.58		900.09	0.006326	6.27	762.56	300.22	0.53

HEC-RAS Plan: ALT 1 (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Parkers Creek	1	11935	25 YEAR	4029.00	895.00	899.87		900.47	0.007000	6.89	852.11	316.21	0.57
Parkers Creek	1	11935	50 YEAR	4525.00	895.00	900.05	898.95	900.84	0.008560	7.81	920.89	599.12	0.63
Parkers Creek	1	11935	100 YEAR	6413.00	895.00	900.74	900.49	901.57	0.008433	8.48	1364.04	674.67	0.64
Parkers Creek	1	11044	10 YEAR	3354.00	889.10	897.24		897.46	0.001612	4.36	1879.83	1355.45	0.29
Parkers Creek	1	11044	25 YEAR	4029.00	889.10	897.62		897.81	0.001523	4.38	2399.99	1431.38	0.28
Parkers Creek	1	11044	50 YEAR	4525.00	889.10	897.86		898.04	0.001455	4.38	2757.80	1457.18	0.28
Parkers Creek	1	11044	100 YEAR	6413.00	889.10	898.54		898.71	0.001496	4.70	3838.85	1684.95	0.29
Parkers Creek	1	10643	10 YEAR	3354.00	888.00	896.35		896.68	0.002303	5.28	1453.41	1203.20	0.35
Parkers Creek	1	10643	25 YEAR	4029.00	888.00	896.79		897.09	0.002112	5.26	2031.77	1426.39	0.34
Parkers Creek	1	10643	50 YEAR	4525.00	888.00	897.04		897.33	0.002137	5.41	2404.31	1629.48	0.34
Parkers Creek	1	10643	100 YEAR	6413.00	888.00	897.88		898.08	0.001641	5.07	3896.54	1835.23	0.30
Parkers Creek	1	10392	10 YEAR	3354.00	887.05	895.66		896.05	0.002693	5.61	1260.72	989.31	0.37
Parkers Creek	1	10392	25 YEAR	4029.00	887.05	896.21		896.53	0.002285	5.44	1912.05	1452.27	0.35
Parkers Creek	1	10392	50 YEAR	4525.00	887.05	896.55		896.81	0.001951	5.17	2465.44	1734.40	0.32
Parkers Creek	1	10392	100 YEAR	6413.00	887.05	897.54		897.70	0.001334	4.63	4364.28	2114.62	0.27
Parkers Creek	1	10183	10 YEAR	3354.00	883.25	893.47		893.86	0.001924	5.14	771.75	190.61	0.32
Parkers Creek	1	10183	25 YEAR	4029.00	883.25	893.62		894.16	0.002583	6.03	801.75	200.76	0.37
Parkers Creek	1	10183	50 YEAR	4525.00	883.25	893.88		894.51	0.002884	6.51	856.29	218.00	0.40
Parkers Creek	1	10183	100 YEAR	6413.00	883.25	894.72	891.51	895.61	0.003791	7.95	1276.08	695.11	0.46
Parkers Creek	1	10004	10 YEAR	3354.00	883.00	893.22		893.53	0.001562	4.61	965.52	458.98	0.29
Parkers Creek	1	10004	25 YEAR	4029.00	883.00	893.27		893.71	0.002192	5.49	989.21	483.50	0.34
Parkers Creek	1	10004	50 YEAR	4525.00	883.00	893.51		894.00	0.002383	5.84	1113.07	524.87	0.36
Parkers Creek	1	10004	100 YEAR	6413.00	883.00	894.25	890.95	894.93	0.003158	7.12	1592.90	865.43	0.42
Parkers Creek	1	9774	10 YEAR	3354.00	883.00	892.73	889.25	893.11	0.001466	5.07	902.37	370.86	0.34
Parkers Creek	1	9774	25 YEAR	3430.00	883.00	892.81	889.31	893.19	0.001453	5.09	932.72	378.39	0.34
Parkers Creek	1	9774	50 YEAR	3640.00	883.00	893.04	889.53	893.42	0.001420	5.14	1014.07	1094.32	0.34
Parkers Creek	1	9774	100 YEAR	4327.00	883.00	893.72	890.03	894.10	0.001327	5.28	1261.26	1110.87	0.33
Parkers Creek	1	9758		Bridge									
Parkers Creek	1	9658	10 YEAR	3354.00	883.00	892.51	888.54	892.72	0.000898	3.89	1215.23	617.94	0.27
Parkers Creek	1	9658	25 YEAR	3430.00	883.00	892.59	888.59	892.81	0.000889	3.91	1246.85	637.33	0.27
Parkers Creek	1	9658	50 YEAR	3640.00	883.00	892.82	888.75	893.04	0.000868	3.95	1331.73	707.17	0.26
Parkers Creek	1	9658	100 YEAR	4327.00	883.00	893.52	889.24	893.74	0.000815	4.08	1589.60	1139.93	0.26
Parkers Creek	1	9593	10 YEAR	3354.00	882.98	892.22	888.86	892.60	0.001468	5.16	873.07	573.21	0.34
Parkers Creek	1	9593	25 YEAR	3430.00	882.98	892.30	888.92	892.68	0.001466	5.20	894.05	597.20	0.34
Parkers Creek	1	9593	50 YEAR	3640.00	882.98	892.52	889.09	892.91	0.001458	5.29	952.68	659.53	0.34
Parkers Creek	1	9593	100 YEAR	4327.00	882.98	893.19	889.65	893.61	0.001421	5.54	1134.76	1076.16	0.35
Parkers Creek	1	9585		Bridge									
Parkers Creek	1	9421	10 YEAR	3354.00	882.98	890.63	889.42	891.58	0.006644	7.82	428.81	101.66	0.67
Parkers Creek	1	9421	25 YEAR	3430.00	882.98	890.70	889.49	891.66	0.006664	7.88	435.52	102.41	0.67
Parkers Creek	1	9421	50 YEAR	3640.00	882.98	890.87	889.63	891.87	0.006723	8.02	453.68	104.41	0.68
Parkers Creek	1	9421	100 YEAR	4327.00	882.98	891.41	890.16	892.52	0.006896	8.47	511.04	110.49	0.69
Parkers Creek	1	7969	10 YEAR	3354.00	876.00	885.65		885.70	0.000244	1.97	2262.18	385.64	0.12
Parkers Creek	1	7969	25 YEAR	3430.00	876.00	885.72		885.78	0.000246	1.99	2292.45	388.78	0.12
Parkers Creek	1	7969	50 YEAR	3640.00	876.00	885.93		885.99	0.000254	2.05	2374.33	397.15	0.12
Parkers Creek	1	7969	100 YEAR	4327.00	876.00	886.57		886.64	0.000277	2.24	2636.40	420.63	0.13
Parkers Creek	1	5702	10 YEAR	3354.00	877.00	884.42		884.57	0.001098	3.47	1408.07	345.54	0.24
Parkers Creek	1	5702	25 YEAR	3430.00	877.00	884.49		884.64	0.001103	3.50	1431.95	358.74	0.24
Parkers Creek	1	5702	50 YEAR	3640.00	877.00	884.67		884.82	0.001117	3.58	1502.11	408.81	0.24
Parkers Creek	1	5702	100 YEAR	4327.00	877.00	885.22		885.40	0.001157	3.84	1770.23	533.19	0.25
Parkers Creek	1	4875	10 YEAR	3354.00	877.00	883.09		883.35	0.002272	4.48	1064.91	323.95	0.33
Parkers Creek	1	4875	25 YEAR	3430.00	877.00	883.16		883.42	0.002285	4.53	1085.69	333.72	0.33
Parkers Creek	1	4875	50 YEAR	3640.00	877.00	883.33		883.60	0.002314	4.65	1144.05	359.74	0.34
Parkers Creek	1	4875	100 YEAR	4327.00	877.00	883.87		884.18	0.002331	4.95	1356.05	432.79	0.34
Parkers Creek	1	2961	10 YEAR	3354.00	873.00	879.46		879.64	0.001438	3.74	1328.59	402.30	0.27
Parkers Creek	1	2961	25 YEAR	3430.00	873.00	879.54		879.71	0.001424	3.75	1359.29	405.08	0.27
Parkers Creek	1	2961	50 YEAR	3640.00	873.00	879.68		879.87	0.001448	3.84	1419.07	410.44	0.27
Parkers Creek	1	2961	100 YEAR	4327.00	873.00	880.18		880.40	0.001551	4.18	1645.21	509.87	0.28
Parkers Creek	1	1319	10 YEAR	3354.00	869.21	873.63	873.63	875.75	0.030324	12.26	331.51	125.65	1.13
Parkers Creek	1	1319	25 YEAR	3430.00	869.21	873.66	873.66	875.84	0.030829	12.44	335.42	127.22	1.14
Parkers Creek	1	1319	50 YEAR	3640.00	869.21	875.27		876.14	0.008357	8.25	683.08	277.28	0.63
Parkers Creek	1	1319	100 YEAR	4327.00	869.21	875.38	875.12	876.51	0.010783	9.49	712.51	281.41	0.72
Parkers Creek	2	1300	10 YEAR	3882.00	869.00	873.59		873.60	0.000324	1.78	5519.67	2577.26	0.15
Parkers Creek	2	1300	25 YEAR	4395.00	869.00	873.73		873.75	0.000345	1.88	5892.00	2585.93	0.16
Parkers Creek	2	1300	50 YEAR	8967.00	869.00	874.82		874.84	0.000455	2.50	8748.47	2661.39	0.19
Parkers Creek	2	1300	100 YEAR	9952.00	869.00	875.06		875.09	0.000453	2.56	9403.53	2690.73	0.19
Parkers Creek	2	1250	10 YEAR	3882.00	868.09	871.65	871.65	872.28	0.008888	7.57	864.65	1097.75	0.75
Parkers Creek	2	1250	25 YEAR	4395.00	868.09	871.92	871.92	872.42	0.007013	7.10	1292.28	1748.33	0.67
Parkers Creek	2	1250	50 YEAR	8967.00	868.09	873.44		873.61	0.002428	5.33	4283.13	2036.20	0.42
Parkers Creek	2	1250	100 YEAR	9952.00	868.09	873.80		873.95	0.001934	4.98	5028.44	2048.50	0.38

HEC-RAS Plan: ALT 1 (Continued)

River	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)	
Parkers Creek	2	1200	10 YEAR	3882.00	860.10	867.61		867.72	0.000593	3.26	1616.40	366.40	0.22
Parkers Creek	2	1200	25 YEAR	4395.00	860.10	870.21		870.27	0.000213	2.42	2700.32	474.13	0.14
Parkers Creek	2	1200	50 YEAR	8967.00	860.10	872.14		872.26	0.000417	3.84	4064.59	869.44	0.20
Parkers Creek	2	1200	100 YEAR	9952.00	860.10	872.52		872.65	0.000442	4.03	4394.82	879.85	0.21
Parkers Creek	2	1150	10 YEAR	5448.00	859.43	862.74	862.26	863.11	0.015468	5.85	1462.03	1038.34	0.60
Parkers Creek	2	1150	25 YEAR	21960.00	859.43	866.72		866.89	0.003642	5.01	8503.44	2734.96	0.34
Parkers Creek	2	1150	50 YEAR	35775.00	859.43	867.99		868.18	0.003717	5.66	12587.00	3417.90	0.35
Parkers Creek	2	1150	100 YEAR	39767.00	859.43	868.26		868.47	0.003722	5.79	13538.30	3465.95	0.35
Parkers Creek	2	1100	10 YEAR	5448.00	849.94	856.69		856.76	0.001010	2.44	2985.59	804.89	0.17
Parkers Creek	2	1100	25 YEAR	21960.00	849.94	859.47		859.69	0.002448	4.86	9102.16	3632.16	0.29
Parkers Creek	2	1100	50 YEAR	35775.00	849.94	860.76		860.97	0.002417	5.29	14199.93	4059.85	0.29
Parkers Creek	2	1100	100 YEAR	39767.00	849.94	861.08		861.29	0.002394	5.37	15508.71	4120.68	0.29
Parkers Creek	2	1050	10 YEAR	5448.00	849.92	853.22		853.37	0.006853	4.02	2190.83	1325.90	0.40
Parkers Creek	2	1050	25 YEAR	21960.00	849.92	857.01		857.05	0.001145	2.80	14904.14	4231.90	0.19
Parkers Creek	2	1050	50 YEAR	35775.00	849.92	858.27		858.33	0.001171	3.16	20332.31	4393.66	0.20
Parkers Creek	2	1050	100 YEAR	39767.00	849.92	858.58		858.64	0.001185	3.26	21693.74	4436.77	0.20
Parkers Creek	2	1000	10 YEAR	5448.00	839.36	847.68		847.79	0.001235	3.10	2641.47	577.18	0.20
Parkers Creek	2	1000	25 YEAR	21960.00	839.36	853.04		853.40	0.002376	6.14	8702.86	3470.12	0.30
Parkers Creek	2	1000	50 YEAR	35775.00	839.36	855.00		855.20	0.001630	5.59	17862.00	6506.38	0.26
Parkers Creek	2	1000	100 YEAR	39767.00	839.36	855.53		855.69	0.001418	5.34	21544.30	7511.31	0.24
Parkers Creek	2	950	10 YEAR	5448.00	839.28	846.25		846.30	0.000809	2.26	4326.56	1325.03	0.16
Parkers Creek	2	950	25 YEAR	21960.00	839.28	850.97		851.07	0.001040	3.69	11997.53	2174.28	0.19
Parkers Creek	2	950	50 YEAR	35775.00	839.28	853.17		853.28	0.001015	4.11	19202.14	5218.79	0.20
Parkers Creek	2	950	100 YEAR	41767.00	839.28	853.82		853.93	0.000989	4.18	23134.29	6822.29	0.20
Parkers Creek	2	900	10 YEAR	5448.00	839.37	845.23		845.34	0.002004	3.10	2606.56	805.36	0.24
Parkers Creek	2	900	25 YEAR	21960.00	839.37	849.58		849.84	0.002589	5.26	7252.28	1376.33	0.30
Parkers Creek	2	900	50 YEAR	35775.00	839.37	851.74		852.05	0.002645	6.08	11218.87	2636.63	0.31
Parkers Creek	2	900	100 YEAR	41767.00	839.37	852.44		852.74	0.002533	6.19	13910.20	5018.97	0.31
Parkers Creek	2	850	10 YEAR	5448.00	839.66	844.88		845.01	0.002816	3.46	2427.04	923.70	0.28
Parkers Creek	2	850	25 YEAR	21960.00	839.66	849.31		849.49	0.002079	4.60	8173.95	1672.99	0.27
Parkers Creek	2	850	50 YEAR	35775.00	839.66	851.49		851.69	0.002047	5.25	12961.25	2881.11	0.27
Parkers Creek	2	850	100 YEAR	41767.00	839.66	852.18		852.39	0.002093	5.52	15158.76	3637.32	0.28
Parkers Creek	2	800	10 YEAR	5448.00	828.29	835.42	832.84	835.72	0.004211	4.98	1552.19	421.50	0.35
Parkers Creek	2	800	25 YEAR	21960.00	828.29	841.13	836.99	841.70	0.004215	7.72	5544.07	1192.63	0.39
Parkers Creek	2	800	50 YEAR	35775.00	828.29	843.36	838.89	843.97	0.004211	8.66	9331.99	2255.20	0.41
Parkers Creek	2	800	100 YEAR	41767.00	828.29	843.97	839.11	844.57	0.004211	8.91	10746.61	2376.63	0.41

APPENDIX B.3

HEC-RAS SUMMARY FOR ALTERNATIVE 2

HEC-RAS Plan: ALT 2

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
W_Trib	1	5731	10 YEAR	1.00	912.00	912.08	912.02	912.09	0.003365	0.23	4.30	58.39	0.15
W_Trib	1	5731	25 YEAR	1.00	912.00	912.08	912.02	912.09	0.003365	0.23	4.30	58.39	0.15
W_Trib	1	5731	50 YEAR	1.00	912.00	912.08	912.02	912.09	0.003365	0.23	4.30	58.39	0.15
W_Trib	1	5731	100 YEAR	6553.00	912.00	916.63		916.72	0.002516	2.76	3395.33	1594.16	0.25
W_Trib	1	4967	10 YEAR	1.00	910.10	910.50	910.28	910.50	0.001407	0.29	3.40	16.87	0.12
W_Trib	1	4967	25 YEAR	1.00	910.10	910.50	910.28	910.50	0.001407	0.29	3.40	16.87	0.12
W_Trib	1	4967	50 YEAR	1.00	910.10	910.50	910.28	910.50	0.001407	0.29	3.40	16.87	0.12
W_Trib	1	4967	100 YEAR	6553.00	910.10	914.11		914.20	0.004527	3.27	3207.37	1792.58	0.33
W_Trib	1	4046	10 YEAR	1.00	907.00	907.02		907.02	0.029609	0.20	5.20	422.21	0.33
W_Trib	1	4046	25 YEAR	1.00	907.00	907.02		907.02	0.029609	0.20	5.20	422.21	0.33
W_Trib	1	4046	50 YEAR	1.00	907.00	907.02		907.02	0.029609	0.20	5.20	422.21	0.33
W_Trib	1	4046	100 YEAR	6553.00	907.00	910.20		910.30	0.003989	3.08	3007.44	1434.87	0.31
W_Trib	1	2892	10 YEAR	1.00	903.00	903.03		903.03	0.001260	0.07	15.10	581.45	0.08
W_Trib	1	2892	25 YEAR	1.00	903.00	903.03		903.03	0.001260	0.07	15.10	581.45	0.08
W_Trib	1	2892	50 YEAR	1.00	903.00	903.03		903.03	0.001260	0.07	15.10	581.45	0.08
W_Trib	1	2892	100 YEAR	6553.00	903.00	906.09		906.17	0.003220	2.71	3436.73	1771.11	0.27
W_Trib	1	1596	10 YEAR	1.00	899.00	899.02	899.02	899.02	0.016473	0.24	4.76	206.21	0.28
W_Trib	1	1596	25 YEAR	1.00	899.00	899.02	899.02	899.02	0.016473	0.24	4.76	206.21	0.28
W_Trib	1	1596	50 YEAR	1.00	899.00	899.02	899.02	899.02	0.016473	0.24	4.76	206.21	0.28
W_Trib	1	1596	100 YEAR	6553.00	899.00	902.70		902.74	0.002209	2.49	4542.37	2168.37	0.23
W_Trib	1	441	10 YEAR	1.00	894.00	894.19	894.03	894.19	0.000088	0.06	15.66	96.21	0.03
W_Trib	1	441	25 YEAR	1.00	894.00	894.49		894.49	0.000003	0.02	51.00	153.22	0.01
W_Trib	1	441	50 YEAR	1.00	894.00	894.59		894.59	0.000001	0.02	68.38	179.72	0.00
W_Trib	1	441	100 YEAR	6553.00	894.00	899.62		899.74	0.003048	3.95	2978.60	1171.56	0.30
Unnamed_TribSeco	1	3937	10 YEAR	4232.00	897.00	898.91	898.91	899.53	0.047381	7.21	759.90	602.13	0.96
Unnamed_TribSeco	1	3937	25 YEAR	5740.00	897.00	899.31	899.31	899.98	0.040452	7.64	1036.08	754.36	0.92
Unnamed_TribSeco	1	3937	50 YEAR	6993.00	897.00	899.51	899.51	900.25	0.040556	8.13	1191.08	772.25	0.94
Unnamed_TribSeco	1	3937	100 YEAR	8545.00	897.00	899.75	899.75	900.56	0.039769	8.59	1380.60	793.58	0.94
Unnamed_TribSeco	1	3351	10 YEAR	4232.00	889.00	894.58		894.67	0.001646	3.01	2358.40	925.90	0.23
Unnamed_TribSeco	1	3351	25 YEAR	5740.00	889.00	895.19		895.29	0.002032	3.40	3001.81	1145.74	0.24
Unnamed_TribSeco	1	3351	50 YEAR	6993.00	889.00	895.52		895.63	0.002214	3.68	3386.33	1175.29	0.26
Unnamed_TribSeco	1	3351	100 YEAR	8545.00	889.00	895.89		896.02	0.002399	3.97	3826.73	1209.10	0.27
Unnamed_TribSeco	1	2499	10 YEAR	4232.00	888.00	889.70	889.70	890.29	0.043501	6.58	773.51	676.34	0.91
Unnamed_TribSeco	1	2499	25 YEAR	5740.00	888.00	890.10	890.10	890.73	0.035427	6.88	1076.19	885.74	0.85
Unnamed_TribSeco	1	2499	50 YEAR	6993.00	888.00	890.42	890.30	890.99	0.028162	6.76	1362.91	945.43	0.78
Unnamed_TribSeco	1	2499	100 YEAR	8545.00	888.00	890.76		891.30	0.023347	6.73	1695.09	1006.81	0.73
Unnamed_TribSeco	1	2128	10 YEAR	4232.00	882.00	887.10	884.87	887.24	0.002893	3.42	1869.23	841.29	0.28
Unnamed_TribSeco	1	2128	25 YEAR	5740.00	882.00	887.66	885.40	887.81	0.002979	3.74	2395.34	1021.18	0.29
Unnamed_TribSeco	1	2128	50 YEAR	6993.00	882.00	888.16	885.70	888.32	0.003035	4.01	2963.27	1229.88	0.30
Unnamed_TribSeco	1	2128	100 YEAR	8545.00	882.00	888.55	886.32	888.72	0.003105	4.24	3444.98	1255.53	0.30
Unnamed_TribSeco	1	1774	10 YEAR	4232.00	881.00	886.07	884.32	886.18	0.003152	3.57	2164.23	1175.03	0.29
Unnamed_TribSeco	1	1774	25 YEAR	5740.00	881.00	886.68	884.68	886.78	0.002870	3.70	2849.32	1566.64	0.28
Unnamed_TribSeco	1	1774	50 YEAR	6993.00	881.00	887.17	884.86	887.28	0.002906	3.95	3558.06	2037.93	0.29
Unnamed_TribSeco	1	1774	100 YEAR	8545.00	881.00	887.62	885.47	887.72	0.002605	3.93	4247.45	2068.23	0.28
Unnamed_TribSeco	1	967	10 YEAR	3875.00	874.39	884.35	880.14	884.56	0.002044	3.66	1084.66	1325.61	0.25
Unnamed_TribSeco	1	967	25 YEAR	4533.00	874.39	885.11	880.51	885.33	0.001944	3.83	1217.10	1682.57	0.25
Unnamed_TribSeco	1	967	50 YEAR	4853.00	874.39	885.70	880.67	885.92	0.001712	3.79	1321.92	1731.32	0.23
Unnamed_TribSeco	1	967	100 YEAR	5313.00	874.39	886.28	880.90	886.51	0.001619	3.86	1423.50	1810.67	0.23
Unnamed_TribSeco	1	951		Bridge									
Unnamed_TribSeco	1	857	10 YEAR	3875.00	874.39	883.77	880.16	884.00	0.002564	4.01	1114.35	644.82	0.28
Unnamed_TribSeco	1	857	25 YEAR	4533.00	874.39	884.34	880.53	884.59	0.002522	4.20	1251.57	786.84	0.28
Unnamed_TribSeco	1	857	50 YEAR	4853.00	874.39	884.61	880.70	884.86	0.002498	4.29	1316.18	802.80	0.28
Unnamed_TribSeco	1	857	100 YEAR	5313.00	874.39	884.98	880.96	885.25	0.002463	4.41	1406.64	910.26	0.28
Unnamed_TribSeco	1	775	10 YEAR	3875.00	874.39	883.44	880.13	883.73	0.003598	4.36	915.03	240.65	0.32
Unnamed_TribSeco	1	775	25 YEAR	4533.00	874.39	883.99	880.59	884.32	0.003576	4.62	1012.53	283.49	0.33
Unnamed_TribSeco	1	775	50 YEAR	4853.00	874.39	884.26	880.81	884.60	0.003559	4.74	1058.50	296.28	0.33
Unnamed_TribSeco	1	775	100 YEAR	5313.00	874.39	884.62	881.08	884.99	0.003533	4.90	1122.87	312.90	0.33
Unnamed_TribSeco	1	767		Bridge									
Unnamed_TribSeco	1	622	10 YEAR	3875.00	874.39	880.72	879.84	881.47	0.014765	7.45	628.22	207.50	0.63
Unnamed_TribSeco	1	622	25 YEAR	4533.00	874.39	881.13	880.17	881.93	0.014165	7.75	716.14	225.08	0.62
Unnamed_TribSeco	1	622	50 YEAR	4853.00	874.39	881.26	880.33	882.11	0.014636	8.01	743.30	232.37	0.63
Unnamed_TribSeco	1	622	100 YEAR	5313.00	874.39	881.45	880.54	882.37	0.015117	8.35	783.89	241.45	0.65
Unnamed_TribSeco	1	562	10 YEAR	3875.00	874.00	880.62		880.73	0.001817	3.21	1996.57	761.16	0.23
Unnamed_TribSeco	1	562	25 YEAR	4533.00	874.00	881.06		881.17	0.001712	3.27	2347.37	912.68	0.23
Unnamed_TribSeco	1	562	50 YEAR	4853.00	874.00	881.19		881.31	0.001773	3.37	2475.40	980.69	0.23
Unnamed_TribSeco	1	562	100 YEAR	5313.00	874.00	881.40		881.51	0.001797	3.47	2680.25	1042.48	0.23
Unnamed_TribSeco	1	223	10 YEAR	3875.00	874.00	880.17	876.94	880.22	0.001000	2.39	2827.71	1487.22	0.17
Unnamed_TribSeco	1	223	25 YEAR	4533.00	874.00	880.65	877.22	880.70	0.001001	2.51	3631.17	1792.29	0.17
Unnamed_TribSeco	1	223	50 YEAR	4853.00	874.00	880.77	877.24	880.83	0.001002	2.55	3859.00	1822.63	0.17

HEC-RAS Plan: ALT 2 (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Unnamed_TribSeco	1	225	100 YEAR	5313.00	874.00	880.99	877.38	881.04	0.001002	2.60	4254.71	1901.14	0.18
Trib_Parkers	1	13917	10 YEAR	894.00	921.46	923.36		923.38	0.001905	1.23	1199.53	1889.52	0.19
Trib_Parkers	1	13917	25 YEAR	1295.00	921.46	923.60		923.61	0.001903	1.36	1666.20	2112.94	0.19
Trib_Parkers	1	13917	50 YEAR	1921.00	921.46	923.86		923.87	0.001976	1.53	2243.79	2321.92	0.20
Trib_Parkers	1	13917	100 YEAR	1921.00	921.46	923.88		923.89	0.001875	1.50	2289.16	2337.74	0.19
Trib_Parkers	1	13112	10 YEAR	894.00	919.63	921.63		921.65	0.002041	1.53	1249.78	1826.97	0.20
Trib_Parkers	1	13112	25 YEAR	1295.00	919.63	921.86		921.88	0.002007	1.64	1690.19	2089.93	0.20
Trib_Parkers	1	13112	50 YEAR	2539.00	919.63	922.36		922.38	0.001866	1.83	3093.87	3172.39	0.20
Trib_Parkers	1	13112	100 YEAR	3908.00	919.63	922.70		922.72	0.001768	1.94	4176.91	3200.78	0.20
Trib_Parkers	1	11204	10 YEAR	894.00	914.00	916.66		916.69	0.002203	1.71	659.76	580.49	0.21
Trib_Parkers	1	11204	25 YEAR	1295.00	914.00	917.04		917.09	0.002231	1.93	905.36	694.95	0.22
Trib_Parkers	1	11204	50 YEAR	2539.00	914.00	917.90		917.96	0.002151	2.33	1551.68	801.62	0.23
Trib_Parkers	1	11204	100 YEAR	3908.00	914.00	918.60		918.68	0.002178	2.67	2281.06	1259.17	0.24
Trib_Parkers	1	9264	10 YEAR	527.00	910.00	911.46		911.51	0.005101	1.99	348.88	396.56	0.30
Trib_Parkers	1	9264	25 YEAR	735.00	910.00	911.70		911.76	0.005073	2.21	446.79	441.53	0.31
Trib_Parkers	1	9264	50 YEAR	1908.00	910.00	912.59		912.69	0.005119	2.99	899.01	541.83	0.34
Trib_Parkers	1	9264	100 YEAR	2440.00	910.00	912.94		913.05	0.005202	3.29	1102.17	710.87	0.35
Trib_Parkers	1	8246	10 YEAR	527.00	904.00	906.18		906.22	0.002870	1.76	356.11	297.33	0.24
Trib_Parkers	1	8246	25 YEAR	735.00	904.00	906.52		906.57	0.002741	1.94	461.80	321.57	0.24
Trib_Parkers	1	8246	50 YEAR	1908.00	904.00	907.67		907.76	0.003050	2.75	1078.09	828.61	0.27
Trib_Parkers	1	8246	100 YEAR	2440.00	904.00	907.96		908.06	0.003164	2.97	1342.92	967.81	0.28
Trib_Parkers	1	7384	10 YEAR	527.00	901.00	902.64		902.69	0.004746	2.05	339.16	360.75	0.30
Trib_Parkers	1	7384	25 YEAR	735.00	901.00	902.97		903.02	0.004423	2.26	472.16	493.41	0.30
Trib_Parkers	1	7384	50 YEAR	1908.00	901.00	903.55	902.75	903.68	0.007528	3.55	815.19	630.31	0.40
Trib_Parkers	1	7384	100 YEAR	2440.00	901.00	904.94		904.97	0.001120	1.86	2410.60	1354.95	0.17
Trib_Parkers	2	4738	10 YEAR	527.00	889.00	891.45		891.52	0.003781	2.14	263.83	184.64	0.28
Trib_Parkers	2	4738	25 YEAR	735.00	889.00	891.79		891.88	0.004009	2.47	329.56	200.44	0.29
Trib_Parkers	2	4738	50 YEAR	1292.00	889.00	893.17	891.09	893.25	0.001984	2.39	684.49	316.00	0.22
Trib_Parkers	2	4738	100 YEAR	8377.00	889.00	896.70		897.03	0.004496	5.68	2415.02	746.18	0.37
Trib_Parkers	2	3718	10 YEAR	170.00	886.00	886.80		886.84	0.009605	1.51	112.57	203.36	0.36
Trib_Parkers	2	3718	25 YEAR	237.00	886.00	886.94		886.98	0.009468	1.70	139.49	208.92	0.37
Trib_Parkers	2	3718	50 YEAR	1292.00	886.00	887.50		887.82	0.039391	4.59	281.60	276.87	0.80
Trib_Parkers	2	3718	100 YEAR	8377.00	886.00	891.42		891.77	0.005962	5.02	1975.93	614.69	0.40
Trib_Parkers	2	2703	10 YEAR	170.00	881.00	882.34		882.35	0.002525	0.89	190.49	278.11	0.19
Trib_Parkers	2	2703	25 YEAR	237.00	881.00	882.49		882.51	0.002528	1.01	234.73	285.09	0.20
Trib_Parkers	2	2703	50 YEAR	1292.00	881.00	884.50		884.53	0.001072	1.47	939.34	416.31	0.16
Trib_Parkers	2	2703	100 YEAR	8377.00	881.00	887.72		887.92	0.002576	3.82	2884.56	948.24	0.28
Trib_Parkers	2	2304	10 YEAR	170.00	880.00	881.31		881.32	0.003012	0.93	183.31	288.41	0.20
Trib_Parkers	2	2304	25 YEAR	237.00	880.00	881.47		881.48	0.002953	1.03	230.67	306.64	0.21
Trib_Parkers	2	2304	50 YEAR	1292.00	880.00	884.25		884.26	0.000345	0.96	1558.31	628.35	0.09
Trib_Parkers	2	2304	100 YEAR	8377.00	880.00	886.95		887.07	0.001600	3.05	3697.78	1115.36	0.22
Trib_Parkers	2	1696	10 YEAR	170.00	879.00	879.95		879.96	0.002540	0.81	209.46	354.13	0.19
Trib_Parkers	2	1696	25 YEAR	237.00	879.00	880.38		880.38	0.000827	0.63	373.83	394.63	0.11
Trib_Parkers	2	1696	50 YEAR	1292.00	879.00	884.15		884.16	0.000089	0.60	2622.37	987.65	0.05
Trib_Parkers	2	1696	100 YEAR	9377.00	879.00	886.29		886.37	0.000903	2.48	5328.11	1390.37	0.17
Trib_Parkers	2	930	10 YEAR	170.00	877.00	879.31		879.31	0.000149	0.42	529.71	412.08	0.05
Trib_Parkers	2	930	25 YEAR	237.00	877.00	880.08		880.08	0.000076	0.38	908.55	607.01	0.04
Trib_Parkers	2	930	50 YEAR	1292.00	877.00	884.08		884.08	0.000025	0.41	7008.47	3428.99	0.03
Trib_Parkers	2	930	100 YEAR	11877.00	877.00	884.57		884.62	0.001214	2.95	8669.81	3428.99	0.19
Trib_Parkers	2	606	10 YEAR	170.00	877.00	879.28		879.28	0.000071	0.31	889.34	989.81	0.04
Trib_Parkers	2	606	25 YEAR	237.00	877.00	880.07		880.07	0.000024	0.23	1693.09	1048.75	0.02
Trib_Parkers	2	606	50 YEAR	1000.00	877.00	884.08		884.08	0.000012	0.28	6447.57	2279.93	0.02
Trib_Parkers	2	606	100 YEAR	1669.00	877.00	884.49		884.49	0.000023	0.41	7378.52	2279.93	0.03
Trib_Parkers	2	583	10 YEAR	170.00	877.00	879.28		879.28	0.000090	0.34	854.52	1054.90	0.04
Trib_Parkers	2	583	25 YEAR	237.00	877.00	880.07		880.07	0.000026	0.23	1713.26	1111.82	0.02
Trib_Parkers	2	583	50 YEAR	1000.00	877.00	884.08		884.08	0.000011	0.27	6870.46	2212.29	0.02
Trib_Parkers	2	583	100 YEAR	1669.00	877.00	884.49		884.49	0.000021	0.39	7773.39	2212.29	0.03
Trib_Parkers	2	466	10 YEAR	170.00	877.00	879.27	877.34	879.27	0.000055	0.47	360.70	612.56	0.06
Trib_Parkers	2	466	25 YEAR	237.00	877.00	880.06	877.43	880.06	0.000039	0.49	488.15	644.51	0.05
Trib_Parkers	2	466	50 YEAR	1000.00	877.00	884.06	878.08	884.07	0.000042	0.88	1130.52	2072.74	0.06
Trib_Parkers	2	466	100 YEAR	1200.00	877.00	884.48	878.22	884.48	0.000017	0.58	3705.35	2072.74	0.04
Trib_Parkers	2	450		Bridge									
Trib_Parkers	2	367	10 YEAR	170.00	877.00	879.25	877.58	879.25	0.000081	0.53	320.04	789.86	0.07
Trib_Parkers	2	367	25 YEAR	237.00	877.00	880.04	877.66	880.05	0.000052	0.53	448.21	811.36	0.06
Trib_Parkers	2	367	50 YEAR	1000.00	877.00	884.03	878.32	884.05	0.000048	0.92	1068.35	2388.53	0.06
Trib_Parkers	2	367	100 YEAR	1200.00	877.00	884.43	878.44	884.43	0.000011	0.45	4695.59	2388.53	0.03
Trib_Parkers	2	325	10 YEAR	170.00	875.67	879.25	876.53	879.25	0.000028	0.41	410.45	853.57	0.04
Trib_Parkers	2	325	25 YEAR	237.00	875.67	880.04	876.62	880.05	0.000025	0.46	516.50	860.19	0.04
Trib_Parkers	2	325	50 YEAR	1000.00	875.67	884.04	877.36	884.04	0.000002	0.21	8860.05	2491.77	0.01

HEC-RAS Plan: ALT 2 (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Trib_Parkers	2	325	100 YEAR	1200.00	875.67	884.43	877.51	884.43	0.000002	0.23	9828.53	2491.77	0.01
Trib_Parkers	2	317		Culvert									
Trib_Parkers	2	205	10 YEAR	170.00	875.67	879.23	876.05	879.23	0.000017	0.34	496.56	154.16	0.03
Trib_Parkers	2	205	25 YEAR	237.00	875.67	880.03	876.15	880.03	0.000017	0.38	617.72	160.60	0.03
Trib_Parkers	2	205	50 YEAR	1000.00	875.67	884.04	876.91	884.04	0.000010	0.45	5930.60	2731.32	0.03
Trib_Parkers	2	205	100 YEAR	1200.00	875.67	884.42	877.06	884.43	0.000010	0.46	6991.36	2731.32	0.03
Trib_Parkers	2	204	10 YEAR	170.00	875.67	879.10		879.19	0.001518	2.44	69.54	30.57	0.29
Trib_Parkers	2	204	25 YEAR	237.00	875.67	879.90		879.99	0.001233	2.47	95.86	35.36	0.26
Trib_Parkers	2	204	50 YEAR	1000.00	875.67	883.85		883.99	0.000786	3.22	405.01	120.00	0.24
Trib_Parkers	2	204	100 YEAR	1200.00	875.67	884.20		884.37	0.000880	3.55	447.36	120.00	0.25
Trib_Parkers	2	203	10 YEAR	170.00	875.54	879.00		879.09	0.001460	2.41	70.54	30.77	0.28
Trib_Parkers	2	203	25 YEAR	237.00	875.54	879.82		879.91	0.001170	2.43	97.73	35.67	0.26
Trib_Parkers	2	203	50 YEAR	1000.00	875.54	883.80		883.94	0.000767	3.19	405.22	120.00	0.24
Trib_Parkers	2	203	100 YEAR	1200.00	875.54	884.14		884.31	0.000865	3.52	446.76	120.00	0.25
Trib_Parkers	2	202	10 YEAR	170.00	874.87	878.60		878.67	0.001076	2.15	78.91	32.36	0.24
Trib_Parkers	2	202	25 YEAR	237.00	874.87	879.51		879.58	0.000833	2.14	110.80	37.81	0.22
Trib_Parkers	2	202	50 YEAR	1000.00	874.87	883.57		883.69	0.000662	3.00	411.62	120.00	0.22
Trib_Parkers	2	202	100 YEAR	1200.00	874.87	883.87		884.03	0.000772	3.35	448.75	120.00	0.24
Trib_Parkers	2	201	10 YEAR	170.00	874.80	878.56	876.53	878.63	0.001034	2.12	80.08	32.57	0.24
Trib_Parkers	2	201	25 YEAR	237.00	874.80	879.48	876.88	879.55	0.000800	2.11	112.47	38.07	0.22
Trib_Parkers	2	201	50 YEAR	1000.00	874.80	883.54	879.27	883.67	0.000650	2.98	412.81	120.00	0.22
Trib_Parkers	2	201	100 YEAR	1200.00	874.80	883.85	879.67	884.01	0.000761	3.33	449.47	120.00	0.24
Trib_Parkers	2	200.5		Culvert									
Trib_Parkers	2	200	10 YEAR	170.00	874.72	877.80		877.93	0.002345	2.87	59.31	28.49	0.35
Trib_Parkers	2	200	25 YEAR	237.00	874.72	878.35		878.50	0.002342	3.13	75.69	31.75	0.36
Trib_Parkers	2	200	50 YEAR	1000.00	874.72	881.49		881.86	0.002825	4.88	204.99	50.60	0.43
Trib_Parkers	2	200	100 YEAR	1200.00	874.72	882.02		882.43	0.002875	5.15	234.45	120.00	0.44
Trib_Parkers	2	199	10 YEAR	170.00	874.63	877.70		877.83	0.002373	2.88	59.06	28.44	0.35
Trib_Parkers	2	199	25 YEAR	237.00	874.63	878.25		878.40	0.002365	3.14	75.42	31.70	0.36
Trib_Parkers	2	199	50 YEAR	1000.00	874.63	881.36		881.74	0.002894	4.92	203.17	50.38	0.43
Trib_Parkers	2	199	100 YEAR	1200.00	874.63	881.89		882.31	0.002957	5.20	230.86	53.58	0.44
Trib_Parkers	2	198	10 YEAR	170.00	874.46	877.49		877.62	0.002521	2.94	57.76	28.16	0.36
Trib_Parkers	2	198	25 YEAR	237.00	874.46	878.03		878.19	0.002489	3.20	74.02	31.44	0.37
Trib_Parkers	2	198	50 YEAR	1000.00	874.46	881.08		881.48	0.003116	5.06	197.66	49.72	0.45
Trib_Parkers	2	198	100 YEAR	1200.00	874.46	881.60		882.05	0.003185	5.34	224.56	52.87	0.46
Trib_Parkers	2	197	10 YEAR	170.00	874.32	877.30		877.44	0.002688	3.01	56.43	27.88	0.37
Trib_Parkers	2	197	25 YEAR	237.00	874.32	877.85	876.40	878.01	0.002619	3.26	72.65	31.17	0.38
Trib_Parkers	2	197	50 YEAR	1000.00	874.32	880.83	878.79	881.25	0.003356	5.20	192.27	49.06	0.46
Trib_Parkers	2	197	100 YEAR	1200.00	874.32	881.35	879.19	881.82	0.003432	5.49	218.41	52.16	0.47
Trib_Parkers	2	196	10 YEAR	170.00	873.90	875.88		876.33	0.013313	5.37	31.64	21.90	0.79
Trib_Parkers	2	196	25 YEAR	237.00	873.90	875.98	875.98	876.74	0.021441	7.00	33.85	22.50	1.01
Trib_Parkers	2	196	50 YEAR	1000.00	873.90	878.37	878.37	879.79	0.017359	9.57	104.53	36.80	1.00
Trib_Parkers	2	196	100 YEAR	1200.00	873.90	878.78	878.78	880.33	0.017174	9.99	120.09	39.26	1.01
Trib_Parkers	3	50	10 YEAR	810.00	872.07	874.74		874.78	0.001013	1.67	484.77	288.42	0.23
Trib_Parkers	3	50	25 YEAR	735.00	872.07	874.89		874.92	0.000658	1.39	529.20	300.49	0.18
Trib_Parkers	3	50	50 YEAR	1908.00	872.07	876.09		876.14	0.000624	1.89	1446.89	993.92	0.20
Trib_Parkers	3	50	100 YEAR	3200.00	872.07	876.76		876.83	0.000728	2.34	2123.30	1028.29	0.22
Trib_Parkers	3	25	10 YEAR	810.00	871.67	874.32		874.37	0.001034	1.68	481.06	287.39	0.23
Trib_Parkers	3	25	25 YEAR	735.00	871.67	874.66		874.69	0.000508	1.26	582.12	314.27	0.16
Trib_Parkers	3	25	50 YEAR	1908.00	871.67	875.79		875.85	0.000820	1.93	988.93	404.79	0.22
Trib_Parkers	3	25	100 YEAR	3200.00	871.67	876.36		876.46	0.001129	2.59	1323.90	654.68	0.26
Trib_Parkers	3	10	10 YEAR	810.00	871.15	874.08	872.00	874.10	0.000263	0.99	826.39	480.22	0.12
Trib_Parkers	3	10	25 YEAR	735.00	871.15	874.56	871.94	874.57	0.000108	0.72	1066.36	531.75	0.08
Trib_Parkers	3	10	50 YEAR	1908.00	871.15	875.61	872.57	875.63	0.000209	1.27	1921.55	1314.16	0.12
Trib_Parkers	3	10	100 YEAR	3200.00	871.15	876.08	873.08	876.12	0.000353	1.78	2740.98	1677.79	0.16
Seco Split	1	2779	10 YEAR	621.69	878.89	881.38		881.61	0.011984	3.84	163.96	96.30	0.49
Seco Split	1	2779	25 YEAR	1958.89	878.89	883.02		883.58	0.013426	6.15	353.73	133.32	0.58
Seco Split	1	2779	50 YEAR	3121.38	878.89	884.09		884.81	0.012781	7.15	504.80	149.06	0.59
Seco Split	1	2779	100 YEAR	4406.59	878.89	885.07		885.95	0.012356	7.99	658.34	165.25	0.60
Seco Split	1	2453	10 YEAR	621.69	875.00	877.57		877.81	0.011300	4.11	170.60	103.21	0.49
Seco Split	1	2453	25 YEAR	1958.89	875.00	879.75		880.15	0.008221	5.55	437.91	139.00	0.47
Seco Split	1	2453	50 YEAR	3121.38	875.00	881.09		881.58	0.007540	6.34	640.85	165.51	0.47
Seco Split	1	2453	100 YEAR	4406.59	875.00	882.48		883.02	0.006378	6.75	891.68	196.26	0.45
Seco Split	1	1748	10 YEAR	621.69	872.08	876.82		876.84	0.000464	1.23	706.42	329.41	0.11
Seco Split	1	1748	25 YEAR	1958.89	872.08	878.83		878.87	0.000687	1.97	1556.40	491.10	0.14
Seco Split	1	1748	50 YEAR	3121.38	872.08	880.47		880.50	0.000534	2.04	2615.96	699.33	0.13
Seco Split	1	1748	100 YEAR	4406.59	872.08	882.06		882.10	0.000431	2.08	3865.25	998.67	0.12
Seco Split	1	1707	10 YEAR	621.69	872.00	876.80		876.82	0.000371	1.11	808.77	379.82	0.10

HEC-RAS Plan: ALT 2 (Continued)

River	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)	
Seco Split	1	1707	25 YEAR	1958.89	872.00	878.82		878.85	0.000524	1.73	1775.02	529.38	0.12
Seco Split	1	1707	50 YEAR	3121.38	872.00	880.45		880.48	0.000457	1.89	2790.67	719.06	0.12
Seco Split	1	1707	100 YEAR	4406.59	872.00	882.05		882.08	0.000359	1.91	4154.78	1008.27	0.11
Seco Split	1	294	10 YEAR	621.69	867.00	876.74		876.74	0.000020	0.44	1904.85	286.97	0.03
Seco Split	1	294	25 YEAR	1958.89	867.00	878.56		878.57	0.000097	1.10	2458.08	322.40	0.06
Seco Split	1	294	50 YEAR	3121.38	867.00	880.11		880.14	0.000146	1.46	2987.90	355.39	0.07
Seco Split	1	294	100 YEAR	4406.59	867.00	881.69		881.73	0.000178	1.77	3567.09	377.13	0.08
Seco Creek	1	68934	10 YEAR	27134.00	928.30	947.62		948.56	0.002549	8.03	3973.05	394.05	0.37
Seco Creek	1	68934	25 YEAR	41444.00	928.30	951.25		952.38	0.002430	9.11	6699.48	1297.96	0.38
Seco Creek	1	68934	50 YEAR	55008.00	928.30	953.94		954.85	0.001905	8.85	11619.39	2748.37	0.34
Seco Creek	1	68934	100 YEAR	74552.00	928.30	956.98		957.51	0.001182	7.64	20508.38	3089.32	0.28
Seco Creek	1	67530	10 YEAR	27134.00	925.89	941.00		943.02	0.006636	11.61	2639.41	300.45	0.59
Seco Creek	1	67530	25 YEAR	41444.00	925.89	944.91		947.31	0.005667	12.92	3963.86	393.04	0.57
Seco Creek	1	67530	50 YEAR	55008.00	925.89	947.86		950.58	0.005293	13.97	5277.74	500.63	0.56
Seco Creek	1	67530	100 YEAR	74552.00	925.89	951.51	945.89	954.40	0.004761	14.89	8039.02	1998.27	0.55
Seco Creek	1	66632	10 YEAR	27134.00	915.81	939.48		940.27	0.001417	7.56	4674.08	351.86	0.29
Seco Creek	1	66632	25 YEAR	41444.00	915.81	943.13		944.33	0.001780	9.46	6083.75	425.10	0.34
Seco Creek	1	66632	50 YEAR	55008.00	915.81	945.85		947.42	0.002075	10.97	7343.99	501.70	0.37
Seco Creek	1	66632	100 YEAR	74552.00	915.81	949.10		951.19	0.002446	12.86	9177.89	636.91	0.41
Seco Creek	1	65736	10 YEAR	27134.00	913.11	938.53		939.15	0.001026	6.50	4843.78	334.44	0.25
Seco Creek	1	65736	25 YEAR	41444.00	913.11	941.87		942.87	0.001368	8.35	6024.76	371.67	0.30
Seco Creek	1	65736	50 YEAR	55008.00	913.11	944.30		945.69	0.001710	9.88	6962.09	397.60	0.34
Seco Creek	1	65736	100 YEAR	74552.00	913.11	947.17		949.11	0.002137	11.82	8144.12	428.06	0.38
Seco Creek	1	64909	10 YEAR	27134.00	913.74	937.85		938.32	0.000875	5.59	5273.88	370.87	0.23
Seco Creek	1	64909	25 YEAR	41444.00	913.74	940.97		941.75	0.001182	7.20	6518.36	428.80	0.27
Seco Creek	1	64909	50 YEAR	55008.00	913.74	943.20		944.29	0.001470	8.57	7549.77	495.27	0.31
Seco Creek	1	64909	100 YEAR	74552.00	913.74	945.81		947.35	0.001841	10.28	8948.94	577.79	0.35
Seco Creek	1	63802	10 YEAR	27134.00	915.07	936.50		937.13	0.001323	7.15	5619.10	506.74	0.28
Seco Creek	1	63802	25 YEAR	41444.00	915.07	939.11		940.12	0.001849	9.18	7066.16	609.38	0.34
Seco Creek	1	63802	50 YEAR	55008.00	915.07	940.88		942.25	0.002341	10.87	8225.69	703.99	0.39
Seco Creek	1	63802	100 YEAR	74552.00	915.07	942.76		944.72	0.003121	13.20	9704.52	888.87	0.46
Seco Creek	1	62771	10 YEAR	27134.00	914.65	935.57		935.95	0.000888	5.60	8203.35	1257.25	0.23
Seco Creek	1	62771	25 YEAR	41444.00	914.65	938.06		938.55	0.001052	6.64	11732.63	1579.88	0.26
Seco Creek	1	62771	50 YEAR	55008.00	914.65	939.73		940.31	0.001227	7.54	14589.85	1867.12	0.28
Seco Creek	1	62771	100 YEAR	74552.00	914.65	941.60		942.27	0.001385	8.45	18392.02	2213.16	0.30
Seco Creek	1	61550	10 YEAR	27134.00	915.63	934.76		934.94	0.000660	4.77	9633.41	1588.47	0.20
Seco Creek	1	61550	25 YEAR	41444.00	915.63	937.17		937.37	0.000728	5.45	13992.32	1954.75	0.21
Seco Creek	1	61550	50 YEAR	55008.00	915.63	938.70		938.94	0.000834	6.12	17147.41	2183.74	0.23
Seco Creek	1	61550	100 YEAR	74552.00	915.63	940.40		940.69	0.000983	6.98	21088.66	2455.60	0.25
Seco Creek	1	60346	10 YEAR	27134.00	915.68	932.06		933.29	0.003460	9.46	4384.33	1187.03	0.44
Seco Creek	1	60346	25 YEAR	41444.00	915.68	934.98		935.83	0.002460	9.01	9309.75	2099.33	0.38
Seco Creek	1	60346	50 YEAR	55008.00	915.68	936.55		937.32	0.002296	9.22	12863.86	2489.62	0.37
Seco Creek	1	60346	100 YEAR	74552.00	915.68	938.23		938.95	0.002191	9.52	17348.60	2824.79	0.37
Seco Creek	1	59443	10 YEAR	27134.00	910.59	930.13		930.89	0.001904	7.45	4523.95	672.00	0.33
Seco Creek	1	59443	25 YEAR	41444.00	910.59	933.32		934.02	0.001634	7.80	9412.70	2268.39	0.31
Seco Creek	1	59443	50 YEAR	55008.00	910.59	935.01		935.64	0.001520	7.96	13416.02	2484.36	0.31
Seco Creek	1	59443	100 YEAR	74552.00	910.59	936.63		937.28	0.001615	8.62	17868.87	2990.85	0.32
Seco Creek	1	58444	10 YEAR	27134.00	911.41	929.33		929.64	0.000733	4.79	7072.41	579.25	0.21
Seco Creek	1	58444	25 YEAR	41444.00	911.41	932.35		932.78	0.000864	5.80	10591.29	2058.02	0.23
Seco Creek	1	58444	50 YEAR	55008.00	911.41	933.88		934.38	0.000998	6.56	14513.34	2995.60	0.25
Seco Creek	1	58444	100 YEAR	74552.00	911.41	935.32		935.89	0.001170	7.41	19291.95	3617.22	0.27
Seco Creek	1	57184	10 YEAR	27134.00	913.98	925.80		927.35	0.007785	12.05	3189.42	575.59	0.63
Seco Creek	1	57184	25 YEAR	41444.00	913.98	929.93		930.77	0.003560	10.02	7524.94	1809.15	0.45
Seco Creek	1	57184	50 YEAR	55008.00	913.98	931.90		932.46	0.002519	9.13	13703.61	3681.29	0.38
Seco Creek	1	57184	100 YEAR	74552.00	913.98	933.33	930.40	933.82	0.002304	9.20	19300.84	4271.13	0.37
Seco Creek	1	54081	10 YEAR	27134.00	895.00	919.06		919.59	0.001163	6.35	5935.30	404.21	0.23
Seco Creek	1	54081	25 YEAR	41444.00	895.00	923.37		924.18	0.001442	7.92	8184.99	1926.69	0.27
Seco Creek	1	54081	50 YEAR	55008.00	895.00	926.51		927.20	0.001268	7.97	16584.82	4140.32	0.25
Seco Creek	1	54081	100 YEAR	74552.00	895.00	928.73		929.24	0.001085	7.73	27341.64	5119.97	0.24
Seco Creek	1	51636	10 YEAR	27134.00	896.00	916.24		916.53	0.001585	6.48	9395.16	1117.23	0.26
Seco Creek	1	51636	25 YEAR	41444.00	896.00	920.52		920.83	0.001449	7.09	14111.28	1795.66	0.26
Seco Creek	1	51636	50 YEAR	55008.00	896.00	923.83		924.17	0.001381	7.56	18962.73	2724.70	0.26
Seco Creek	1	51636	100 YEAR	74552.00	896.00	925.93		926.32	0.001583	8.51	24615.48	3997.70	0.28
Seco Creek	1	49863	10 YEAR	27134.00	893.00	912.47		913.00	0.002103	7.53	6532.01	1280.13	0.30
Seco Creek	1	49863	25 YEAR	41444.00	893.00	916.56		917.29	0.002359	9.07	8892.56	1580.15	0.33
Seco Creek	1	49863	50 YEAR	55008.00	893.00	919.42		920.41	0.002852	10.77	13096.57	3624.56	0.37
Seco Creek	1	49863	100 YEAR	74552.00	893.00	921.39		922.29	0.002800	11.20	19248.32	4706.75	0.37
Seco Creek	1	48183	10 YEAR	27134.00	884.00	909.91		910.34	0.001215	6.87	7704.91	1716.37	0.24
Seco Creek	1	48183	25 YEAR	41444.00	884.00	913.21		913.90	0.001732	8.90	10126.99	2137.48	0.29
Seco Creek	1	48183	50 YEAR	55008.00	884.00	915.18		916.14	0.002265	10.65	11936.89	2402.43	0.34

HEC-RAS Plan: ALT 2 (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Seco Creek	1	48183	100 YEAR	68000.00	884.00	916.69		917.78	0.002560	11.69	14166.33	3174.26	0.36
Seco Creek	1	46654	10 YEAR	27134.00	883.12	906.63		907.45	0.003043	10.10	5981.36	1779.64	0.37
Seco Creek	1	46654	25 YEAR	41444.00	883.12	909.79		910.51	0.002818	10.61	11466.91	2069.06	0.37
Seco Creek	1	46654	50 YEAR	55008.00	883.12	911.91		912.46	0.002331	10.17	15898.48	2115.78	0.34
Seco Creek	1	46654	100 YEAR	68000.00	883.12	913.64		914.09	0.002006	9.81	19764.58	2303.27	0.32
Seco Creek	1	44030	10 YEAR	27134.00	873.00	897.83		899.11	0.003325	10.50	5264.51	753.11	0.39
Seco Creek	1	44030	25 YEAR	41444.00	873.00	901.47		902.71	0.003149	11.28	8172.94	833.59	0.39
Seco Creek	1	44030	50 YEAR	55008.00	873.00	904.02		905.31	0.003213	12.11	10369.48	897.95	0.40
Seco Creek	1	44030	100 YEAR	68000.00	873.00	906.02		907.39	0.003330	12.89	12410.32	1460.05	0.41
Seco Creek	1	42700	10 YEAR	27134.00	873.00	894.96		895.64	0.001933	7.31	5858.93	625.59	0.29
Seco Creek	1	42700	25 YEAR	41444.00	873.00	898.20		899.11	0.002277	8.78	8046.38	722.22	0.32
Seco Creek	1	42700	50 YEAR	55008.00	873.00	900.16		901.35	0.002777	10.25	9553.04	959.00	0.36
Seco Creek	1	42700	100 YEAR	68000.00	873.00	901.69		903.10	0.003184	11.41	11369.36	1562.89	0.39
Seco Creek	1	41699	10 YEAR	27134.00	871.00	893.43	882.46	893.93	0.001428	6.66	6905.98	753.93	0.25
Seco Creek	1	41699	25 YEAR	41444.00	871.00	896.00	885.33	896.87	0.002170	8.86	8675.64	1655.79	0.32
Seco Creek	1	41699	50 YEAR	55008.00	871.00	897.64	887.40	898.64	0.002530	9.99	11977.36	2871.08	0.35
Seco Creek	1	41699	100 YEAR	68000.00	871.00	898.88	889.06	900.00	0.002849	10.94	14072.77	3325.99	0.37
Seco Creek	1	40632	10 YEAR	27134.00	870.00	892.14	881.13	892.52	0.001169	5.96	8285.77	1110.29	0.23
Seco Creek	1	40632	25 YEAR	41444.00	870.00	894.38	884.06	894.87	0.001466	7.13	11515.62	2902.49	0.26
Seco Creek	1	40632	50 YEAR	55008.00	870.00	895.75	886.00	896.31	0.001708	8.00	14538.65	3446.53	0.28
Seco Creek	1	40632	100 YEAR	68000.00	870.00	896.73	888.00	897.37	0.001938	8.75	16939.72	3720.36	0.30
Seco Creek	1	39997	10 YEAR	27134.00	870.00	891.29	883.86	891.65	0.001575	6.56	8233.63	1220.89	0.26
Seco Creek	1	39997	25 YEAR	41444.00	870.00	893.35	886.56	893.79	0.001928	7.75	11540.44	3337.82	0.29
Seco Creek	1	39997	50 YEAR	55008.00	870.00	894.60	887.86	895.07	0.002162	8.52	15260.22	3952.46	0.31
Seco Creek	1	39997	100 YEAR	68000.00	870.00	895.45	888.95	895.97	0.002399	9.20	18018.32	4310.49	0.33
Seco Creek	1	38985	10 YEAR	27134.00	870.00	888.61		889.39	0.003287	8.30	6061.64	1539.60	0.37
Seco Creek	1	38985	25 YEAR	41444.00	870.00	890.20		891.07	0.003836	9.55	9699.17	3162.75	0.40
Seco Creek	1	38985	50 YEAR	55008.00	870.00	891.38	889.62	892.19	0.003797	9.92	14051.06	4031.92	0.40
Seco Creek	1	38986	100 YEAR	68000.00	870.00	892.68		893.26	0.002974	9.18	19593.74	4458.87	0.36
Seco Creek	1	37489	10 YEAR	27134.00	869.00	885.77		885.95	0.001547	5.32	12433.51	3006.26	0.25
Seco Creek	1	37489	25 YEAR	41444.00	869.00	887.33		887.50	0.001473	5.56	17253.01	3396.02	0.24
Seco Creek	1	37489	50 YEAR	55008.00	869.00	888.52		888.69	0.001447	5.78	21853.31	4311.25	0.25
Seco Creek	1	37489	100 YEAR	68000.00	869.00	889.54		889.75	0.001790	6.68	26819.68	5097.21	0.28
Seco Creek	1	36472	10 YEAR	27134.00	870.41	884.75		884.83	0.000819	3.66	15442.37	3345.27	0.18
Seco Creek	1	36472	25 YEAR	41444.00	870.41	886.38		886.46	0.000751	3.78	21815.97	4513.65	0.17
Seco Creek	1	36472	50 YEAR	55008.00	870.41	887.59		887.67	0.000727	3.92	27524.23	4959.50	0.17
Seco Creek	1	36472	100 YEAR	68000.00	870.41	888.56		888.64	0.000719	4.05	32399.12	5084.00	0.17
Seco Creek	2	33911	10 YEAR	26513.31	861.40	881.24		881.61	0.002133	6.46	10835.55	2388.33	0.26
Seco Creek	2	33911	25 YEAR	39486.11	861.40	883.27		883.57	0.001892	6.52	16274.65	2898.54	0.25
Seco Creek	2	33911	50 YEAR	51887.62	861.40	884.52		884.82	0.001964	6.90	20134.02	3258.42	0.26
Seco Creek	2	33911	100 YEAR	61210.41	861.40	885.70		885.96	0.001750	6.74	24086.36	3398.40	0.25
Seco Creek	2	33369	10 YEAR	26513.31	859.00	880.26		880.56	0.001684	5.69	11522.52	2476.44	0.23
Seco Creek	2	33369	25 YEAR	39486.11	859.00	882.35		882.62	0.001578	5.92	17630.47	3412.22	0.23
Seco Creek	2	33369	50 YEAR	51887.62	859.00	883.56		883.83	0.001655	6.29	21803.86	3514.63	0.24
Seco Creek	2	33369	100 YEAR	58710.41	859.00	884.93		885.13	0.001261	5.72	26727.38	3626.52	0.21
Seco Creek	2	32739	10 YEAR	26513.31	860.90	879.48	873.73	879.77	0.001749	6.62	9796.33	1941.67	0.29
Seco Creek	2	32739	25 YEAR	39486.11	860.90	881.63	875.00	881.92	0.001720	7.13	15754.54	3482.84	0.29
Seco Creek	2	32739	50 YEAR	51887.62	860.90	882.93	876.00	883.18	0.001584	7.15	20558.61	3803.89	0.28
Seco Creek	2	32739	100 YEAR	68918.41	860.90	884.41	877.00	884.63	0.001388	7.03	26250.72	3844.26	0.27
Seco Creek	2	32734		Bridge									
Seco Creek	2	32699	10 YEAR	26513.31	860.90	879.19	873.91	879.53	0.001842	6.22	8949.65	1887.85	0.29
Seco Creek	2	32699	25 YEAR	39486.11	860.90	881.24	875.43	881.66	0.002082	7.23	13989.87	3578.02	0.32
Seco Creek	2	32699	50 YEAR	51887.62	860.90	882.66	876.46	882.97	0.001695	6.90	19210.45	3799.86	0.29
Seco Creek	2	32699	100 YEAR	68918.41	860.90	884.21	877.59	884.47	0.001436	6.71	25157.33	3848.89	0.27
Seco Creek	2	31630	10 YEAR	26513.31	864.00	876.66		877.30	0.003938	7.59	5459.71	1001.63	0.40
Seco Creek	2	31630	25 YEAR	39486.11	864.00	878.49		879.28	0.004286	8.75	7657.74	1322.40	0.43
Seco Creek	2	31630	50 YEAR	51887.62	864.00	880.16		880.99	0.004167	9.33	10176.04	2407.51	0.43
Seco Creek	2	31630	100 YEAR	68918.41	864.00	881.94		882.78	0.004094	9.97	16613.37	4198.03	0.43
Seco Creek	3	31156	10 YEAR	27134.00	858.06	876.25		876.70	0.000547	5.45	6179.78	939.86	0.24
Seco Creek	3	31156	25 YEAR	41444.00	858.06	877.70		878.49	0.000899	7.40	7717.57	1203.00	0.31
Seco Creek	3	31156	50 YEAR	55008.00	858.06	878.93		880.03	0.001177	8.87	9572.45	1857.47	0.36
Seco Creek	3	31156	100 YEAR	73793.01	858.06	880.00	872.52	881.57	0.001619	10.79	12322.22	3353.77	0.43
Seco Creek	3	30898	10 YEAR	27134.00	857.54	876.18		876.56	0.000401	4.96	6642.21	1003.87	0.21
Seco Creek	3	30898	25 YEAR	41444.00	857.54	877.57		878.26	0.000688	6.83	8091.96	1091.80	0.28
Seco Creek	3	30898	50 YEAR	55008.00	857.54	878.74		879.72	0.000938	8.30	9832.65	1893.54	0.33
Seco Creek	3	30898	100 YEAR	73793.01	857.54	879.72	870.86	881.15	0.001332	10.21	12617.41	3379.87	0.39
Seco Creek	3	30626	10 YEAR	27134.00	857.00	876.31	861.75	876.42	0.000120	2.74	9894.54	1085.02	0.11
Seco Creek	3	30626	25 YEAR	41444.00	857.00	877.79	863.28	878.02	0.000215	3.86	10728.83	1239.24	0.16
Seco Creek	3	30626	50 YEAR	57148.00	857.00	879.01	864.75	879.41	0.000332	5.01	11417.73	1853.75	0.20

HEC-RAS Plan: ALT 2 (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Seco Creek	3	30626	100 YEAR	77025.01	857.00	880.06	866.41	880.70	0.000510	6.42	12009.51	3573.95	0.24
Seco Creek	3	30610		Mult Open									
Seco Creek	3	30556	10 YEAR	27134.00	856.00	876.28	860.78	876.38	0.000104	2.63	10306.48	1010.60	0.11
Seco Creek	3	30556	25 YEAR	41444.00	856.00	877.73	862.34	877.95	0.000191	3.73	11120.10	1335.57	0.15
Seco Creek	3	30556	50 YEAR	57148.00	856.00	878.91	863.82	879.28	0.000299	4.85	11786.29	1805.48	0.19
Seco Creek	3	30556	100 YEAR	77025.01	856.00	879.89	865.51	880.50	0.000467	6.24	12337.15	4798.44	0.23
Seco Creek	3	30501	10 YEAR	27134.00	856.07	876.14	860.96	876.26	0.000115	2.74	9890.15	791.08	0.11
Seco Creek	3	30501	25 YEAR	41444.00	856.07	877.47	862.55	877.71	0.000213	3.91	10610.06	1163.56	0.16
Seco Creek	3	30501	50 YEAR	57148.00	856.07	878.48	864.08	878.89	0.000342	5.12	11158.30	1578.36	0.20
Seco Creek	3	30501	100 YEAR	77025.01	856.07	879.15	865.79	879.85	0.000558	6.69	11523.63	3086.01	0.26
Seco Creek	3	30493		Mult Open									
Seco Creek	3	30349	10 YEAR	27134.00	857.00	876.08	861.91	876.21	0.000137	2.92	9336.31	775.09	0.12
Seco Creek	3	30349	25 YEAR	41444.00	857.00	877.35	863.50	877.61	0.000253	4.15	10023.21	1414.19	0.17
Seco Creek	3	30349	50 YEAR	57148.00	857.00	878.27	865.02	878.73	0.000410	5.46	10525.48	2416.69	0.22
Seco Creek	3	30349	100 YEAR	77025.01	857.00	878.78	866.75	879.57	0.000684	7.17	10800.09	2984.51	0.28
Seco Creek	3	30292	10 YEAR	27134.00	857.00	875.81	864.24	876.11	0.000349	4.66	8185.60	1581.64	0.20
Seco Creek	3	30292	25 YEAR	41444.00	857.00	876.91	866.51	877.45	0.000600	6.36	10341.70	4498.62	0.26
Seco Creek	3	30292	50 YEAR	57148.00	857.00	877.64	868.65	878.50	0.000931	8.13	12208.93	5588.18	0.33
Seco Creek	3	30292	100 YEAR	77025.01	857.00	878.13	871.31	879.32	0.001349	9.95	17987.40	6172.18	0.39
Seco Creek	3	29802	10 YEAR	31366.00	857.00	875.54		875.69	0.002294	5.75	13934.67	5686.91	0.24
Seco Creek	3	29802	25 YEAR	47184.00	857.00	876.67		876.80	0.002181	5.84	21450.49	7286.49	0.23
Seco Creek	3	29802	50 YEAR	64141.00	857.00	877.44		877.58	0.002378	6.26	27486.01	8323.97	0.25
Seco Creek	3	29802	100 YEAR	82338.01	857.00	877.93		878.09	0.002747	6.83	31584.02	8446.09	0.27
Seco Creek	3	28576	10 YEAR	31366.00	857.00	873.15		873.30	0.001700	4.89	16082.71	6368.22	0.22
Seco Creek	3	28576	25 YEAR	48303.00	857.00	874.95		875.04	0.001032	4.12	29051.30	7837.15	0.18
Seco Creek	3	28576	50 YEAR	59895.00	857.00	875.66		875.74	0.001004	4.18	34703.88	7979.90	0.18
Seco Creek	3	28576	100 YEAR	66081.01	857.00	876.00		876.08	0.000989	4.20	37404.75	7998.34	0.18
Seco Creek	3	25698	10 YEAR	31366.00	854.11	870.93		871.13	0.001607	4.80	13432.45	2622.57	0.22
Seco Creek	3	25698	25 YEAR	48303.00	854.11	872.76		873.07	0.002339	6.25	20428.21	6854.88	0.27
Seco Creek	3	25698	50 YEAR	59895.00	854.11	873.65		873.91	0.002096	6.13	27106.57	7855.53	0.26
Seco Creek	3	25698	100 YEAR	66081.01	854.11	874.07		874.30	0.001976	6.04	30412.04	7862.59	0.25
Seco Creek	3	22915	10 YEAR	31366.00	845.07	869.27		869.32	0.000337	2.73	29603.47	5458.73	0.11
Seco Creek	3	22915	25 YEAR	48303.00	845.07	870.00		870.08	0.000589	3.70	33726.98	5800.49	0.14
Seco Creek	3	22915	50 YEAR	59895.00	845.07	870.71		870.80	0.000670	4.03	37878.09	5899.44	0.15
Seco Creek	3	22915	100 YEAR	66081.01	845.07	871.11		871.20	0.000694	4.15	40267.82	6517.01	0.15
Seco Creek	3	18148	10 YEAR	29251.00	845.09	867.33		867.39	0.000508	3.10	26036.45	6452.90	0.13
Seco Creek	3	18148	25 YEAR	29645.00	845.09	867.39		867.45	0.000503	3.09	26436.25	6462.05	0.13
Seco Creek	3	18148	50 YEAR	33895.00	845.09	867.99		868.04	0.000462	3.03	30303.19	6534.49	0.12
Seco Creek	3	18148	100 YEAR	37081.01	845.09	868.38		868.43	0.000442	3.00	32893.23	6552.71	0.12
Seco Creek	3	14626	10 YEAR	29251.00	841.35	863.51		864.07	0.002319	7.21	9822.18	2802.27	0.28
Seco Creek	3	14626	25 YEAR	29645.00	841.35	863.61		864.16	0.002304	7.20	10091.50	2867.82	0.28
Seco Creek	3	14626	50 YEAR	33895.00	841.35	864.55		865.03	0.002092	7.07	13097.42	3368.79	0.27
Seco Creek	3	14626	100 YEAR	37081.01	841.35	865.14		865.58	0.001974	6.99	15185.27	3783.21	0.26
Seco Creek	3	11674	10 YEAR	29251.00	835.92	858.27		858.53	0.001500	5.54	11368.13	1470.47	0.22
Seco Creek	3	11674	25 YEAR	29645.00	835.92	858.37		858.63	0.001504	5.56	11511.24	1488.53	0.22
Seco Creek	3	11674	50 YEAR	33895.00	835.92	859.49		859.76	0.001503	5.77	13312.42	1735.58	0.22
Seco Creek	3	11674	100 YEAR	37081.01	835.92	860.00		860.29	0.001598	6.05	14237.88	1873.74	0.23
Seco Creek	3	10238	10 YEAR	29251.00	833.88	856.28		856.54	0.001285	5.16	11275.23	1397.94	0.21
Seco Creek	3	10238	25 YEAR	29645.00	833.88	856.37		856.62	0.001296	5.19	11393.55	1417.72	0.21
Seco Creek	3	10238	50 YEAR	33895.00	833.88	857.46		857.73	0.001323	5.44	13074.17	1652.37	0.21
Seco Creek	3	10238	100 YEAR	37081.01	833.88	857.76		858.07	0.001493	5.83	13583.12	1748.20	0.22
Seco Creek	3	9209	10 YEAR	29251.00	834.65	854.53		854.88	0.002008	6.06	9695.14	2168.69	0.25
Seco Creek	3	9209	25 YEAR	29645.00	834.65	854.60		854.96	0.002019	6.09	9854.96	2188.17	0.25
Seco Creek	3	9209	50 YEAR	33895.00	834.65	855.51		855.94	0.002324	6.76	12145.39	3178.33	0.27
Seco Creek	3	9209	100 YEAR	35081.01	834.65	855.72		856.16	0.002355	6.85	12857.87	3436.34	0.28
Seco Creek	3	6260	10 YEAR	29251.00	832.93	849.33		849.52	0.001635	4.78	13109.60	2279.82	0.22
Seco Creek	3	6260	25 YEAR	29645.00	832.93	849.39		849.59	0.001633	4.79	13257.37	2283.30	0.22
Seco Creek	3	6260	50 YEAR	33895.00	832.93	850.16		850.35	0.001550	4.83	15028.00	2320.12	0.22
Seco Creek	3	6260	100 YEAR	35081.01	832.93	850.34		850.53	0.001549	4.87	15434.16	2328.51	0.22
Seco Creek	3	2900	10 YEAR	29251.00	824.79	843.55		843.80	0.001811	5.46	11681.90	2003.41	0.24
Seco Creek	3	2900	25 YEAR	29645.00	824.79	843.65		843.90	0.001791	5.45	11886.26	2030.58	0.24
Seco Creek	3	2900	50 YEAR	33895.00	824.79	844.78		845.01	0.001662	5.49	14276.93	2167.90	0.23
Seco Creek	3	2900	100 YEAR	35081.01	824.79	845.09		845.31	0.001586	5.42	14951.96	2189.73	0.22
Seco Creek	3	1260	10 YEAR	29251.00	820.75	839.82	831.22	840.36	0.002451	6.15	5721.74	535.97	0.27
Seco Creek	3	1260	25 YEAR	29645.00	820.75	839.94	831.27	840.48	0.002451	6.18	5782.90	539.19	0.27
Seco Creek	3	1260	50 YEAR	33895.00	820.75	841.14	831.95	841.73	0.002452	6.49	6453.29	584.25	0.28
Seco Creek	3	1260	100 YEAR	35081.01	820.75	841.50	832.13	842.11	0.002452	6.58	6672.54	625.99	0.28
Relief_Parkers	1	3303	10 YEAR	283.00	892.02	893.14		893.19	0.007716	1.89	181.53	404.72	0.35

HEC-RAS Plan: ALT 2 (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Relief_Parkers	1	3303	25 YEAR	498.00	892.02	893.40		893.47	0.007857	2.26	301.72	495.18	0.37
Relief_Parkers	1	3303	50 YEAR	616.00	892.02	893.53		893.60	0.007614	2.38	364.43	518.55	0.37
Relief_Parkers	1	3303	100 YEAR	616.00	892.02	893.53		893.60	0.007614	2.38	364.43	518.55	0.37
Relief_Parkers	1	2628	10 YEAR	283.00	887.00	888.05		888.08	0.004308	1.26	247.27	424.94	0.25
Relief_Parkers	1	2628	25 YEAR	498.00	887.00	888.33		888.37	0.004161	1.53	380.37	484.23	0.26
Relief_Parkers	1	2628	50 YEAR	616.00	887.00	888.47		888.50	0.004065	1.63	443.95	488.80	0.26
Relief_Parkers	1	2628	100 YEAR	616.00	887.00	888.47		888.50	0.004063	1.63	444.01	488.80	0.26
Relief_Parkers	1	1845	10 YEAR	358.00	883.04	884.93		884.96	0.003257	1.61	269.03	295.80	0.24
Relief_Parkers	1	1845	25 YEAR	498.00	883.04	885.19		885.23	0.003326	1.82	365.51	425.38	0.25
Relief_Parkers	1	1845	50 YEAR	616.00	883.04	885.37		885.41	0.003199	1.92	441.96	437.67	0.25
Relief_Parkers	1	1845	100 YEAR	616.00	883.04	886.53		886.54	0.000359	0.89	1097.22	720.23	0.09
Relief_Parkers	1	1573	10 YEAR	358.00	882.00	884.06		884.11	0.002614	1.76	264.77	339.41	0.23
Relief_Parkers	1	1573	25 YEAR	498.00	882.00	884.30		884.35	0.002891	2.00	346.15	358.47	0.24
Relief_Parkers	1	1573	50 YEAR	616.00	882.00	884.48		884.53	0.002979	2.15	411.33	373.03	0.25
Relief_Parkers	1	1573	100 YEAR	616.00	882.00	886.48		886.48	0.000090	0.57	2019.72	1042.49	0.05
Relief_Parkers	1	1210	10 YEAR	358.00	881.79	883.06		883.08	0.002160	1.14	428.77	519.90	0.19
Relief_Parkers	1	1210	25 YEAR	498.00	881.79	883.19		883.21	0.002697	1.37	498.45	544.03	0.22
Relief_Parkers	1	1210	50 YEAR	616.00	881.79	883.49		883.50	0.001788	1.29	662.02	572.72	0.18
Relief_Parkers	1	1210	100 YEAR	2000.00	881.79	886.45		886.46	0.000208	0.90	3456.17	1239.32	0.07
Relief_Parkers	2	1160	10 YEAR	358.00	879.35	881.51		881.52	0.000853	0.85	486.88	552.89	0.13
Relief_Parkers	2	1160	25 YEAR	498.00	879.35	881.98		881.99	0.000525	0.81	776.50	684.11	0.10
Relief_Parkers	2	1160	50 YEAR	616.00	879.35	883.17		883.18	0.000102	0.49	1742.91	902.66	0.05
Relief_Parkers	2	1160	100 YEAR	2000.00	879.35	886.35		886.35	0.000047	0.54	6043.72	1837.95	0.04
Relief_Parkers	2	1110	10 YEAR	358.00	879.00	881.46		881.46	0.000143	0.37	1191.60	1012.19	0.05
Relief_Parkers	2	1110	25 YEAR	498.00	879.00	881.95		881.95	0.000097	0.37	1693.29	1054.11	0.04
Relief_Parkers	2	1110	50 YEAR	908.00	879.00	883.16		883.16	0.000055	0.38	2980.58	1060.69	0.04
Relief_Parkers	2	1110	100 YEAR	2000.00	879.00	886.35		886.35	0.000021	0.36	7560.76	2303.23	0.03
Relief_Parkers	2	1060	10 YEAR	358.00	879.00	881.46		881.46	0.000128	0.37	1207.85	977.47	0.05
Relief_Parkers	2	1060	25 YEAR	498.00	879.00	881.94		881.95	0.000090	0.36	1685.04	983.69	0.04
Relief_Parkers	2	1060	50 YEAR	908.00	879.00	883.16		883.16	0.000055	0.38	2885.12	993.44	0.04
Relief_Parkers	2	1060	100 YEAR	2000.00	879.00	886.35		886.35	0.000021	0.37	7661.03	2334.00	0.03
Relief_Parkers	2	1010	10 YEAR	358.00	879.00	881.39	879.85	881.44	0.002017	1.83	195.43	560.66	0.21
Relief_Parkers	2	1010	25 YEAR	498.00	879.00	881.86	880.05	881.93	0.002142	2.13	233.97	611.78	0.22
Relief_Parkers	2	1010	50 YEAR	908.00	879.00	883.03	880.56	883.14	0.002270	2.75	329.72	773.73	0.24
Relief_Parkers	2	1010	100 YEAR	2000.00	879.00	886.34	881.66	886.35	0.000050	0.60	6200.31	1861.71	0.04
Relief_Parkers	2	1000		Bridge									
Relief_Parkers	2	960	10 YEAR	358.00	879.00	880.32	879.85	880.49	0.014467	3.31	108.22	381.28	0.51
Relief_Parkers	2	960	25 YEAR	498.00	879.00	880.76	880.05	880.95	0.010847	3.46	143.82	422.34	0.46
Relief_Parkers	2	960	50 YEAR	908.00	879.00	881.88	880.56	882.11	0.006960	3.85	235.58	532.89	0.40
Relief_Parkers	2	960	100 YEAR	2000.00	879.00	884.32	881.66	884.65	0.004350	4.59	435.66	975.95	0.35
Relief_Parkers	2	910	10 YEAR	358.00	878.08	880.07	879.01	880.17	0.005034	2.57	139.42	408.61	0.32
Relief_Parkers	2	910	25 YEAR	498.00	878.08	880.54	879.23	880.67	0.004844	2.90	171.94	425.25	0.33
Relief_Parkers	2	910	50 YEAR	908.00	878.08	881.70	879.82	881.90	0.004437	3.59	253.10	500.11	0.33
Relief_Parkers	2	910	100 YEAR	2000.00	878.08	884.15	881.02	884.49	0.003832	4.71	424.79	990.95	0.34
Relief_Parkers	2	900		Culvert									
Relief_Parkers	2	860	10 YEAR	358.00	878.08	879.01	879.01	879.48	0.063374	5.49	65.21	272.42	1.00
Relief_Parkers	2	860	25 YEAR	498.00	878.08	879.50	879.23	879.89	0.029790	4.99	99.70	411.66	0.74
Relief_Parkers	2	860	50 YEAR	908.00	878.08	879.89	879.82	880.69	0.044810	7.18	126.48	419.37	0.94
Relief_Parkers	2	860	100 YEAR	2000.00	878.08	881.45	881.02	882.57	0.027256	8.48	235.81	469.11	0.81
Relief_Parkers	2	810	10 YEAR	358.00	873.27	876.07		876.11	0.001095	1.69	212.17	131.82	0.23
Relief_Parkers	2	810	25 YEAR	498.00	873.27	876.09		876.17	0.002052	2.32	214.74	132.60	0.32
Relief_Parkers	2	810	50 YEAR	908.00	873.27	877.09		877.19	0.001605	2.47	368.06	174.75	0.30
Relief_Parkers	2	810	100 YEAR	2000.00	873.27	878.02		878.22	0.002346	3.60	667.95	489.59	0.38
Parkers_Spill	1	1124	10 YEAR	1.00	889.00	889.15		889.15	0.001761	0.18	5.48	65.92	0.11
Parkers_Spill	1	1124	25 YEAR	1.00	889.00	889.15		889.15	0.001761	0.18	5.48	65.92	0.11
Parkers_Spill	1	1124	50 YEAR	1.00	889.00	889.15		889.15	0.001761	0.18	5.48	65.92	0.11
Parkers_Spill	1	1124	100 YEAR	405.00	889.00	890.55		890.59	0.003970	1.81	285.07	309.06	0.27
Parkers_Spill	1	790	10 YEAR	1.00	887.00	887.15	887.15	887.20	0.183183	1.72	0.58	7.75	1.11
Parkers_Spill	1	790	25 YEAR	1.00	887.00	887.15	887.15	887.20	0.183183	1.72	0.58	7.75	1.11
Parkers_Spill	1	790	50 YEAR	1.00	887.00	887.15	887.15	887.20	0.183183	1.72	0.58	7.75	1.11
Parkers_Spill	1	790	100 YEAR	405.00	887.00	888.73		888.79	0.007769	2.35	244.25	353.93	0.37
Parkers_Spill	1	504	10 YEAR	1.00	886.00	886.16		886.16	0.000128	0.07	13.99	96.41	0.03
Parkers_Spill	1	504	25 YEAR	1.00	886.00	886.16		886.16	0.000128	0.07	14.00	96.41	0.03
Parkers_Spill	1	504	50 YEAR	1.00	886.00	886.16		886.16	0.000128	0.07	14.00	96.41	0.03
Parkers_Spill	1	504	100 YEAR	405.00	886.00	888.15		888.16	0.000983	1.15	487.16	428.81	0.14
Parkers_Spill	1	191	10 YEAR	1.00	886.00	886.12		886.12	0.000143	0.06	16.35	154.78	0.03
Parkers_Spill	1	191	25 YEAR	1.00	886.00	886.12		886.12	0.000142	0.06	16.41	154.79	0.03
Parkers_Spill	1	191	50 YEAR	1.00	886.00	886.12		886.12	0.000141	0.06	16.45	154.80	0.03
Parkers_Spill	1	191	100 YEAR	405.00	886.00	887.74	886.60	887.77	0.001680	1.33	337.64	257.52	0.18

HEC-RAS Plan: ALT 2 (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Parkers_Spill	1	31	10 YEAR	1.00	886.00	886.02	886.02	886.03	0.164199	0.47	2.06	115.45	0.77
Parkers_Spill	1	31	25 YEAR	1.00	886.00	886.02	886.02	886.03	0.164199	0.47	2.06	115.45	0.77
Parkers_Spill	1	31	50 YEAR	1.00	886.00	886.02	886.02	886.03	0.164199	0.47	2.06	115.45	0.77
Parkers_Spill	1	31	100 YEAR	405.00	886.00	886.62	886.62	886.89	0.118823	4.16	98.47	189.74	1.18
Parkers Creek	1	32760	10 YEAR	2988.00	930.47	935.83		935.86	0.000510	1.79	2609.27	894.88	0.14
Parkers Creek	1	32760	25 YEAR	4240.00	930.47	936.56		936.60	0.000584	2.10	3313.86	1043.91	0.15
Parkers Creek	1	32760	50 YEAR	5401.00	930.47	937.12		937.17	0.000634	2.32	3925.02	1153.45	0.16
Parkers Creek	1	32760	100 YEAR	6874.00	930.47	937.72		937.79	0.000686	2.57	4663.23	1281.47	0.17
Parkers Creek	1	32036	10 YEAR	2988.00	930.40	935.46		935.48	0.000539	1.47	3047.57	1121.02	0.12
Parkers Creek	1	32036	25 YEAR	4240.00	930.40	936.15		936.18	0.000585	1.69	3864.18	1240.05	0.13
Parkers Creek	1	32036	50 YEAR	5401.00	930.40	936.68		936.71	0.000623	1.85	4543.67	1332.81	0.13
Parkers Creek	1	32036	100 YEAR	6874.00	930.40	937.25		937.29	0.000663	2.04	5343.69	1438.50	0.14
Parkers Creek	1	31398	10 YEAR	2988.00	930.54	935.12		935.14	0.000534	1.42	3429.55	1415.27	0.12
Parkers Creek	1	31398	25 YEAR	4240.00	930.54	935.80		935.82	0.000545	1.57	4429.32	1559.13	0.12
Parkers Creek	1	31398	50 YEAR	5401.00	930.54	936.31		936.33	0.000561	1.70	5261.48	1674.19	0.13
Parkers Creek	1	31398	100 YEAR	6874.00	930.54	936.87		936.90	0.000578	1.84	6231.36	1792.29	0.13
Parkers Creek	1	30362	10 YEAR	2988.00	930.16	934.45		934.48	0.000794	1.65	2777.53	1159.98	0.14
Parkers Creek	1	30362	25 YEAR	4240.00	930.16	935.08		935.12	0.000862	1.89	3576.90	1356.31	0.15
Parkers Creek	1	30362	50 YEAR	5401.00	930.16	935.57		935.61	0.000904	2.07	4271.37	1505.78	0.16
Parkers Creek	1	30362	100 YEAR	6874.00	930.16	936.11		936.15	0.000930	2.24	5114.51	1651.12	0.16
Parkers Creek	1	29440	10 YEAR	2988.00	929.44	933.75		933.78	0.000729	1.62	2981.23	1221.30	0.14
Parkers Creek	1	29440	25 YEAR	4240.00	929.44	934.30		934.33	0.000849	1.89	3683.89	1353.48	0.15
Parkers Creek	1	29440	50 YEAR	5401.00	929.44	934.72		934.76	0.000937	2.10	4279.68	1459.18	0.16
Parkers Creek	1	29440	100 YEAR	6874.00	929.44	935.20		935.24	0.001053	2.36	5011.16	1653.06	0.17
Parkers Creek	1	28707	10 YEAR	2988.00	930.16	933.33		933.34	0.000478	1.03	4162.12	1948.20	0.11
Parkers Creek	1	28707	25 YEAR	4240.00	930.16	933.82		933.84	0.000521	1.19	5173.30	2105.61	0.11
Parkers Creek	1	28707	50 YEAR	5401.00	930.16	934.21		934.22	0.000555	1.32	6004.15	2218.55	0.12
Parkers Creek	1	28707	100 YEAR	6874.00	930.16	934.64		934.66	0.000592	1.47	6992.98	2365.12	0.12
Parkers Creek	1	26759	10 YEAR	2988.00	928.79	929.81	929.81	930.11	0.079667	5.90	757.17	1238.42	1.11
Parkers Creek	1	26759	25 YEAR	4240.00	928.79	929.97	929.97	930.34	0.078921	6.57	961.75	1302.25	1.14
Parkers Creek	1	26759	50 YEAR	5401.00	928.79	930.10	930.10	930.52	0.077527	7.06	1139.91	1354.95	1.15
Parkers Creek	1	26759	100 YEAR	6874.00	928.79	930.26	930.26	930.74	0.075711	7.58	1354.26	1415.76	1.16
Parkers Creek	1	24546	10 YEAR	2988.00	914.00	920.86		920.94	0.000415	2.40	1405.50	336.02	0.18
Parkers Creek	1	24546	25 YEAR	4240.00	914.00	921.89		922.01	0.000460	2.83	1780.95	382.98	0.19
Parkers Creek	1	24546	50 YEAR	5401.00	914.00	922.08		922.26	0.000676	3.50	1852.95	390.44	0.23
Parkers Creek	1	24546	100 YEAR	6874.00	914.00	922.47		922.73	0.000897	4.18	2011.50	411.77	0.27
Parkers Creek	1	23502	10 YEAR	2988.00	914.00	920.29		920.41	0.000637	2.81	1263.60	365.14	0.22
Parkers Creek	1	23502	25 YEAR	4240.00	914.00	921.27		921.43	0.000683	3.26	1677.68	588.14	0.23
Parkers Creek	1	23502	50 YEAR	4401.00	914.00	921.38		921.54	0.000686	3.31	1743.28	597.46	0.23
Parkers Creek	1	23502	100 YEAR	4874.00	914.00	921.70		921.86	0.000693	3.43	1935.43	637.74	0.24
Parkers Creek	1	22450	10 YEAR	2988.00	914.00	917.23	917.23	918.46	0.014917	9.05	367.90	175.38	0.95
Parkers Creek	1	22450	25 YEAR	4240.00	914.00	917.93	917.93	919.38	0.013482	9.98	498.88	198.07	0.94
Parkers Creek	1	22450	50 YEAR	4401.00	914.00	918.01	918.01	919.49	0.013343	10.08	515.41	200.79	0.94
Parkers Creek	1	22450	100 YEAR	4874.00	914.00	918.24	918.24	919.80	0.013076	10.39	561.91	208.23	0.94
Parkers Creek	1	20486	10 YEAR	2988.00	895.23	908.04		908.10	0.000118	2.05	2017.63	273.53	0.11
Parkers Creek	1	20486	25 YEAR	4240.00	895.23	909.72		909.81	0.000142	2.47	2509.53	310.86	0.12
Parkers Creek	1	20486	50 YEAR	4401.00	895.23	910.00		910.09	0.000142	2.50	2597.68	317.42	0.12
Parkers Creek	1	20486	100 YEAR	4874.00	895.23	911.16		911.24	0.000128	2.51	2984.64	357.35	0.12
Parkers Creek	1	17737	10 YEAR	3354.00	895.35	907.15		907.42	0.000612	4.36	1013.46	170.44	0.24
Parkers Creek	1	17737	25 YEAR	4750.00	895.35	908.60		908.98	0.000751	5.26	1295.82	221.89	0.27
Parkers Creek	1	17737	50 YEAR	5032.00	895.35	908.84		909.25	0.000779	5.43	1351.19	232.88	0.27
Parkers Creek	1	17737	100 YEAR	6342.00	895.35	909.87		910.37	0.000882	6.10	1806.68	556.02	0.30
Parkers Creek	1	16155	10 YEAR	3354.00	895.08	906.03		906.32	0.000791	4.41	896.13	191.99	0.26
Parkers Creek	1	16155	25 YEAR	4750.00	895.08	907.17		907.60	0.001011	5.41	1199.13	368.23	0.30
Parkers Creek	1	16155	50 YEAR	5032.00	895.08	907.37		907.82	0.001046	5.57	1273.23	391.51	0.31
Parkers Creek	1	16155	100 YEAR	6342.00	895.08	908.17		908.74	0.001214	6.32	1652.49	808.08	0.34
Parkers Creek	1	15610	10 YEAR	3354.00	895.98	905.53		905.84	0.000967	4.65	931.70	261.80	0.29
Parkers Creek	1	15610	25 YEAR	4750.00	895.98	906.56		907.00	0.001200	5.60	1245.89	352.78	0.33
Parkers Creek	1	15610	50 YEAR	5032.00	895.98	906.73		907.20	0.001241	5.77	1308.39	364.63	0.33
Parkers Creek	1	15610	100 YEAR	6342.00	895.98	907.43		908.01	0.001457	6.56	1718.46	881.82	0.36
Parkers Creek	1	14804	10 YEAR	3354.00	897.00	904.89		905.09	0.000828	3.75	1195.82	363.71	0.26
Parkers Creek	1	14804	25 YEAR	4750.00	897.00	905.81		906.08	0.000980	4.45	1628.94	546.47	0.29
Parkers Creek	1	14804	50 YEAR	5032.00	897.00	905.95		906.24	0.001019	4.60	1711.88	585.88	0.29
Parkers Creek	1	14804	100 YEAR	6342.00	897.00	906.55		906.90	0.001160	5.16	2357.52	1437.76	0.32
Parkers Creek	1	13499	10 YEAR	3354.00	897.00	903.60		903.75	0.001270	3.18	1078.80	342.23	0.29
Parkers Creek	1	13499	25 YEAR	4779.00	897.00	904.42		904.61	0.001257	3.61	1624.75	1143.21	0.30
Parkers Creek	1	13499	50 YEAR	5057.00	897.00	904.56		904.76	0.001232	3.65	1791.64	1208.87	0.30
Parkers Creek	1	13499	100 YEAR	6413.00	897.00	905.15		905.35	0.001145	3.81	2609.58	1558.80	0.29
Parkers Creek	1	11935	10 YEAR	3354.00	895.00	898.77	898.33	899.58	0.008286	7.48	538.84	244.61	0.73

HEC-RAS Plan: ALT 2 (Continued)

River	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)	
Parkers Creek	1	11935	25 YEAR	4779.00	895.00	899.45	899.02	900.46	0.008343	8.50	723.11	294.59	0.75
Parkers Creek	1	11935	50 YEAR	5057.00	895.00	899.52	899.17	900.60	0.008696	8.78	744.80	297.70	0.77
Parkers Creek	1	11935	100 YEAR	6413.00	895.00	899.90	899.77	901.24	0.009879	9.93	860.60	317.73	0.83
Parkers Creek	1	11044	10 YEAR	3354.00	889.10	896.69		896.94	0.001372	4.41	1248.04	768.26	0.32
Parkers Creek	1	11044	25 YEAR	4779.00	889.10	897.48		897.74	0.001380	4.81	2200.51	1416.80	0.33
Parkers Creek	1	11044	50 YEAR	5057.00	889.10	897.59		897.85	0.001362	4.84	2361.33	1428.57	0.33
Parkers Creek	1	11044	100 YEAR	6413.00	889.10	898.06		898.32	0.001364	5.07	3054.41	1590.30	0.33
Parkers Creek	1	10643	10 YEAR	3354.00	888.00	895.69		896.20	0.002447	6.01	888.99	629.09	0.43
Parkers Creek	1	10643	25 YEAR	4779.00	888.00	896.60		897.05	0.002131	6.17	1771.51	1308.82	0.41
Parkers Creek	1	10643	50 YEAR	5057.00	888.00	896.74		897.17	0.002072	6.16	1957.50	1393.84	0.41
Parkers Creek	1	10643	100 YEAR	6413.00	888.00	897.33		897.68	0.001816	6.09	2898.10	1758.22	0.39
Parkers Creek	1	10392	10 YEAR	3354.00	887.05	894.92	892.98	895.50	0.003126	6.27	704.82	485.24	0.48
Parkers Creek	1	10392	25 YEAR	4779.00	887.05	896.06		896.50	0.002233	6.03	1705.26	1286.63	0.42
Parkers Creek	1	10392	50 YEAR	5057.00	887.05	896.24		896.64	0.002052	5.89	1961.14	1488.89	0.40
Parkers Creek	1	10392	100 YEAR	6413.00	887.05	897.00		897.26	0.001397	5.23	3278.93	1842.63	0.34
Parkers Creek	1	10183	10 YEAR	3354.00	883.25	891.26		892.10	0.003902	7.36	472.61	101.05	0.54
Parkers Creek	1	10183	25 YEAR	4779.00	883.25	892.52		893.61	0.003972	8.47	618.96	136.14	0.57
Parkers Creek	1	10183	50 YEAR	5057.00	883.25	892.74		893.88	0.003989	8.67	649.13	143.08	0.57
Parkers Creek	1	10183	100 YEAR	6413.00	883.25	893.49		894.93	0.004464	9.80	776.07	192.10	0.61
Parkers Creek	1	10004	10 YEAR	3354.00	883.00	890.51		891.35	0.004481	7.37	464.15	105.60	0.57
Parkers Creek	1	10004	25 YEAR	4779.00	883.00	891.85		892.87	0.004092	8.21	637.61	156.85	0.57
Parkers Creek	1	10004	50 YEAR	5057.00	883.00	892.07		893.13	0.004062	8.37	674.76	174.97	0.57
Parkers Creek	1	10004	100 YEAR	6413.00	883.00	892.76	890.95	894.09	0.004532	9.44	817.15	230.56	0.61
Parkers Creek	1	9774	10 YEAR	3354.00	883.00	890.32	886.71	890.65	0.001467	4.63	724.26	120.95	0.33
Parkers Creek	1	9774	25 YEAR	4779.00	883.00	891.69	887.62	892.13	0.001548	5.32	922.81	178.18	0.35
Parkers Creek	1	9774	50 YEAR	5057.00	883.00	891.92	887.79	892.38	0.001565	5.45	964.34	189.24	0.36
Parkers Creek	1	9774	100 YEAR	6009.00	883.00	892.72	888.34	893.21	0.001499	5.71	1230.80	369.69	0.35
Parkers Creek	1	9758		Bridge									
Parkers Creek	1	9658	10 YEAR	3354.00	883.00	889.90	886.76	890.30	0.001901	5.09	659.56	116.30	0.38
Parkers Creek	1	9658	25 YEAR	4779.00	883.00	891.27	887.70	891.78	0.001823	5.73	958.05	365.76	0.38
Parkers Creek	1	9658	50 YEAR	5057.00	883.00	891.52	887.87	892.03	0.001784	5.80	1042.74	410.14	0.38
Parkers Creek	1	9658	100 YEAR	6009.00	883.00	892.34	888.41	892.86	0.001623	5.94	1345.00	580.46	0.37
Parkers Creek	1	9593	10 YEAR	3354.00	883.00	889.78	886.67	890.17	0.001814	5.03	688.37	157.91	0.37
Parkers Creek	1	9593	25 YEAR	4779.00	883.00	891.17	887.60	891.65	0.001785	5.63	948.49	339.56	0.38
Parkers Creek	1	9593	50 YEAR	5057.00	883.00	891.41	887.76	891.91	0.001762	5.73	998.37	388.42	0.38
Parkers Creek	1	9593	100 YEAR	6009.00	883.00	892.21	888.31	892.74	0.001690	6.02	1182.96	570.04	0.38
Parkers Creek	1	9585		Bridge									
Parkers Creek	1	9421	10 YEAR	3354.00	882.98	887.99	886.93	888.98	0.006852	7.98	420.20	98.85	0.68
Parkers Creek	1	9421	25 YEAR	4779.00	882.98	889.03	887.91	890.31	0.007153	9.08	526.17	105.09	0.72
Parkers Creek	1	9421	50 YEAR	5057.00	882.98	889.22	888.09	890.55	0.007200	9.27	545.62	106.19	0.72
Parkers Creek	1	9421	100 YEAR	6009.00	882.98	889.81	888.66	891.32	0.007337	9.85	610.02	109.77	0.74
Parkers Creek	1	7969	10 YEAR	3354.00	876.00	882.82		882.94	0.000454	2.82	1447.21	295.02	0.19
Parkers Creek	1	7969	25 YEAR	4779.00	876.00	884.27		884.41	0.000459	3.23	1902.82	339.76	0.20
Parkers Creek	1	7969	50 YEAR	5057.00	876.00	884.52		884.67	0.000460	3.30	1989.31	347.12	0.20
Parkers Creek	1	7969	100 YEAR	6009.00	876.00	885.32		885.49	0.000465	3.52	2277.82	372.59	0.20
Parkers Creek	1	5702	10 YEAR	3354.00	873.73	881.23		881.50	0.001060	4.29	891.60	219.65	0.29
Parkers Creek	1	5702	25 YEAR	4779.00	873.73	882.59		882.94	0.001089	4.91	1228.35	274.38	0.30
Parkers Creek	1	5702	50 YEAR	5057.00	873.73	882.83		883.19	0.001092	5.01	1294.19	281.88	0.31
Parkers Creek	1	5702	100 YEAR	6009.00	873.73	883.58		883.98	0.001103	5.33	1513.87	303.25	0.31
Parkers Creek	1	4875	10 YEAR	3354.00	872.90	880.15		880.50	0.001412	4.78	761.02	181.84	0.33
Parkers Creek	1	4875	25 YEAR	4779.00	872.90	881.44		881.89	0.001483	5.53	1024.82	228.43	0.35
Parkers Creek	1	4875	50 YEAR	5057.00	872.90	881.66		882.14	0.001495	5.66	1076.87	237.71	0.35
Parkers Creek	1	4875	100 YEAR	6009.00	872.90	882.36		882.90	0.001538	6.07	1256.33	274.31	0.36
Parkers Creek	1	2961	10 YEAR	3354.00	870.99	877.75		878.00	0.001013	4.09	1026.04	268.59	0.28
Parkers Creek	1	2961	25 YEAR	4779.00	870.99	878.89		879.21	0.001113	4.78	1368.49	330.65	0.30
Parkers Creek	1	2961	50 YEAR	5057.00	870.99	879.08		879.43	0.001154	4.95	1436.06	382.74	0.31
Parkers Creek	1	2961	100 YEAR	6009.00	870.99	879.69		880.08	0.001194	5.29	1679.28	410.78	0.32
Parkers Creek	1	1319	10 YEAR	3354.00	869.35	874.09	873.49	875.04	0.008934	7.85	440.93	198.44	0.75
Parkers Creek	1	1319	25 YEAR	4779.00	869.35	874.41	874.41	875.98	0.013088	10.11	508.08	215.68	0.93
Parkers Creek	1	1319	50 YEAR	5057.00	869.35	875.48		876.40	0.005698	7.90	777.52	285.45	0.64
Parkers Creek	1	1319	100 YEAR	6009.00	869.35	875.81	874.97	876.88	0.006203	8.62	874.08	300.99	0.67
Parkers Creek	2	1300	10 YEAR	3882.00	869.00	873.59		873.60	0.000327	1.79	5523.76	2577.36	0.15
Parkers Creek	2	1300	25 YEAR	5514.00	869.00	874.06		874.08	0.000373	2.05	6749.57	2609.30	0.16
Parkers Creek	2	1300	50 YEAR	9579.00	869.00	874.99		875.01	0.000455	2.55	9199.83	2681.52	0.19
Parkers Creek	2	1300	100 YEAR	11419.00	869.00	875.40		875.43	0.000460	2.68	10323.89	2720.10	0.19
Parkers Creek	2	1250	10 YEAR	3882.00	868.09	871.66	871.66	872.28	0.008664	7.49	881.01	1165.25	0.74
Parkers Creek	2	1250	25 YEAR	5514.00	868.09	872.13	872.13	872.65	0.007391	7.58	1665.07	1842.40	0.70
Parkers Creek	2	1250	50 YEAR	9579.00	868.09	873.68		873.83	0.002115	5.13	4770.65	2044.25	0.40
Parkers Creek	2	1250	100 YEAR	11419.00	868.09	874.18		874.32	0.001741	4.95	5806.47	2060.82	0.37

HEC-RAS Plan: ALT 2 (Continued)

River	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)	
Parkers Creek	2	1200	10 YEAR	3882.00	860.10	867.72		867.82	0.000559	3.19	1654.75	370.87	0.21
Parkers Creek	2	1200	25 YEAR	5514.00	860.10	870.38		870.46	0.000315	2.98	2779.13	494.13	0.17
Parkers Creek	2	1200	50 YEAR	9579.00	860.10	872.39		872.51	0.000431	3.96	4280.29	876.26	0.20
Parkers Creek	2	1200	100 YEAR	11419.00	860.10	872.74		872.90	0.000533	4.49	4593.03	886.04	0.23
Parkers Creek	2	1150	10 YEAR	5997.00	859.43	862.99	862.44	863.32	0.012688	5.59	1738.22	1160.51	0.55
Parkers Creek	2	1150	25 YEAR	21960.00	859.43	866.72		866.89	0.003642	5.01	8503.44	2734.96	0.34
Parkers Creek	2	1150	50 YEAR	38387.00	859.43	868.17		868.37	0.003720	5.75	13213.10	3449.23	0.35
Parkers Creek	2	1150	100 YEAR	41234.00	859.43	868.36		868.57	0.003725	5.84	13876.77	3483.26	0.35
Parkers Creek	2	1100	10 YEAR	5997.00	849.94	856.90		856.98	0.001069	2.56	3153.93	830.93	0.18
Parkers Creek	2	1100	25 YEAR	21960.00	849.94	859.47		859.69	0.002448	4.86	9102.16	3632.16	0.29
Parkers Creek	2	1100	50 YEAR	38387.00	849.94	860.97		861.18	0.002401	5.35	15062.41	4099.74	0.29
Parkers Creek	2	1100	100 YEAR	41234.00	849.94	861.19		861.40	0.002385	5.40	15976.63	4140.63	0.29
Parkers Creek	2	1050	10 YEAR	5997.00	849.92	853.44		853.59	0.005950	3.92	2493.99	1399.39	0.38
Parkers Creek	2	1050	25 YEAR	21960.00	849.92	857.01		857.05	0.001145	2.80	14904.14	4231.90	0.19
Parkers Creek	2	1050	50 YEAR	38387.00	849.92	858.47		858.54	0.001177	3.23	21248.44	4422.71	0.20
Parkers Creek	2	1050	100 YEAR	41234.00	849.92	858.68		858.74	0.001195	3.30	22154.63	4452.77	0.20
Parkers Creek	2	1000	10 YEAR	5997.00	839.36	847.96		848.07	0.001294	3.25	2802.65	596.97	0.20
Parkers Creek	2	1000	25 YEAR	21960.00	839.36	853.04		853.40	0.002376	6.14	8702.86	3470.12	0.30
Parkers Creek	2	1000	50 YEAR	38387.00	839.36	855.26		855.45	0.001576	5.56	19642.97	6963.14	0.25
Parkers Creek	2	1000	100 YEAR	41234.00	839.36	855.64		855.81	0.001400	5.33	22415.35	7527.56	0.24
Parkers Creek	2	950	10 YEAR	5997.00	839.28	846.49		846.54	0.000819	2.32	4646.91	1355.35	0.16
Parkers Creek	2	950	25 YEAR	21960.00	839.28	850.97		851.07	0.001040	3.69	11997.53	2174.28	0.19
Parkers Creek	2	950	50 YEAR	38387.00	839.28	853.47		853.57	0.001003	4.14	20851.37	5866.28	0.20
Parkers Creek	2	950	100 YEAR	43234.00	839.28	853.95		854.06	0.000986	4.20	24010.27	6826.78	0.20
Parkers Creek	2	900	10 YEAR	5997.00	839.37	845.45		845.57	0.002054	3.22	2784.06	828.90	0.24
Parkers Creek	2	900	25 YEAR	21960.00	839.37	849.58		849.84	0.002589	5.26	7252.28	1376.33	0.30
Parkers Creek	2	900	50 YEAR	38387.00	839.37	852.05		852.36	0.002635	6.18	12132.78	3784.86	0.31
Parkers Creek	2	900	100 YEAR	43234.00	839.37	852.58		852.88	0.002515	6.21	14617.14	5313.54	0.31
Parkers Creek	2	850	10 YEAR	5997.00	839.66	845.10		845.23	0.002768	3.54	2635.16	965.97	0.28
Parkers Creek	2	850	25 YEAR	21960.00	839.66	849.31		849.49	0.002079	4.60	8173.95	1672.99	0.27
Parkers Creek	2	850	50 YEAR	38387.00	839.66	851.79		852.00	0.002066	5.37	13860.95	3127.64	0.28
Parkers Creek	2	850	100 YEAR	43234.00	839.66	852.31		852.52	0.002095	5.56	15653.62	3700.07	0.28
Parkers Creek	2	800	10 YEAR	5997.00	828.29	835.71	833.05	836.03	0.004217	5.14	1677.95	437.89	0.36
Parkers Creek	2	800	25 YEAR	21960.00	828.29	841.13	836.99	841.70	0.004215	7.72	5544.07	1192.63	0.39
Parkers Creek	2	800	50 YEAR	38387.00	828.29	843.64	839.02	844.24	0.004214	8.77	9958.08	2316.70	0.41
Parkers Creek	2	800	100 YEAR	43234.00	828.29	844.11	840.74	844.71	0.004214	8.96	11074.98	2398.89	0.41

APPENDIX B.4

HEC-RAS SUMMARY FOR ALTERNATIVE 3

HEC-RAS Plan: ALT 3

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
W. Trib	1	5731	10 YEAR	1.00	912.00	912.08	912.02	912.09	0.003365	0.23	4.30	58.39	0.15
W. Trib	1	5731	25 YEAR	1.00	912.00	912.08	912.02	912.09	0.003365	0.23	4.30	58.39	0.15
W. Trib	1	5731	50 YEAR	1.00	912.00	912.08	912.02	912.09	0.003365	0.23	4.30	58.39	0.15
W. Trib	1	5731	100 YEAR	6553.00	912.00	916.63		916.72	0.002516	2.76	3395.43	1594.16	0.25
W. Trib	1	4967	10 YEAR	1.00	910.10	910.50	910.28	910.50	0.001407	0.29	3.40	16.87	0.12
W. Trib	1	4967	25 YEAR	1.00	910.10	910.50	910.28	910.50	0.001407	0.29	3.40	16.87	0.12
W. Trib	1	4967	50 YEAR	1.00	910.10	910.50	910.28	910.50	0.001407	0.29	3.40	16.87	0.12
W. Trib	1	4967	100 YEAR	6553.00	910.10	914.11		914.20	0.004528	3.27	3207.04	1792.58	0.33
W. Trib	1	4046	10 YEAR	1.00	907.00	907.02		907.02	0.029609	0.20	5.20	422.21	0.33
W. Trib	1	4046	25 YEAR	1.00	907.00	907.02		907.02	0.029609	0.20	5.20	422.21	0.33
W. Trib	1	4046	50 YEAR	1.00	907.00	907.02		907.02	0.029609	0.20	5.20	422.21	0.33
W. Trib	1	4046	100 YEAR	6553.00	907.00	910.20		910.30	0.003989	3.08	3007.44	1434.87	0.31
W. Trib	1	2892	10 YEAR	1.00	903.00	903.03		903.03	0.001260	0.07	15.10	581.45	0.08
W. Trib	1	2892	25 YEAR	1.00	903.00	903.03		903.03	0.001260	0.07	15.10	581.45	0.08
W. Trib	1	2892	50 YEAR	1.00	903.00	903.03		903.03	0.001260	0.07	15.10	581.45	0.08
W. Trib	1	2892	100 YEAR	6553.00	903.00	906.09		906.17	0.003220	2.71	3436.84	1771.11	0.27
W. Trib	1	1596	10 YEAR	1.00	899.00	899.02	899.02	899.02	0.016473	0.24	4.76	206.21	0.28
W. Trib	1	1596	25 YEAR	1.00	899.00	899.02	899.02	899.02	0.016473	0.24	4.76	206.21	0.28
W. Trib	1	1596	50 YEAR	1.00	899.00	899.02	899.02	899.02	0.016473	0.24	4.76	206.21	0.28
W. Trib	1	1596	100 YEAR	6553.00	899.00	902.70		902.74	0.002209	2.49	4542.50	2168.37	0.23
W. Trib	1	441	10 YEAR	1.00	894.00	894.19	894.03	894.19	0.000084	0.06	15.86	96.34	0.03
W. Trib	1	441	25 YEAR	1.00	894.00	894.49		894.49	0.000003	0.02	51.12	153.41	0.01
W. Trib	1	441	50 YEAR	1.00	894.00	894.69		894.69	0.000001	0.01	87.02	204.36	0.00
W. Trib	1	441	100 YEAR	6553.00	894.00	899.62		899.74	0.003049	3.95	2978.24	1171.54	0.30
Unnamed_TribSeco	1	3937	10 YEAR	4232.00	897.00	898.91	898.91	899.53	0.047381	7.21	759.90	602.13	0.96
Unnamed_TribSeco	1	3937	25 YEAR	5740.00	897.00	899.31	899.31	899.98	0.040452	7.64	1036.08	754.36	0.92
Unnamed_TribSeco	1	3937	50 YEAR	6993.00	897.00	899.51	899.51	900.25	0.040566	8.13	1191.08	772.25	0.94
Unnamed_TribSeco	1	3937	100 YEAR	8545.00	897.00	899.75	899.75	900.56	0.039753	8.59	1380.79	793.61	0.94
Unnamed_TribSeco	1	3351	10 YEAR	4232.00	889.00	894.58		894.67	0.001846	3.01	2358.40	925.90	0.23
Unnamed_TribSeco	1	3351	25 YEAR	5740.00	889.00	895.18		895.29	0.002037	3.40	2998.74	1145.43	0.24
Unnamed_TribSeco	1	3351	50 YEAR	6993.00	889.00	895.55		895.66	0.002153	3.64	3422.67	1177.98	0.25
Unnamed_TribSeco	1	3351	100 YEAR	8545.00	889.00	895.95		896.07	0.002283	3.90	3901.96	1217.23	0.26
Unnamed_TribSeco	1	2499	10 YEAR	4232.00	888.00	889.70	889.70	890.29	0.043501	6.58	773.51	676.34	0.91
Unnamed_TribSeco	1	2499	25 YEAR	5740.00	888.00	890.10	890.10	890.73	0.035427	6.88	1076.19	885.74	0.85
Unnamed_TribSeco	1	2499	50 YEAR	6993.00	888.00	890.34	890.30	890.98	0.032325	7.09	1294.31	923.06	0.83
Unnamed_TribSeco	1	2499	100 YEAR	8545.00	888.00	890.62	890.52	891.27	0.029523	7.31	1555.01	989.52	0.81
Unnamed_TribSeco	1	2128	10 YEAR	4232.00	882.00	887.11	884.87	887.24	0.002885	3.41	1871.13	842.23	0.28
Unnamed_TribSeco	1	2128	25 YEAR	5740.00	882.00	887.86	885.40	887.98	0.002473	3.49	2601.25	1101.27	0.27
Unnamed_TribSeco	1	2128	50 YEAR	6993.00	882.00	888.28	885.70	888.42	0.002709	3.84	3103.80	1237.82	0.28
Unnamed_TribSeco	1	2128	100 YEAR	8545.00	882.00	888.85	886.32	888.98	0.002373	3.83	3819.14	1275.99	0.27
Unnamed_TribSeco	1	1774	10 YEAR	4232.00	881.00	886.09		886.19	0.003105	3.55	2176.32	1049.18	0.29
Unnamed_TribSeco	1	1774	25 YEAR	5740.00	881.00	887.08		887.17	0.002179	3.38	3425.54	1525.63	0.25
Unnamed_TribSeco	1	1774	50 YEAR	6993.00	881.00	887.56		887.63	0.001867	3.30	4149.51	1538.97	0.24
Unnamed_TribSeco	1	1774	100 YEAR	8545.00	881.00	888.29		888.35	0.001371	3.05	5293.22	1578.27	0.21
Unnamed_TribSeco	1	967	10 YEAR	3875.00	874.39	884.40	880.14	884.61	0.001992	3.64	1093.58	1348.16	0.25
Unnamed_TribSeco	1	967	25 YEAR	4533.00	874.39	885.93	880.51	886.11	0.001358	3.44	1361.86	1694.78	0.21
Unnamed_TribSeco	1	967	50 YEAR	4853.00	874.39	886.56	880.67	886.74	0.001208	3.40	1473.73	1812.96	0.20
Unnamed_TribSeco	1	967	100 YEAR	5313.00	874.39	887.50	880.90	887.67	0.001028	3.35	1638.77	1851.31	0.19
Unnamed_TribSeco	1	951		Bridge									
Unnamed_TribSeco	1	857	10 YEAR	3875.00	874.39	883.84	880.16	884.06	0.002459	3.95	1130.99	648.82	0.27
Unnamed_TribSeco	1	857	25 YEAR	4533.00	874.39	885.00	880.53	885.20	0.001776	3.75	1411.10	936.01	0.24
Unnamed_TribSeco	1	857	50 YEAR	4853.00	874.39	885.52	880.70	885.71	0.001581	3.69	1535.82	1198.19	0.23
Unnamed_TribSeco	1	857	100 YEAR	5313.00	874.39	886.28	880.96	886.46	0.001352	3.62	1717.21	1244.94	0.21
Unnamed_TribSeco	1	775	10 YEAR	3875.00	874.39	883.52	880.13	883.81	0.003422	4.29	929.68	244.12	0.31
Unnamed_TribSeco	1	775	25 YEAR	4533.00	874.39	884.76	880.59	885.01	0.002404	4.09	1146.82	318.49	0.27
Unnamed_TribSeco	1	775	50 YEAR	4853.00	874.39	885.29	880.81	885.54	0.002138	4.05	1241.09	368.71	0.26
Unnamed_TribSeco	1	775	100 YEAR	5313.00	874.39	886.07	881.08	886.31	0.001831	4.00	1377.34	591.83	0.24
Unnamed_TribSeco	1	767		Bridge									
Unnamed_TribSeco	1	622	10 YEAR	3875.00	874.39	880.17	879.84	881.25	0.024405	8.77	519.86	190.26	0.79
Unnamed_TribSeco	1	622	25 YEAR	4533.00	874.39	880.45	880.17	881.68	0.025552	9.41	574.78	198.89	0.81
Unnamed_TribSeco	1	622	50 YEAR	4853.00	874.39	880.59	880.33	881.87	0.025930	9.68	601.76	202.99	0.82
Unnamed_TribSeco	1	622	100 YEAR	5313.00	874.39	880.76	880.54	882.15	0.026656	10.08	638.10	209.41	0.84
Unnamed_TribSeco	1	562	10 YEAR	3875.00	874.00	879.86		880.05	0.003430	4.04	1458.00	570.27	0.31
Unnamed_TribSeco	1	562	25 YEAR	4533.00	874.00	880.14		880.37	0.003947	4.48	1640.10	721.07	0.34
Unnamed_TribSeco	1	562	50 YEAR	4853.00	874.00	880.29		880.52	0.003939	4.56	1749.61	748.20	0.34
Unnamed_TribSeco	1	562	100 YEAR	5313.00	874.00	880.49		880.72	0.003870	4.62	1898.06	754.97	0.34
Unnamed_TribSeco	1	223	10 YEAR	3875.00	874.00	876.96	876.96	877.90	0.034480	8.40	582.39	337.92	0.89
Unnamed_TribSeco	1	223	25 YEAR	4533.00	874.00	877.23	877.23	878.19	0.031931	8.61	684.52	393.37	0.87
Unnamed_TribSeco	1	223	50 YEAR	4853.00	874.00	877.24	877.24	878.33	0.036231	9.18	687.40	394.14	0.92
Unnamed_TribSeco	1	223	100 YEAR	5313.00	874.00	877.38	877.38	878.53	0.036317	9.48	745.14	422.58	0.93
Trib_Parkers	1	13917	10 YEAR	894.00	921.46	923.36		923.38	0.001905	1.23	1199.53	1889.52	0.19

HEC-RAS Plan: ALT 3 (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Trib_Parkers	1	13917	25 YEAR	1295.00	921.46	923.60		923.61	0.001903	1.36	1666.20	2112.94	0.19
Trib_Parkers	1	13917	50 YEAR	1539.00	921.46	923.71		923.72	0.001918	1.43	1910.24	2202.09	0.19
Trib_Parkers	1	13917	100 YEAR	1921.00	921.46	923.88		923.89	0.001875	1.50	2289.16	2337.74	0.19
Trib_Parkers	1	13112	10 YEAR	894.00	919.63	921.63		921.65	0.002041	1.53	1249.78	1826.97	0.20
Trib_Parkers	1	13112	25 YEAR	1295.00	919.63	921.86		921.88	0.002007	1.64	1690.19	2089.93	0.20
Trib_Parkers	1	13112	50 YEAR	2066.00	919.63	922.23		922.24	0.001891	1.78	2678.45	3161.91	0.20
Trib_Parkers	1	13112	100 YEAR	3908.00	919.63	922.70		922.72	0.001768	1.94	4176.91	3200.78	0.20
Trib_Parkers	1	11204	10 YEAR	894.00	914.00	916.66		916.69	0.002203	1.71	659.76	580.49	0.21
Trib_Parkers	1	11204	25 YEAR	1295.00	914.00	917.04		917.09	0.002231	1.93	905.36	694.95	0.22
Trib_Parkers	1	11204	50 YEAR	2066.00	914.00	917.60		917.66	0.002193	2.20	1318.32	768.05	0.23
Trib_Parkers	1	11204	100 YEAR	3908.00	914.00	918.60		918.68	0.002178	2.67	2281.06	1259.17	0.24
Trib_Parkers	1	9264	10 YEAR	527.00	910.00	911.46		911.51	0.005101	1.99	348.88	396.56	0.30
Trib_Parkers	1	9264	25 YEAR	735.00	910.00	911.70		911.76	0.005073	2.21	446.79	441.53	0.31
Trib_Parkers	1	9264	50 YEAR	908.00	910.00	911.86		911.93	0.005088	2.36	522.57	473.41	0.32
Trib_Parkers	1	9264	100 YEAR	2440.00	910.00	912.94		913.05	0.005202	3.29	1102.17	710.87	0.35
Trib_Parkers	1	8246	10 YEAR	527.00	904.00	906.18		906.22	0.002870	1.76	356.11	297.33	0.24
Trib_Parkers	1	8246	25 YEAR	735.00	904.00	906.52		906.57	0.002741	1.94	461.80	321.57	0.24
Trib_Parkers	1	8246	50 YEAR	908.00	904.00	906.75		906.81	0.002768	2.09	540.64	354.49	0.24
Trib_Parkers	1	8246	100 YEAR	2440.00	904.00	907.97		908.06	0.003153	2.96	1345.28	968.99	0.28
Trib_Parkers	1	7384	10 YEAR	527.00	901.00	902.64		902.69	0.004731	2.04	339.56	360.92	0.30
Trib_Parkers	1	7384	25 YEAR	735.00	901.00	902.97		903.03	0.004418	2.26	472.43	493.78	0.30
Trib_Parkers	1	7384	50 YEAR	908.00	901.00	903.16		903.22	0.004196	2.35	575.51	574.59	0.29
Trib_Parkers	1	7384	100 YEAR	2440.00	901.00	904.94		904.97	0.001122	1.86	2408.62	1354.63	0.17
Trib_Parkers	2	4738	10 YEAR	527.00	889.00	891.45		891.52	0.003787	2.15	263.69	184.61	0.28
Trib_Parkers	2	4738	25 YEAR	735.00	889.00	891.79		891.88	0.004013	2.47	329.45	200.41	0.29
Trib_Parkers	2	4738	50 YEAR	908.00	889.00	892.05		892.16	0.004159	2.70	383.36	231.13	0.30
Trib_Parkers	2	4738	100 YEAR	8377.00	889.00	896.70		897.03	0.004487	5.67	2416.98	746.29	0.37
Trib_Parkers	2	3718	10 YEAR	170.00	886.00	886.81		886.84	0.009518	1.51	112.89	203.42	0.36
Trib_Parkers	2	3718	25 YEAR	237.00	886.00	886.94		886.98	0.009400	1.70	139.81	208.98	0.37
Trib_Parkers	2	3718	50 YEAR	292.00	886.00	887.06		887.11	0.009443	1.73	168.37	244.07	0.37
Trib_Parkers	2	3718	100 YEAR	8377.00	886.00	891.41		891.77	0.005993	5.03	1972.03	614.45	0.40
Trib_Parkers	2	2703	10 YEAR	170.00	881.00	882.33		882.35	0.002538	0.89	190.17	278.06	0.19
Trib_Parkers	2	2703	25 YEAR	237.00	881.00	882.49		882.51	0.002535	1.01	234.52	285.05	0.20
Trib_Parkers	2	2703	50 YEAR	292.00	881.00	882.61		882.63	0.002537	1.09	267.76	290.48	0.20
Trib_Parkers	2	2703	100 YEAR	8377.00	881.00	887.57		887.76	0.002738	3.87	2750.89	765.54	0.28
Trib_Parkers	2	2304	10 YEAR	170.00	880.00	881.31		881.32	0.003001	0.93	183.52	288.49	0.20
Trib_Parkers	2	2304	25 YEAR	237.00	880.00	881.47		881.48	0.002954	1.03	230.63	306.62	0.21
Trib_Parkers	2	2304	50 YEAR	292.00	880.00	881.61		881.63	0.002625	1.06	275.65	320.45	0.20
Trib_Parkers	2	2304	100 YEAR	8377.00	880.00	886.65		886.79	0.001977	3.28	3377.54	1049.13	0.24
Trib_Parkers	2	1696	10 YEAR	170.00	879.00	879.95		879.96	0.002540	0.81	209.46	354.13	0.19
Trib_Parkers	2	1696	25 YEAR	237.00	879.00	880.38		880.38	0.000827	0.63	373.83	394.63	0.11
Trib_Parkers	2	1696	50 YEAR	292.00	879.00	880.97		880.97	0.000248	0.48	625.32	466.50	0.07
Trib_Parkers	2	1696	100 YEAR	7877.00	879.00	885.81		885.88	0.000909	2.36	4654.36	1387.15	0.17
Trib_Parkers	2	930	10 YEAR	170.00	877.00	879.31		879.31	0.000149	0.42	529.71	412.08	0.05
Trib_Parkers	2	930	25 YEAR	237.00	877.00	880.08		880.08	0.000076	0.38	908.56	607.01	0.04
Trib_Parkers	2	930	50 YEAR	292.00	877.00	880.85		880.85	0.000036	0.31	1505.63	914.50	0.03
Trib_Parkers	2	930	100 YEAR	8877.00	877.00	884.54		884.57	0.000700	2.23	8569.35	3428.99	0.15
Trib_Parkers	2	606	10 YEAR	170.00	877.00	879.28		879.28	0.000071	0.31	889.34	989.81	0.04
Trib_Parkers	2	606	25 YEAR	237.00	877.00	880.07		880.07	0.000024	0.23	1693.09	1048.75	0.02
Trib_Parkers	2	606	50 YEAR	292.00	877.00	880.84		880.84	0.000012	0.19	2537.00	1141.72	0.02
Trib_Parkers	2	606	100 YEAR	1669.00	877.00	884.49		884.49	0.000023	0.41	7378.38	2279.93	0.03
Trib_Parkers	2	583	10 YEAR	170.00	877.00	879.28		879.28	0.000090	0.34	854.52	1054.90	0.04
Trib_Parkers	2	583	25 YEAR	237.00	877.00	880.07		880.07	0.000026	0.23	1713.26	1111.82	0.02
Trib_Parkers	2	583	50 YEAR	292.00	877.00	880.84		880.84	0.000012	0.18	2593.96	1192.64	0.02
Trib_Parkers	2	583	100 YEAR	1669.00	877.00	884.49		884.49	0.000021	0.39	7773.25	2212.29	0.03
Trib_Parkers	2	466	10 YEAR	170.00	877.00	879.27	877.34	879.27	0.000055	0.47	360.70	612.56	0.06
Trib_Parkers	2	466	25 YEAR	237.00	877.00	880.06	877.43	880.06	0.000039	0.49	488.15	644.51	0.05
Trib_Parkers	2	466	50 YEAR	292.00	877.00	880.83	877.49	880.84	0.000028	0.48	612.38	675.66	0.04
Trib_Parkers	2	466	100 YEAR	1200.00	877.00	884.48	878.22	884.48	0.000017	0.58	3705.29	2072.74	0.04
Trib_Parkers	2	450		Bridge									
Trib_Parkers	2	367	10 YEAR	170.00	877.00	879.25	877.58	879.25	0.000081	0.53	320.04	789.86	0.07
Trib_Parkers	2	367	25 YEAR	237.00	877.00	880.04	877.66	880.05	0.000052	0.53	448.21	811.36	0.06
Trib_Parkers	2	367	50 YEAR	292.00	877.00	880.82	877.72	880.83	0.000034	0.51	572.93	832.29	0.05
Trib_Parkers	2	367	100 YEAR	1200.00	877.00	884.43	878.44	884.43	0.000011	0.45	4695.52	2388.53	0.03
Trib_Parkers	2	325	10 YEAR	170.00	875.67	879.25	876.53	879.25	0.000028	0.41	410.45	851.99	0.04
Trib_Parkers	2	325	25 YEAR	237.00	875.67	880.04	876.62	880.05	0.000025	0.46	516.50	858.04	0.04
Trib_Parkers	2	325	50 YEAR	292.00	875.67	880.82	876.69	880.82	0.000021	0.47	619.72	863.92	0.04
Trib_Parkers	2	325	100 YEAR	1200.00	875.67	884.43	877.51	884.43	0.000003	0.24	9276.53	2491.77	0.01
Trib_Parkers	2	317		Culvert									
Trib_Parkers	2	205	10 YEAR	170.00	875.67	879.23	876.05	879.23	0.000017	0.34	496.56	154.16	0.03
Trib_Parkers	2	205	25 YEAR	237.00	875.67	880.03	876.15	880.03	0.000017	0.38	617.72	160.60	0.03

HEC-RAS Plan: ALT 3 (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Trib_Parkers	2	205	50 YEAR	292.00	875.67	880.81	876.22	880.81	0.000014	0.40	736.86	166.86	0.03
Trib_Parkers	2	205	100 YEAR	1200.00	875.67	884.42	877.06	884.43	0.000010	0.46	6991.36	2731.32	0.03
Trib_Parkers	2	204	10 YEAR	170.00	875.67	879.10		879.19	0.001518	2.44	69.54	30.57	0.29
Trib_Parkers	2	204	25 YEAR	237.00	875.67	879.90		879.99	0.001233	2.47	95.86	35.36	0.26
Trib_Parkers	2	204	50 YEAR	292.00	875.67	880.69		880.77	0.000897	2.32	125.79	40.12	0.23
Trib_Parkers	2	204	100 YEAR	1200.00	875.67	884.20		884.37	0.000880	3.55	447.36	120.00	0.25
Trib_Parkers	2	203	10 YEAR	170.00	875.54	879.00		879.09	0.001460	2.41	70.54	30.77	0.28
Trib_Parkers	2	203	25 YEAR	237.00	875.54	879.82		879.91	0.001170	2.43	97.73	35.67	0.26
Trib_Parkers	2	203	50 YEAR	292.00	875.54	880.63		880.71	0.000842	2.27	128.81	40.57	0.22
Trib_Parkers	2	203	100 YEAR	1200.00	875.54	884.14		884.31	0.000865	3.52	446.76	120.00	0.25
Trib_Parkers	2	202	10 YEAR	170.00	874.87	878.60		878.67	0.001076	2.15	78.91	32.36	0.24
Trib_Parkers	2	202	25 YEAR	237.00	874.87	879.51		879.58	0.000833	2.14	110.80	37.81	0.22
Trib_Parkers	2	202	50 YEAR	292.00	874.87	880.42		880.48	0.000582	1.98	147.71	43.27	0.19
Trib_Parkers	2	202	100 YEAR	1200.00	874.87	883.87		884.03	0.000772	3.35	448.75	120.00	0.24
Trib_Parkers	2	201	10 YEAR	170.00	874.80	878.56	876.53	878.63	0.001034	2.12	80.07	32.57	0.24
Trib_Parkers	2	201	25 YEAR	237.00	874.80	879.48	876.88	879.55	0.000800	2.11	112.47	38.07	0.22
Trib_Parkers	2	201	50 YEAR	292.00	874.80	880.40	877.14	880.46	0.000558	1.95	149.98	43.59	0.18
Trib_Parkers	2	201	100 YEAR	1200.00	874.80	883.85	879.67	884.01	0.000761	3.33	449.47	120.00	0.24
Trib_Parkers	2	200.5		Culvert									
Trib_Parkers	2	200	10 YEAR	170.00	874.72	877.80		877.93	0.002346	2.87	59.31	28.49	0.35
Trib_Parkers	2	200	25 YEAR	237.00	874.72	878.35		878.50	0.002342	3.13	75.69	31.75	0.36
Trib_Parkers	2	200	50 YEAR	292.00	874.72	878.70		878.88	0.002403	3.34	87.41	33.90	0.37
Trib_Parkers	2	200	100 YEAR	1200.00	874.72	882.02		882.43	0.002875	5.15	234.45	120.00	0.44
Trib_Parkers	2	199	10 YEAR	170.00	874.63	877.70		877.83	0.002373	2.88	59.05	28.44	0.35
Trib_Parkers	2	199	25 YEAR	237.00	874.63	878.25		878.40	0.002365	3.14	75.42	31.70	0.36
Trib_Parkers	2	199	50 YEAR	292.00	874.63	878.60		878.78	0.002434	3.36	87.01	33.82	0.37
Trib_Parkers	2	199	100 YEAR	1200.00	874.63	881.89		882.31	0.002957	5.20	230.86	53.58	0.44
Trib_Parkers	2	198	10 YEAR	170.00	874.46	877.49		877.62	0.002522	2.94	57.76	28.16	0.36
Trib_Parkers	2	198	25 YEAR	237.00	874.46	878.03		878.19	0.002489	3.20	74.02	31.44	0.37
Trib_Parkers	2	198	50 YEAR	292.00	874.46	878.38		878.56	0.002574	3.43	85.24	33.51	0.38
Trib_Parkers	2	198	100 YEAR	1200.00	874.46	881.60		882.05	0.003185	5.34	224.56	52.87	0.46
Trib_Parkers	2	197	10 YEAR	170.00	874.32	877.30		877.44	0.002689	3.01	56.43	27.88	0.37
Trib_Parkers	2	197	25 YEAR	237.00	874.32	877.85	876.40	878.01	0.002619	3.26	72.65	31.17	0.38
Trib_Parkers	2	197	50 YEAR	292.00	874.32	878.19	876.66	878.38	0.002721	3.50	83.51	33.20	0.39
Trib_Parkers	2	197	100 YEAR	1200.00	874.32	881.35	879.19	881.82	0.003432	5.49	218.41	52.16	0.47
Trib_Parkers	2	196	10 YEAR	170.00	873.90	875.69		876.33	0.013279	5.37	31.67	21.91	0.79
Trib_Parkers	2	196	25 YEAR	237.00	873.90	875.98	875.98	876.74	0.021441	7.00	33.85	22.50	1.01
Trib_Parkers	2	196	50 YEAR	292.00	873.90	876.24	876.24	877.07	0.020886	7.35	39.71	24.01	1.01
Trib_Parkers	2	196	100 YEAR	1200.00	873.90	878.78	878.78	880.33	0.017174	9.99	120.09	39.26	1.01
Trib_Parkers	3	50	10 YEAR	810.00	872.07	874.67		874.72	0.001134	1.74	464.93	282.87	0.24
Trib_Parkers	3	50	25 YEAR	735.00	872.07	874.76		874.79	0.000808	1.50	490.54	290.02	0.20
Trib_Parkers	3	50	50 YEAR	1539.00	872.07	875.75		875.79	0.000620	1.74	1150.59	825.26	0.19
Trib_Parkers	3	50	100 YEAR	3200.00	872.07	876.61		876.68	0.000786	2.37	1970.37	1021.26	0.23
Trib_Parkers	3	25	10 YEAR	810.00	871.67	874.16		874.21	0.001360	1.86	434.87	274.23	0.26
Trib_Parkers	3	25	25 YEAR	735.00	871.67	874.46		874.49	0.000685	1.41	521.12	298.33	0.19
Trib_Parkers	3	25	50 YEAR	1539.00	871.67	875.47		875.52	0.000775	1.79	860.83	378.63	0.21
Trib_Parkers	3	25	100 YEAR	3200.00	871.67	876.12		876.25	0.001509	2.84	1168.23	645.49	0.30
Trib_Parkers	3	10	10 YEAR	810.00	871.15	873.85	872.00	873.87	0.000366	1.11	731.39	376.12	0.14
Trib_Parkers	3	10	25 YEAR	735.00	871.15	874.33	871.94	874.34	0.000149	0.80	948.83	506.96	0.09
Trib_Parkers	3	10	50 YEAR	1539.00	871.15	875.31	872.40	875.33	0.000186	1.13	1632.20	1175.98	0.11
Trib_Parkers	3	10	100 YEAR	3200.00	871.15	875.76	873.08	875.82	0.000480	1.97	2074.66	1370.99	0.18
Seco Split	1	2779	10 YEAR	1822.35	875.65	880.05		880.18	0.001002	2.95	616.88	153.52	0.26
Seco Split	1	2779	25 YEAR	4087.77	875.65	882.09		882.39	0.001360	4.33	943.85	165.80	0.32
Seco Split	1	2779	50 YEAR	6003.84	875.65	883.48		883.86	0.001497	5.09	1178.63	174.09	0.35
Seco Split	1	2779	100 YEAR	7918.08	875.65	884.83		885.31	0.001493	5.58	1419.18	182.19	0.35
Seco Split	1	2453	10 YEAR	1822.35	875.00	879.08		879.53	0.004842	5.42	347.38	129.13	0.55
Seco Split	1	2453	25 YEAR	4087.77	875.00	880.36		881.44	0.007326	8.42	525.38	150.68	0.71
Seco Split	1	2453	50 YEAR	6003.84	875.00	881.41		882.85	0.007381	9.78	695.67	171.68	0.74
Seco Split	1	2453	100 YEAR	7918.08	875.00	883.09		884.42	0.004892	9.54	1015.75	211.74	0.63
Seco Split	1	1748	10 YEAR	1822.35	872.08	876.24		876.69	0.003562	4.97	524.71	305.13	0.48
Seco Split	1	1748	25 YEAR	4087.77	872.08	878.92		879.17	0.001506	4.78	1600.40	494.48	0.34
Seco Split	1	1748	50 YEAR	6003.84	872.08	880.92		881.10	0.000872	4.40	2938.66	713.60	0.27
Seco Split	1	1748	100 YEAR	7918.08	872.08	883.12		883.24	0.000497	3.90	5002.04	1185.07	0.21
Seco Split	1	1707	10 YEAR	1822.35	872.00	876.12		876.44	0.003400	4.80	558.22	350.26	0.47
Seco Split	1	1707	25 YEAR	4087.77	872.00	878.91		879.10	0.001200	4.29	1824.52	533.85	0.31
Seco Split	1	1707	50 YEAR	6003.84	872.00	880.91		881.06	0.000762	4.13	3122.33	733.17	0.26
Seco Split	1	1707	100 YEAR	7918.08	872.00	883.12		883.22	0.000418	3.59	5356.25	1314.76	0.20
Seco Split	1	294	10 YEAR	1822.35	867.00	875.78		875.82	0.000136	1.75	1639.23	268.26	0.11
Seco Split	1	294	25 YEAR	4087.77	867.00	878.30		878.39	0.000253	2.86	2376.69	316.79	0.15
Seco Split	1	294	50 YEAR	6003.84	867.00	880.30		880.42	0.000286	3.41	3054.36	358.31	0.17
Seco Split	1	294	100 YEAR	7918.08	867.00	882.61		882.75	0.000260	3.63	3921.52	394.84	0.17

HEC-RAS Plan: ALT 3 (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
SECO RELIEF	1	2765	10 YEAR	1.00	877.53	877.56	877.56	877.57	0.046682	0.84	1.19	35.20	0.80
SECO RELIEF	1	2765	25 YEAR	1.00	877.53	877.56	877.56	877.57	0.046682	0.84	1.19	35.20	0.80
SECO RELIEF	1	2765	50 YEAR	2747.00	877.53	881.30	881.30	881.63	0.006922	6.90	1378.17	1471.85	0.66
SECO RELIEF	1	2765	100 YEAR	3271.00	877.53	881.85	881.38	881.97	0.002810	4.86	2194.77	1479.99	0.43
SECO RELIEF	1	2426	10 YEAR	1.00	875.54	875.64	875.57	875.64	0.001126	0.27	3.66	35.62	0.15
SECO RELIEF	1	2426	25 YEAR	1.00	875.54	875.64	875.57	875.64	0.001126	0.27	3.66	35.62	0.15
SECO RELIEF	1	2426	50 YEAR	2747.00	875.54	880.47	879.63	880.55	0.001435	3.82	2156.93	1961.78	0.32
SECO RELIEF	1	2426	100 YEAR	5271.00	875.54	880.96	880.22	881.09	0.002452	5.35	3037.38	2259.09	0.42
SECO RELIEF	1	2129	10 YEAR	1.00	874.55	874.58	874.58	874.60	0.067568	1.01	0.99	29.20	0.97
SECO RELIEF	1	2129	25 YEAR	1.00	874.55	874.58	874.58	874.60	0.067568	1.01	0.99	29.20	0.97
SECO RELIEF	1	2129	50 YEAR	2747.00	874.55	879.37	879.37	879.77	0.005505	6.94	1082.39	1352.50	0.60
SECO RELIEF	1	2129	100 YEAR	3747.00	874.55	879.59	879.59	880.03	0.006441	7.77	1363.19	1396.21	0.66
SECO RELIEF	1	1894	10 YEAR	1.00	873.03	873.08	873.06	873.08	0.000494	0.11	9.33	199.41	0.09
SECO RELIEF	1	1894	25 YEAR	1.00	873.03	873.08	873.06	873.08	0.000494	0.11	9.33	199.41	0.09
SECO RELIEF	1	1894	50 YEAR	2747.00	873.03	877.63	874.83	877.75	0.000819	2.81	978.90	226.71	0.24
SECO RELIEF	1	1894	100 YEAR	3747.00	873.03	878.62	875.24	878.77	0.000786	3.10	1206.86	232.67	0.24
SECO RELIEF	1	1850		Bridge									
SECO RELIEF	1	1824	10 YEAR	1.00	872.89	872.95	872.92	872.95	0.000228	0.09	11.75	198.83	0.06
SECO RELIEF	1	1824	25 YEAR	1.00	872.89	872.95	872.92	872.95	0.000228	0.09	11.75	198.83	0.06
SECO RELIEF	1	1824	50 YEAR	2747.00	872.89	877.53	874.68	877.65	0.000797	2.79	986.18	226.33	0.24
SECO RELIEF	1	1824	100 YEAR	3747.00	872.89	878.52	875.08	878.67	0.000771	3.09	1213.23	232.27	0.24
SECO RELIEF	1	1768	10 YEAR	1.00	872.86	872.93	872.89	872.93	0.000451	0.13	7.82	120.09	0.09
SECO RELIEF	1	1768	25 YEAR	1.00	872.86	872.93	872.89	872.93	0.000451	0.13	7.82	120.09	0.09
SECO RELIEF	1	1768	50 YEAR	2747.00	872.86	877.09	875.40	877.54	0.003113	5.42	507.08	125.87	0.46
SECO RELIEF	1	1768	100 YEAR	3747.00	872.86	877.97	875.96	878.55	0.003069	6.11	613.49	127.11	0.48
SECO RELIEF	1	1700		Culvert									
SECO RELIEF	1	1616	10 YEAR	1.00	872.86	872.90	872.88	872.90	0.001946	0.20	5.05	120.10	0.17
SECO RELIEF	1	1616	25 YEAR	1.00	872.86	872.90	872.88	872.90	0.001946	0.20	5.05	120.10	0.17
SECO RELIEF	1	1616	50 YEAR	2747.00	872.86	875.93	875.40	876.79	0.009004	7.45	368.72	127.55	0.75
SECO RELIEF	1	1616	100 YEAR	3747.00	872.86	876.28	875.98	877.57	0.011764	9.14	409.97	128.40	0.87
SECO RELIEF	1	1274	10 YEAR	1.00	871.81	871.90		871.90	0.004974	0.34	2.98	64.87	0.28
SECO RELIEF	1	1274	25 YEAR	1.00	871.81	871.90		871.90	0.004974	0.34	2.98	64.87	0.28
SECO RELIEF	1	1274	50 YEAR	2747.00	871.81	874.52		874.73	0.003683	3.68	805.29	505.90	0.45
SECO RELIEF	1	1274	100 YEAR	3747.00	871.81	874.91		875.17	0.003774	4.17	1010.03	558.27	0.47
SECO RELIEF	1	735	10 YEAR	1.00	869.00	869.15	869.10	869.15	0.005229	0.52	1.94	23.05	0.31
SECO RELIEF	1	735	25 YEAR	1.00	869.00	869.15	869.10	869.15	0.005229	0.52	1.94	23.05	0.31
SECO RELIEF	1	735	50 YEAR	2747.00	869.00	872.13	871.52	872.37	0.005222	4.04	717.41	488.02	0.52
SECO RELIEF	1	735	100 YEAR	3747.00	869.00	872.49	871.78	872.79	0.005220	4.55	907.56	587.58	0.54
Seco Creek	1	68934	10 YEAR	27134.00	928.30	947.62		948.56	0.002549	8.03	3973.05	394.05	0.37
Seco Creek	1	68934	25 YEAR	41444.00	928.30	951.25		952.38	0.002430	9.11	6699.48	1297.96	0.38
Seco Creek	1	68934	50 YEAR	55008.00	928.30	953.94		954.85	0.001905	8.85	11619.39	2748.37	0.34
Seco Creek	1	68934	100 YEAR	74552.00	928.30	956.98		957.51	0.001182	7.64	20508.38	3089.32	0.28
Seco Creek	1	67530	10 YEAR	27134.00	925.89	941.00		943.02	0.006636	11.61	2639.41	300.45	0.59
Seco Creek	1	67530	25 YEAR	41444.00	925.89	944.91		947.31	0.005667	12.92	3963.86	393.04	0.57
Seco Creek	1	67530	50 YEAR	55008.00	925.89	947.86		950.58	0.005293	13.97	5277.74	500.63	0.56
Seco Creek	1	67530	100 YEAR	74552.00	925.89	951.51	945.89	954.40	0.004761	14.89	8039.02	1998.27	0.55
Seco Creek	1	66632	10 YEAR	27134.00	915.81	939.48		940.27	0.001417	7.56	4674.08	351.86	0.29
Seco Creek	1	66632	25 YEAR	41444.00	915.81	943.13		944.33	0.001780	9.46	6083.75	425.10	0.34
Seco Creek	1	66632	50 YEAR	55008.00	915.81	945.85		947.42	0.002075	10.97	7343.99	501.70	0.37
Seco Creek	1	66632	100 YEAR	74552.00	915.81	949.10		951.19	0.002446	12.86	9177.89	636.91	0.41
Seco Creek	1	65736	10 YEAR	27134.00	913.11	938.53		939.15	0.001026	6.50	4843.78	334.44	0.25
Seco Creek	1	65736	25 YEAR	41444.00	913.11	941.87		942.87	0.001388	8.35	6024.76	371.67	0.30
Seco Creek	1	65736	50 YEAR	55008.00	913.11	944.30		945.69	0.001710	9.88	6962.09	397.60	0.34
Seco Creek	1	65736	100 YEAR	74552.00	913.11	947.17		949.11	0.002137	11.82	8144.12	428.06	0.38
Seco Creek	1	64909	10 YEAR	27134.00	913.74	937.85		938.32	0.000875	5.59	5273.88	370.87	0.23
Seco Creek	1	64909	25 YEAR	41444.00	913.74	940.97		941.75	0.001182	7.20	6518.36	428.80	0.27
Seco Creek	1	64909	50 YEAR	55008.00	913.74	943.20		944.29	0.001470	8.57	7549.77	495.27	0.31
Seco Creek	1	64909	100 YEAR	74552.00	913.74	945.81		947.35	0.001841	10.28	8948.94	577.79	0.35
Seco Creek	1	63802	10 YEAR	27134.00	915.07	936.50		937.13	0.001323	7.15	5619.10	506.74	0.28
Seco Creek	1	63802	25 YEAR	41444.00	915.07	939.11		940.12	0.001849	9.18	7066.16	609.38	0.34
Seco Creek	1	63802	50 YEAR	55008.00	915.07	940.88		942.25	0.002341	10.87	8225.69	703.99	0.39
Seco Creek	1	63802	100 YEAR	74552.00	915.07	942.76		944.72	0.003121	13.20	9704.52	888.87	0.46
Seco Creek	1	62771	10 YEAR	27134.00	914.65	935.57		935.95	0.000888	5.60	8203.35	1257.25	0.23
Seco Creek	1	62771	25 YEAR	41444.00	914.65	938.06		938.55	0.001052	6.64	11732.63	1579.88	0.26
Seco Creek	1	62771	50 YEAR	55008.00	914.65	939.73		940.31	0.001227	7.54	14589.85	1867.12	0.28
Seco Creek	1	62771	100 YEAR	74552.00	914.65	941.60		942.27	0.001385	8.45	18392.02	2213.16	0.30
Seco Creek	1	61550	10 YEAR	27134.00	915.63	934.76		934.94	0.000660	4.77	9633.41	1588.47	0.20
Seco Creek	1	61550	25 YEAR	41444.00	915.63	937.17		937.37	0.000728	5.45	13992.32	1954.75	0.21
Seco Creek	1	61550	50 YEAR	55008.00	915.63	938.70		938.94	0.000834	6.12	17147.41	2183.74	0.23
Seco Creek	1	61550	100 YEAR	74552.00	915.63	940.40		940.69	0.000983	6.98	21088.66	2455.60	0.25
Seco Creek	1	60346	10 YEAR	27134.00	915.68	932.06		933.29	0.003460	9.46	4384.33	1187.03	0.44

HEC-RAS Plan: ALT 3 (Continued)

River	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)	
Seco Creek	1	60346	25 YEAR	41444.00	915.68	934.98		935.83	0.002460	9.01	9309.75	2099.33	0.38
Seco Creek	1	60346	50 YEAR	55008.00	915.68	936.55		937.32	0.002296	9.22	12863.86	2489.62	0.37
Seco Creek	1	60346	100 YEAR	74552.00	915.68	938.23		938.95	0.002191	9.52	17348.60	2824.79	0.37
Seco Creek	1	59443	10 YEAR	27134.00	910.59	930.13		930.89	0.001904	7.45	4523.95	672.00	0.33
Seco Creek	1	59443	25 YEAR	41444.00	910.59	933.32		934.02	0.001634	7.80	9412.70	2268.39	0.31
Seco Creek	1	59443	50 YEAR	55008.00	910.59	935.01		935.64	0.001520	7.96	13416.02	2484.36	0.31
Seco Creek	1	59443	100 YEAR	74552.00	910.59	936.63		937.28	0.001615	8.62	17868.87	2990.85	0.32
Seco Creek	1	58444	10 YEAR	27134.00	911.41	929.33		929.64	0.000733	4.79	7072.41	579.25	0.21
Seco Creek	1	58444	25 YEAR	41444.00	911.41	932.35		932.78	0.000864	5.80	10591.29	2058.02	0.23
Seco Creek	1	58444	50 YEAR	55008.00	911.41	933.88		934.38	0.000998	6.56	14513.34	2995.60	0.25
Seco Creek	1	58444	100 YEAR	74552.00	911.41	935.32		935.89	0.001170	7.41	19291.95	3617.22	0.27
Seco Creek	1	57184	10 YEAR	27134.00	913.98	925.80		927.35	0.007785	12.05	3189.42	575.59	0.63
Seco Creek	1	57184	25 YEAR	41444.00	913.98	929.93		930.77	0.003560	10.02	7524.94	1809.15	0.45
Seco Creek	1	57184	50 YEAR	55008.00	913.98	931.90		932.46	0.002519	9.13	13703.61	3681.29	0.38
Seco Creek	1	57184	100 YEAR	74552.00	913.98	933.33	930.40	933.82	0.002304	9.20	19300.84	4271.13	0.37
Seco Creek	1	54081	10 YEAR	27134.00	895.00	919.06		919.59	0.001163	6.35	5935.30	404.21	0.23
Seco Creek	1	54081	25 YEAR	41444.00	895.00	923.37		924.18	0.001442	7.92	8184.99	1926.69	0.27
Seco Creek	1	54081	50 YEAR	55008.00	895.00	926.51		927.20	0.001268	7.97	16584.82	4140.32	0.25
Seco Creek	1	54081	100 YEAR	74552.00	895.00	928.73		929.24	0.001085	7.73	27341.64	5119.97	0.24
Seco Creek	1	51836	10 YEAR	27134.00	896.00	916.24		916.53	0.001585	6.48	9395.10	1117.18	0.26
Seco Creek	1	51836	25 YEAR	41444.00	896.00	920.52		920.83	0.001449	7.09	14111.28	1795.66	0.26
Seco Creek	1	51836	50 YEAR	55008.00	896.00	923.83		924.17	0.001381	7.56	18962.73	2724.70	0.26
Seco Creek	1	51836	100 YEAR	74552.00	896.00	925.93		926.32	0.001583	8.51	24615.48	3997.70	0.28
Seco Creek	1	49863	10 YEAR	27134.00	893.00	912.47		913.00	0.002103	7.53	6531.98	1280.13	0.30
Seco Creek	1	49863	25 YEAR	41444.00	893.00	916.56		917.29	0.002359	9.07	8892.56	1580.15	0.33
Seco Creek	1	49863	50 YEAR	55008.00	893.00	919.42		920.41	0.002852	10.77	13096.57	3624.56	0.37
Seco Creek	1	49863	100 YEAR	74552.00	893.00	921.39		922.29	0.002800	11.20	19248.32	4706.75	0.37
Seco Creek	1	48183	10 YEAR	27134.00	884.00	909.91		910.34	0.001215	6.87	7704.81	1716.35	0.24
Seco Creek	1	48183	25 YEAR	41444.00	884.00	913.21		913.90	0.001732	8.90	10126.99	2137.48	0.29
Seco Creek	1	48183	50 YEAR	55008.00	884.00	915.18		916.14	0.002265	10.65	11936.89	2402.43	0.34
Seco Creek	1	48183	100 YEAR	68000.00	884.00	916.69		917.78	0.002560	11.69	14166.33	3174.26	0.36
Seco Creek	1	46654	10 YEAR	27134.00	883.12	906.63		907.45	0.003043	10.10	5981.08	1779.61	0.37
Seco Creek	1	46654	25 YEAR	41444.00	883.12	909.79		910.51	0.002818	10.61	11466.91	2069.06	0.37
Seco Creek	1	46654	50 YEAR	55008.00	883.12	911.91		912.46	0.002331	10.17	15898.48	2115.78	0.34
Seco Creek	1	46654	100 YEAR	68000.00	883.12	913.64		914.09	0.002006	9.81	19764.44	2303.26	0.32
Seco Creek	1	44030	10 YEAR	27134.00	873.00	897.83		899.11	0.003324	10.50	5265.94	753.16	0.39
Seco Creek	1	44030	25 YEAR	41444.00	873.00	901.47		902.71	0.003149	11.28	8172.73	833.58	0.39
Seco Creek	1	44030	50 YEAR	55008.00	873.00	904.01		905.31	0.003213	12.11	10369.37	897.86	0.40
Seco Creek	1	44030	100 YEAR	68000.00	873.00	906.02		907.39	0.003330	12.89	12410.23	1460.02	0.41
Seco Creek	1	42700	10 YEAR	27134.00	873.00	894.96		895.64	0.001931	7.31	5861.79	625.73	0.29
Seco Creek	1	42700	25 YEAR	41444.00	873.00	898.19		899.11	0.002277	8.78	8045.94	722.21	0.32
Seco Creek	1	42700	50 YEAR	55008.00	873.00	900.16		901.35	0.002777	10.25	9552.75	958.97	0.36
Seco Creek	1	42700	100 YEAR	68000.00	873.00	901.69		903.10	0.003184	11.41	11369.17	1562.85	0.39
Seco Creek	1	41699	10 YEAR	27134.00	871.00	893.43	882.46	893.94	0.001427	6.66	6909.84	754.88	0.25
Seco Creek	1	41699	25 YEAR	41444.00	871.00	896.00	885.33	896.86	0.002170	8.86	8674.95	1653.85	0.32
Seco Creek	1	41699	50 YEAR	55008.00	871.00	897.64	887.40	898.64	0.002531	9.99	11976.08	2870.99	0.35
Seco Creek	1	41699	100 YEAR	68000.00	871.00	898.88	889.06	900.00	0.002849	10.94	14072.10	3325.78	0.37
Seco Creek	1	40632	10 YEAR	27134.00	870.00	892.15	881.13	892.53	0.001165	5.95	8295.92	1113.20	0.23
Seco Creek	1	40632	25 YEAR	41444.00	870.00	894.38	884.06	894.87	0.001466	7.14	11512.19	2902.36	0.26
Seco Creek	1	40632	50 YEAR	55008.00	870.00	895.75	886.00	896.31	0.001709	8.00	14534.33	3445.83	0.28
Seco Creek	1	40632	100 YEAR	68000.00	870.00	896.73	888.00	897.37	0.001938	8.75	16937.87	3720.19	0.30
Seco Creek	1	39997	10 YEAR	27134.00	870.00	891.31	883.86	891.67	0.001569	6.55	8249.13	1221.62	0.26
Seco Creek	1	39997	25 YEAR	41444.00	870.00	893.35	886.56	893.79	0.001930	7.75	11533.59	3337.48	0.29
Seco Creek	1	39997	50 YEAR	55008.00	870.00	894.59	887.86	895.07	0.002164	8.52	15250.37	3952.07	0.31
Seco Creek	1	39997	100 YEAR	68000.00	870.00	895.45	888.95	895.97	0.002400	9.20	18014.15	4310.36	0.33
Seco Creek	1	38985	10 YEAR	27134.00	870.00	888.67		889.43	0.003206	8.22	6155.44	1558.77	0.36
Seco Creek	1	38985	25 YEAR	41444.00	870.00	890.25		891.10	0.003751	9.46	9843.36	3204.91	0.40
Seco Creek	1	38985	50 YEAR	55008.00	870.00	891.41	889.62	892.20	0.003753	9.87	14138.75	4039.46	0.40
Seco Creek	1	38985	100 YEAR	68000.00	870.00	892.71		893.29	0.002924	9.12	19737.57	4467.83	0.36
Seco Creek	1	37489	10 YEAR	27134.00	869.00	885.55		885.77	0.001782	5.66	11790.18	2997.93	0.26
Seco Creek	1	37489	25 YEAR	41444.00	869.00	887.03		887.23	0.001730	5.95	16263.94	3127.74	0.26
Seco Creek	1	37489	50 YEAR	55008.00	869.00	888.20		888.40	0.001691	6.17	20485.74	4264.40	0.26
Seco Creek	1	37489	100 YEAR	68000.00	869.00	889.28		889.53	0.002075	7.12	25487.73	5085.60	0.30
Seco Creek	1	36472	10 YEAR	27134.00	870.41	884.22		884.32	0.001156	3.92	13687.82	3275.89	0.20
Seco Creek	1	36472	25 YEAR	41444.00	870.41	885.81		885.91	0.001011	3.97	19380.92	3918.82	0.19
Seco Creek	1	36472	50 YEAR	55008.00	870.41	887.05		887.14	0.000941	4.04	24843.41	4715.70	0.18
Seco Creek	1	36472	100 YEAR	68000.00	870.41	888.10		888.20	0.000878	4.08	30073.90	5072.33	0.18
Seco Creek	2	33911	10 YEAR	25312.65	861.40	879.79		880.17	0.002450	5.80	7641.16	1935.56	0.26
Seco Creek	2	33911	25 YEAR	37357.23	861.40	882.07		882.38	0.002044	5.77	12879.27	2585.45	0.24
Seco Creek	2	33911	50 YEAR	49005.16	861.40	883.61		883.88	0.001877	5.82	17186.82	2986.55	0.23
Seco Creek	2	33911	100 YEAR	58582.92	861.40	885.06		885.29	0.001591	5.61	21846.87	3388.84	0.21
Seco Creek	2	33369	10 YEAR	25312.65	859.00	878.83		879.18	0.001382	5.48	8411.34	1835.15	0.24

HEC-RAS Plan: ALT 3 (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Seco Creek	2	33369	25 YEAR	37357.23	859.00	881.23		881.53	0.001220	5.62	14092.78	2833.13	0.23
Seco Creek	2	33369	50 YEAR	49005.16	859.00	882.81		883.09	0.001161	5.78	19215.55	3448.19	0.23
Seco Creek	2	33369	100 YEAR	54582.92	859.00	884.53		884.70	0.000732	4.84	25272.15	3613.54	0.18
Seco Creek	2	32739	10 YEAR	25312.65	860.90	878.24	872.73	878.56	0.000986	5.37	7936.07	1192.76	0.27
Seco Creek	2	32739	25 YEAR	37357.23	860.90	880.37	874.32	880.87	0.001279	6.74	11872.69	2679.32	0.31
Seco Creek	2	32739	50 YEAR	49005.16	860.90	882.02	875.50	882.50	0.001214	7.01	17114.23	3783.82	0.31
Seco Creek	2	32739	100 YEAR	65406.92	860.90	883.94	876.60	884.31	0.000955	6.67	24448.03	3833.05	0.28
Seco Creek	2	32734		Bridge									
Seco Creek	2	32699	10 YEAR	25312.65	860.90	878.10	873.47	878.48	0.001164	5.75	7396.57	1209.30	0.30
Seco Creek	2	32699	25 YEAR	37357.23	860.90	880.26	874.86	880.77	0.001337	6.81	11156.28	2456.61	0.33
Seco Creek	2	32699	50 YEAR	49005.16	860.90	881.87	875.79	882.40	0.001330	7.25	16231.42	3605.43	0.33
Seco Creek	2	32699	100 YEAR	65406.92	860.90	883.83	877.48	884.22	0.001029	6.86	23689.55	3830.70	0.29
Seco Creek	2	32000		Lat Struct									
Seco Creek	2	31630	10 YEAR	25312.65	864.00	875.23		876.22	0.006705	9.07	4136.11	847.94	0.51
Seco Creek	2	31630	25 YEAR	37357.23	864.00	877.69		878.62	0.005286	9.32	6621.49	1212.08	0.47
Seco Creek	2	31630	50 YEAR	49005.16	864.00	879.80		880.59	0.004029	9.03	9521.32	1487.00	0.42
Seco Creek	2	31630	100 YEAR	65406.92	864.00	882.15		882.87	0.003396	9.16	14977.92	2716.74	0.40
Seco Creek	3	31156	10 YEAR	27134.00	858.06	874.71		875.29	0.000793	6.16	4967.43	659.81	0.29
Seco Creek	3	31156	25 YEAR	41444.00	858.06	876.68		877.64	0.001148	8.04	6593.91	1001.40	0.35
Seco Creek	3	31156	50 YEAR	55008.01	858.06	878.28		879.53	0.001376	9.36	8472.86	1343.63	0.39
Seco Creek	3	31156	100 YEAR	73721.01	858.06	880.20		881.76	0.001573	10.71	11280.68	1570.94	0.42
Seco Creek	3	30898	10 YEAR	27134.00	857.54	874.61		875.09	0.000568	5.55	5339.62	640.56	0.24
Seco Creek	3	30898	25 YEAR	41444.00	857.54	876.52		877.34	0.000868	7.39	6982.63	1019.55	0.31
Seco Creek	3	30898	50 YEAR	55008.01	857.54	878.06		879.17	0.001095	8.77	8632.83	1201.87	0.35
Seco Creek	3	30898	100 YEAR	75245.01	857.54	879.83		881.36	0.001396	10.49	10854.75	1296.81	0.40
Seco Creek	3	30626	10 YEAR	27134.00	857.00	874.77	861.75	874.91	0.000160	3.00	9038.43	750.55	0.13
Seco Creek	3	30626	25 YEAR	41444.00	857.00	876.80	863.26	877.05	0.000256	4.08	10167.96	896.95	0.17
Seco Creek	3	30626	50 YEAR	59288.01	857.00	878.36	864.93	878.81	0.000398	5.37	11049.55	1040.93	0.21
Seco Creek	3	30626	100 YEAR	81909.01	857.00	880.18	866.80	880.89	0.000566	6.79	12074.80	1369.25	0.26
Seco Creek	3	30610		Bridge									
Seco Creek	3	30556	10 YEAR	27134.00	856.00	874.74	860.79	874.87	0.000137	2.87	9455.81	697.22	0.12
Seco Creek	3	30556	25 YEAR	41444.00	856.00	876.75	862.34	876.98	0.000224	3.92	10568.06	818.96	0.16
Seco Creek	3	30556	50 YEAR	59288.01	856.00	878.27	864.01	878.69	0.000357	5.19	11425.16	1012.97	0.20
Seco Creek	3	30556	100 YEAR	81909.01	856.00	880.04	865.89	880.71	0.000516	6.60	12420.81	2570.70	0.25
Seco Creek	3	30501	10 YEAR	27134.00	856.07	874.72	860.98	874.86	0.000150	2.97	9121.53	589.38	0.13
Seco Creek	3	30501	25 YEAR	41444.00	856.07	876.71	862.55	876.97	0.000243	4.06	10197.71	640.40	0.17
Seco Creek	3	30501	50 YEAR	59288.01	856.07	878.21	864.27	878.66	0.000385	5.38	11012.61	689.24	0.21
Seco Creek	3	30501	100 YEAR	81909.01	856.07	879.94	866.18	880.67	0.000559	6.86	11950.79	1109.30	0.26
Seco Creek	3	30493		Bridge									
Seco Creek	3	30349	10 YEAR	27134.00	857.00	874.65	861.92	874.81	0.000182	3.17	8562.34	580.54	0.14
Seco Creek	3	30349	25 YEAR	41444.00	857.00	876.59	863.50	876.88	0.000290	4.32	9610.46	617.85	0.18
Seco Creek	3	30349	50 YEAR	59288.01	857.00	878.00	865.21	878.51	0.000461	5.73	10379.25	642.41	0.23
Seco Creek	3	30349	100 YEAR	81909.01	857.00	879.61	867.14	880.44	0.000674	7.31	11252.32	1175.69	0.28
Seco Creek	3	30292	10 YEAR	27134.00	857.00	874.33		874.72	0.000521	5.11	5850.49	637.20	0.23
Seco Creek	3	30292	25 YEAR	41444.00	857.00	876.08		876.74	0.000785	6.75	7091.39	852.36	0.29
Seco Creek	3	30292	50 YEAR	59288.01	857.00	877.25		878.31	0.001189	8.69	8178.68	1081.63	0.36
Seco Creek	3	30292	100 YEAR	81909.01	857.00	878.71		880.19	0.001563	10.51	10098.90	1554.94	0.42
Seco Creek	3	29802	10 YEAR	31366.00	857.00	873.72	865.34	874.36	0.000906	6.62	6467.32	1478.56	0.31
Seco Creek	3	29802	25 YEAR	47184.00	857.00	875.15	867.81	876.19	0.001384	8.66	8198.75	1917.01	0.38
Seco Creek	3	29802	50 YEAR	64141.01	857.00	875.88	870.21	877.49	0.002078	10.92	9340.28	2251.92	0.47
Seco Creek	3	29802	100 YEAR	87222.01	857.00	876.08	874.52	878.92	0.003633	14.56	9698.51	2566.55	0.63
Seco Creek	3	28576	10 YEAR	31366.00	857.00	871.64	870.41	872.34	0.003855	8.24	7986.17	4116.72	0.41
Seco Creek	3	28576	25 YEAR	48303.00	857.00	873.44		873.80	0.002389	7.10	17995.73	6586.28	0.33
Seco Creek	3	28576	50 YEAR	59895.01	857.00	874.40		874.66	0.001888	6.59	24808.54	7634.97	0.30
Seco Creek	3	28576	100 YEAR	66081.01	857.00	874.84		875.06	0.001686	6.35	28146.17	7729.51	0.28
Seco Creek	3	25698	10 YEAR	31366.00	854.11	869.96		870.12	0.000843	4.15	11228.07	1970.70	0.20
Seco Creek	3	25698	25 YEAR	48303.00	854.11	871.33		871.58	0.001227	5.33	14533.93	2883.32	0.24
Seco Creek	3	25698	50 YEAR	59895.01	854.11	872.27		872.56	0.001376	5.88	17965.86	4474.82	0.26
Seco Creek	3	25698	100 YEAR	66081.01	854.11	872.74		873.02	0.001429	6.10	20306.59	6691.48	0.26
Seco Creek	3	22915	10 YEAR	31366.00	845.07	868.91		868.96	0.000238	2.84	27694.24	5095.73	0.11
Seco Creek	3	22915	25 YEAR	48303.00	845.07	869.55		869.63	0.000436	3.92	31121.12	5622.39	0.15
Seco Creek	3	22915	50 YEAR	59895.01	845.07	870.25		870.34	0.000499	4.29	35144.43	5834.51	0.16
Seco Creek	3	22915	100 YEAR	66081.01	845.07	870.64		870.74	0.000513	4.40	37462.58	5889.06	0.17
Seco Creek	3	18148	10 YEAR	29251.00	845.09	867.33		867.39	0.000508	3.10	26036.45	6452.90	0.13
Seco Creek	3	18148	25 YEAR	29645.00	845.09	867.39		867.45	0.000503	3.09	26436.25	6462.05	0.13
Seco Creek	3	18148	50 YEAR	33895.01	845.09	867.99		868.04	0.000462	3.03	30303.19	6534.49	0.12
Seco Creek	3	18148	100 YEAR	37081.01	845.09	868.38		868.43	0.000442	3.00	32893.23	6552.71	0.12
Seco Creek	3	14626	10 YEAR	29251.00	841.35	863.51		864.07	0.002319	7.21	9822.18	2802.27	0.28
Seco Creek	3	14626	25 YEAR	29645.00	841.35	863.61		864.16	0.002304	7.20	10091.50	2867.82	0.28
Seco Creek	3	14626	50 YEAR	33895.01	841.35	864.55		865.03	0.002092	7.07	13097.42	3368.79	0.27

HEC-RAS Plan: ALT 3 (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Seco Creek	3	14626	100 YEAR	37081.01	841.35	865.14		865.58	0.001974	6.99	15185.27	3783.21	0.26
Seco Creek	3	11674	10 YEAR	29251.00	835.92	858.27		858.53	0.001500	5.54	11368.13	1470.47	0.22
Seco Creek	3	11674	25 YEAR	29645.00	835.92	858.37		858.63	0.001504	5.56	11511.24	1488.53	0.22
Seco Creek	3	11674	50 YEAR	33895.01	835.92	859.49		859.76	0.001503	5.77	13312.42	1735.58	0.22
Seco Creek	3	11674	100 YEAR	37081.01	835.92	860.00		860.29	0.001598	6.05	14237.88	1873.74	0.23
Seco Creek	3	10238	10 YEAR	29251.00	833.88	856.28		856.54	0.001285	5.16	11275.23	1397.94	0.21
Seco Creek	3	10238	25 YEAR	29645.00	833.88	856.37		856.62	0.001296	5.19	11393.55	1417.72	0.21
Seco Creek	3	10238	50 YEAR	33895.01	833.88	857.46		857.73	0.001323	5.44	13074.17	1652.37	0.21
Seco Creek	3	10238	100 YEAR	37081.01	833.88	857.76		858.07	0.001493	5.83	13583.12	1748.20	0.22
Seco Creek	3	9209	10 YEAR	29251.00	834.65	854.53		854.88	0.002008	6.06	9695.14	2168.69	0.25
Seco Creek	3	9209	25 YEAR	29645.00	834.65	854.60		854.96	0.002019	6.09	9854.96	2188.17	0.25
Seco Creek	3	9209	50 YEAR	33895.01	834.65	855.51		855.94	0.002324	6.76	12145.39	3178.33	0.27
Seco Creek	3	9209	100 YEAR	35081.01	834.65	855.72		856.16	0.002355	6.85	12857.87	3436.34	0.28
Seco Creek	3	6260	10 YEAR	29251.00	832.93	849.33		849.52	0.001635	4.78	13109.60	2279.82	0.22
Seco Creek	3	6260	25 YEAR	29645.00	832.93	849.39		849.59	0.001633	4.79	13257.37	2283.30	0.22
Seco Creek	3	6260	50 YEAR	33895.01	832.93	850.16		850.35	0.001550	4.83	15028.14	2320.12	0.22
Seco Creek	3	6260	100 YEAR	35081.01	832.93	850.34		850.53	0.001549	4.87	15434.16	2328.51	0.22
Seco Creek	3	2900	10 YEAR	29251.00	824.79	843.55		843.80	0.001811	5.46	11681.90	2003.41	0.24
Seco Creek	3	2900	25 YEAR	29645.00	824.79	843.65		843.90	0.001791	5.45	11886.26	2030.58	0.24
Seco Creek	3	2900	50 YEAR	33895.01	824.79	844.78		845.01	0.001662	5.49	14276.93	2167.90	0.23
Seco Creek	3	2900	100 YEAR	35081.01	824.79	845.09		845.31	0.001586	5.42	14951.95	2189.73	0.22
Seco Creek	3	1260	10 YEAR	29251.00	820.75	839.82	831.22	840.36	0.002451	6.15	5721.74	535.97	0.27
Seco Creek	3	1260	25 YEAR	29645.00	820.75	839.94	831.27	840.48	0.002451	6.18	5782.90	539.19	0.27
Seco Creek	3	1260	50 YEAR	33895.01	820.75	841.14	831.95	841.73	0.002452	6.49	6453.29	584.25	0.28
Seco Creek	3	1260	100 YEAR	35081.01	820.75	841.50	832.13	842.11	0.002452	6.58	6672.54	625.99	0.28
Relief_Parkers	1	3303	10 YEAR	283.00	892.02	893.14		893.19	0.007716	1.89	181.53	404.72	0.36
Relief_Parkers	1	3303	25 YEAR	498.00	892.02	893.40		893.47	0.007857	2.26	301.72	495.18	0.37
Relief_Parkers	1	3303	50 YEAR	616.00	892.02	893.53		893.60	0.007614	2.38	364.43	518.55	0.37
Relief_Parkers	1	3303	100 YEAR	616.00	892.02	893.53		893.60	0.007614	2.38	364.43	518.55	0.37
Relief_Parkers	1	2628	10 YEAR	283.00	887.00	888.05		888.08	0.004308	1.26	247.27	424.94	0.25
Relief_Parkers	1	2628	25 YEAR	498.00	887.00	888.33		888.37	0.004161	1.53	380.37	484.23	0.26
Relief_Parkers	1	2628	50 YEAR	616.00	887.00	888.47		888.50	0.004065	1.63	443.95	488.80	0.26
Relief_Parkers	1	2628	100 YEAR	616.00	887.00	888.47		888.50	0.004064	1.63	443.98	488.80	0.26
Relief_Parkers	1	1845	10 YEAR	358.00	883.04	884.93		884.96	0.003259	1.61	268.96	295.61	0.24
Relief_Parkers	1	1845	25 YEAR	498.00	883.04	885.19		885.23	0.003328	1.82	365.40	425.29	0.25
Relief_Parkers	1	1845	50 YEAR	616.00	883.04	885.36		885.41	0.003211	1.92	441.29	437.57	0.25
Relief_Parkers	1	1845	100 YEAR	616.00	883.04	885.74		885.77	0.001379	1.43	611.06	462.57	0.17
Relief_Parkers	1	1573	10 YEAR	358.00	882.00	884.06		884.10	0.002629	1.76	263.96	339.22	0.23
Relief_Parkers	1	1573	25 YEAR	498.00	882.00	884.29		884.35	0.002917	2.01	344.75	358.15	0.25
Relief_Parkers	1	1573	50 YEAR	616.00	882.00	884.46		884.52	0.003087	2.17	405.11	371.67	0.26
Relief_Parkers	1	1573	100 YEAR	616.00	882.00	885.50		885.51	0.000468	1.09	1051.72	918.76	0.11
Relief_Parkers	1	1210	10 YEAR	358.00	881.79	882.88		882.90	0.004089	1.39	341.82	452.56	0.25
Relief_Parkers	1	1210	25 YEAR	498.00	881.79	882.98		883.01	0.005353	1.70	387.23	457.35	0.30
Relief_Parkers	1	1210	50 YEAR	616.00	881.79	883.06		883.10	0.006432	1.97	427.94	519.03	0.33
Relief_Parkers	1	1210	100 YEAR	2616.00	881.79	885.40		885.42	0.001166	1.78	2310.79	1006.32	0.17
Relief_Parkers	2	1160	10 YEAR	358.00	879.35	881.26		881.28	0.001797	1.09	356.09	482.07	0.18
Relief_Parkers	2	1160	25 YEAR	498.00	879.35	881.64		881.66	0.001155	1.05	563.69	590.54	0.15
Relief_Parkers	2	1160	50 YEAR	616.00	879.35	881.97		881.98	0.000819	1.00	770.46	681.53	0.13
Relief_Parkers	2	1160	100 YEAR	5616.00	879.35	883.78		883.91	0.003802	3.38	2294.25	913.42	0.31
Relief_Parkers	2	1110	10 YEAR	358.00	879.00	881.14		881.14	0.000353	0.51	868.92	984.28	0.08
Relief_Parkers	2	1110	25 YEAR	498.00	879.00	881.57		881.58	0.000210	0.48	1306.62	1021.95	0.06
Relief_Parkers	2	1110	50 YEAR	616.00	879.00	881.92		881.92	0.000157	0.46	1663.98	1051.70	0.06
Relief_Parkers	2	1110	100 YEAR	2000.00	879.00	883.69		883.70	0.000152	0.69	3544.12	1061.62	0.06
Relief_Parkers	2	1060	10 YEAR	358.00	879.00	881.13		881.13	0.000312	0.49	887.45	973.27	0.07
Relief_Parkers	2	1060	25 YEAR	498.00	879.00	881.57		881.57	0.000192	0.47	1316.75	978.89	0.06
Relief_Parkers	2	1060	50 YEAR	616.00	879.00	881.92		881.92	0.000146	0.46	1656.16	983.31	0.06
Relief_Parkers	2	1060	100 YEAR	2000.00	879.00	883.69		883.69	0.000158	0.71	3419.77	1061.86	0.06
Relief_Parkers	2	1010	10 YEAR	358.00	879.00	881.03	879.85	881.10	0.001317	2.16	165.95	517.49	0.27
Relief_Parkers	2	1010	25 YEAR	498.00	879.00	881.45	880.05	881.56	0.001359	2.48	200.42	567.27	0.28
Relief_Parkers	2	1010	50 YEAR	616.00	879.00	881.78	880.21	881.89	0.001364	2.71	227.42	603.09	0.29
Relief_Parkers	2	1010	100 YEAR	1300.00	879.00	883.47	880.99	883.66	0.001245	3.55	365.92	845.99	0.30
Relief_Parkers	2	1009		Bridge									
Relief_Parkers	2	960	10 YEAR	358.00	879.00	880.14	879.85	880.37	0.009147	3.86	92.79	368.97	0.64
Relief_Parkers	2	960	25 YEAR	498.00	879.00	880.60	880.05	880.82	0.005690	3.82	130.43	406.89	0.53
Relief_Parkers	2	960	50 YEAR	616.00	879.00	880.95	880.21	881.18	0.004444	3.86	159.58	440.51	0.49
Relief_Parkers	2	960	100 YEAR	1300.00	879.00	882.70	880.99	882.99	0.002336	4.29	302.98	566.20	0.39
Relief_Parkers	2	910	10 YEAR	358.00	878.08	880.07	879.01	880.17	0.001907	2.57	139.42	408.61	0.32
Relief_Parkers	2	910	25 YEAR	498.00	878.08	880.54	879.23	880.67	0.001834	2.90	171.94	425.25	0.33
Relief_Parkers	2	910	50 YEAR	616.00	878.08	880.89	879.42	881.05	0.001782	3.13	197.02	433.10	0.33
Relief_Parkers	2	910	100 YEAR	1300.00	878.08	882.65	880.27	882.90	0.001582	4.07	319.64	591.56	0.34
Relief_Parkers	2	900		Culvert									

HEC-RAS Plan: ALT 3 (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Relief_Parkers	2	860	10 YEAR	358.00	878.08	879.01	879.01	879.48	0.024000	5.49	65.21	272.42	1.00
Relief_Parkers	2	860	25 YEAR	498.00	878.08	879.23	879.23	879.82	0.022858	6.17	80.67	404.59	1.01
Relief_Parkers	2	860	50 YEAR	616.00	878.08	879.42	879.42	880.09	0.021211	6.57	93.72	409.44	1.00
Relief_Parkers	2	860	100 YEAR	1300.00	878.08	880.27	880.27	881.39	0.018261	8.47	153.46	426.37	1.01
Relief_Parkers	2	810	10 YEAR	358.00	873.27	876.10		876.14	0.001050	1.66	215.54	132.84	0.23
Relief_Parkers	2	810	25 YEAR	498.00	873.27	876.13		876.21	0.001917	2.26	220.26	134.25	0.31
Relief_Parkers	2	810	50 YEAR	616.00	873.27	876.69		876.75	0.001270	2.05	301.03	156.50	0.26
Relief_Parkers	2	810	100 YEAR	1300.00	873.27	877.75		877.86	0.001399	2.64	549.08	388.25	0.29
Parkers_Spill	1	1124	10 YEAR	1.00	889.00	889.15		889.15	0.001761	0.18	5.48	65.92	0.11
Parkers_Spill	1	1124	25 YEAR	1.00	889.00	889.15		889.15	0.001761	0.18	5.48	65.92	0.11
Parkers_Spill	1	1124	50 YEAR	1.00	889.00	889.15		889.15	0.001761	0.18	5.48	65.92	0.11
Parkers_Spill	1	1124	100 YEAR	1.00	889.00	889.15		889.15	0.001761	0.18	5.48	65.92	0.11
Parkers_Spill	1	790	10 YEAR	1.00	887.00	887.15	887.15	887.20	0.183183	1.72	0.58	7.75	1.11
Parkers_Spill	1	790	25 YEAR	1.00	887.00	887.15	887.15	887.20	0.183183	1.72	0.58	7.75	1.11
Parkers_Spill	1	790	50 YEAR	1.00	887.00	887.15	887.15	887.20	0.183183	1.72	0.58	7.75	1.11
Parkers_Spill	1	790	100 YEAR	1.00	887.00	887.15	887.15	887.20	0.183183	1.72	0.58	7.75	1.11
Parkers_Spill	1	504	10 YEAR	1.00	886.00	886.16		886.16	0.000128	0.07	14.00	96.41	0.03
Parkers_Spill	1	504	25 YEAR	1.00	886.00	886.16		886.16	0.000124	0.07	14.15	96.53	0.03
Parkers_Spill	1	504	50 YEAR	1.00	886.00	886.16		886.16	0.000128	0.07	13.98	96.40	0.03
Parkers_Spill	1	504	100 YEAR	1.00	886.00	886.16		886.16	0.000118	0.07	14.35	96.71	0.03
Parkers_Spill	1	191	10 YEAR	1.00	886.00	886.12		886.12	0.000141	0.06	16.45	154.80	0.03
Parkers_Spill	1	191	25 YEAR	1.00	886.00	886.12		886.12	0.000161	0.06	15.79	154.68	0.03
Parkers_Spill	1	191	50 YEAR	1.00	886.00	886.12		886.12	0.000146	0.06	16.26	154.76	0.03
Parkers_Spill	1	191	100 YEAR	1.00	886.00	886.12		886.12	0.000154	0.06	15.99	154.72	0.03
Parkers_Spill	1	31	10 YEAR	1.00	886.00	886.02	886.02	886.03	0.164199	0.47	2.06	115.45	0.77
Parkers_Spill	1	31	25 YEAR	1.00	886.00	886.02	886.02	886.03	0.164199	0.47	2.06	115.45	0.77
Parkers_Spill	1	31	50 YEAR	1.00	886.00	886.02	886.02	886.03	0.164199	0.47	2.06	115.45	0.77
Parkers_Spill	1	31	100 YEAR	1.00	886.00	886.02	886.02	886.03	0.164199	0.47	2.06	115.45	0.77
Parkers Creek	1	32760	10 YEAR	2988.00	930.47	935.83		935.86	0.000510	1.79	2609.27	894.88	0.14
Parkers Creek	1	32760	25 YEAR	4240.00	930.47	936.56		936.60	0.000584	2.10	3313.86	1043.91	0.15
Parkers Creek	1	32760	50 YEAR	5401.00	930.47	937.12		937.17	0.000634	2.32	3925.17	1153.48	0.16
Parkers Creek	1	32760	100 YEAR	6874.00	930.47	937.72		937.79	0.000686	2.57	4663.23	1281.47	0.17
Parkers Creek	1	32036	10 YEAR	2988.00	930.40	935.46		935.48	0.000539	1.47	3047.57	1121.02	0.12
Parkers Creek	1	32036	25 YEAR	4240.00	930.40	936.15		936.18	0.000585	1.69	3864.18	1240.05	0.13
Parkers Creek	1	32036	50 YEAR	5401.00	930.40	936.68		936.71	0.000623	1.85	4543.83	1332.83	0.13
Parkers Creek	1	32036	100 YEAR	6874.00	930.40	937.25		937.29	0.000663	2.04	5343.69	1438.50	0.14
Parkers Creek	1	31398	10 YEAR	2988.00	930.54	935.12		935.14	0.000534	1.42	3429.55	1415.27	0.12
Parkers Creek	1	31398	25 YEAR	4240.00	930.54	935.80		935.82	0.000545	1.57	4429.32	1559.13	0.12
Parkers Creek	1	31398	50 YEAR	5401.00	930.54	936.31		936.33	0.000561	1.70	5261.78	1674.23	0.13
Parkers Creek	1	31398	100 YEAR	6874.00	930.54	936.87		936.90	0.000578	1.84	6231.36	1792.29	0.13
Parkers Creek	1	30362	10 YEAR	2988.00	930.16	934.45		934.48	0.000794	1.65	2777.53	1159.98	0.14
Parkers Creek	1	30362	25 YEAR	4240.00	930.16	935.08		935.12	0.000862	1.89	3576.90	1356.31	0.15
Parkers Creek	1	30362	50 YEAR	5401.00	930.16	935.57		935.61	0.000904	2.07	4271.92	1505.88	0.16
Parkers Creek	1	30362	100 YEAR	6874.00	930.16	936.11		936.15	0.000930	2.24	5114.51	1651.12	0.16
Parkers Creek	1	29440	10 YEAR	2988.00	929.44	933.75		933.78	0.000729	1.62	2981.23	1221.30	0.14
Parkers Creek	1	29440	25 YEAR	4240.00	929.44	934.30		934.33	0.000849	1.89	3683.89	1353.48	0.15
Parkers Creek	1	29440	50 YEAR	5401.00	929.44	934.72		934.76	0.000936	2.10	4281.01	1459.41	0.16
Parkers Creek	1	29440	100 YEAR	6874.00	929.44	935.20		935.24	0.001053	2.36	5011.16	1653.06	0.17
Parkers Creek	1	28707	10 YEAR	2988.00	930.16	933.33		933.34	0.000478	1.03	4162.12	1948.20	0.11
Parkers Creek	1	28707	25 YEAR	4240.00	930.16	933.82		933.84	0.000521	1.19	5173.30	2105.61	0.11
Parkers Creek	1	28707	50 YEAR	5401.00	930.16	934.21		934.23	0.000554	1.32	6007.94	2219.17	0.12
Parkers Creek	1	28707	100 YEAR	6874.00	930.16	934.64		934.66	0.000592	1.47	6992.98	2365.12	0.12
Parkers Creek	1	26759	10 YEAR	2988.00	928.79	929.81	929.81	930.11	0.079667	5.90	757.17	1238.42	1.11
Parkers Creek	1	26759	25 YEAR	4240.00	928.79	929.97	929.97	930.34	0.078921	6.57	961.75	1302.25	1.14
Parkers Creek	1	26759	50 YEAR	5401.00	928.79	930.10	930.10	930.52	0.077527	7.06	1139.91	1354.95	1.15
Parkers Creek	1	26759	100 YEAR	6874.00	928.79	930.26	930.26	930.74	0.075711	7.58	1354.26	1415.76	1.16
Parkers Creek	1	24546	10 YEAR	2988.00	914.00	920.86		920.94	0.000415	2.40	1405.50	336.02	0.18
Parkers Creek	1	24546	25 YEAR	4240.00	914.00	921.89		922.01	0.000460	2.83	1780.95	382.98	0.19
Parkers Creek	1	24546	50 YEAR	5401.00	914.00	922.36		922.52	0.000585	3.34	1965.81	405.74	0.22
Parkers Creek	1	24546	100 YEAR	6874.00	914.00	922.47		922.73	0.000897	4.18	2011.50	411.77	0.27
Parkers Creek	1	23502	10 YEAR	2988.00	914.00	920.29		920.41	0.000637	2.81	1263.60	365.14	0.22
Parkers Creek	1	23502	25 YEAR	4240.00	914.00	921.27		921.43	0.000683	3.26	1677.68	588.14	0.23
Parkers Creek	1	23502	50 YEAR	4874.00	914.00	921.70		921.86	0.000693	3.43	1935.39	637.72	0.24
Parkers Creek	1	23502	100 YEAR	4874.00	914.00	921.70		921.86	0.000683	3.43	1935.43	637.74	0.24
Parkers Creek	1	22450	10 YEAR	2988.00	914.00	917.23	917.23	918.46	0.014917	9.05	367.90	175.38	0.95
Parkers Creek	1	22450	25 YEAR	4240.00	914.00	917.93	917.93	919.38	0.013482	9.98	498.88	198.07	0.94
Parkers Creek	1	22450	50 YEAR	4874.00	914.00	918.24	918.24	919.80	0.013076	10.39	561.91	208.23	0.94
Parkers Creek	1	22450	100 YEAR	4874.00	914.00	918.24	918.24	919.80	0.013076	10.39	561.91	208.23	0.94
Parkers Creek	1	20486	10 YEAR	2988.00	895.23	908.04		908.10	0.000118	2.05	2017.63	273.53	0.11
Parkers Creek	1	20486	25 YEAR	4240.00	895.23	909.72		909.81	0.000142	2.47	2509.53	310.86	0.12
Parkers Creek	1	20486	50 YEAR	4874.00	895.23	910.93		911.01	0.000136	2.56	2901.55	347.96	0.12
Parkers Creek	1	20486	100 YEAR	4874.00	895.23	911.16		911.24	0.000128	2.51	2984.64	357.35	0.12

HEC-RAS Plan: ALT 3 (Continued)

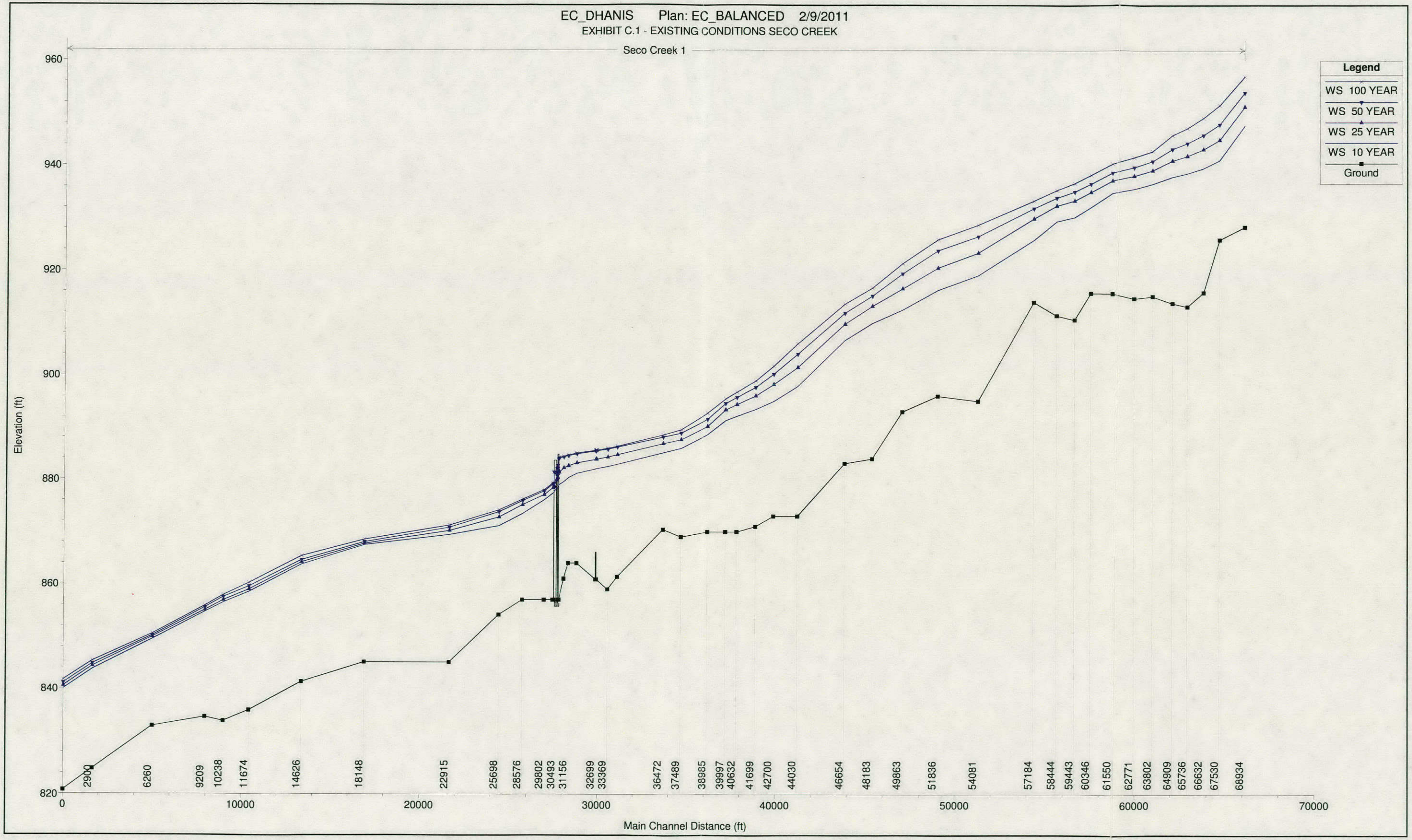
River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Parkers Creek	1	17737	10 YEAR	3354.00	895.35	907.15		907.42	0.000612	4.36	1013.46	170.44	0.24
Parkers Creek	1	17737	25 YEAR	4750.00	895.35	908.60		908.98	0.000751	5.26	1295.82	221.89	0.27
Parkers Creek	1	17737	50 YEAR	6032.00	895.35	909.64		910.13	0.000867	5.98	1684.94	521.79	0.29
Parkers Creek	1	17737	100 YEAR	6342.00	895.35	909.87		910.37	0.000882	6.10	1806.68	556.02	0.30
Parkers Creek	1	16155	10 YEAR	3354.00	895.08	906.03		906.32	0.000791	4.41	896.13	191.99	0.26
Parkers Creek	1	16155	25 YEAR	4750.00	895.08	907.17		907.60	0.001011	5.41	1199.13	368.23	0.30
Parkers Creek	1	16155	50 YEAR	6032.00	895.08	908.02		908.55	0.001150	6.10	1552.82	540.50	0.33
Parkers Creek	1	16155	100 YEAR	6342.00	895.08	908.17		908.74	0.001214	6.32	1652.49	808.08	0.34
Parkers Creek	1	15610	10 YEAR	3354.00	895.98	905.53		905.84	0.000967	4.65	931.70	261.80	0.29
Parkers Creek	1	15610	25 YEAR	4750.00	895.98	906.56		907.00	0.001200	5.60	1245.89	352.78	0.33
Parkers Creek	1	15610	50 YEAR	6032.00	895.98	907.29		907.85	0.001420	6.41	1601.27	793.98	0.36
Parkers Creek	1	15610	100 YEAR	6342.00	895.98	907.43		908.01	0.001457	6.56	1718.46	881.82	0.36
Parkers Creek	1	14804	10 YEAR	3354.00	897.00	904.89		905.09	0.000828	3.75	1195.82	363.71	0.26
Parkers Creek	1	14804	25 YEAR	4750.00	897.00	905.81		906.08	0.000980	4.45	1628.94	546.47	0.29
Parkers Creek	1	14804	50 YEAR	6032.00	897.00	906.42		906.76	0.001141	5.06	2186.68	1303.64	0.31
Parkers Creek	1	14804	100 YEAR	6342.00	897.00	906.55		906.90	0.001160	5.16	2357.52	1437.76	0.32
Parkers Creek	1	13499	10 YEAR	3354.00	897.00	903.60		903.75	0.001270	3.18	1078.78	342.22	0.29
Parkers Creek	1	13499	25 YEAR	4779.00	897.00	904.42		904.61	0.001257	3.61	1624.75	1143.21	0.30
Parkers Creek	1	13499	50 YEAR	6057.00	897.00	905.02		905.22	0.001154	3.76	2419.09	1538.85	0.29
Parkers Creek	1	13499	100 YEAR	6413.00	897.00	905.15		905.35	0.001145	3.81	2609.77	1558.82	0.29
Parkers Creek	1	11935	10 YEAR	3354.00	895.00	898.77	898.33	899.58	0.008286	7.48	538.82	244.60	0.73
Parkers Creek	1	11935	25 YEAR	4779.00	895.00	899.45	899.02	900.46	0.008343	8.50	723.11	294.59	0.75
Parkers Creek	1	11935	50 YEAR	6057.00	895.00	899.74	899.61	901.07	0.010168	9.83	810.73	308.68	0.84
Parkers Creek	1	11935	100 YEAR	6413.00	895.00	899.90	899.77	901.24	0.009882	9.93	860.48	317.71	0.83
Parkers Creek	1	11044	10 YEAR	3354.00	889.10	896.69		896.94	0.001372	4.41	1248.09	768.30	0.32
Parkers Creek	1	11044	25 YEAR	4779.00	889.10	897.48		897.74	0.001380	4.81	2200.51	1416.80	0.33
Parkers Creek	1	11044	50 YEAR	6057.00	889.10	897.96		898.21	0.001307	4.92	2904.90	1467.66	0.33
Parkers Creek	1	11044	100 YEAR	6413.00	889.10	898.06		898.32	0.001363	5.07	3056.16	1592.38	0.33
Parkers Creek	1	10643	10 YEAR	3354.00	888.00	895.69		896.20	0.002447	6.01	889.03	629.09	0.43
Parkers Creek	1	10643	25 YEAR	4779.00	888.00	896.60		897.05	0.002131	6.17	1771.51	1308.82	0.41
Parkers Creek	1	10643	50 YEAR	6057.00	888.00	897.17		897.56	0.001950	6.22	2621.85	1709.36	0.40
Parkers Creek	1	10643	100 YEAR	6413.00	888.00	897.34		897.69	0.001792	6.05	2917.42	1758.80	0.39
Parkers Creek	1	10392	10 YEAR	3354.00	887.05	894.92	892.98	895.50	0.003126	6.27	704.85	485.28	0.48
Parkers Creek	1	10392	25 YEAR	4779.00	887.05	896.06		896.50	0.002233	6.03	1705.26	1286.63	0.42
Parkers Creek	1	10392	50 YEAR	6057.00	887.05	896.82		897.10	0.001508	5.34	2949.87	1799.99	0.35
Parkers Creek	1	10392	100 YEAR	6413.00	887.05	897.02		897.27	0.001372	5.19	3309.83	1853.14	0.34
Parkers Creek	1	10183	10 YEAR	3354.00	883.25	891.26		892.10	0.003903	7.36	472.58	101.04	0.54
Parkers Creek	1	10183	25 YEAR	4779.00	883.25	892.52		893.61	0.003975	8.48	618.70	136.08	0.57
Parkers Creek	1	10183	50 YEAR	6057.00	883.25	893.48		894.77	0.004002	9.27	774.05	191.40	0.58
Parkers Creek	1	10183	100 YEAR	6413.00	883.25	893.74		895.06	0.003979	9.44	825.28	208.37	0.58
Parkers Creek	1	10004	10 YEAR	3354.00	883.00	890.51		891.35	0.004482	7.37	464.07	105.57	0.57
Parkers Creek	1	10004	25 YEAR	4779.00	883.00	891.84		892.87	0.004099	8.22	637.13	156.61	0.57
Parkers Creek	1	10004	50 YEAR	6057.00	883.00	892.88	890.70	894.03	0.003839	8.78	844.53	262.69	0.56
Parkers Creek	1	10004	100 YEAR	6413.00	883.00	893.13	890.95	894.33	0.003824	8.96	929.29	406.85	0.57
Parkers Creek	1	9774	10 YEAR	3354.00	883.00	890.32	886.71	890.65	0.001467	4.63	724.26	120.95	0.33
Parkers Creek	1	9774	25 YEAR	4779.00	883.00	891.69	887.62	892.13	0.001548	5.32	922.81	178.18	0.35
Parkers Creek	1	9774	50 YEAR	6057.00	883.00	892.76	888.37	893.25	0.001493	5.71	1245.46	373.33	0.35
Parkers Creek	1	9774	100 YEAR	6413.00	883.00	893.04	888.55	893.54	0.001454	5.77	1348.22	1094.87	0.35
Parkers Creek	1	9758		Bridge									
Parkers Creek	1	9658	10 YEAR	3354.00	883.00	889.90	886.76	890.30	0.001901	5.09	659.56	116.30	0.38
Parkers Creek	1	9658	25 YEAR	4779.00	883.00	891.27	887.70	891.78	0.001823	5.73	958.05	365.76	0.38
Parkers Creek	1	9658	50 YEAR	6057.00	883.00	892.39	888.43	892.90	0.001613	5.94	1360.62	590.07	0.37
Parkers Creek	1	9658	100 YEAR	6413.00	883.00	892.68	888.65	893.19	0.001556	5.98	1469.80	657.04	0.36
Parkers Creek	1	9593	10 YEAR	3354.00	883.00	889.78	886.67	890.17	0.001814	5.03	688.37	157.91	0.37
Parkers Creek	1	9593	25 YEAR	4779.00	883.00	891.17	887.60	891.65	0.001785	5.63	948.49	339.56	0.38
Parkers Creek	1	9593	50 YEAR	6057.00	883.00	892.24	888.31	892.78	0.001687	6.03	1192.84	579.89	0.38
Parkers Creek	1	9593	100 YEAR	6413.00	883.00	892.53	888.51	893.08	0.001660	6.12	1267.69	660.88	0.37
Parkers Creek	1	9585		Bridge									
Parkers Creek	1	9421	10 YEAR	3354.00	882.98	887.99	886.93	888.98	0.006852	7.98	420.21	98.85	0.68
Parkers Creek	1	9421	25 YEAR	4779.00	882.98	889.03	887.91	890.31	0.007153	9.08	526.17	105.09	0.72
Parkers Creek	1	9421	50 YEAR	6057.00	882.98	889.84	888.69	891.36	0.007342	9.88	613.19	109.94	0.74
Parkers Creek	1	9421	100 YEAR	6413.00	882.98	890.05	888.89	891.63	0.007384	10.08	636.49	111.21	0.74
Parkers Creek	1	7969	10 YEAR	3354.00	876.00	882.82		882.94	0.000454	2.82	1447.32	295.03	0.19
Parkers Creek	1	7969	25 YEAR	4779.00	876.00	884.27		884.42	0.000459	3.23	1903.15	339.79	0.20
Parkers Creek	1	7969	50 YEAR	6057.00	876.00	885.36		885.54	0.000465	3.53	2292.75	374.20	0.20
Parkers Creek	1	7969	100 YEAR	6413.00	876.00	885.64		885.82	0.000468	3.62	2397.98	385.34	0.21
Parkers Creek	1	5702	10 YEAR	3354.00	873.73	881.23		881.50	0.001059	4.29	891.81	219.68	0.29
Parkers Creek	1	5702	25 YEAR	4779.00	873.73	882.59		882.94	0.001088	4.91	1228.89	274.44	0.30
Parkers Creek	1	5702	50 YEAR	6057.00	873.73	883.62		884.02	0.001102	5.35	1525.83	304.37	0.31
Parkers Creek	1	5702	100 YEAR	6413.00	873.73	883.87		884.29	0.001113	5.47	1603.95	316.56	0.31

HEC-RAS Plan: ALT 3 (Continued)

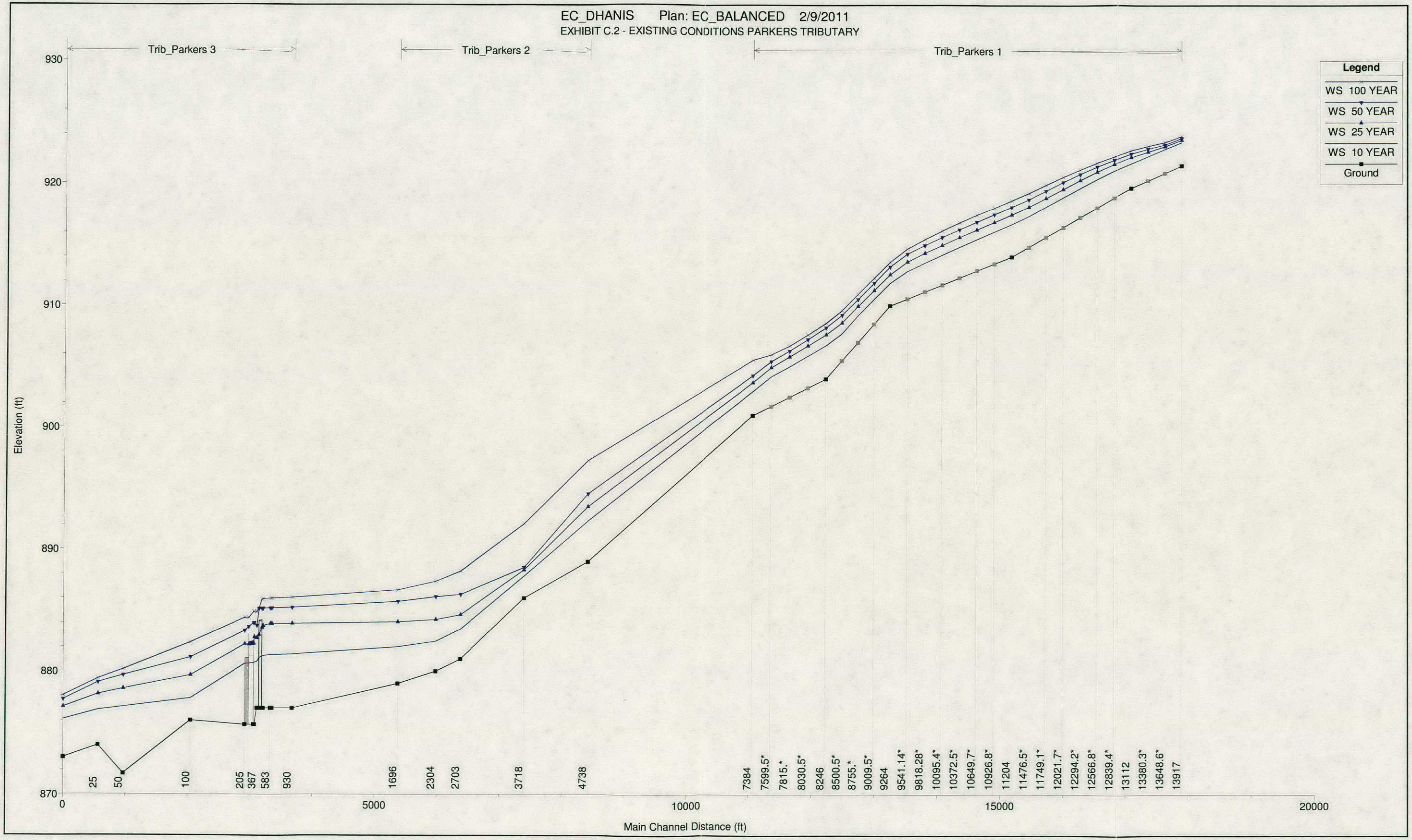
River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Parkers Creek	1	4875	10 YEAR	3354.00	872.90	880.15		880.50	0.001411	4.78	761.35	181.90	0.33
Parkers Creek	1	4875	25 YEAR	4779.00	872.90	881.44		881.90	0.001481	5.53	1025.63	228.56	0.35
Parkers Creek	1	4875	50 YEAR	6057.00	872.90	882.40		882.94	0.001535	6.09	1267.32	275.66	0.36
Parkers Creek	1	4875	100 YEAR	6413.00	872.90	882.64		883.20	0.001552	6.23	1333.03	283.61	0.37
Parkers Creek	1	2961	10 YEAR	3354.00	870.99	877.76		878.00	0.001009	4.09	1028.17	269.00	0.28
Parkers Creek	1	2961	25 YEAR	4779.00	870.99	878.91		879.23	0.001105	4.77	1373.44	331.44	0.30
Parkers Creek	1	2961	50 YEAR	6057.00	870.99	879.74		880.13	0.001184	5.29	1699.96	412.62	0.32
Parkers Creek	1	2961	100 YEAR	6413.00	870.99	879.92		880.33	0.001222	5.45	1775.63	432.74	0.33
Parkers Creek	1	1319	10 YEAR	3354.00	869.35	874.09	873.49	875.04	0.008934	7.85	440.93	198.44	0.75
Parkers Creek	1	1319	25 YEAR	4779.00	869.35	874.41	874.41	875.98	0.013088	10.11	508.08	215.68	0.93
Parkers Creek	1	1319	50 YEAR	6057.00	869.35	875.26	875.00	876.76	0.009795	10.04	716.13	276.89	0.83
Parkers Creek	1	1319	100 YEAR	6413.00	869.35	875.73	875.25	877.00	0.007534	9.39	849.15	296.64	0.74
Parkers Creek	2	1300	10 YEAR	3882.00	869.00	873.59		873.60	0.000327	1.79	5523.76	2577.36	0.15
Parkers Creek	2	1300	25 YEAR	5514.00	869.00	874.06		874.08	0.000374	2.05	6743.52	2609.03	0.16
Parkers Creek	2	1300	50 YEAR	9579.00	869.00	874.99		875.01	0.000455	2.55	9199.83	2681.52	0.19
Parkers Creek	2	1300	100 YEAR	11419.00	869.00	875.40		875.43	0.000460	2.68	10323.89	2720.10	0.19
Parkers Creek	2	1250	10 YEAR	3882.00	868.09	871.66	871.66	872.28	0.008664	7.49	881.01	1165.25	0.74
Parkers Creek	2	1250	25 YEAR	5514.00	868.09	872.13	872.13	872.65	0.007391	7.58	1665.07	1842.40	0.70
Parkers Creek	2	1250	50 YEAR	9579.00	868.09	873.68		873.83	0.002115	5.13	4770.65	2044.25	0.40
Parkers Creek	2	1250	100 YEAR	11419.00	868.09	874.18		874.32	0.001741	4.95	5806.47	2060.82	0.37
Parkers Creek	2	1200	10 YEAR	3882.00	860.10	867.72		867.82	0.000559	3.19	1654.75	370.87	0.21
Parkers Creek	2	1200	25 YEAR	5514.00	860.10	870.67		870.74	0.000282	2.88	2929.00	535.11	0.16
Parkers Creek	2	1200	50 YEAR	9579.00	860.10	872.39		872.51	0.000431	3.96	4280.29	876.26	0.20
Parkers Creek	2	1200	100 YEAR	11419.00	860.10	872.74		872.90	0.000533	4.49	4593.03	886.04	0.23
Parkers Creek	2	1150	10 YEAR	5997.00	859.43	862.99	862.44	863.32	0.012688	5.59	1738.22	1160.61	0.55
Parkers Creek	2	1150	25 YEAR	23960.00	859.43	867.02		867.20	0.003635	5.15	9366.04	3062.74	0.34
Parkers Creek	2	1150	50 YEAR	38387.00	859.43	868.17		868.37	0.003720	5.75	13213.10	3449.23	0.35
Parkers Creek	2	1150	100 YEAR	41234.00	859.43	868.36		868.57	0.003725	5.84	13876.77	3483.26	0.35
Parkers Creek	2	1100	10 YEAR	5997.00	849.94	856.90		856.98	0.001069	2.56	3153.93	830.93	0.18
Parkers Creek	2	1100	25 YEAR	23960.00	849.94	859.69		859.92	0.002493	4.99	9966.64	3903.33	0.29
Parkers Creek	2	1100	50 YEAR	38387.00	849.94	860.97		861.18	0.002401	5.35	15062.41	4099.74	0.29
Parkers Creek	2	1100	100 YEAR	41234.00	849.94	861.19		861.40	0.002385	5.40	15976.63	4140.63	0.29
Parkers Creek	2	1050	10 YEAR	5997.00	849.92	853.44		853.59	0.005950	3.92	2493.99	1399.39	0.38
Parkers Creek	2	1050	25 YEAR	23960.00	849.92	857.20		857.25	0.001157	2.86	15723.95	4255.85	0.19
Parkers Creek	2	1050	50 YEAR	38387.00	849.92	858.47		858.54	0.001177	3.23	21248.44	4422.71	0.20
Parkers Creek	2	1050	100 YEAR	41234.00	849.92	858.68		858.74	0.001195	3.30	22154.63	4452.77	0.20
Parkers Creek	2	1000	10 YEAR	5997.00	839.36	847.96		848.07	0.001294	3.25	2802.65	596.97	0.20
Parkers Creek	2	1000	25 YEAR	23960.00	839.36	853.49		853.78	0.002072	5.87	10451.34	4125.05	0.28
Parkers Creek	2	1000	50 YEAR	38387.00	839.36	855.26		855.45	0.001576	5.56	19642.97	6963.14	0.25
Parkers Creek	2	1000	100 YEAR	41234.00	839.36	855.64		855.81	0.001400	5.33	22415.35	7527.56	0.24
Parkers Creek	2	950	10 YEAR	5997.00	839.28	846.49		846.54	0.000819	2.32	4646.91	1355.35	0.16
Parkers Creek	2	950	25 YEAR	23960.00	839.28	851.41		851.52	0.001111	3.91	12993.58	2489.00	0.20
Parkers Creek	2	950	50 YEAR	38387.00	839.28	853.47		853.57	0.001003	4.14	20851.37	5866.28	0.20
Parkers Creek	2	950	100 YEAR	43234.00	839.28	853.95		854.06	0.000986	4.20	24010.27	6826.78	0.20
Parkers Creek	2	900	10 YEAR	5997.00	839.37	845.45		845.57	0.002054	3.22	2784.06	828.90	0.24
Parkers Creek	2	900	25 YEAR	23960.00	839.37	849.95		850.23	0.002633	5.44	7774.13	1451.75	0.30
Parkers Creek	2	900	50 YEAR	38387.00	839.37	852.05		852.36	0.002635	6.18	12132.78	3784.86	0.31
Parkers Creek	2	900	100 YEAR	43234.00	839.37	852.58		852.88	0.002515	6.21	14617.14	5313.54	0.31
Parkers Creek	2	850	10 YEAR	5997.00	839.66	845.10		845.23	0.002768	3.54	2635.16	965.97	0.28
Parkers Creek	2	850	25 YEAR	23960.00	839.66	849.69		849.87	0.002058	4.70	8818.84	1776.69	0.27
Parkers Creek	2	850	50 YEAR	38387.00	839.66	851.79		852.00	0.002066	5.37	13860.95	3127.64	0.28
Parkers Creek	2	850	100 YEAR	43234.00	839.66	852.31		852.52	0.002095	5.56	15653.62	3700.07	0.28
Parkers Creek	2	800	10 YEAR	5997.00	828.29	835.71	833.05	836.03	0.004217	5.14	1677.95	437.89	0.36
Parkers Creek	2	800	25 YEAR	23960.00	828.29	841.53	837.37	842.11	0.004216	7.90	6049.13	1323.82	0.40
Parkers Creek	2	800	50 YEAR	38387.00	828.29	843.64	839.02	844.24	0.004214	8.77	9958.08	2316.70	0.41
Parkers Creek	2	800	100 YEAR	43234.00	828.29	844.11	840.74	844.71	0.004214	8.96	11074.98	2398.89	0.41

APPENDIX C

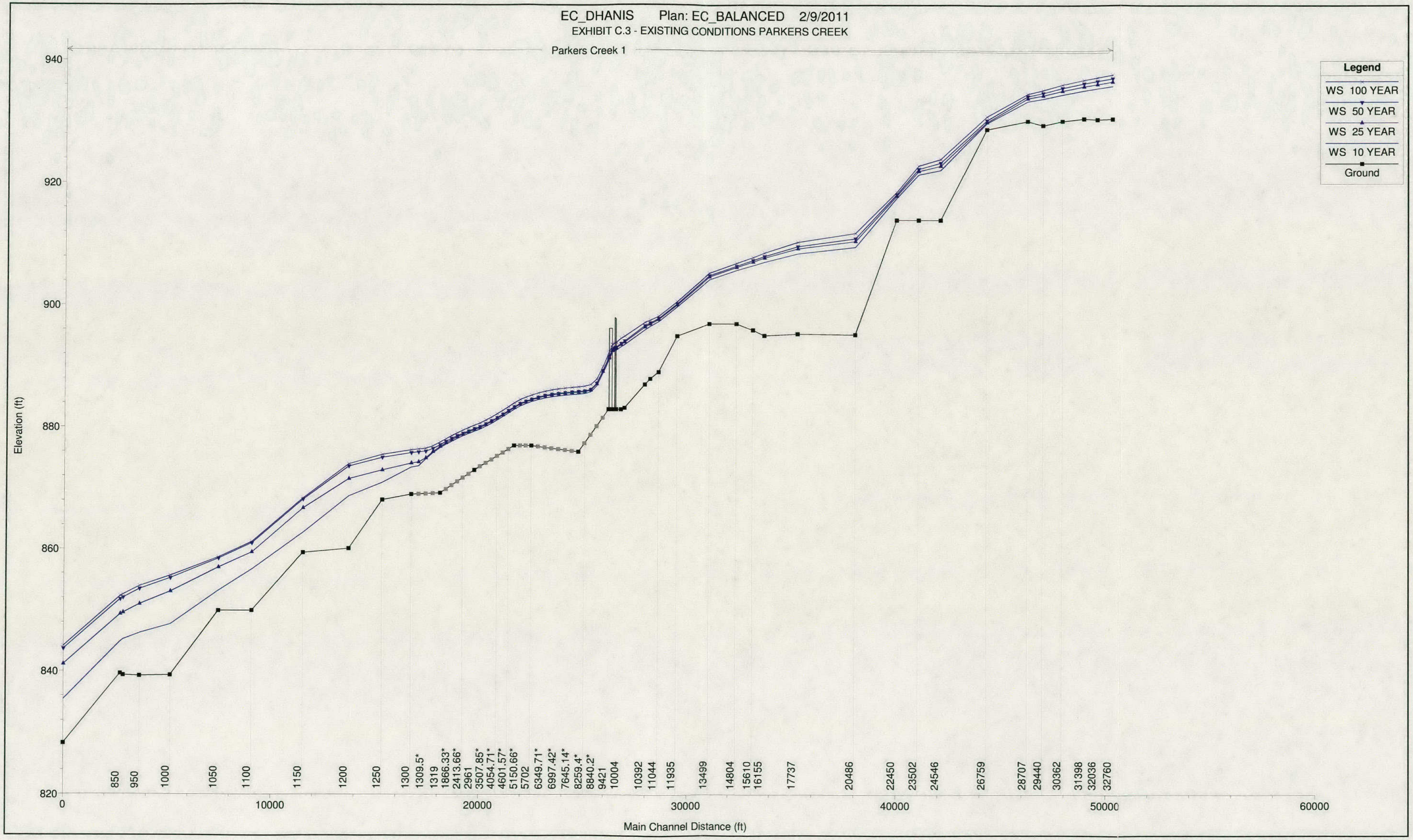
APPENDIX C – HEC-RAS PROFILES

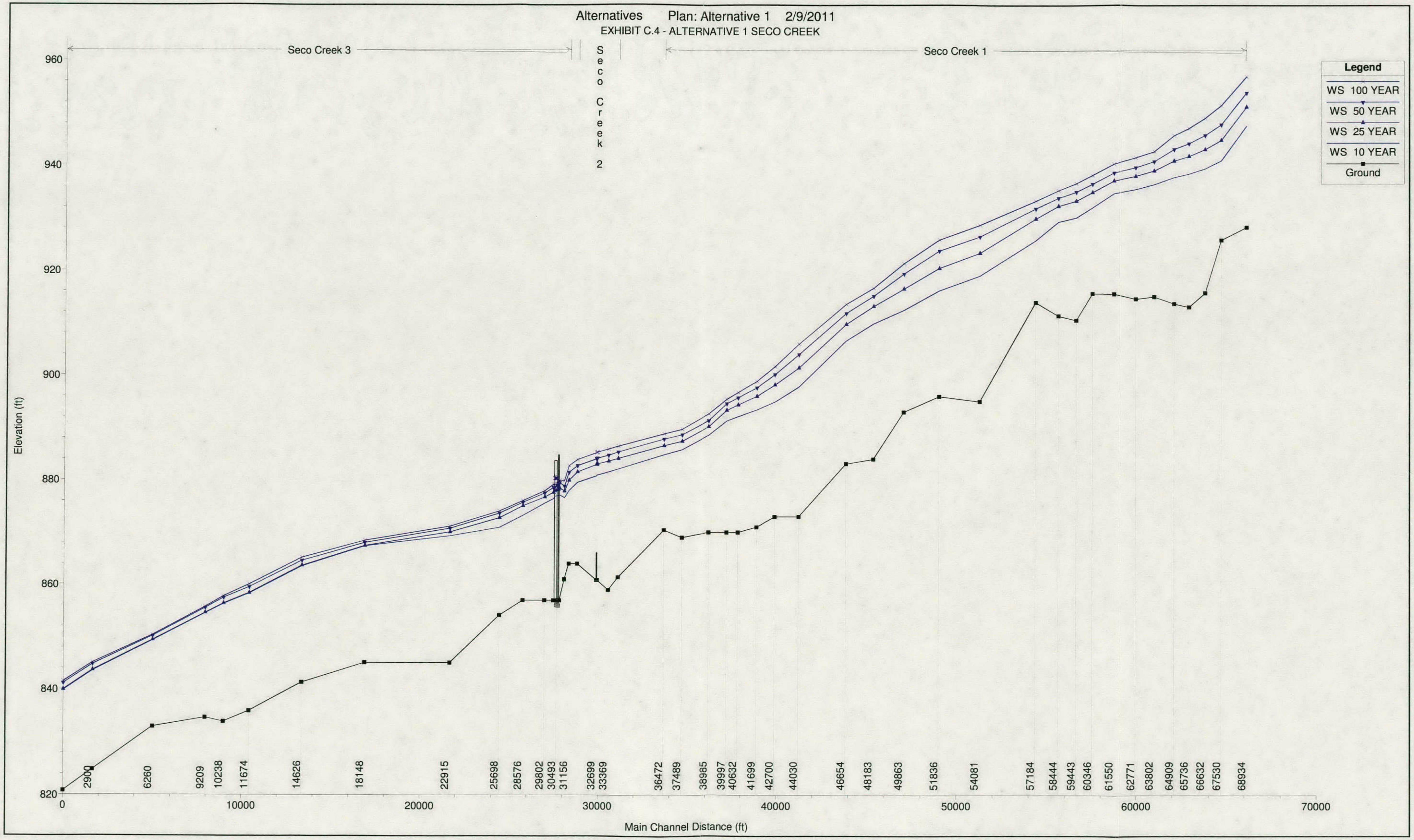


EC_DHANIS Plan: EC_BALANCED 2/9/2011
EXHIBIT C.1 - EXISTING CONDITIONS SECO CREEK
Seco Creek 1
Legend
WS 100 YEAR
WS 50 YEAR
WS 25 YEAR
WS 10 YEAR
Ground
Elevation (ft)
960
940
920
900
880
860
840
820
0
10000
20000
30000
40000
50000
60000
70000
Main Channel Distance (ft)
2900
6260
9209
10238
11674
14626
18148
22915
25698
28576
29802
30493
31156
32699
33369
36472
37489
38985
39997
40632
41699
42700
44030
46654
48183
49863
51836
54081
57184
58444
59443
60346
61550
62771
63802
64909
65736
66632
67530
68934

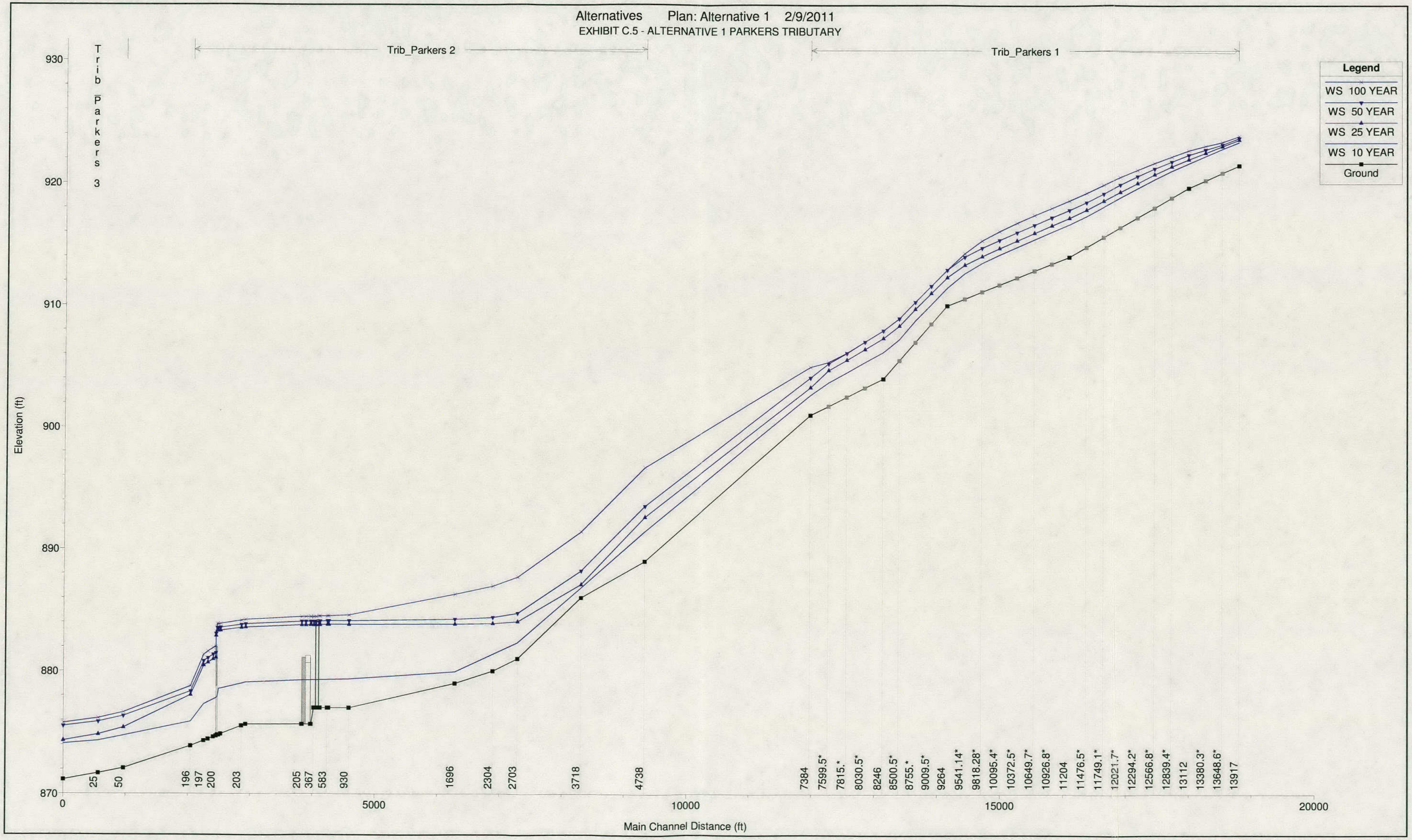


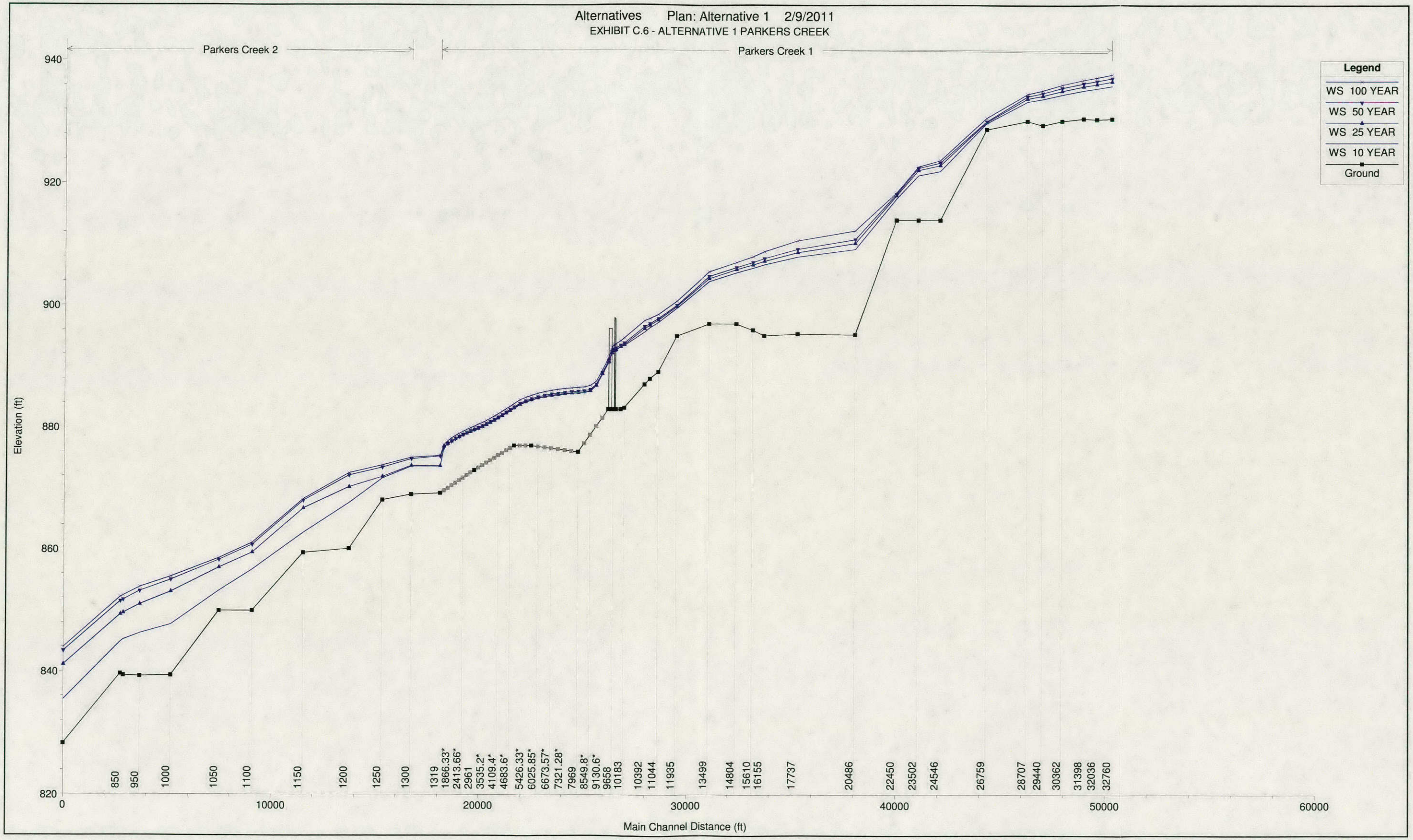
EC_DHANIS Plan: EC_BALANCED 2/9/2011
EXHIBIT C.2 - EXISTING CONDITIONS PARKERS TRIBUTARY
Trib_Parkers 3
Trib_Parkers 2
Trib_Parkers 1
Legend
WS 100 YEAR
WS 50 YEAR
WS 25 YEAR
WS 10 YEAR
Ground
Elevation (ft)
930
920
910
900
890
880
870
0
5000
10000
15000
20000
Main Channel Distance (ft)
25
50
100
205
367
583
930
1696
2304
2703
3718
4738
7384
7599.5*
7815.*
8030.5*
8246
8500.5*
8755.*
9009.5*
9264
9541.14*
9818.28*
10095.4*
10372.5*
10649.7*
10926.8*
11204
11476.5*
11749.1*
12021.7*
12294.2*
12566.8*
12839.4*
13112
13380.3*
13648.6*
13917


EC_DHANIS Plan: EC_BALANCED 2/9/2011
EXHIBIT C.3 - EXISTING CONDITIONS PARKERS CREEK
Parkers Creek 1
Legend
WS 100 YEAR
WS 50 YEAR
WS 25 YEAR
WS 10 YEAR
Ground
Elevation (ft)
940
920
900
880
860
840
820
Main Channel Distance (ft)
0
10000
20000
30000
40000
50000
60000
850
950
1000
1050
1100
1150
1200
1250
1300
1309.5*
1319
1866.33*
2413.66*
2961
3507.85*
4054.71*
4601.57*
5150.66*
5702
6349.71*
6997.42*
7645.14*
8259.4*
8840.2*
9421
10004
10392
11044
11935
13499
14804
15610
16155
17737
20486
22450
23502
24546
26759
28707
29440
30362
31398
32036
32760

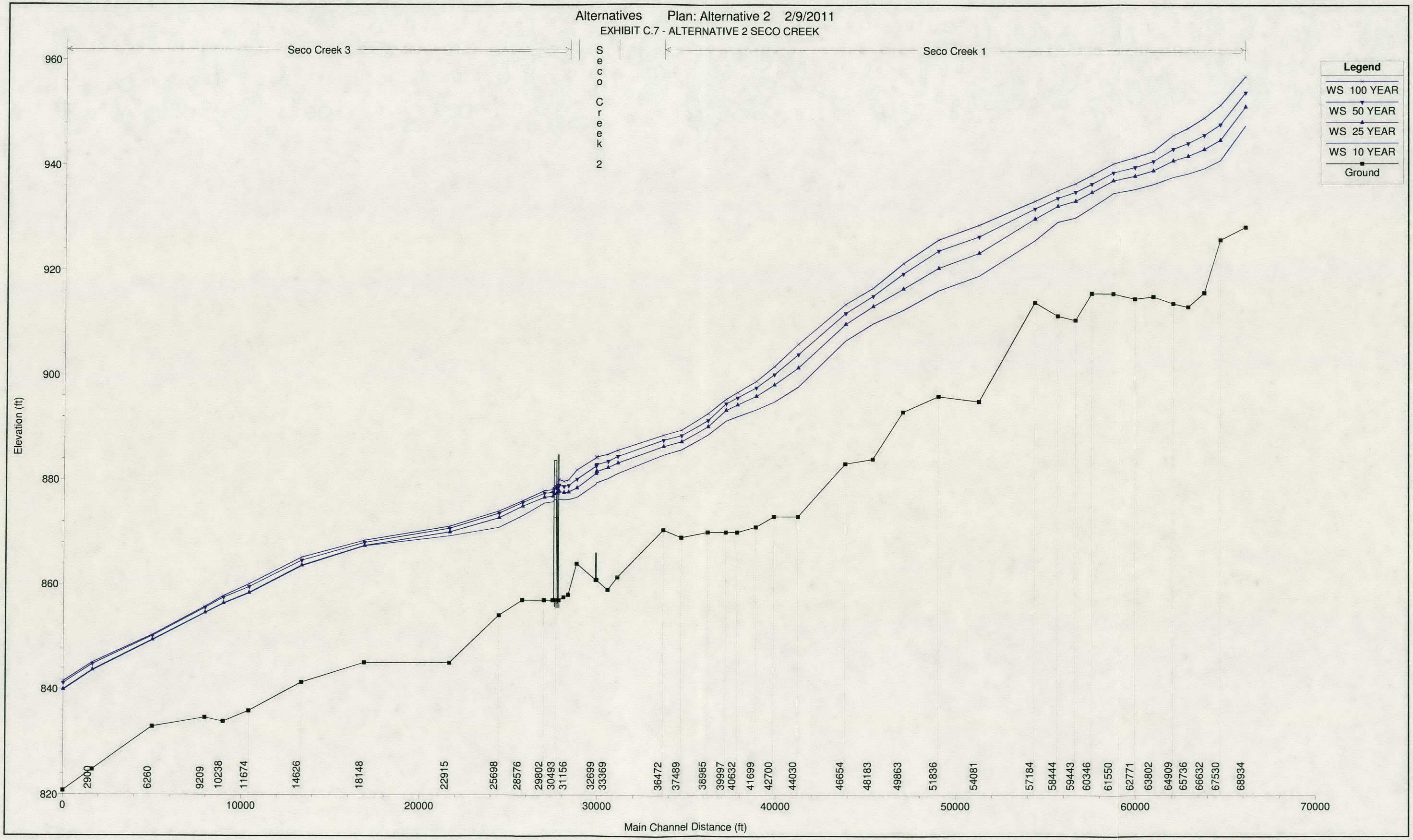


Alternatives Plan: Alternative 1 2/9/2011
EXHIBIT C.4 - ALTERNATIVE 1 SECO CREEK
Seco Creek 3
Seco Creek 2
Seco Creek 1
Legend
WS 100 YEAR
WS 50 YEAR
WS 25 YEAR
WS 10 YEAR
Ground
Elevation (ft)
Main Channel Distance (ft)
820
840
860
880
900
920
940
960
0
10000
20000
30000
40000
50000
60000
70000
2900
6260
9209
10238
11674
14626
18148
22915
25698
28576
29802
30493
31156
32699
33369
36472
37489
38985
39997
40632
41699
42700
44030
46654
48183
49863
51836
54081
57184
58444
59443
60346
61550
62771
63802
64909
65736
66632
67530
68934

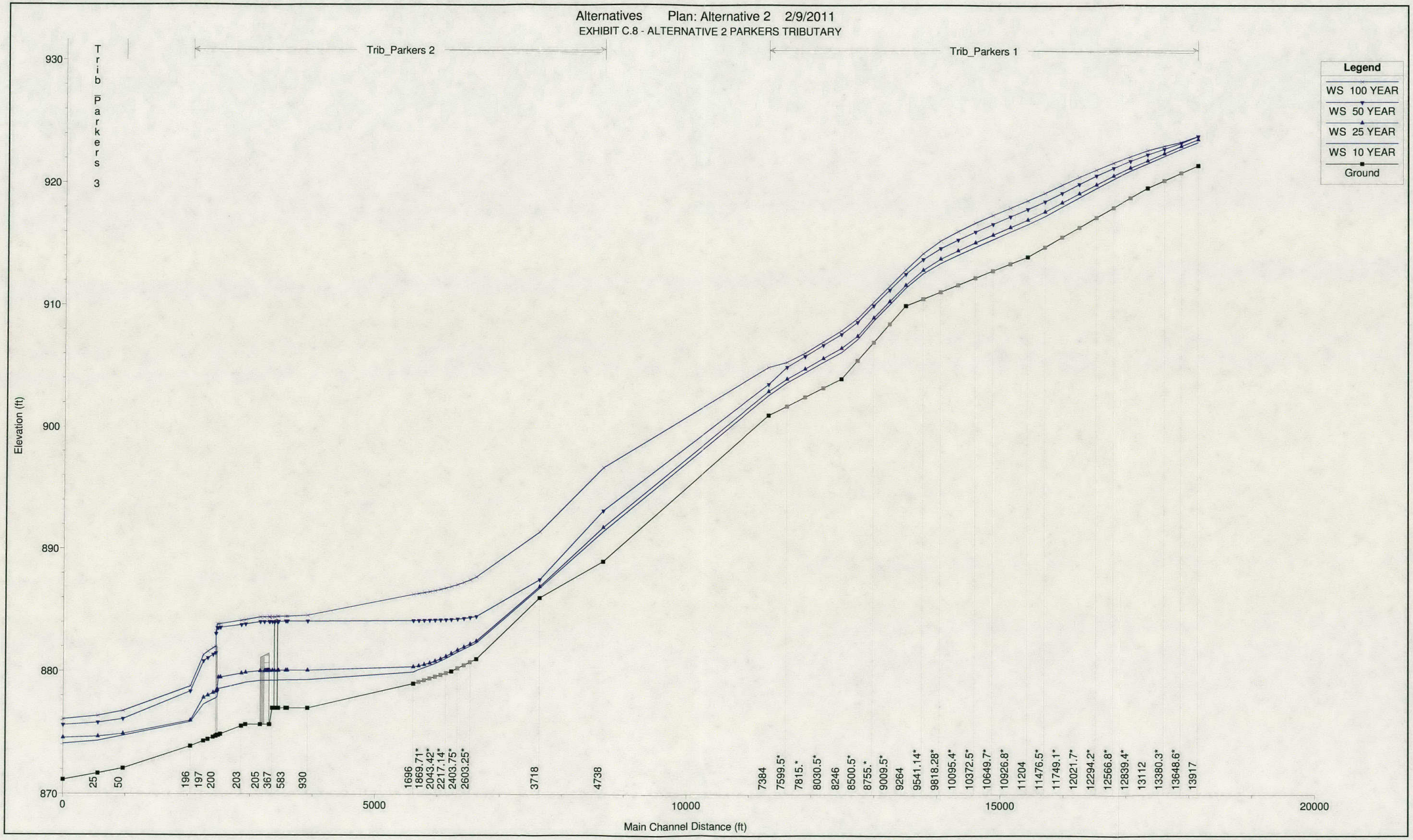

Alternatives Plan: Alternative 1 2/9/2011
EXHIBIT C.5 - ALTERNATIVE 1 PARKERS TRIBUTARY
Trib_Parkers 2
Trib_Parkers 1
Trib_Parkers 3
Legend
WS 100 YEAR
WS 50 YEAR
WS 25 YEAR
WS 10 YEAR
Ground
Elevation (ft)
Main Channel Distance (ft)
930
920
910
900
890
880
870
0
5000
10000
15000
20000
25
50
196
197
200
203
205
367
583
930
1696
2304
2703
3718
4738
7384
7599.5*
7815.*
8030.5*
8246
8500.5*
8755.*
9009.5*
9264
9541.14*
9818.28*
10095.4*
10372.5*
10649.7*
10926.8*
11204
11476.5*
11749.1*
12021.7*
12294.2*
12566.8*
12839.4*
13112
13380.3*
13648.6*
13917



Alternatives Plan: Alternative 1 2/9/2011
EXHIBIT C.6 - ALTERNATIVE 1 PARKERS CREEK
Parkers Creek 2
Parkers Creek 1
Legend
WS 100 YEAR
WS 50 YEAR
WS 25 YEAR
WS 10 YEAR
Ground
Elevation (ft)
Main Channel Distance (ft)
820
840
860
880
900
920
940
0
10000
20000
30000
40000
50000
60000
850
950
1000
1050
1100
1150
1200
1250
1300
1319
1866.33*
2413.66*
2961
3535.2*
4109.4*
4683.6*
5426.33*
6025.85*
6673.57*
7321.28*
7969
8549.8*
9130.6*
9658
10183
10392
11044
11935
13499
14804
15610
16155
17737
20486
22450
23502
24546
26759
28707
29440
30362
31398
32036
32760



Alternatives Plan: Alternative 2 2/9/2011
EXHIBIT C.7 - ALTERNATIVE 2 SECO CREEK
Seco Creek 3
Seco Creek 2
Seco Creek 1
Legend
WS 100 YEAR
WS 50 YEAR
WS 25 YEAR
WS 10 YEAR
Ground
Elevation (ft)
960
940
920
900
880
860
840
820
0
10000
20000
30000
40000
50000
60000
70000
Main Channel Distance (ft)
2900
6260
9209
10238
11674
14626
18148
22915
25698
28576
29802
30493
31156
32699
33369
36472
37489
38985
39997
40632
41699
42700
44030
46654
48183
49863
51836
54081
57184
58444
59443
60346
61550
62771
63802
64909
65736
66632
67530
68934



Alternatives Plan: Alternative 2 2/9/2011
EXHIBIT C.8 - ALTERNATIVE 2 PARKERS TRIBUTARY
Trib_Parkers 2
Trib_Parkers 1
Trib_Parkers 3
Legend
WS 100 YEAR
WS 50 YEAR
WS 25 YEAR
WS 10 YEAR
Ground
Elevation (ft)
Main Channel Distance (ft)
930
920
910
900
890
880
870
0
5000
10000
15000
20000
25
50
196
197
200
203
205
367
583
930
1696
1869.71*
2043.42*
2217.14*
2403.75*
2603.25*
3718
4738
7384
7599.5*
7815.*
8030.5*
8246
8500.5*
8755.*
9009.5*
9264
9541.14*
9818.28*
10095.4*
10372.5*
10649.7*
10926.8*
11204
11476.5*
11749.1*
12021.7*
12294.2*
12566.8*
12839.4*
13112
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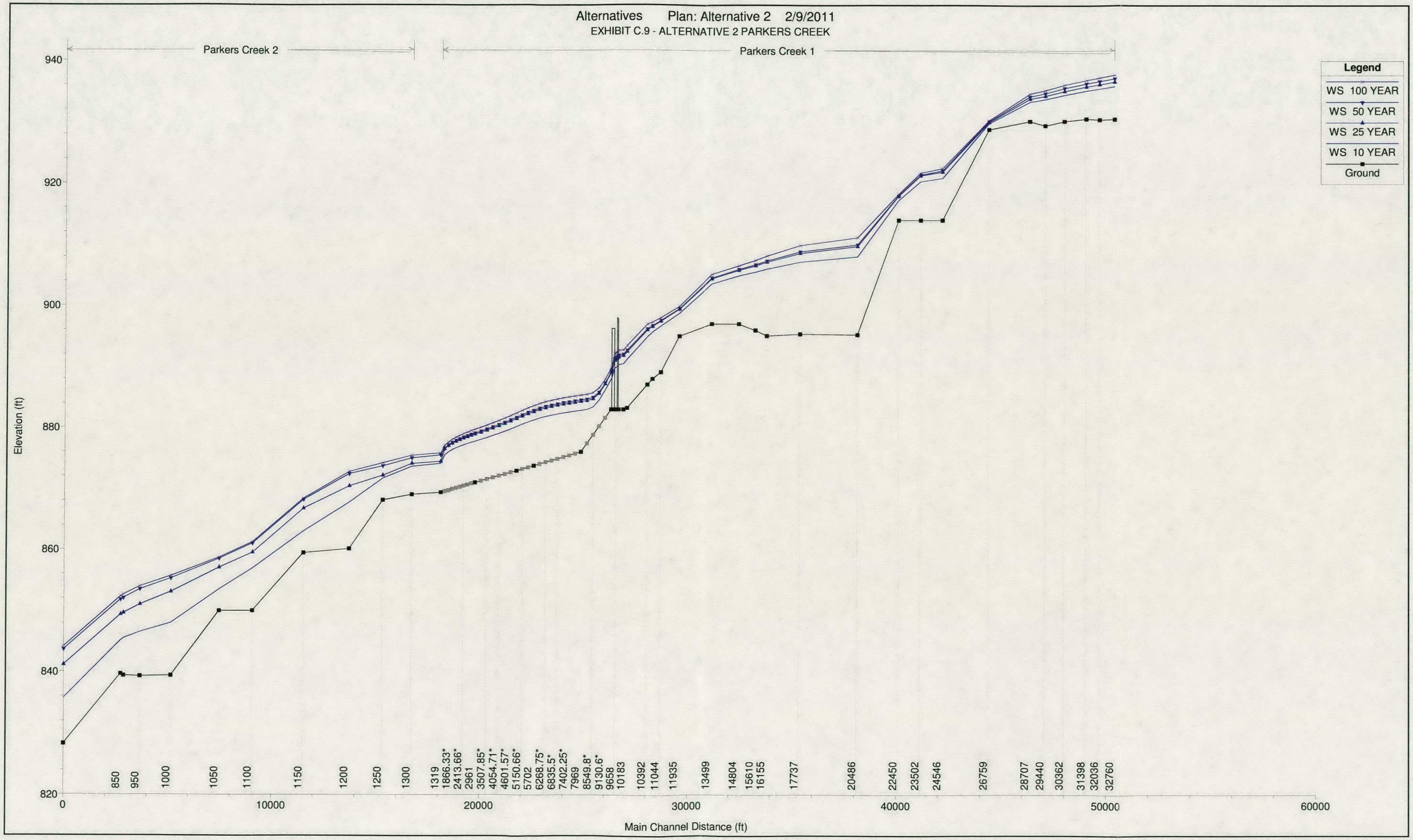
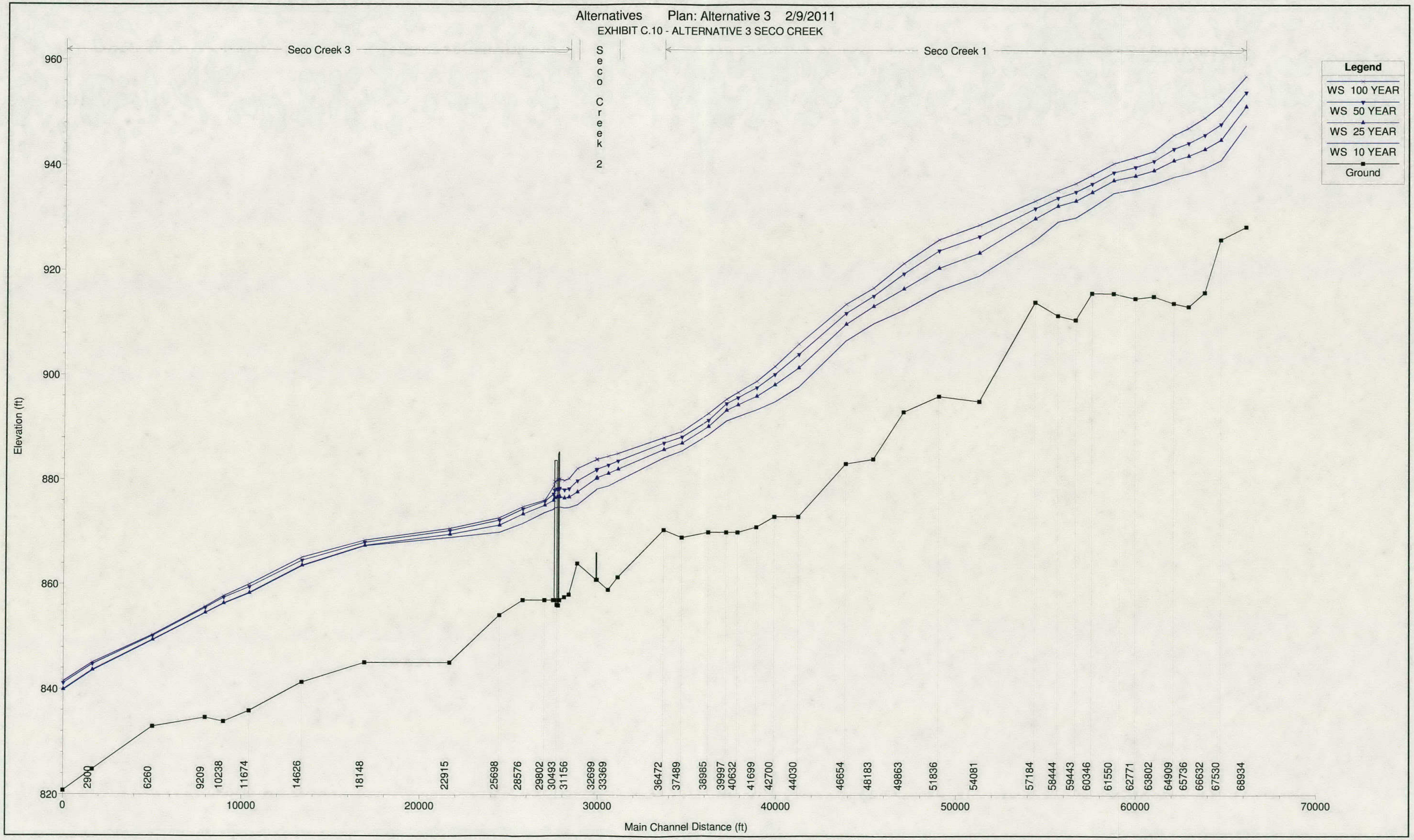
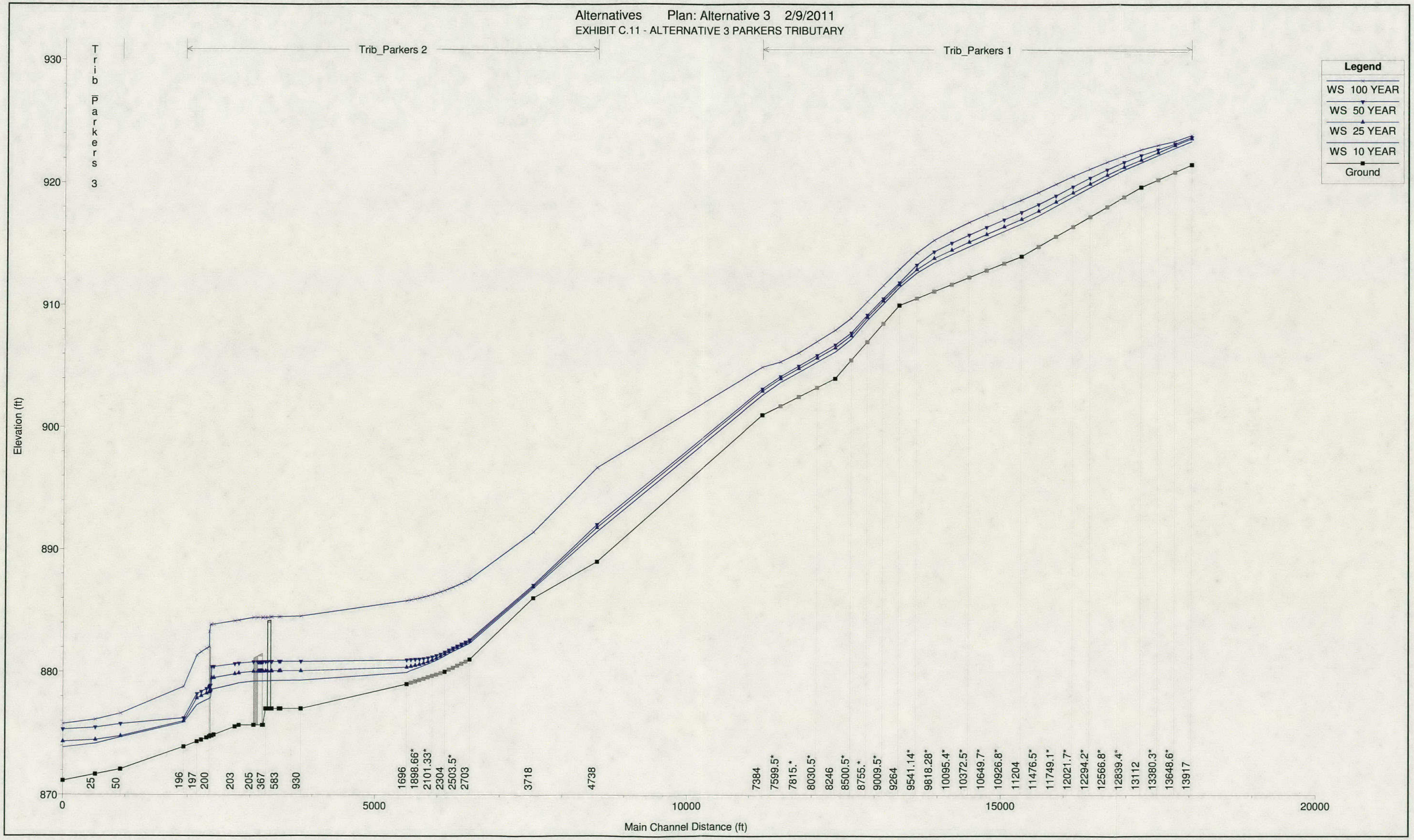
13648.6*
13917



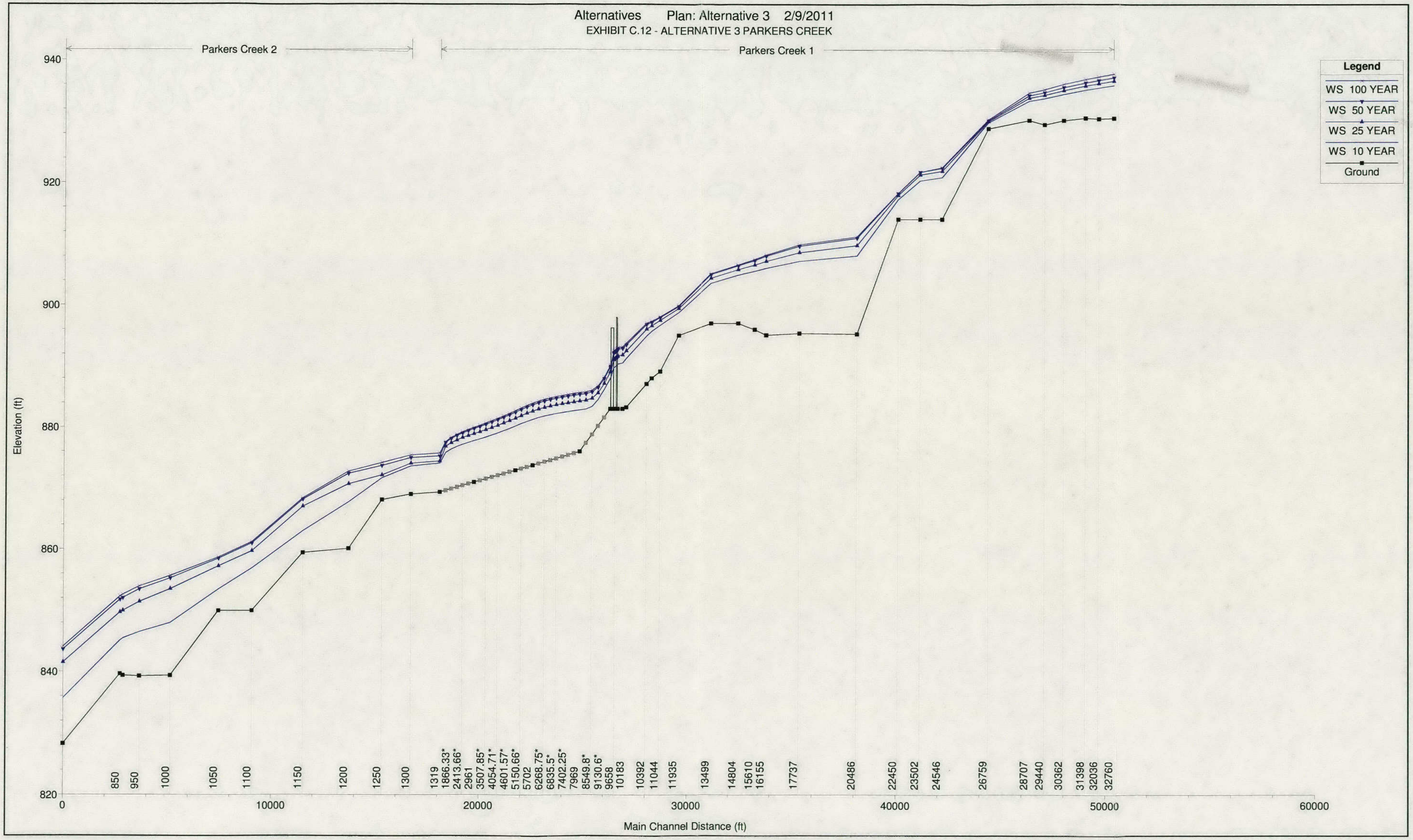
Alternatives Plan: Alternative 2 2/9/2011
EXHIBIT C.9 - ALTERNATIVE 2 PARKERS CREEK
Parkers Creek 2
Parkers Creek 1
Legend
WS 100 YEAR
WS 50 YEAR
WS 25 YEAR
WS 10 YEAR
Ground
Elevation (ft)
940
920
900
880
860
840
820
850
950
1000
1050
1100
1150
1200
1250
1300
1319
1866.33*
2413.66*
2961
3507.85*
4054.71*
4601.57*
5150.66*
5702
6268.75*
6835.5*
7402.25*
7969
8549.8*
9130.6*
9658
10183
10392
11044
11935
13499
14804
15610
16155
17737
20486
22450
23502
24546
26759
28707
29440
30362
31398
32036
32760
0
10000
20000
30000
40000
50000
60000
Main Channel Distance (ft)



Alternatives Plan: Alternative 3 2/9/2011
EXHIBIT C.10 - ALTERNATIVE 3 SECO CREEK
Seco Creek 3
Seco Creek 2
Seco Creek 1
Legend
WS 100 YEAR
WS 50 YEAR
WS 25 YEAR
WS 10 YEAR
Ground
Elevation (ft)
Main Channel Distance (ft)
960
940
920
900
880
860
840
820
0
10000
20000
30000
40000
50000
60000
70000
2900
6260
9209
10238
11674
14626
18148
22915
25698
28576
29802
30493
31156
32699
33369
36472
37489
38985
39997
40632
41699
42700
44030
46654
48183
49863
51836
54081
57184
58444
59443
60346
61550
62771
63802
64909
65736
66632
67530
68934



Alternatives Plan: Alternative 3 2/9/2011
EXHIBIT C.11 - ALTERNATIVE 3 PARKERS TRIBUTARY
Trib_Parkers 2
Trib_Parkers 1
Trib_Parkers 3
Legend
WS 100 YEAR
WS 50 YEAR
WS 25 YEAR
WS 10 YEAR
Ground
Elevation (ft)
Main Channel Distance (ft)
930
920
910
900
890
880
870
0
5000
10000
15000
20000
25
50
196
197
200
203
205
367
583
930
1696
1898.66*
2101.33*
2304
2503.5*
2703
3718
4738
7384
7599.5*
7815.*
8030.5*
8246
8500.5*
8755.*
9009.5*
9264
9541.14*
9818.28*
10095.4*
10372.5*
10649.7*
10926.8*
11204
11476.5*
11749.1*
12021.7*
12294.2*
12566.8*
12839.4*
13112
13380.3*
13648.6*
13917



Alternatives Plan: Alternative 3 2/9/2011
EXHIBIT C.12 - ALTERNATIVE 3 PARKERS CREEK
Parkers Creek 2
Parkers Creek 1
Legend
WS 100 YEAR
WS 50 YEAR
WS 25 YEAR
WS 10 YEAR
Ground
Elevation (ft)
Main Channel Distance (ft)
940
920
900
880
860
840
820
0
10000
20000
30000
40000
50000
60000
850
950
1000
1050
1100
1150
1200
1250
1300
1319
1866.33*
2413.66*
2961
3507.85*
4054.71*
4601.57*
5150.66*
5702
6268.75*
6835.5*
7402.25*
7969
8549.8*
9130.6*
9658
10183
10392
11044
11935
13499
14804
15610
16155
17737
20486
22450
23502
24546
26759
28707
29440
30362
31398
32036
32760

APPENDIX D

APPENDIX D – FLOWMASTER OUTPUT TABLES

APPENDIX D.1

UPSTREAM DIVERSION CHANNEL

Worksheet for APPENDIX D.1 – UPSTREAM DIVERSION CHANNEL

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00200	ft/ft
Discharge	631.00	ft^3/s

Section Definitions

Station (ft)	Elevation (ft)
0+00	3.00
0+60	0.00
0+90	0.00
1+50	3.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 3.00)	(1+50, 3.00)	0.040

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	2.93	ft
Elevation Range	0.00 to 3.00 ft	
Flow Area	260.15	ft^2
Wetted Perimeter	147.50	ft
Hydraulic Radius	1.76	ft
Top Width	147.35	ft
Normal Depth	2.93	ft
Critical Depth	1.67	ft
Critical Slope	0.02264	ft/ft

Worksheet for APPENDIX D.1 – UPSTREAM DIVERSION CHANNEL

Results

Velocity		2.43	ft/s
Velocity Head		0.09	ft
Specific Energy		3.03	ft
Froude Number		0.32	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	2.93	ft
Critical Depth	1.67	ft
Channel Slope	0.00200	ft/ft
Critical Slope	0.02264	ft/ft

Cross Section for APPENDIX D.1 – UPSTREAM DIVERSION CHANNEL

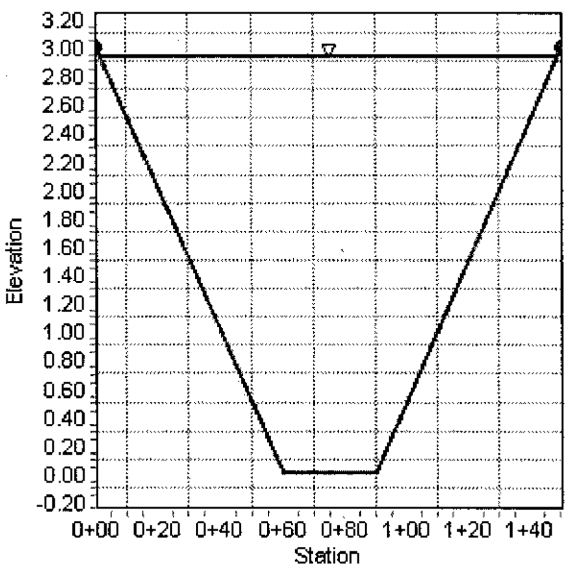
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00200	ft/ft
Normal Depth	2.93	ft
Discharge	631.00	ft^3/s

Cross Section Image



APPENDIX D.2

DOWNSTREAM DIVERSION CHANNEL

Worksheet for APPENDIX D.2 – DOWNSTREAM DIVERSION CHANNEL

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00110	ft/ft
Discharge	616.00	ft^3/s

Section Definitions

Station (ft)	Elevation (ft)
0+00	2.00
0+40	0.00
1+80	0.00
2+20	2.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 2.00)	(2+20, 2.00)	0.040

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	2.00	ft
Elevation Range	0.00 to 2.00 ft	
Flow Area	360.08	ft^2
Wetted Perimeter	220.10	ft
Hydraulic Radius	1.64	ft
Top Width	220.00	ft
Normal Depth	2.00	ft
Critical Depth	0.81	ft
Critical Slope	0.02585	ft/ft

Worksheet for APPENDIX D.2 – DOWNSTREAM DIVERSION CHANNEL

Results

Velocity		1.71	ft/s
Velocity Head		0.05	ft
Specific Energy		2.05	ft
Froude Number		0.24	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	2.00	ft
Critical Depth	0.81	ft
Channel Slope	0.00110	ft/ft
Critical Slope	0.02585	ft/ft

Cross Section for APPENDIX D.2 – DOWNSTREAM DIVERSION

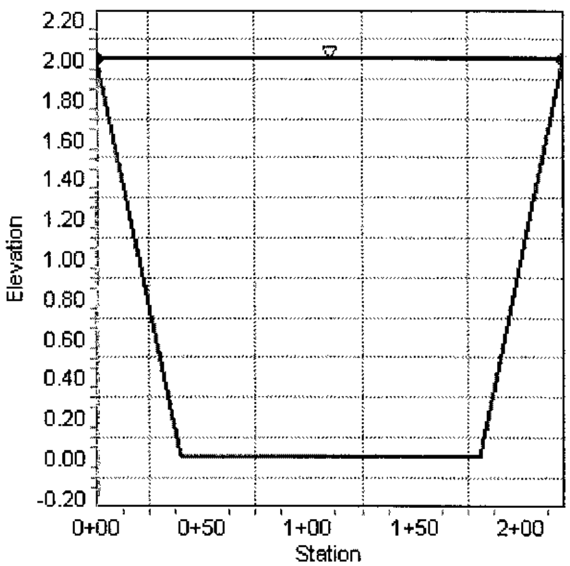
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00110	ft/ft
Normal Depth	2.00	ft
Discharge	616.00	ft³/s

Cross Section Image



APPENDIX E

APPENDIX E – MEETINGS

D'Hanis / Medina County Flood Protection Study

Project Kick-off Meeting Agenda

Date: September 7, 2010

Time: 3:00 to 4:30 pm

Location: Medina County Commissioners Court Room
1100 16th Street
Hondo, Texas

- **Introductions**
- **Purpose of the Project / Study Area**
- **Project Tasks**
  - Project Coordination
  - Data Collection
  - Topography
  - Environmental Investigation
  - Drainage Analysis
  - Conceptual Analysis
  - Economic Analysis
  - Recommendations
  - Report
- **Project Schedule**
- **Project Invoice & Record Keeping**
- **Questions**

HALFF

D'Hanis / Medina County
Flood Protection Study

Public Project Kick-off Meeting Agenda

Date: September 7, 2010

Time: 6:00 to 7:30 pm

Location: D'Hanis High School
6851 County Road 5216
D'Hanis, Texas

- **Introductions**
- **Funding**
  - Texas Water Development Board
  - Medina County
- **Local Support**
  - D'Hanis Independent School District
  - D'Hanis State Bank
  - Medina County Water Control & Improvement District No. 2
  - The Rotary Club of Hondo/D'Hanis
  - D'Hanis Clay Products
- **Study Area**
- **Project Tasks**
  - Project Coordination
  - Data Collection
  - Topography
  - Environmental Investigation
  - Drainage Analysis
  - Conceptual Analysis
  - Economic Analysis
  - Recommendations
  - Report
- **Public Comments**

HALFF

D'Hanis / Medina County Flood Protection Project

Public Meeting Comment Form

Date: September 7, 2010 ______________________

Name: ______________________

Organization: ______________________

Address: ______________________

Phone/Email Address: ______________________

Please provide any comments you may have regarding proposed project alternatives, concerns, or suggestions.

Comment: ______________________

Please complete this form and leave at the Sign-In table (if at a meeting) or fax to: HALFF ASSOCIATES (210) 798-1896.

HALFF

D'Hanis / Medina County
Flood Protection Study

Project Kick-off Sign-In Sheet

September 7, 2010

Name	Address	Phone No.	Email Address
H. Harold Bryant	1510 29th St. Hondo, TX 78861	(830)426-5539	hharoldbryanta yahoo.com
Greg Rothe	2790 PR322 Hond. Tx	741-1617	
Margaret Koch-Bergmann	P.O. Box 35 198 CR 4204 D'Hanis, Tx 78850	(830) 363-7659	bergmann_mk@ hotmail.com
Erlinda Gonzalez	P.O. Box 133 295 CR 4210 D'Hanis, Tx. 78850	830-363-4170	
Sofia Contreras	P.O. Box 143 293 CR 4210 D'Hanis, Tx 78850	830-363-7369	
Victor Zerr	P.O Box 274 D'Hanis Tex 78850	830-931-5678	

HALFF

D'Hanis / Medina County
Flood Protection Study

Project Kick-off Sign-In Sheet

September 7, 2010

Name	Address	Phone No.	Email Address
IRENE COX	P.O. BOX 153 D'HANIS, TX. 78850	830-363-4299	ireneCCox@Gmail.com
Patrick K McGRAW	P.O. BOX 413 D'Hanis Tex 78850	830-363-7412	
Richard Rothe	P.O. Box 425 D'Hanis Tx 78850	830 363 7416	
Sylvia Gauna	7941 CR 429 D'Hanis Tx 78850		
DAVID LYNCH	440 P.R. 5120 D'HANIS, TX. 78850	830 426-1604 CELL	DLynch@swTexas.net
Gilbert Ortiz	P.O Box 56 D'Hanis, Tex 78850	830-363-2165	
MARC J ZERR	PO Box 825 Hondo, Tx 78861		
John Bergmann	PO Box 35 D'Hanis Tx 78850		

HALFF

D'Hanis / Medina County
Flood Protection Study

Project Kick-off Sign-In Sheet

September 7, 2010

Name	Address	Phone No.	Email Address
Jim Bardeé	1100 16TH ST. Co. Jde. Hondo TX 78861	830 741 6020	
Pate. Brawner	709 Ave Y Hondo 78861	830-741-6195	
John Poerner	P.O. Box 519 D'Hanis 78850	830 363 7311	

HALFF

D'Hanis / Medina County
Flood Protection Study

Project Kick-off Sign-In Sheet

September 7, 2010

Name	Address	Phone No.	Email Address
Robert Rothe	P.O. BOX 395-D'HANIS, TX	363-7200	
Charles Koch	Po Box 444 D'HANIS TX	363-7468	
JOSEPH NESTER	7150 SPRING GROVE SAT 78249	210-602-2322	JNESTER@NERIUM.COM
Paloma Garcia TWDB	321 Center St, San Antonio, TX 78202	210-212-9324	paloma.garcia@twdb.state.tx.us
Joel / Janet Curtis	PO Box 178, D'Hanis, TX 78850	363-6128	Saccounlay@gmail.com
Frank + Jean Sexton	P.O. Box 224 D'Hanis	363-7423	
Jon R. Barlow	P.O. Box 488 D'Hanis 78850	363-7229	
Lydia Ortiz	PO Box 56 D'Hanis 78850	363-2165	

HALFF

D'Hanis / Medina County
Flood Protection Study

Project Kick-off Sign-In Sheet

September 7, 2010

Name	Address	Phone No.	Email Address
Henry Gonzalez	PO Box 261, D'Hanis	210-204-6374	—
Theresa A. Tapia	P.O. Box 511. D'Hanis	830-423-7277	
M. M. Koch JR	P.O Box 37, D'Hanis	830 363 7238	
Albert M. Lutz	POB 381 LaCoste TX	830 985 3339	
John E. Rothe	CR 423 #538 PoBox 503 D'Hanis, Tx	830-363-3121	jrothe@cdsmuery.com
José Felan	CR 42 8137 D'Hanis, TX	830-741-1662	
John J. Nester	CR 429- 7404 D'Hanis, TX 78850	830-363-7245	
Esther Nester	CR 429- 7404 D'Hanis, TX 78850	830-363-7245	

HALFF

HONDO ANVIL HERALD Online
Published in Hondo, Texas
Medina County's Leading Newspaper

Update for August 26, 2010

Legal Notices

NOTICE OF

TAX FORECLOSURE SALE

THE STATE OF TEXAS

COUNTY OF MEDINA

Date and Time of Sale: The first Tuesday of the month, Ocotber 5, 2010 at 10:30 a.m.

Suit No: 08-10-19,152-CV KHK RANCHES, LTD., ASSIGNEE VS. HARLEY RAY WOLFF, INDIVIDUALLY & AS ATTORNEY-IN-FACT FOR MYLINDA ANN W. SWIERC "AND AS PERSONAL REPRESENTATIVE OF THE ESTATE OF HARLAN RAYMOND WOLFF, DECEASED (IN REM ONLY), ET AL TRACT #1, Lots 1-4, Block 18, City of Hondo, Medina County, Texas, as described in Volume No. 294, Page 484, Deed Records of Medina County, Texas. (Account No. R16410)

Date of Judgment: February 23, 2010 Date of Levy: July 28, 2010

Listed in the caption above are delinquent tax suits in which Judgments of Foreclosure have been rendered and Orders of Sale have been issued. The listing for each suit sets out: (1) the Cause Number; (2) the Plaintiff Tax Unit; (3) the Defendants; (4) the date of the Judgment; (5) the date of Levy; and (6) the Property Description. Under the Order of Sale issued pursuant to each Judgment above listed, I did at the time specified for each suit levy upon each Property in such suit as described above as the property of the Defendants named or designated in such suit. On the sale date specified above, which is the first Tuesday of said month, I will offer and sell at public auction, for cash, each property described above, and all the right, title, interest and estate in and to each such property owned or claimed by the Defendants named in connection with each such property; PROVIDED, however, that no property shall be sold directly or indirectly to anyone other than a Tax Unit which is a party to that specific suit for less than the total amount of taxes, penalties, interest and costs due against that particular property or any adjudged value decreed, whichever is lower. The foreclosure sales under this notice will be held on the first Tuesday of said month, at the Courthouse door of said County, at the time set out above, by and through the LAW OFFICE OF HENRY GATES STEEN, JR., P.C., 3001 N. Lamar Blvd., Suite 306, Austin, Texas 78705, Telephone (512) 476-4688 and Telecopier (512) 476-0325, my authorized representative. The sale of each property shall be subject to the rights of the Defendants named in connection with each particular property, and any successors in title, to redeem such specified property in the time and manner provided by law; and subject also to the rights of any defendants to have each particular property owned or claimed by such defendants divided and sold in less divisions than the whole as provided by law. The sale as to each property is to be made to satisfy the Judgment rendered against that particular property and the Defendants named in connection with that particular property. The proceeds of the Sale of each property are to be applied to the satisfaction of the Judgment against that particular property, and the remainder of the sale proceeds, if any, are to be applied as the law directs.

Dated at Hondo, being the County Seat of MEDINA County, Texas, on this the 11 day of August 2010.

Randy Brown

Sheriff of MEDINA County

by: Butch Bryson #2917

Deputy

Pub.: Aug. 26, Sept. 2 & 9 2010

NOTICE TO CREDITORS

Notice is hereby given that original Letters Testamentary for the Estate of Mary Jane Smith, Deceased, were issued on August 16, 2010, under Docket No. 7945, pending in the County Court at Law of Media county, Texas, to Sandra Ann Steubing.

Claims may be presented in care of the attorney for the estate, addressed as follows:

Sandra Ann Steubing, Independent Executrix

Estate of Mary Jane Smith, Deceased

c/o Elizabeth C. Strait

The Nunley Firm, LLP

1616 Avenue M. Suite 101

Hondo, Texas 78861

All persons having claims against this estate, which is currently being administered, are required to present them within the time and in the manner prescribed by law.

Date August 17, 2010.

The Nunley Firm, LLP

1616 Avenue M, Suite 101

Hondo, Texas 78861

Telephone: (830) 426-5314

Facsimile: (830) 816-3388

By Elizabeth C. Strait

SBN: 24053495

Attorney(s) for Applicant

Pub: Aug. 26, 2010

NOTICE OF DRAWING

FOR PLACE ON BALLOT

Notice is hereby given of a drawing to determine the order in which the names of candidates are to be printed on the ballot for the Board of Trustee Election to be held on November 2, 2010, in D'Hanis, Texas. The drawing will be held at 9:00 a.m. on September 3, 2010, at the D'Hanis Independent School District Board Conference Room, in D'Hanis, Texas.

Lucy Moncada and/or Victoria Wharton Officer(s) Conducting Drawing

AVISO DEL SORTEO

PARA UN LUGAR EN LA BOLETA

Por lo presente se da aviso que habrá un sorteo para determiner la orden en que aparecerán los nombres de los candidates en la boleta para la eleción que se celebrará el 2 de noviembre, 2010 en D'Hanis, Texas. El sorteo tendrá lugar a las 9:00 a.m. en el 3 de septiembre, 2010, en la oficina de la administración, en D'Hanis, Texas.

Lucy Moncada and/or Victoria Wharton Los Oficiales Manejando el Sorteo

Pub: Aug. 26, 2010

NOTICE OF PUBLIC SALE

Hondo Attic Self Storage at 810 18th St., Hondo, Texas will hold a public sale of property, which is being sold to satisfy a contractual landlord lien. The sale will be held at 10:00 A.M., Saturday, September 11, 2010, at the facility. The property will be sold at public auction and awarded to the highest bidder.

All items are cash only -- no guaranties or warranties are implied and all items are purchased "as is." Property being sold includes the following:

Unit # 22-Garcia, Oscar

Household items, etc

Unit # 27-Lopez, Deborah Household items, etc

Unit # 42-Murphy, Sandra Household items, etc

Unit # 50-Garza, Lisa Marie Household items, etc

Unit # 66-Alvarado, Aimee Household items, etc

Unit # 84-Navarro, Cynthia Household items, etc

Unit #108-Garza, Beverly Household items, etc

Unit #129-Cepeda, Maria Household items, etc

Unit #141-Salas, Jesse Household items, etc

Unit #177-Estrada, Arturo Household items, etc

Unit #199-Morales, Monic Household items, etc

Unit #203-Weber, Jack Household items, etc

Unit #232-Goode, Deborah Household items, etc

Unit #243-Goode, Deborah Household items, etc

Unit #244-Garza, Jesus Household items, etc

Unit #255-Contreras, Roy Household items, etc

Unit #256-263-Smith, Melissa Household items, etc

Unit #257-262-Smith, Melissa Household items, etc

Unit #275/288-Escamilla, Kenneth Household items, etc

Unit #289-Delgado, Soila Household items, etc

Unit #291-Branch, Natalie Household items, etc

Pub.: Aug. 26, Sept. 2 & 9 2010

NOTICE TO CONTRACTORS

OF PROPOSED TEXAS DEPARTMENT OF TRANSPORTATION (TxDOT) CONTRACTS

Sealed proposals for contracts listed below will be received by TxDOT until the date(s) shown below, and then publicly read.

CONSTRUCTION/MAINTENANCE/BUILDING FACILITIES CONTRACT(S)

Dist/Div: San Antonio

Contract 6213-71-001 for CLEANING AND SEALING CRACKS in MEDINA County, etc will be opened on September 15, 2010 at 1:30 pm at the District Office for an estimate of $246,493.00. Plans and specifications are available for inspection, along with bidding proposals, and applications for the TxDOT Prequalified Contractor's list, at the applicable State and/or Dist/Div Offices listed below. If applicable, bidders must submit prequalification information to TxDOT at least 10 days prior to the bid date to be eligible to bid on a project. Prequalification materials may be requested from the State Office listed below. Plans for the above contract(s) are available from TxDOT's website at www.txdot.gov and from reproduction companies at the expense of the contractor. NPO: 33722

State Office Constr./Maint. Division

200 E. Riverside Dr.

Austin, Texas 78704

Phone: 512-416-2540

Dist/Div Office(s)

San Antonio District

District Engineer

4615 NWLoop 410

San Antonio, Texas 78229-0928

Phone: 210-615-1110

Minimum wage rates are set out in bidding documents and the rates will be part of the contract. TXDOT ensures that bidders will not be discriminated against on the grounds of race, color, sex, or national origin.

Pub.: Aug. 19 & 26, 2010

EDWARDS AQUIFER AUTHORITY

REQUEST FOR STATEMENTS OF INTEREST AND QUALIFICATIONS FOR REPRESENTATION AND PORTRAYAL OF THE EDWARDS AQUIFER AUTHORITY'S

DOC EDWARDS™ FICTIONAL CHARACTER/EDUCATIONAL AMBASSADOR

RFQ #050-10-CEA/Q

The Edwards Aquifer Authority requests statements of interest and qualifications from qualified individuals for representation and portrayal of the Doc Edwards™ fictional character/educational ambassador and related services for a one year period, with an option for the Authority to renew for three additional one year periods.

The deadline for statements of interest and qualifications is 10:00 a.m. Wednesday, September 8, 2010.

For more information contact Ms. Cyndi Holman, Procurement Specialist, at (210) 222-2204 or visit www.edwardsaquifer.org.

Pub.: Aug. 19 & 26, 2010

CORRECTED

NOTICE OF PUBLIC HEARING

The Planning and Zoning Commission/Zoning Board of Adjustment of the City of Hondo will hold a public hearing on Tuesday, September 7, 2010 at 6:00 p.m. in the Council Chambers, City Hall, 1600 Avenue M, Hondo, Texas, to discuss and consider the following:

ZONING BOARD OF ADJUSTMENT:

Request of Rocio Marisol Ramirez for a variance to construct a 16' x 36' bedroom and bathroom addition to an existing non-conforming structure at 0.154 Acres (Part of), Block 18, Barkuloo Addition (910 30th Street) in a Residential Two (R2) District.

PLANNING AND ZONING COMMISSION:

Request of Raul Ytuarte and Ermilio Quintanilla for a specific use permit to operate a sports bar at Lot 3, Part of Acres 0.587, Texas Diversified Block 1, (2511 19th Street) in a Commercial District.

/s/ Michael Hackebeil

Chairman

ATTEST:

/s/ Sandra R. Torres

Deputy City Secretary

Pub: Aug. 26, 2010

I-35 CORRIDOR SEGMENT

COMMITTEE 4 NOTICE OF

PUBLIC WORKSHOPS

LONG-TERM PLANNING FOR TRANSPORTATION

IMPROVEMENTS ALONG THE I-35 CORRIDOR IN SOUTH TEXAS

During the month of September 2010, the I-35 Corridor Segment Committee 4 (CSC 4) will host a series of public planning workshops in South Texas. The purpose of the workshops is to present to and gather feedback from the public on the Committee's proposed long-range transportation solutions for the I-35 Corridor.

CSC 4 is one of four committees established by the Texas Transportation Commission in March 2009 to develop a needs-based citizens-directed plan for the I-35 Corridor. These committees are comprised of representatives from local cities, counties, Metropolitan Planning Organizations, and community organizations. Over the last year, the committees have identified goals, needs, and potential solutions in their respective segments, and have reviewed traffic modeling analyses to determine the effectiveness of each proposed solution. They have used this information to develop draft I-35 Corridor Segment Plans that reflect the unique transportation needs and planning approaches within their respective areas.

All interested citizens are encouraged to attend a public workshop to discuss the draft plan, ask questions, and express their views to the CSC 4 members. The draft plan for Segment 4 proposes roadway and rail solutions within the geographic area from I-10 in San Antonio south to Laredo. Because of the overlapping transportation networks and issues in the San Antonio area, the draft plan for Segment 3, which covers the area from I-10 in San Antonio north to the Bell/Williamson county line, will also be available for public review at the Segment 4 workshops.

Surveys and comment forms will be available and accepted at the public workshops, as well as through the MY 35 website (www.MY35.org). Written comments and surveys may also be mailed to Mr. Ed Pensock, Texas Department of Transportation, P.O. Box 14707, Austin, Texas, 78761. Website and/or mailed comments must be submitted by October 6, 2010.

In Segment 4, workshops will be held from 6:00 PM to 8:00 PM at the following locations:

September 15, 2010 Pearsall

Pearsall High School Cafeteria

1990 Maverick Drive

September 16, 2010 Laredo

TxDOT Laredo District Meeting Room

1817 Bob Bullock Loop (Loop 20)

September 23, 2010 San Antonio

VIA Terry Eskridge Community Room

1021 San Pedro

September 28, 2010 Live Oak

Live Oak Civic Center Rocket Room

8101 Pat Booker Road

September 29, 2010 Seguin

Seguin-Guadalupe County Coliseum

950 S. Austin Street

These workshops will utilize a come-and-go format that will allow members of the public to review the materials at their convenience and speak individually to CSC members and staff. Information regarding other workshops to be held in North and Central Texas is available at www.MY35.org.

Persons who plan to attend a workshop and have special communication or accommodation needs are encouraged to call (866) 614-1086 at least two business days prior to the workshop to request assistance. Because the workshop will be conducted in English, any requests for language interpreters should also be made at least two days prior to the workshop. TxDOT will make every reasonable effort to accommodate these needs.

Pub.: Aug. 19 & Sept. 9, 2010

PUBLIC NOTICE

D'HANIS / MEDINA COUNTY

FLOOD PROTECTION STUDY

PUBLIC PROJECT KICK-OFF MEETING

Medina County will hold a PUBLIC PROJECT KICK-OFF MEETING at 6:00 p.m. on Tuesday, September

7, 2010 at the D'Hanis High School – Cafeteria, 6851 County Road 5216, D'Hanis, Texas. The project will evaluate cost effective solutions to reduce flooding from Seco Creek and two of its tributaries, Parkers Creek and Parkers Tributary in the vicinity of D'Hanis. The project is being funded by Medina County and the Texas Water Development Board.

The purpose of this meeting is to allow citizens an opportunity to learn about the project and solicit comments. The County encourages citizens to participate in the development of alternatives and to make their views known at this public meeting.

Persons with disabilities that wish to attend this hearing should contact the County to arrange for assistance.

Medina County

ATTN: Pat Brawner,

Floodplain Administrator

709 Avenue Y

Hondo, Texas 78861

(830) 741-6195 - PHONE

(830) 741-6099 - FAX

Jennifer Adlong, Administrative Assistant

Pub.: Aug. 26 & Sept. 2, 2010

Hondo Anvil Herald
Medina County's Leading Newspaper For More Than A Century
P. O. Box 400
1601 Avenue K
Hondo, Texas 78861
(830) 426-3346
Fax (830) 426-3348

MEDINA COUNTY / COMMUNITY OF D'HANIS

FLOOD PROTECTION STUDY

SEPTEMBER 07, 2010

HALFF

FUNDING

- TEXAS WATER DEVELOPMENT BOARD
- MEDINA COUNTY

LOCAL SUPPORT

- D'HANIS INDEPENDENT SCHOOL DISTRICT
- D'HANIS STATE BANK
- MEDINA COUNTY WATER CONTROL & INPROVEMENT DISTRICT NO. 2
- THE ROTARY CLUB OF HONDO/D'HANIS
- D'HANIS CLAY PRODUCTS

PROJECT TASKS

- PROJECT COORDINATION
- DATA COLLECTION
- TOPOGRAPHY
- ENVIRONMENTAL INVESTIGATION
- DRAINAGE ANALYSIS
- CONCEPTUAL ANALYSIS
- ECONOMIC ANALYSIS
- RECOMMENDATIONS
- REPORT

STUDY AREA

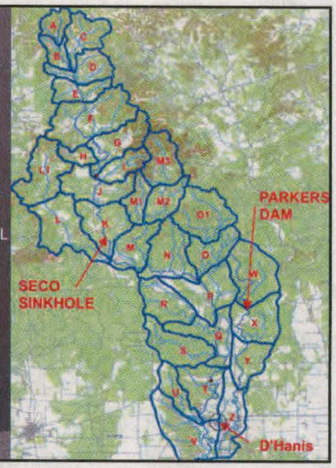
- COMMUNITY OF D'HANIS
- FARM AND RANCH COUNTRY OF SOUTH CENTRAL TEXAS
- APPROXIMATE POPULATION OF 700
- FLOODING SOURCE INCLUDE SECO AND PARKERS CREEK

FLOOD INSURANCE RATE MAP

- MOST OF THE COMMUNITY OF D'HANIS IS WITHIN THE FEMA 100 YEAR STORM INUNDATION LIMITS
- PANEL NUMBER: 4804720200 B
  EFFECTIVE DATE: AUGUST 15, 1980

SECO CREEK WATERSHED

- SECO CREEK DRAINAGE AREA IS 179 SQUARE MILES AT HWY 90
- PARKERS CREEK DRAINAGE AREA IS 27 SQUARE MILES AT HWY 90
- SECO SINKHOLE CAPTURES SMALL SCALE RAIN EVENTS
- PARKERS DAM CAPTURES MOST LARGE SCALE RAIN EVENTS

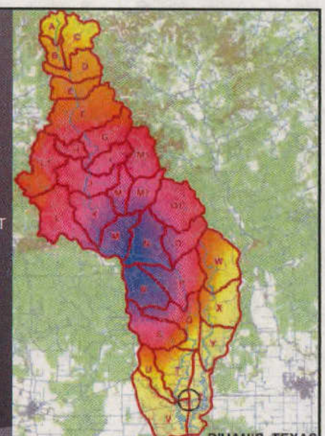


SECO CREEK SINKHOLE

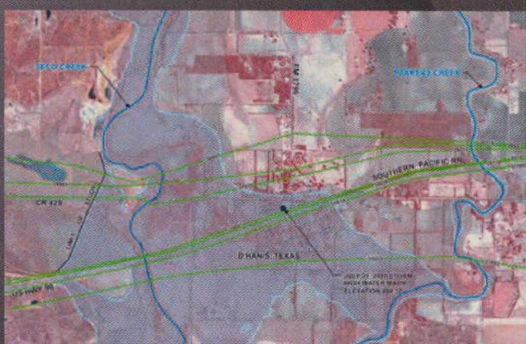
PARKERS CREEK DAM

JULY 21, 2007 TOTAL RAINFALL MAP

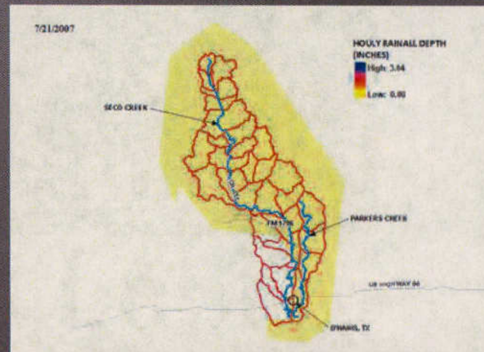
- USED HOURLY RAINFALL DATA FOR THE SIMULATION OBTAINED FROM WEST GULF RIVER FORECAST CENTER
- MODELS WERE CALIBRATED WITH 2 USGS GAGES, AND A HIGH WATER MARK AT THE POST OFFICE



JULY 21, 2007 FLOOD MAP



JULY 21, 2007 STORM ANIMATION



EXISTING CONDITIONS AND RECOMENDATIONS

- EXISTING CONDITIONS BASE MODEL
- RECOMMENDATIONS INCLUDE (BUT NOT LIMITED TO):
  - CHANNEL IMPROVEMENTS
  - DETENTION
  - EXISTING BRIDGE/CULVERT REHABILITATION
  - LEVEES

QUESTIONS ?

Public Project Meeting

D'Hanis / Medina County
Flood Protection Study

Medina County, in association with the Texas Water Development Board, is conducting a flood protection study to identify solutions to reduce flooding in the vicinity of D'Hanis.

A public meeting will be conducted to present alternatives being evaluated and to solicit citizen comments.

Date: **4 November 2010**

Time: **6:00 to 7:30 pm**

Location: **D'Hanis High School**
6751 County Road 5216
D'Hanis, TX 78850

For additional information, please contact Pat Brawner, Medina County Floodplain Administrator at 830-741-6195.

THE STATE OF TEXAS · COUNTY OF MEDINA

HALFF

TEXAS WATER DEVELOPMENT BOARD

D'Hanis / Medina County
Flood Protection Study

Project Status Meeting Sign-In Sheet

November 4, 2010

Name	Address	Phone No.	Email Address
Mason Liebau	Halff	210 798 1895	mliebau@halff.com
David Lynch	Medina County	(830)426-1604	
Pat E. Brawner	Medina County	830-741-6195	p.brawner@medinacounty.texas.gov
Jose Reyes	HALFF	210 798 1895	jreyes@halff.com
Ivan Ortiz	TWDB	512-463-8184	iortiz@twdb.state.tx.us
Paloma Garcia	TWDB	210-212-9324	paloma.garcia@twdb.state.tx.us
John Espinoza			

HALFF

D'Hanis / Medina County
Flood Protection Study

Project Public Meeting Sign-In Sheet

November 4, 2010

Name	Address	Phone No.	Email Address
Lou Lutz	D'Hanis	363-7611	—
Charles A Koch	D'HANIS	363 7468	—
John & JoAnn Poerner	D'Hanis	363-7311	
Jim BARDEN	HONDO	741-6020	
Bobby Ibarra	D'HANIS	426-1712	
ISAAC Lopez	D'Hanis	426-9063	
Estella Mejia	593 C.R. 512 D'Hanis	363-5180	

HALFF

D'Hanis / Medina County
Flood Protection Study

Project Public Meeting Sign-In Sheet

November 4, 2010

Name	Address	Phone No.	Email Address
LESTER LANDRUM	HONDO, TX 78861 776 CR354	830-426 8295	jllandrum@hillcountry.net.
Roland Deleon	P.O. Box 422 D'Hanis Tx 78850	830 931 4319	medinacowcid@swtexas.NET

HALFF

D'Hanis / Medina County
Flood Protection Study

Project Public Meeting Sign-In Sheet

November 4, 2010

Name	Address	Phone No.	Email Address
ALYNE FITZGERALD Dr Bob Fitzgerald	202 CR 450 Hondo TX 78861	741-5040	

HALFF

D'Hanis / Medina County
Flood Protection Study

Project Public Meeting Sign-In Sheet

November 4, 2010

Name	Address	Phone No.	Email Address
Tom Walpole Mary F. Walpole	5201 FM 2676 Hondo, TX	830-426-7122	
H. Harold Bryant	1510 29th St. Hondo, TX 78861	(830)426-5539	hharoldbryant@yahoo.com
J. R. Barlow	6711 CR 5224 - D'Hanis, TX	830-363-7229	
DR REEVES L. SMITH	ROWE SMITH RANCH	830 363 7355	RLSMITH@ROWE-SMITH.COM
PETER J. BYBEL JR	FM 1796	" " "	peter@ROWE-SMITH.COM
STEVE CARRISAL	7580 CR 429	830-363-7510	

HALFF

D'Hanis / Medina County
Flood Protection Study

Project Public Meeting Sign-In Sheet

November 4, 2010

Name	Address	Phone No.	Email Address
PATE BRAWNER	MEDINA COUNTY	830-~~741~~-6195	
Esther Nester	P.O. Box 397, D'Hanis TX 78850	830-363-7245	
John J Nester	7404 - CR 429 P.O Box 397 - D'Hanis, TX 78850		
DAVID LYNCH	440 P.R-5120 D'HANIS. TX. 78850	830 426-1604	
PALOMA GARCIA	321 N. Center St. SAN ANTONIO, TX 78202	210-212-9324	paloma.garcia@twdb.state.tx.us
Justin Koch	P.O. Box 444 D'Hanis TX, 78850	(830) 426-1816	
Richard Saathoff	521 CR352 Hondo, Tex 78861	830-931-5425	
Lucy Moncada	Box 64 D'Hanis 78850	830-363-7574	

HALFF

D'Hanis / Medina County
Flood Protection Study

Project Public Meeting Sign-In Sheet

November 4, 2010

Name	Address	Phone No.	Email Address
Leroy Arnold Linda Arnold	P.O. Box 152 D'Hanis 78850	830 426-3729	
Harry Macey Jr.	PO Box 306 D'Hanis TX 78850	830-363-7618	docmacey@perryop.com
Irene Mejia	589 CR 572 D'Hanis 281 P.O.Box	830-363 0185	
Joel Curtis	PO Box 178, D'Hanis	830-363-6128	secovalley@gmail.com
Janet Curtis	"	"	
Terry Schueling	7274 CR429 D'Hanis	830 363 7425	tntschueling at swtexas.net

HALFF

HONDO ANVIL HERALD Online
Published in Hondo, Texas
Medina County's Leading Newspaper

Update for October 21, 2010

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Legal Notices

BID NOTICE

Medina County Commissioners' Court is accepting sealed bids for paving driveway and parking area of the new Devine County Building located at 317 Hwy 132 N; Devine Texas. Prospective bidders may pick up bid specifications at the County Judge's Office, 1502 Avenue K, 2nd Floor, Room 201, Hondo or by calling (830) 741-6020. Bids will be accepted at the County Judge's Office, 1502 Avenue K, 2nd Floor, Room 201, Hondo until 9:00 A.M., Friday, October 22, 2010. At that time bids will be opened and reviewed. Bids will be presented to Commissioners Court October 25, 2010 for award. Medina County reserves the right to accept or reject any and all bids.

Jennifer Adlong

Administrative Assistant

Publish: Oct. 14 & 21, 2010

NOTICE TO CONTRACTORS OF PROPOSED TEXAS DEPARTMENT OF TRANSPORTATION (TxDOT) CONTRACTS

Sealed proposals for contracts listed below will be received by TxDOT until the date(s) shown below, and then publicly read.

CONSTRUCTION/MAINTENANCE CONTRACT(S)

Dist/Div: San Antonio

Contract 0016-07-128 for SEAL COAT AND PAVEMENT MARKINGS in BEXAR County, etc will be opened on November 05, 2010 at 1:00 pm at the State Office. All prospective bidders are required to attend the pre-bid conference for Contract 0016-07-128 to be held on October 26, 2010 at 1:00 pm at the TxDOT SAN ANTONIO DISTRICT OFFICE MEETING ROOM 11A 4615 NW LOOP 410, SAN ANTONIO, TX. 78229.

Plans and specifications are available for inspection, along with bidding proposals, and applications for the TxDOT Prequalified Contractor's list, at the applicable State and/or Dist/Div Offices listed below. If applicable, bidders must submit prequalification information to TxDOT at least 10 days prior to the bid date to be eligible to bid on a project. Prequalification materials may be requested from the State Office listed below. Plans for the above contract(s) are available from TxDOT's website at www.txdot.gov and from reproduction companies at the expense of the contractor.

NPO: 34418

State Office

Constr./Maint. Division

200 E. Riverside Dr.

Austin, Texas 78704

Phone: 512-416-2540

Dist/Div Office(s)

San Antonio District

District Engineer

4615 NWLoop 410

San Antonio, Tx 78229-0928

Phone: 210-615-1110

Minimum wage rates are set out in bidding documents and the rates will be part of the contract. TXDOT ensures that bidders will not be discriminated against on the grounds of race, color, sex, or national origin.

Publish: Oct. 14 & 21, 2010

INVITATION TO BID

Stipulated Sum

TO: ALL INVITED BIDDERS

FROM: THE CITY OF HONDO

PROJECT TITLE AND LOCATION

VOCATIONAL COLLEGE FACILITY

401 Carter Street

Hondo, Texas 78861

BIDDING CONDITIONS:

Address bids to:

City of Hondo

c/o Mr. Robert T. Herrera

1600 Ave. M

Hondo, Texas 78861

Bids are to be received at the above location no later than 2:00 P.M. (C.S.T.) on November 4, 2010, and shall be in sealed envelopes marked "Bid VOCATIONAL COLLEGE FACILITY", and the Bidder's name and address. Bids will be opened publicly and be read aloud. All Bidders will be informed of the results of the bidding at the time a Contract is awarded.

Each Prime Bidder will be able to download a set of Bid Documents in PDF form from "dropbox", consisting of Drawings and Specifications, by providing the Architect with an e-mail address which will enable the Contractor to access "dropbox". Hard copy sets are available for actual cost of reproduction and handling from Edwards Associates, PLLC 713-621-1890. Such costs will not be refunded.

A pre-bid conference will be held at the project site, 401 Carter Street, in Hondo, Texas at 10:30 AM on October 26, 2010.

All bidders must submit:

1. Bid Form: The bid form provided is the only acceptable format for submission and may not be modified to accommodate Bidder's voluntary Alternates.

2. A list of proposed job site staff and home office staff to be directly involved with this Project, indicating the qualifications, titles, responsibilities and duties of each member.

3. A list of proposed major Subcontractors including name of company, address, telephone number and contact person.

Invited Bidders are required to inform the Owner of their intent to bid or not bid within five days of receipt of Bid Documents. Bidders agree in submitting a proposal that the bid will remain firm for a period of sixty (60) days from the bid due date stipulated above.

Bids to receive consideration must be complete and cover the full scope of work described in the Bid Documents and must include all Alternates, unit prices and allowances stipulated on the Bid Form.

Performance and Payment Bonds will be required and shall be delivered to the Owner prior to execution of the Contract.

Insurance requirements will be as required by the Supplementary Conditions of these Specifications.

Unless and until a written, definitive formal agreement between Owner and Bidder for the Construction of the Vocational College Facility is executed and delivered by the parties hereto, neither the acceptance of any bid, notification of bid winner, nor the written or oral expressions between Owner and Bidder nor the exchange of drafts or documents shall be construed as a binding legal obligation or a commitment or an agreement upon Owner to enter into any transaction or future negotiations. This Invitation to Bid, along with the related documents, does not constitute an offer by Owner or a promise by Owner to enter into any other future agreements. Nothing in this Invitation to bid or the submission of a bid pursuant hereto shall be construed in any way as creating an exclusive relationship between parties.

Publish: Oct. 14 & 21, 2010

NOTICE OF

TAX FORECLOSURE SALE

PUBLISHED IN

THE HONDO ANVIL HERALD

THE STATE OF TEXAS

COUNTY OF MEDINA

Date and Time of Sale: The first Tuesday of the month, November 2, 2010 at 2:00 p.m.

Suit No: 06-10-18,102-CV

MEDINA COUNTY VS.

JOSE CRUZ RESENDEZ JR., ET AL

TRACT #1, A tract of land containing 1.00 acre, more of less, out the A. L. Kuykendall Survey No. 21, Abstract No. 566, or as more fully described in Volume 241, Page 711 of the Deed Records of Medina County, Texas. (Account No. R5553)

Date of Judgment: February 23, 2010

Date of Levy: September 20, 2010

Suit No: 07-11-18,686-CV

MEDINA COUNTY VS.

MARY TERESA LAUGHLIN, ET AL

TRACT #1, Lot 6 and the East one-half of Lot 7, Block 35, City of Hondo, or as moe fully described in Volume No. 172, Page 387 of the Deed Records of Medina County, Texas. (Account No. R16513)

Date of Judgment: February 23, 2010

Date of Levy: September 20, 2010

Suit No: 07-12-18,755-CV

MEDINA COUNTY VS.

OFILIA R. SANDOVAL

TRACT #1, Lot No. 16 of the resubdivision of Lots 13 and 14, Lazy Acres Subdivision, Mobile Home, Label No. TEX062539, or as more fully described in Volume 207, Page 974 of the Deed Records of Medina County, Texas. (Account No. R21041)

Date of Judgment: February 23, 2010

Date of Levy: September 20, 2010

Suit No: 08-02-18802-CV

MEDINA COUNTY VS.

ADRIAN SANCHEZ

TRACT #1, Lot No. 58 of the Buena Vista Addition to the City of Hondo, or as more fully described in Volume No. 262, Page 713, of the Deed Records of Medina County, Texas. (Account No. R17319)

Date of Judgment: July 23, 2008

Date of Levy: September 20, 2010

Suit No: 08-10-19,195-CV

MEDINA COUNTY VS.

RAMSEY RIOS, ET AL

TRACT #1, Lots 16 and 17, Block B, Loma Alta Addition, City of Hondo, Mobile Home, Label No. RAD1025534, Fleetwood/Festival, or as more fully described in Volume 416, Page 1 of the Deed Records of Medina County, Texas. (Account No. R17829)

Date of Judgment: February 23, 2010

Date of Levy: September 20, 2010

Suit No: 09-09-19,680-CV

MEDINA COUNTY VS.

TULLEY CHRISTOPHER FRENCH, ET AL

TRACT #1, A tract of land containing 0.474 of an acre, more or less, and being 0.435 of an acre out of the J. Gunhensperger Survey No. 188, Abstract No. 434 and .039 of an acre out of the A. C. Bulack Survey No. 186, Abstract No. 56, or as more fully described in Volume 618, Page 840 of the Deed Records of Medina County, Texas. (Account No. R4649)

TRACT #2, A tract of land containing 1.0 acre, more or less, out of the John Batot Survey No. 344, Abstract No. 84, or as more fully described in Volume 518, Page 938 of the Deed Records of Medina County, Texas. (Account No. R65263)

Date of Judgment: February 23, 2010

Date of Levy: September 20, 2010

Suit No: 09-10-19,701-CV

MEDINA COUNTY VS.

JUAN J. LUNA, ET AL

TRACT #1, Lot 18, Block 1, School Addition to the City of Hondo, or as more fully described in Volume 225, Page 590 of the Deed Records of Medina County, Texas. (Account No. R18297)

Date of Judgment: June 21, 2010

Date of Levy: September 20, 2010

Suit No: 09-10-19,705-CV

MEDINA COUNTY VS.

RICHARD MUNIZ

TRACT #1, A tract of land containing 0.225 of an acre, more or less, out of the Anton Gsell Survey No. 187, Abstract No. 428, or as more fully described in Volume 308, Page 541 of the Deed Records of Medina County, Texas. (Account No. R4573)

Date of Judgment: June 21, 2010

Date of Levy: September 20, 2010

Listed in the caption above are delinquent tax suits in which Judgments of Foreclosure have been rendered and Orders of Sale have been issued. The listing for each suit sets out: (1) the Cause Number; (2) the Plaintiff Tax Unit; (3) the Defendants; (4) the date of the Judgment;(5) the date of Levy; and (6) the Property Description. Under the Order of Sale issued pursuant to each Judgment above listed, I did at the time specified for each suit levy upon each Property in such suit as described above as the property of the Defendants named or designated in such suit. On the sale date specified above, which is the first Tuesday of said month, I will offer and sell at public auction, for cash, each property described above, and all the right, title, interest and estate in and to each such property owned or claimed by the Defendants named in connection with each such property; PROVIDED, however, that no property shall be sold directly or indirectly to anyone other than a Tax Unit which is a party to that specific suit for less than the total amount of taxes, penalties, interest and costs due against that particular property or any adjudged value decreed, whichever is lower.

The foreclosure sales under this notice will be held on the first Tuesday of said month, at the Courthouse door of said County, at the time set out above, by and through the LAW OFFICE OF HENRY GATES STEEN, JR., P.C., 3001 N. Lamar Blvd., Suite 306, Austin, Texas 78705, Telephone (512) 476-4688 and Telecopier (512) 476-0325, my authorized representative. The sale of each property shall be subject to the rights of the Defendants named in connection with each particular property, and any successors in title, to redeem such specified property in the time and manner provided by law; and subject also to the rights of any defendants to have each particular property owned or claimed by such defendants divided and sold in less divisions than the whole as provided by law. The sale as to each property is to be made to satisfy the Judgment rendered against that particular property and the Defendants named in connection with that particular property. The proceeds of the Sale of each property are to be applied to the satisfaction of the Judgment against that particular property, and the remainder of the sale proceeds, if any, are to be applied as the law directs.

Dated at Hondo, being the County Seat of MEDINA County, Texas, on this the 21 day of Sept., 2010.

Randy Brown

Sheriff OF MEDINA County

Pub.: Oct. 7, 14 & 21, 2010

CITATION BY PUBLICATION

THE STATE OF TEXAS TI: DEBORAH LYNN TONDRE, an Heir to the Decendent, IN RE: The Estate of CLARK ADOLPH TONDRE, DECEASED No. 7959, Probate Court of Medina County, DEBORAH LYNN TONDRE, APPLICANT in the above numbered and entitled estate filed an Application to Determine Heirship and Declare who are the Heirs and the only Heirs of the said CLARK ADOLPH TONDRE, Deceased, and their respective shares and interests in this estate.

Said application will be heard and acted on by said Court at 10 o'clock A.M. on the first Monday next after the expiration of ten days from date of publication of this citation, at the County Courthouse in Medina, Texas.

All persons interested in said estate are hereby cited to appear before said Honorable Court at said above mentioned time and place by filing a written answer contesting such application should they desire to do so.

The officer executing this writ shall promptly serve the same according to requirements of law, and the mandates hereof, and make due return as the law directs.

ISSUED UNDER MY HAND AND THE SEAL OF SAID COURT at office in Medina, Texas, this the 13th day of OCTOBER, 2010.

LISA J. WERNETTE, CLERK,

Probate Court

Medina County, Texas

By: Martha Santos Deputy

Pub: Oct. 21, 2010

NOTICE TO CREDITORS

Notice is hereby given that original Letters Testamentary for the Estate of Evelyn Mann Haegelin, Deceased, were issued on October 11, 2010, in Cause No. 7958, pending in the County Court at Law of Medina County, Texas, to Alfred P. Barry, Jr. and Dennis C. Mann, Co-Independent Executors. All persons having claims against this Estate, which is currently being administered, are required to present them within the time and in the manner prescribed by law to the Co-Independent Executors at the following address:

c/o MR. EDGAR M. DUNCAN

DUNCAN, BRESSLER & LIU, INC.

1020 N. E. LOOP 410, SUITE 500

SAN ANTONIO, TX 78209-1224

Dated this 15th day of October 2010.

Edgar M. Duncan

DUNCAN, BRESSLER & LIU, INC.

1020 N.E. Loop 410, Suite 500

San Antonio, Texas 78209-1224

Telephone: (210) 224-0781

Fax: (210) 224-6958

Pub.: Oct. 21, 2010

NOTICE TO SUBDIVISIONS /

DEVELOPERS NOTICE OF

REQUIREMENT TO COMPLY WITH THE SUBDIVISION SERVICE EXTENSION POLICY OF YANCEY WATER SUPPLY CORPORATION

Pursuant to Chapter 13.2502 of the Texas Water Code, Yancey Water Supply Corporation hereby gives notice that any person who (l) Subdivides land by dividing any lot, tract, or parcel of land, within the service area of Yancey Water Supply Corporation's Certificate of Convenience and Necessity No. 11463, in Medina County, into two or more lots or sites for the purpose of sale or development, whether immediate or future, including re-subdivision of land for which a plat has been filed and recorded or (2) Requests two or more water service connections on a single contiguous tract of land, must comply with Section F. Developer, Subdivision, and Non-Standard Service Requirements contained in Yancey Water Supply Corporation's Tariff. **Yancey Water Supply Corporation is not required to extend retail water to a service applicant in a subdivision where the developer or sub-divider of the subdivision has failed to comply with the Subdivision Policy.**

Among other requirements, the Subdivision Policy requires compliance with Subsection F of the Corporation's Tariff. Applicable elements of the Subdivision Policy, depending on the specific circumstances of the subdivision service may include:

Engineering evaluation by Yancey Water Supply Corporation on the impact a proposed subdivision service extension will make on Yancey Water Supply Corporation's water service system and payment of the costs for this evaluation;

Payment of reasonable costs or fees by the developer for providing water supply service capacity;

Payment of fees for reserving water supply service capacity;

Forfeiture of reserved water supply service capacity for failure to pay applicable fee;

Payment of cost of any improvements to Yancey Water Supply Corporation's system that are necessary to provide water service, included but not limited to; (1) Line extensions, (2) Road crossings, (3) Additional storage, (4) Wells, (5) Any required water acquisition fee, (6) Land, and/or (7) Pumping stations;

Construction according to design by Yancey Water Supply Corporation and dedication by the developer of water facilities and necessary easements and right of ways within the subdivision, subject to inspection during and upon completion of construction;

Legal fees incurred by the Corporation in negotiations and representation including but not limited to (1) The preparation of a non-standard service agreement, (2) Securing of Right of Way Easements, (3) Engineering fees, (4) Attorney's fees, (5) Hydraulic investigation fees, and (6) Administration fees.

Yancey Water Supply Corporation's Tariff and a map showing Yancey Water Supply Corporation's service area may be reviewed at the Yancey Water Supply Corporation's office located at 150 County Road 743, Yancey, Texas or request a copy of the map by E-mail at yanceywater@yahoo.com. The Tariff and service area map are also filed on record at the Texas Commission on Environmental Quality in Austin, Texas, and may be reviewed by contacting the TCEQ, c/o Utility Rates and Services (Certification and Rate Design) Section, Water Utilities Division, PO Box 13087, Austin, Texas 78711.

To be filed and recorded in the Medina County Courthouse the 18th day of October 2010.

Doug Caffey, General Manager

Pub.: Oct. 21 & 28, 2010

PUBLIC NOTICE

D'HANIS / MEDINA COUNTY

FLOOD PROTECTION STUDY

PUBLIC PROJECT MEETING

Medina County will hold a PUBLIC PROJECT MEETING at 6:00 p.m. on Thursday, November 4, 2010 at the D'Hanis High School–Cafeteria, 6851 County Road 5216, D'Hanis, Texas. The project will evaluate cost effective solutions to reduce flooding from Seco Creek and two of its tributaries, Parkers Creek and Parkers Tributary in the vicinity of D'Hanis. The project is being funded by Medina County and the Texas Water Development Board.The purpose of this meeting is to allow citizens an opportunity to learn about project findings, alternatives being evaluated, and solicit comments. The County encourages citizens to participate in the development of alternatives and to make their views known at this public meeting. Persons with disabilities that wish to attend this hearing should contact the County to arrange for assistance.

Medina County

ATTN: Pat Brawner, Floodplain Administrator

709 Avenue Y

Hondo, Texas 78861

(830) 741-6195 - PHONE

(830) 741-6099 - FAX

Jennifer Adlong

Administrative Assistant

Pub.: Oct. 21 & 28, 2010

NOTICE OF PUBLIC HEARING

The City Council of the City of Hondo will hold a public hearing on Monday, November 8, 2010 at 6:00 p.m. in the Council Chambers, City Hall, 1600 Avenue M, Hondo, Texas, to discuss and consider the following:

Request of James E. Barden, Medina County Judge for a zone change from Commercial District to Government Public (GP) District at Lots 1 – 8, Block 1, Bless Addition (1202 14th Street) and Lots 1 & 2, Block 6, Bless Addition (1302 & 1304 14th Street for Medina County Courthouse Annex Building and Parking.

/s/ James W. Danner

Mayor

ATTEST:

/s/ Sandra R. Torres

Deputy City Secretary

Pub.: Oct. 21, 2010

Hondo Anvil Herald
Medina County's Leading Newspaper For More Than A Century
P. O. Box 400
1601 Avenue K
Hondo, Texas 78861
(830) 426-3346
Fax (830) 426-3348

D'HANIS FLOOD PROTECTION STUDY
2nd PUBLIC MEETING

November 4, 2010

HALFF

Project Purpose

- Evaluate cost effective solutions to reduce flooding in D'Hanis considering:
  - Existing drainage and flooding conditions
  - Project benefit and cost
  - Other (ROW, permitting, etc.)
  - Public input
- Project Funding
  - Medina County
  - Texas Water Development Board

Project Public Meetings

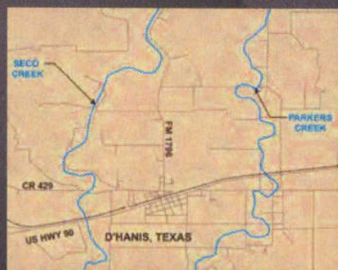
- 1st Public Meeting
  - September 10, 2010
  - Project Kick-off
- *2nd Public Meeting*
  - November 4, 2010
  - Present existing conditions findings
  - Present alternatives being evaluated
  - Solicit public input
- 3rd Public Meeting
  - Early 2011 (to be determined)
  - Present findings and recommendations

Major Project Tasks

- Data Collection
- Drainage Analysis
- ***Conceptual Analysis***
- Environmental Investigation
- Economic Analysis
- Recommendations
- Final Report

Study Area

- Population approximately 700
- Farm and ranch land
- Flooding Sources
    - Seco Creek
    - Parkers Creek
- Flooding History
    - 1894
    - 1919
    - 1935
    - 1958
    - 1997
    - 2004
    - 2007

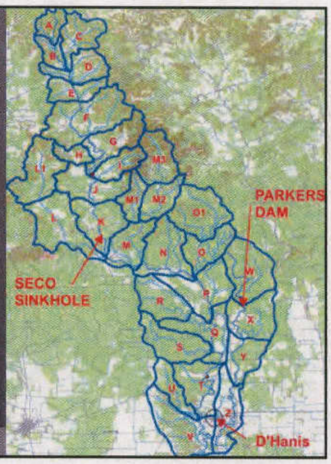


FEMA Flood Insurance Rate Map

- Dated: August 15, 1980
- Majority of D'Hanis located in 100-year floodplain

Seco Creek Watershed

- Seco Creek Drainage Area 79 sq. mi. at Hwy 90
- Parkers Creek Drainage Area 27 sq. mi. at Hwy 90
- Seco Sinkhole captures flow from small rainfall events
- Parkers Dam captures most of flow from large rainfall events

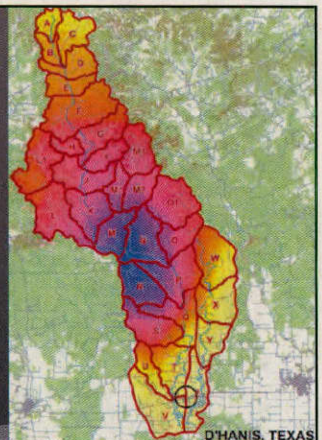


Seco Creek Sinkhole

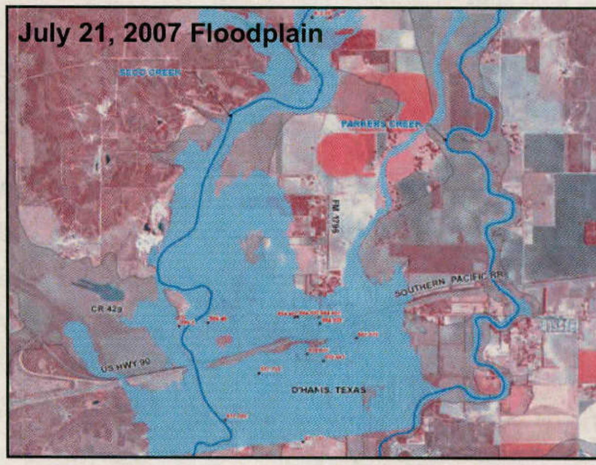
Parkers Creek Dam

July 21, 2007 Storm Event

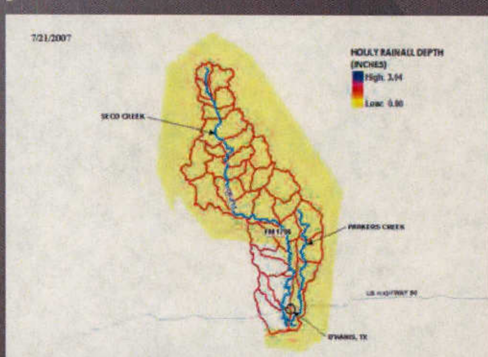
- Major flooding in D'Hanis
- Rainfall
  - Upstream of D'Hanis
  - Seco Creek
  - Obtained hourly rainfall records
- Stream flow records from USGS gages
- High water marks
- Developed
  - Hydrologic models (flow)
  - Hydraulic model (water surface elev.)
  - Mapped storm floodplain



July 21, 2007 Floodplain



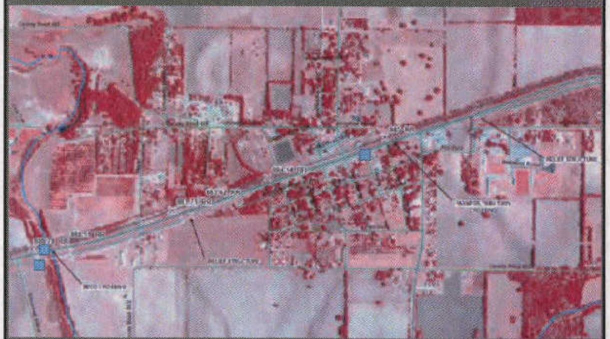
July 21, 2007 Storm Animation



Analysis Findings

- Developed H&H models that match July 2007 storm and FIRM mapping
- July 2007 Storm = 50-year storm in Seco
- Overflow from Seco towards Town
- Parker's Tributary
- Highway and Railroad crossings

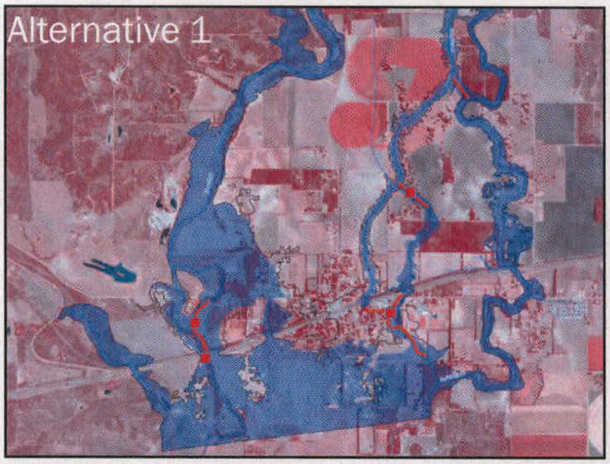
RAILROAD SURVEY



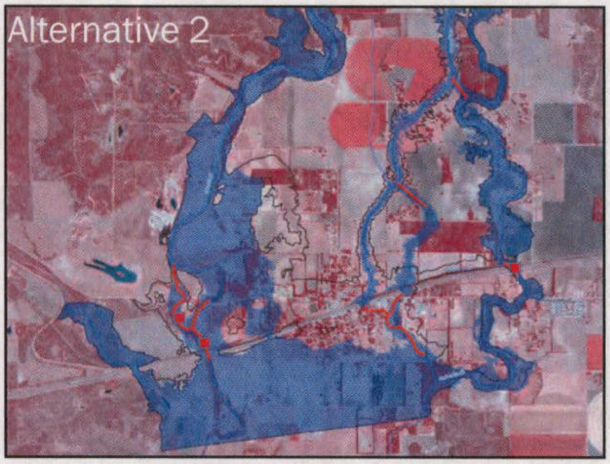
Alternative Considerations

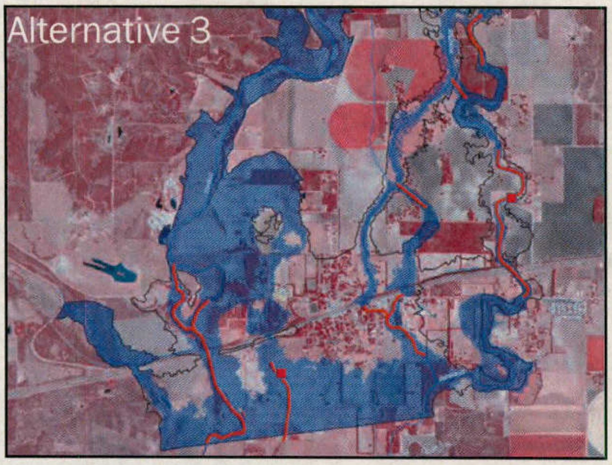
- Channel modifications
- Stormwater detention
- Bridge and/or culvert modifications
- Buy-outs
- Do-nothing
- Cost / level of protection
- 2007 "like" storm solution

Alternative 1



Alternative 2





Flood Warning System

- Located upstream of D'Hanis
- Tied to rainfall and flow depth
- Stand alone data logging system
- Sends information to a base station or PC
- Reverse 911

Alternative Cost Considerations

- Construction
- Engineering
- Right-of-way
- Permitting
- Operation & Maintenance

Project Funding

- 1st Option
  - Federal and State Programs
- 2nd Option
  - Local funding

Federal and State Programs

- Flood Mitigation Assistance (FMA)
- Pre Disaster Mitigation (PDM)
- Public Assistance
- USDA – Natural Resources Conservation Service (NRCS)
- TDRA State Disaster Grants
- Hazard Mitigation Grant Program (HMGP)

Pre Disaster Mitigation (PDM)

- Grant
- Managed by Texas Division of Emergency Management (TxDEM)
- 75/25 (Federal / Local split)
- Funding for
  - Acquisitions
  - Relocations
  - Dry flood-proofing of non-residential and historical structures
  - Small drainage projects

Flood Mitigation Assistance (FMA)

- Grant
- Managed by TWDB
- 75/25 (Federal / Local split)
- Funding for
  - Planning
  - Acquisitions
  - Elevations
  - Small drainage projects

Public Assistance

- Managed by TxDEM
- Available in the event of a Federal disaster declaration
- 75/25 (Federal / Local split)
- Categories
  - Debris removal
  - Emergency Protection Measures
  - Roads and bridges
  - Buildings and equipment
  - Parks, recreations and other items

USDA - NRCS

- Emergency Watershed Protection (EWP) Program
- Disaster Declaration
- 75 / 25 (Federal / Local split)
- Eligible Activities
  - Reduce threats to life or property from a watershed impairment, including sediment and debris removal or soil erosion
  - Provide protection from additional flooding or soil erosion
- Ineligible Activities
  - Solve problems that existed prior to disaster
  - Increase the pre-disaster capacity of a channel
  - Rebuild roads or bridges, ore replace culverts

Texas Department of Rural Affairs (TDRA) State Disaster Grants

- Disaster declaration
- Federal Disasters
  - Pays 25% of total cost
- State Disasters
  - Pays 100% of total cost
- Max of $350,000 per disaster

Hazard Mitigation Grant Program (HMGP)

- Managed by TxDEM
- Federal Disaster Declaration
- 75/25 (Federal/Local split)
- Projects must:
  - Solve a problem
  - Have a beneficial impact
  - Be cost effective
  - Substantially reduce future risk
  - Environmentally sound
  - Local and State Mitigation Plan & Program

HMPG (Cont.)

- "True mitigation funds projects not ideas"
- Project Types
  - Property acquisition and structure demolition
  - Structure elevation
  - Dry flood-proofing historic residential and non-residential structures
  - Minor localized flood reduction projects
  - Infrastructure Retrofit – measures to reduce risk to existing utility systems, roads, and bridges

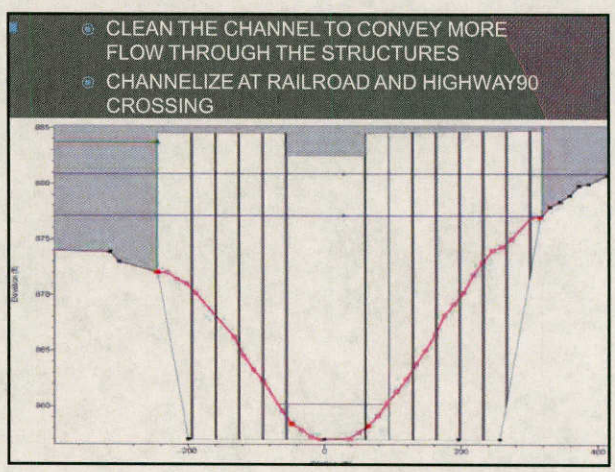
Flood Warning Systems Funding

- NOAA / NWS
- Texas Department of Emergency Management
- Texas Water Development Board
  - Fund II Loan Program

Next Step

- Refine alternatives
- Develop probable construction cost
- Conduct
  - Economic analysis
  - Environmental investigation
- Develop recommendations
- Present recommendations to public
- Prepare and submit report

QUESTIONS & COMMENTS


CLEAN THE CHANNEL TO CONVEY MORE FLOW THROUGH THE STRUCTURES
CHANNELIZE AT RAILROAD AND HIGHWAY90 CROSSING

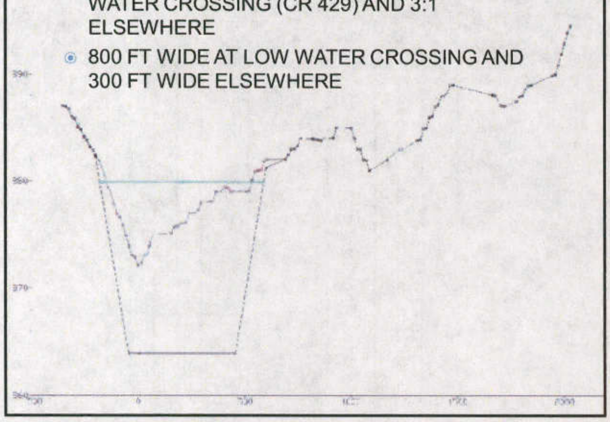
PARKER'S TRIBUTARY IMPROVEMENTS

- CHANNELIZE DOWNSTREAM OF HWY 90 TO GIVE PARKER'S TRIBUTARY A PATH
- PROPOSE A CULVERT CROSSING AT YANCEY HIGHWAY

PARKER'S TRIBUTARY CHANNELIZATION

- CHANNELIZE PARKER'S TRIBUTARY TO DIRECT THE UPSTREAM FLOW INTO PARKERS CREEK AND AWAY FROM TOWN

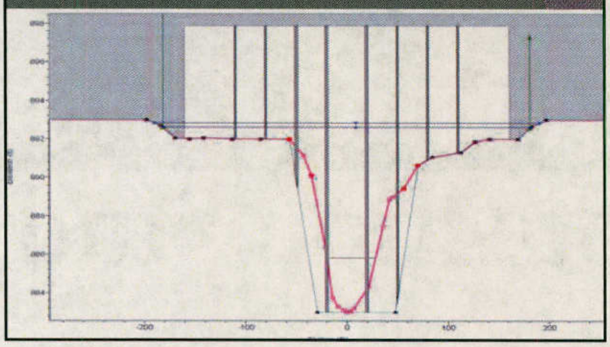
- SIDESLOPES OF 12:1 AT PROPOSED LOW WATER CROSSING (CR 429) AND 3:1 ELSEWHERE
- 800 FT WIDE AT LOW WATER CROSSING AND 300 FT WIDE ELSEWHERE

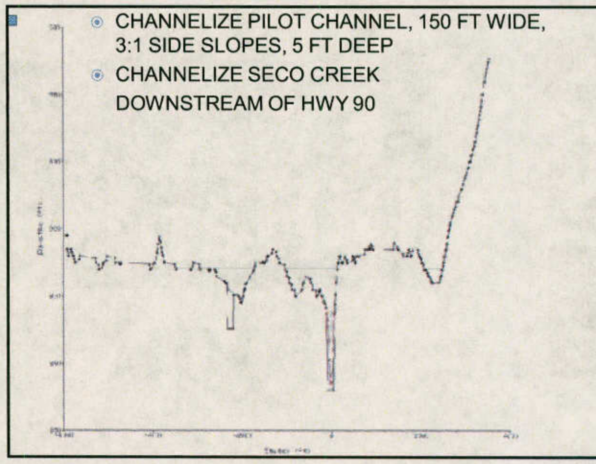


SECO CREEK CHANNELIZATION

- CHANNELIZE FROM CR 429 TO HIGHWAY 90 TO IMPROVE CONVEYANCE IN SECO CREEK
- 3:1 SIDE SLOPES AND A MINIMUM OF 300 FT WIDE

- CLEAN THE CHANNEL TO CONVEY MORE FLOW THROUGH THE STRUCTURES
- CHANNELIZE AT RAILROAD AND HIGHWAY90 CROSSING

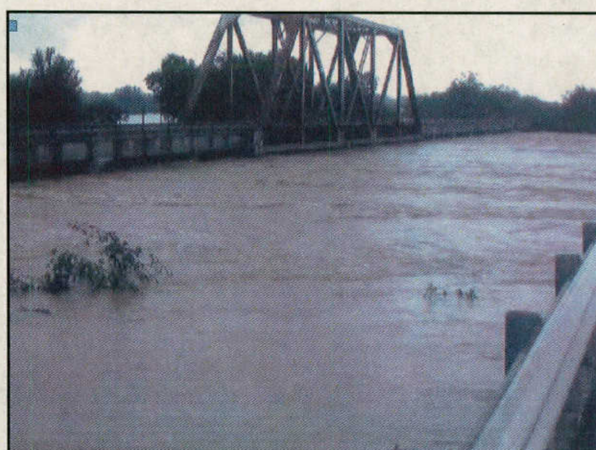




- CHANNELIZE PILOT CHANNEL, 150 FT WIDE, 3:1 SIDE SLOPES, 5 FT DEEP
- CHANNELIZE SECO CREEK DOWNSTREAM OF HWY 90

PARKER'S CREEK CHANNELIZATION

- CHANNELIZE PARKERS CREEK TO ALIGN PROFILE TO A CONSTANT SLOPE
- 3:1 SIDE SLOPES, 100 FT WIDE



Public Project Meeting

D'Hanis / Medina County
Flood Protection Study

Medina County, in association with the Texas Water Development Board, is conducting a flood protection study to identify solutions to reduce flooding in the vicinity of D'Hanis.

A public meeting will be conducted to present project findings, alternatives evaluated, and proposed recommendations.

Date: **March 31, 2011**

Time: **6:00 to 7:30 pm**

Location: **D'Hanis High School - Cafeteria**
6751 County Road 5216
D'Hanis, TX 78850

For additional information, please contact Pat Brawner, Medina County Floodplain Administrator at 830-741-6195.

THE STATE OF TEXAS COUNTY OF MEDINA

HALFF

TEXAS WATER DEVELOPMENT BOARD

HONDO ANVIL HERALD Online
Published in Hondo, Texas Medina County's Leading Newspaper

Update for March 17, 2011

Legal Notices

PUBLIC NOTICE

D'HANIS / MEDINA COUNTY

FLOOD PROTECTION STUDY

PUBLIC PROJECT MEETING

Medina County will hold a PUBLIC PROJECT MEETING at 6:00 p.m. on Thursday, March 31, 2011, at the D'Hanis High School – Cafeteria, 6751 County Road 5216, D'Hanis, Texas. The project evaluated cost effective solutions to reduce flooding from Seco Creek and two of its tributaries, Parkers Creek and Parkers Tributary in the vicinity of D'Hanis. The project is being funded by Medina County and the Texas Water Development Board. The purpose of this meeting is to present project findings, alternatives evaluated, and proposed recommendations. The County encourages citizens to participate in the development of alternatives and to make their views known at this public meeting. Persons with disabilities that wish to attend this hearing should contact the County to arrange for assistance.

Medina County

ATTN: Pat Brawner, Floodplain Administrator

709 Avenue Y

Hondo, Texas 78861

(830) 741-6195 - PHONE

(830) 741-6099 – FAX

Jennifer Adlong

Administrative Assistant

Pub. Mar. 17 & 24, 2011

EDWARDS AQUIFER AUTHORITY

INVITATION FOR BIDS

FOR HYDROPHYSICAL TESTING AND LOGGING OF WELLS

BID #142-11-AM/B

The Edwards Aquifer Authority invites qualified vendors to submit sealed bids for hydrophysical testing and logging of wells within the Edwards Aquifer Authority's jurisdictional area.

Bid specifications will be available at 1615 N. St. Mary's, San Antonio, TX 78215, on Monday, March 14, 2011.

The deadline for bids is 3:00 p.m., Wednesday, April 6, 2011. For more information contact Ms. Cyndi Holman, Procurement Specialist, at (210) 222-2204 or visit www.edwardsaquifer.org.

Pub. Mar. 17 & 24, 2011

CITATION BY PUBLICATION

THE STATE OF TEXAS:

D'Hanis / Medina County
Flood Protection Study

3rd Project Public Meeting Sign-In Sheet

March 31, 2011

Name	Address	Phone No.	Email Address
Jim Barden	1502 Ave K Hondo TX 78861	830 741 6020	
Lester Landrum	776 CR 354 Hondo, Tx 78861	830-426 3295	
Irene Cox	P.O. Box 153 D'Hanis, Tx. 78850	830-363-4299	
Patrick McGraw	PO Box 413 D'Hanis TX 78850	830 363 7412	

HALFF

D'Hanis / Medina County
Flood Protection Study

3rd Project Public Meeting Sign-In Sheet

March 31, 2011

Name	Address	Phone No.	Email Address
Pate E. Brawner	1055 US Hwy 90E Hondo 78861	830-741-6195	
Jon R. Barlow	P.O. Box 488 6711 CR 5334 D'Hanis, TX 78850	830-363-7229	
Esther Nester	P.O. Box 397, D'Hanis, TX 78850	830-363-7245	
John J. Nester	7404 - C.R. 429 P.O. Box 397 - D'Hanis, TX 78850	830363-7245	
Richard Zerr	PO Box 481 D'Hanis TX 78850	830-426-1552	
Ivan Ortiz	Austin, TX 78711 1700 N. Congress	512-463-8184	ivan.ortiz@twdb.state. ~~ivora tx@~~ tx.us

HALFF

D'Hanis / Medina County
Flood Protection Study

3rd Project Public Meeting Sign-In Sheet

March 31, 2011

Name	Address	Phone No.	Email Address
Joel Curtis	PO Box 178	830-363-6128	secoorlley@gmail.com
John Poerner	P.O Box 519 - D'Hanis	830-363 7311	
Charles A Koch	Po Box 444 D'HANIS	830-363 7468	
Justin Koch	P.O. Box 444 D'Hanis	(830)-426-1816	
ALVINE FITZGERALD	202 CR 450 HONDO	830-741-5040	
Harold Bryant	1510 29th St. Hondo, TX78861	(830)426-5539	
JOE FOHN	Box 366 D'HANIS TX 78850 3047 Nantucket ST TX 78230	210-415-6248	joefohn@gmail.com

HALFF

D'Hanis / Medina County
Flood Protection Study

3rd Project Public Meeting Sign-In Sheet

March 31, 2011

Name	Address	Phone No.	Email Address
DAVID LYNCH	440 P.R. 5120 DHANIS, TX. 78850	830-363-7505	
Lou Lutz	1582 FM 1796 78850 D'Hanis	830 363-2611	
Dr Bob Fitzgerald	202 CR 450 HONDO TX 78861	830-741-5040	

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D'Hanis / Medina County Flood Protection Study

Public Meeting Comment Form

Date: March 31, 2011

Name: Dr Robert (BOB) Fitzgerald

Organization: Medina Co. Environmental Action Assoc, Inc,

Address: 202 CR450, Hondo TX 78861

Phone/Email Address: AMFITZ@hughes.Net

Please provide any comments you may have regarding proposed project alternatives, concerns, or suggestions.

Comment: I enjoyed your very informative presentation on the alternative proposals to lessen flood damage in D'hanis TX

I would greatly appreciate data on the amount of rain fall that occured in the floods of 2002-4-7 in ~~the~~ inches if this data is available

Thank you again for your informative information Dr Bob Fitzgerald

Please complete this form and leave at the Sign-In table (if at a meeting) or fax to: HALFF ASSOCIATES (210) 798-1896.

HALFF

D'HANIS FLOOD PROTECTION STUDY
3rd PUBLIC MEETING

March 31, 2011

HALFF

Project Purpose

- Evaluate preliminary cost effective solutions to reduce flooding in D'Hanis considering:
  - Existing drainage and flooding conditions
  - Project benefit and cost
  - Input from the community
  - ROW, approval, and permitting requirements
- Project Funding
  - Medina County
  - Texas Water Development Board

Project Public Meetings

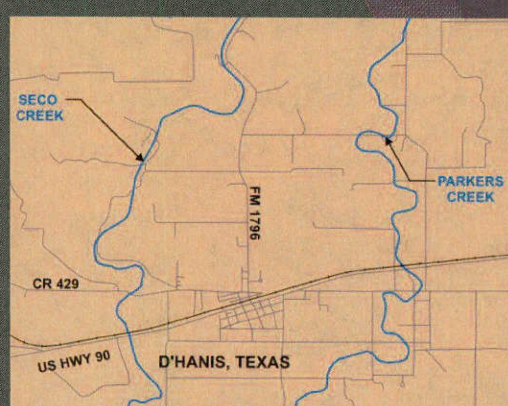
- 1st Public Meeting
  - September 10, 2010
  - Project Kick-off
- 2nd Public Meeting
  - November 4, 2010
  - Presented
    - existing conditions findings
    - alternatives being evaluated
  - Solicited public input
- *3rd Public Meeting*
  - ***Present findings and recommendations***

Major Project Tasks

- Data Collection
- Drainage Analysis
- Conceptual Analysis
- Environmental Investigation
- Economic Analysis
- Recommendations
- Final Report

Study Area

- Population approximately 700
- Farm and ranch land
- Flooding Sources
  - Seco Creek
  - Parkers Creek
- Flooding History
  - 1894
  - 1919
  - 1935
  - 1958
  - 1997
  - 2002 (July 25)
  - 2004 (June 30)
  - 2007 (July 21)



FEMA Flood Insurance Rate Map

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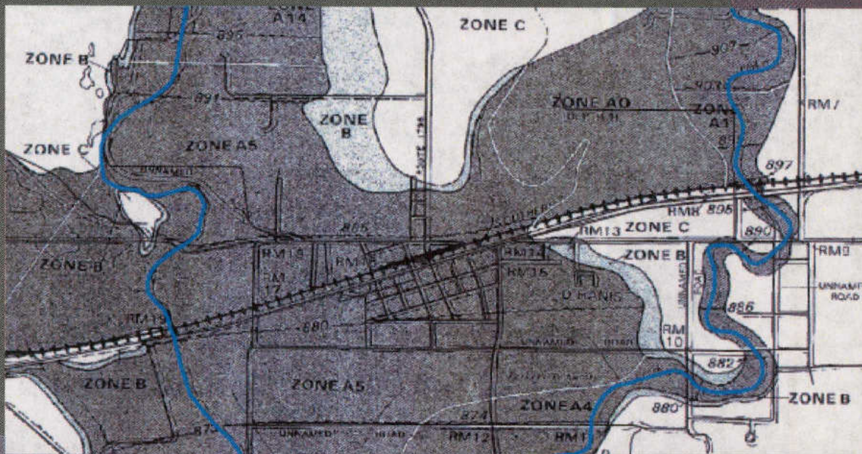
- Majority of D'Hanis located in 100-year floodplain



Seco Creek Watershed

- Seco Creek Drainage Area
  179 sq. mi. at Hwy 90
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  27 sq. mi. at Hwy 90
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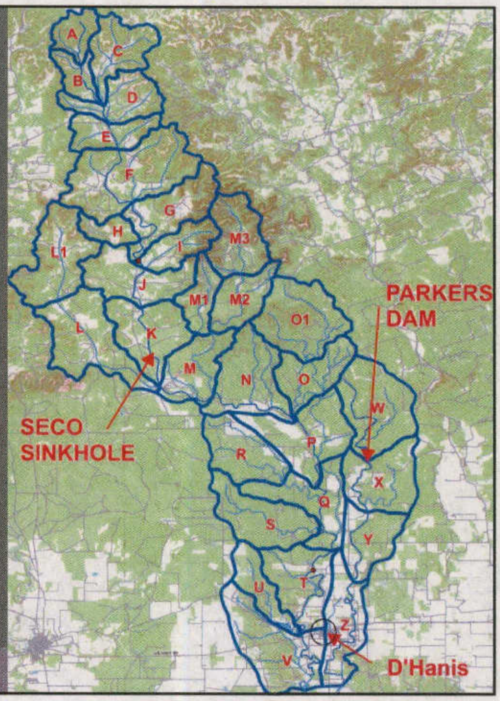
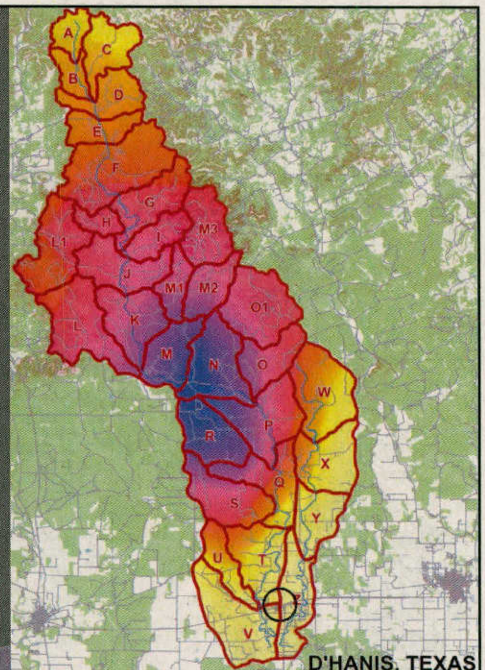
- Parkers Dam captures most of flow from large rainfall events

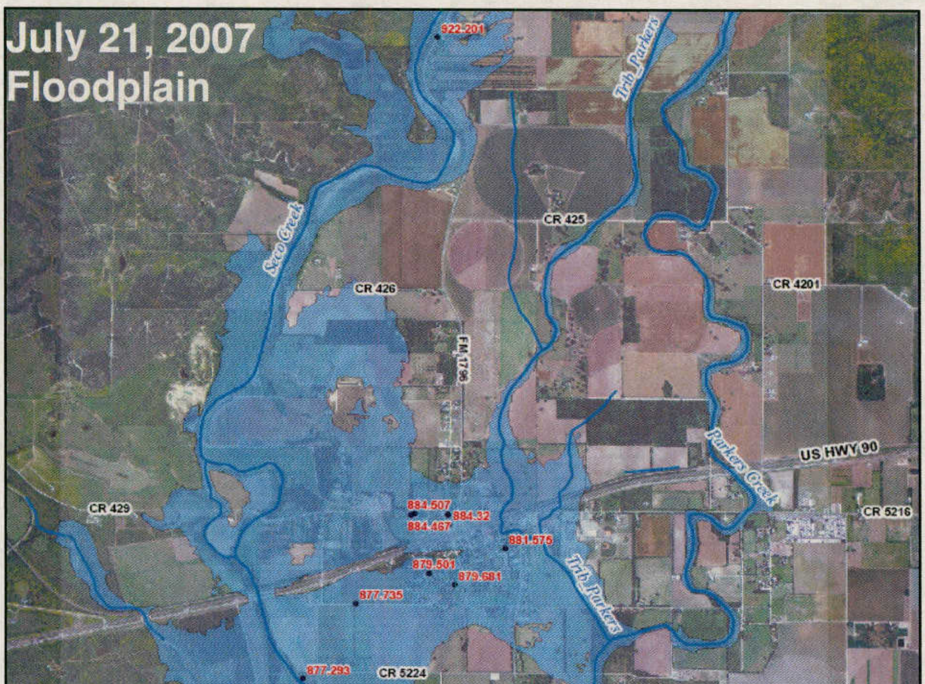


July 21, 2007 Storm Event

- Major flooding in D'Hanis
- Rainfall
  - Upstream of D'Hanis
  - Seco Creek
  - Obtained hourly rainfall records
- Stream flow records from USGS gages
- High water marks
- Developed
  - Hydrologic models (flow)
  - Hydraulic model (water surface elev.)
  - Mapped storm floodplain



July 21, 2007 Floodplain



Analysis Findings

- Calibrated hydrologic and hydraulic computer models that match July 2007 storm and FIRM mapping
- Overflow from Seco towards D'Hanis
- Parker's Tributary
- Highway and Railroad crossings
- Frequency / Storm Event Comparison
  - 10-Year Frequency = June 30, 2004 Storm
  - 25-Year Frequency = July 5, 2002 Storm
  - 50-Year Frequency = July 21, 2007 Storm

RAILROAD SURVEY

Alternative Considerations

- Areas of existing development
- Level of Protection / Cost
- Right-of-Way
  - No purchase or condemnation of property
  - Maintaining existing use
- Operation & Maintenance
- Agreements with property owners and agencies
- Permitting Requirements
- Public Comment

Initial Alternative Concepts

- Channel modifications
- Stormwater detention
- Bridge and/or culvert modifications
- Buy-outs
- Flood warning system
- Do-nothing

Alternative Concepts

Considerations Used

- Channel modifications
- ~~Stormwater detention~~
- Bridge and/or culvert modifications
- ~~Buy-outs~~
- Flood warning system
- Do-nothing

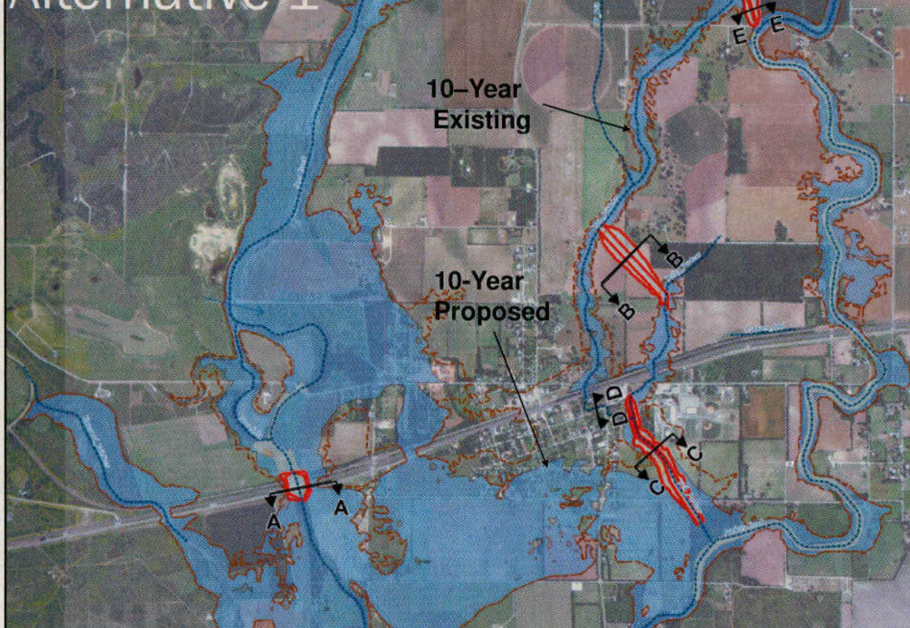
Recommended Alternatives

- Three Alternatives
- Alternative 2 builds upon Alternative 1
- Alternative 3 builds upon Alternative 2
- Agreements with property owners and agencies
  - Right-of-Way
  - Operation & Maintenance

Alternative 1

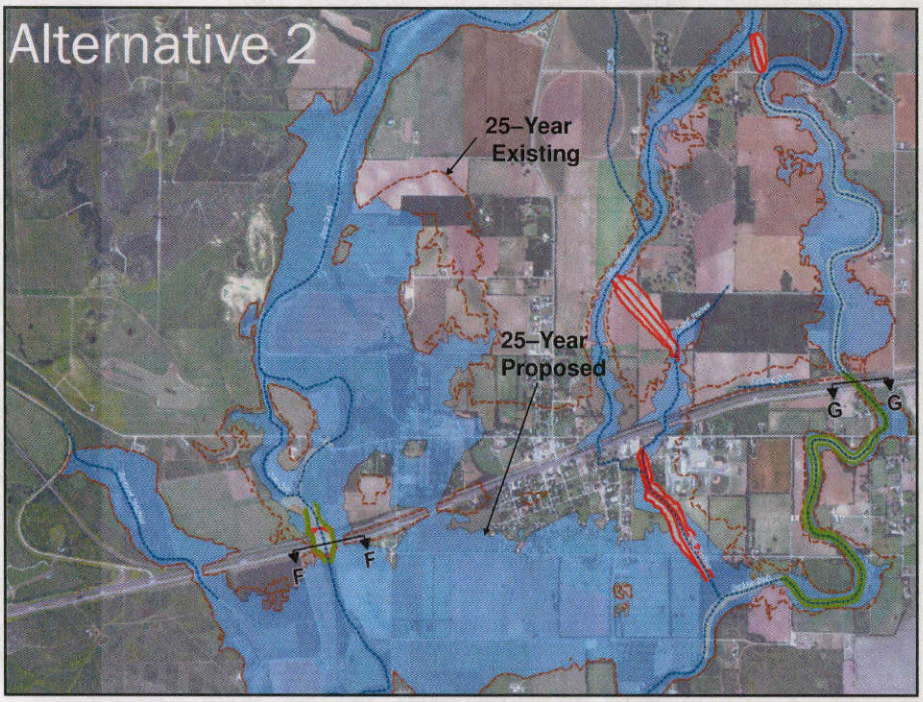
- Level of Protection
  - 10 – Year Frequency / June 30, 2004 Storm
- Flood Warning System
- Seco Creek channel modifications at UPRR & Highway 90
- Two new Diversion Channels from Parkers Tributary to Parkers Creek
- Parkers Creek channel modifications

Alternative 1



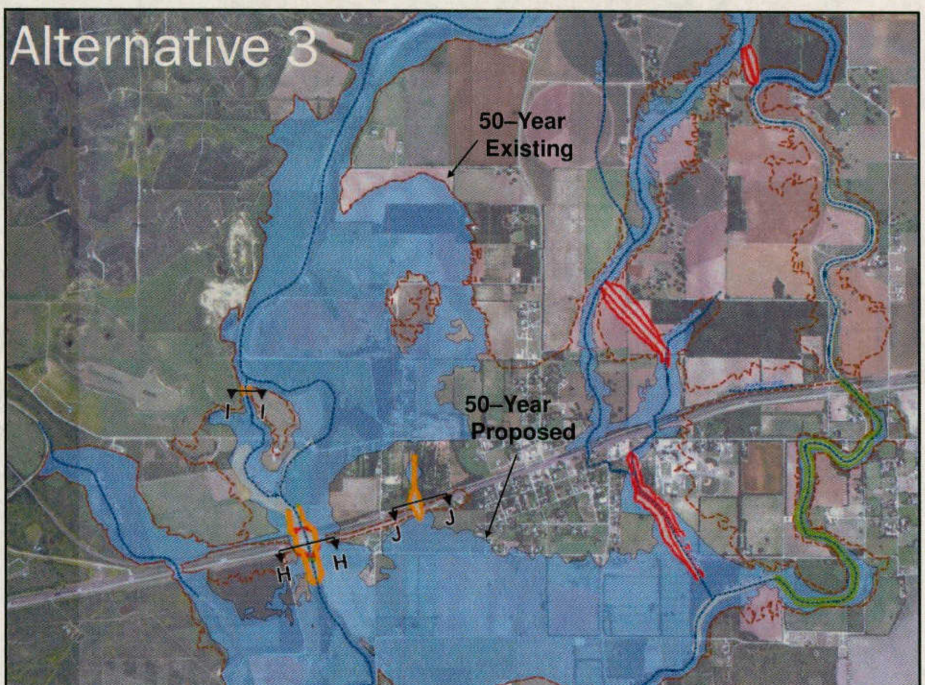
Alternative 2

- Level of Protection
  - 25-Year Frequency / July 5, 2002 Storm
- *Alternative 1 plus*
  - Additional Seco Creek channel modifications
    - Flowline depth does not exceed existing flowline conditions
  - Additional Parkers Creek channel modifications
  - Parkers Creek crossings at UPRR & Hwy 90 Modifications



Alternative 3

- Level of Protection
  - 50-Year Frequency / July 21, 2007 Storm
- *Alternative 2 plus*
  - Expanding on Seco Creek channel modifications
  - New Diversion Channel



Alternative Cost Considerations

- Considered Preliminary
- Cost include
  - Engineering (design, geotechnical, environmental, surveys, and agency coordination)
  - Construction
  - Contingencies (15%)
- Right-of-way
  - No purchase or condemnation of property

Alternative Cost Summary

Alternative 1 $2,870,000

Alternative 2 $4,350,000

Alternative 1 cost plus $1,480,000

Alternative 3 $4,960,000

Alternative 2 cost plus $610,000

Recommendations

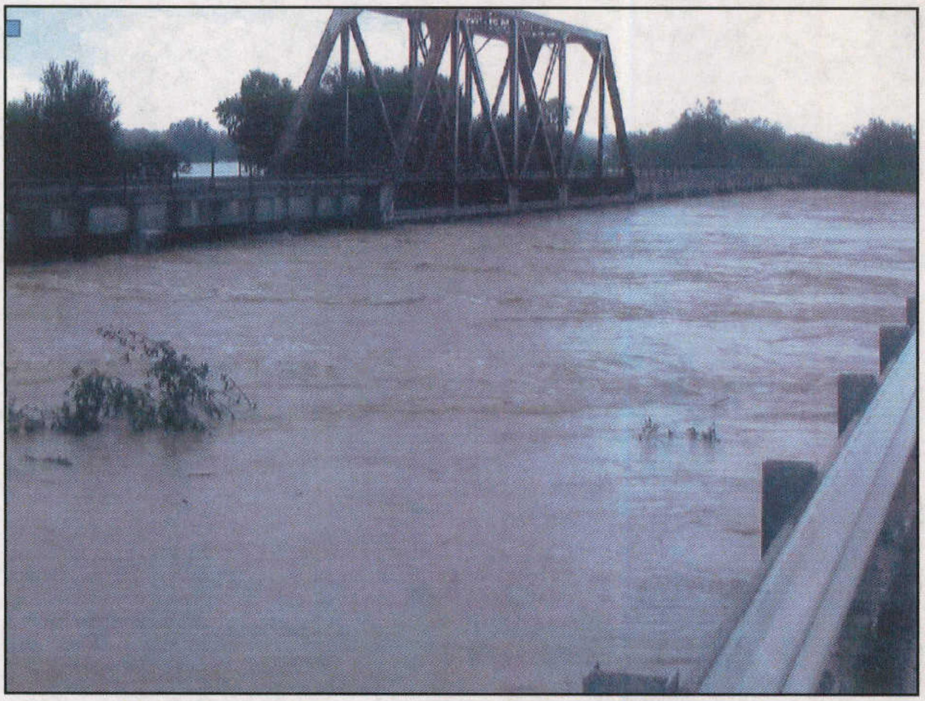
- Identify funding source(s)
- Develop agreements with property owners and agencies
- Implement alternatives in a *phased approach* starting with Alternative 1 flood warning system

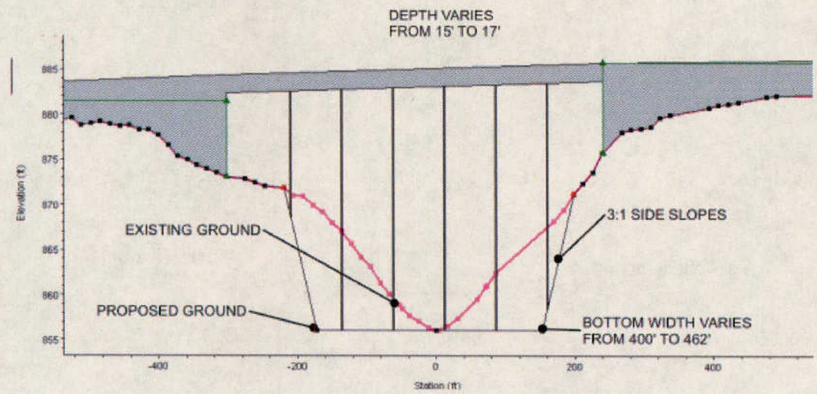
Next Step

- Finalize Report
- Submit Report to Medina County and TWDB for review and approval
- Medina County identifies funding source

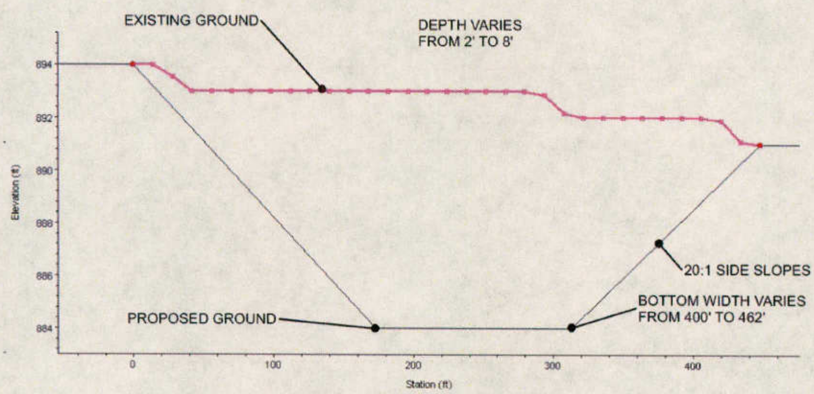
QUESTIONS
&
COMMENTS


DEER PROCESSING
COLD STORAGE

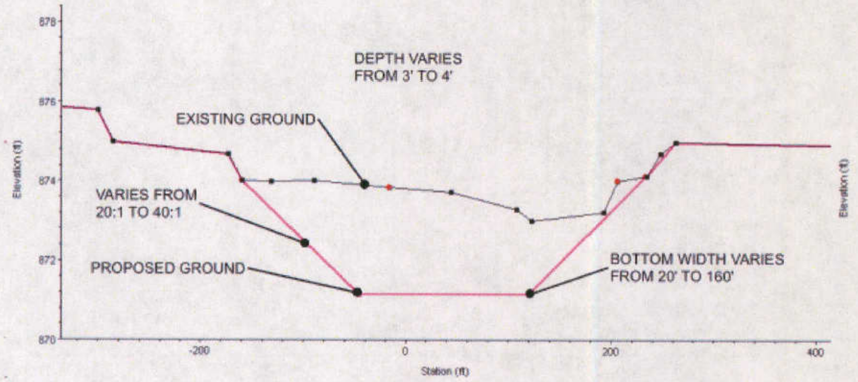




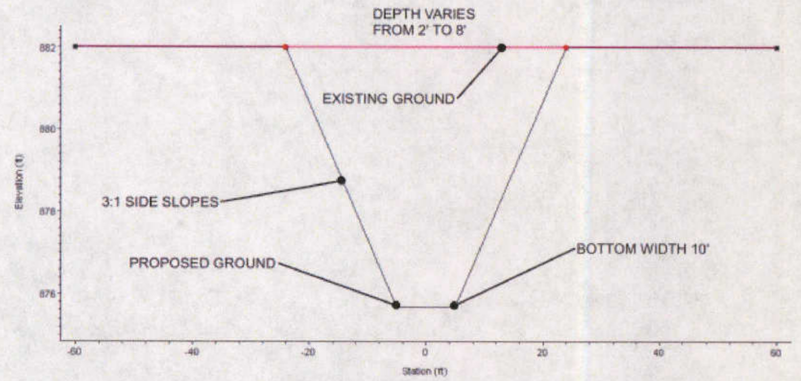
CROSS SECTION A-A



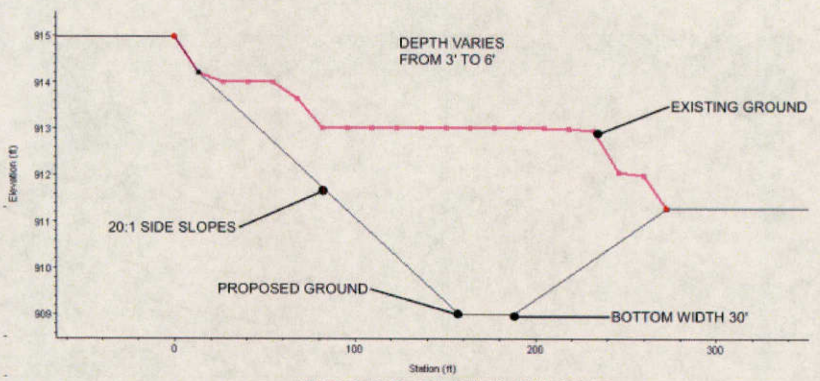
CROSS SECTION B-B



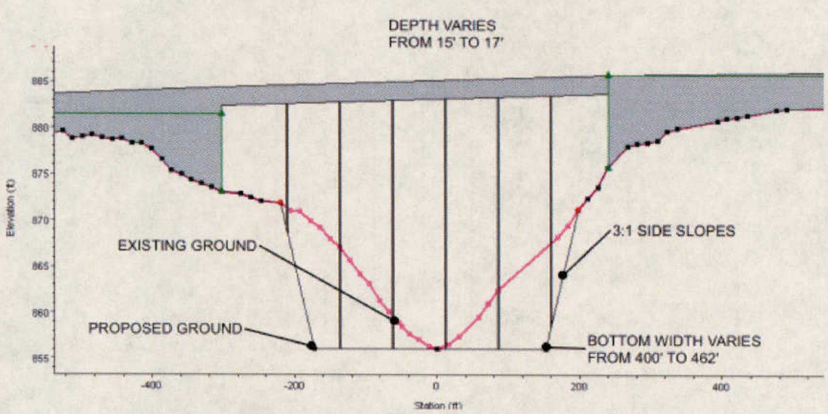
CROSS SECTION C-C



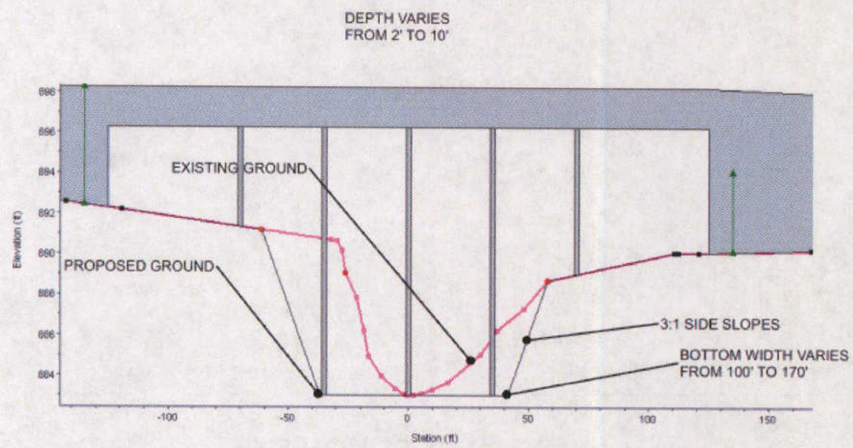
CROSS SECTION D-D



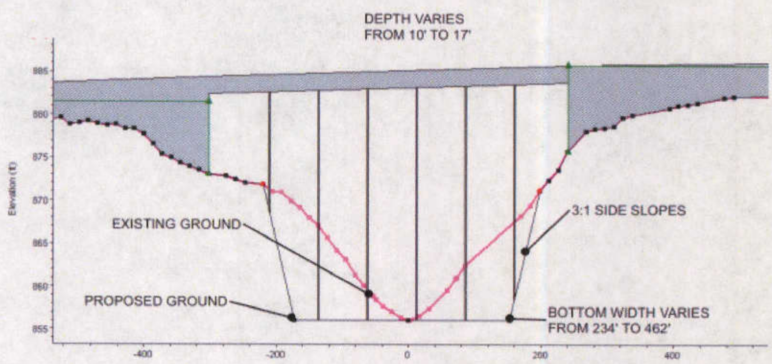
CROSS SECTION E-E



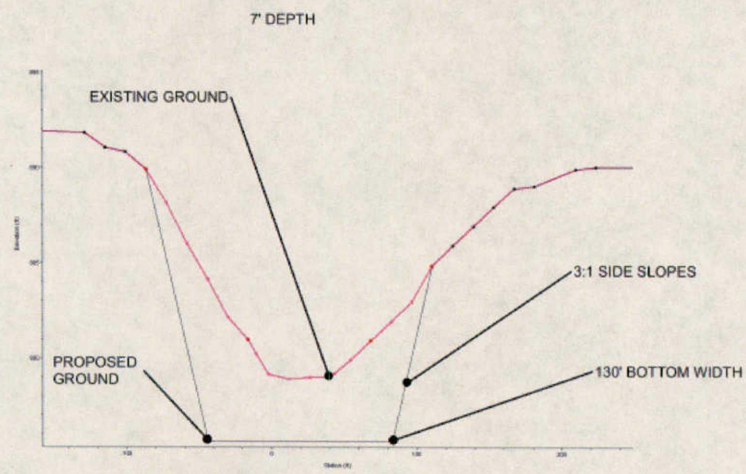
CROSS SECTION F-F



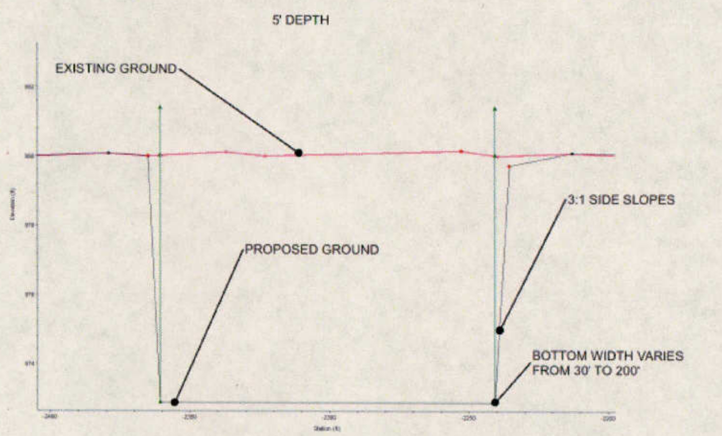
CROSS SECTION G-G



CROSS SECTION H-H



CROSS SECTION I-I



CROSS SECTION J-J

APPENDIX F

APPENDIX F – SECO CREEK FLOOD RESTORATION PROGRAM

Seco Creek Flood Restoration Program
November 4, 2010 Meeting
Discovery Update

The Halff Engineering firm presented three alternative proposals to the citizens of D'Hanis concerning the preliminary discovery relative to flood restoration of the Seco Creek. All three alternatives suggested excavations of soils, to widen and deepen the Seco Creek and the flood relief canal, located on the Curtis and Nester farms North and South of highway 90. The engineering firm indicated the excavation would be designed to lower the elevation of the creek, remove any obstructions that permit the retention of water and widen the creek to allow greater volumes of water to pass. The engineering firm also indicated the greatest cost and concern was depositing thousands of cubic feet of soil that will be excavated from the restoration sites.

The following are the concerns and compromises presented by Joel Curtis and Joe Nester, co-owners of the Curtis and Nester farms:

History

There are strategic water basins that are located on the Seco Creek that start from the inception of the creek to where it drains into the Hondo Creek south of highway 90. These natural water basins and the water wells that adjoin these reservoirs have been used since the 1800s for domestic and irrigation use. It is believed the natural water basins are spring feed and have a significant economic impact for the landowners who use them. The Curtis and Nester farms have irrigation wells located on the Seco Creek that are close to these described natural water basins. The water basin levels have a direct correlation to the level of water in the mentioned irrigation wells. This was proven over 50 years ago when part of the Glascock Ranch, now owned by the Curtis Family, pumped all of the water from one of the mentioned natural water basins in question from the Seco Creek that dried up the Nester family irrigation well south of the pumped basin.

Concerns

The suggestions made by the Halff Engineering firm will destroy the natural water reservoirs that have a direct correlation to the water levels in the irrigation wells on the Curtis and Nester farms and will have a negative economic impact on both properties placing them into hardships. Furthermore, throughout the Seco Creek bottom the water tables are less than 4 feet deep. By excavating down four or more feet will expose the water table causing that much more damage to the existing water tables though evaporation and contamination. The amount of trees and land that will be excavated is also a concern of the families. However, there are compromises to our concerns that will benefit all the parties involved in the Seco Creek Restoration Project.

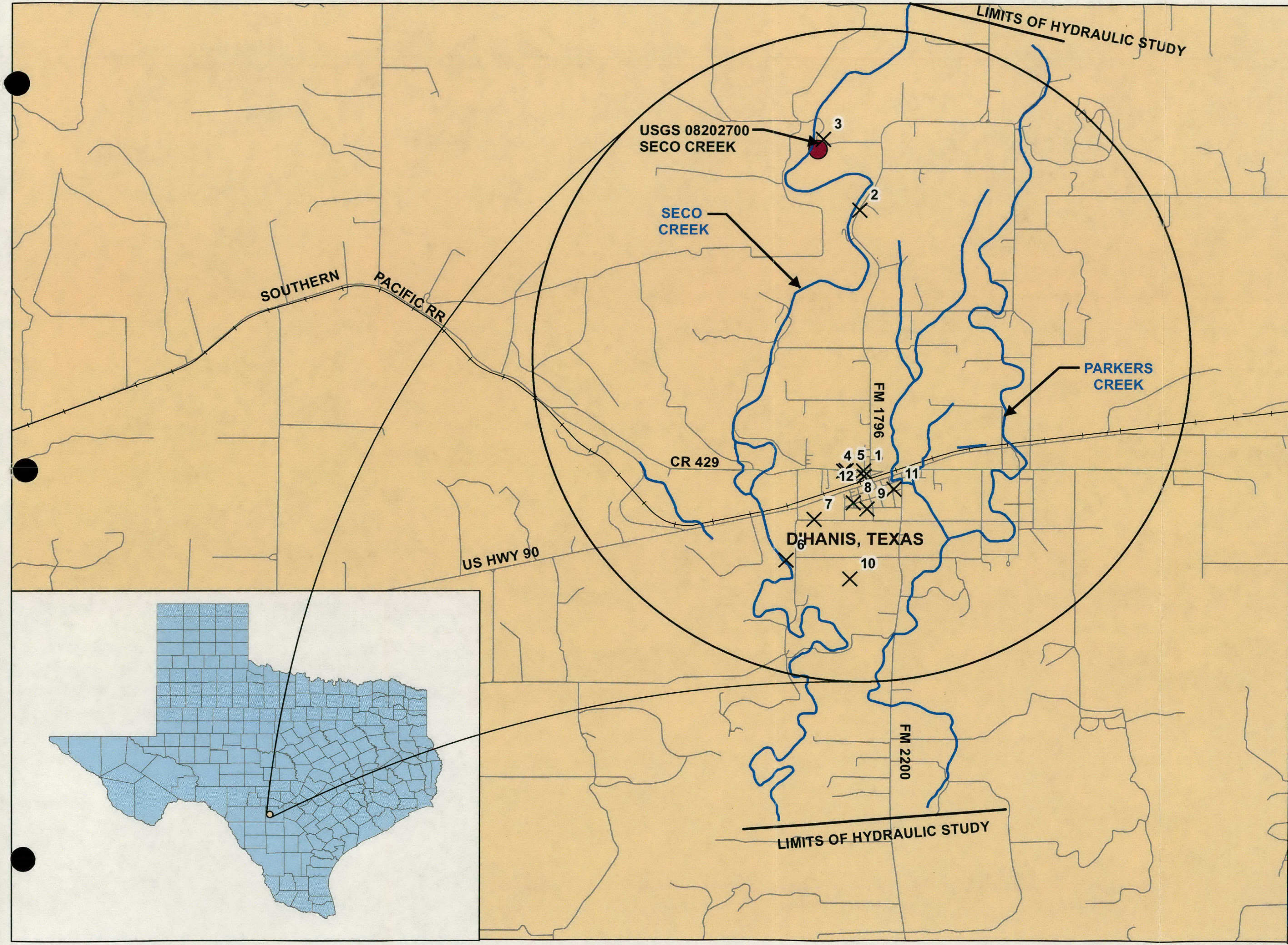
Compromises

The Curtis farm has been irrigating its orchards from their Seco Creek water well since the early 90s. It just received an irrigation permit from the Medina County Water District for the well it has been irrigating from along with the irrigation well on the land they recently purchased from the Gunn Ranch just north of its farm for a total of 217-acre feet of shallow water. The Nester Family is in the process of applying for an irrigation permit for 304 acre-feet of water that is located in the same shallow aquifer as the Curtis farm. Both families have agreed they will allow the excavation of soils from the Seco Creek on their farms that will destroy the natural water basins that have a direct correlation to their water wells in exchange for as many acre-feet of permitted water from the Edwards Aquifer. This will include the digging of Edwards Aquifer water wells, the necessary water pumps needed to irrigate their crops and the cost of bringing electrical power to the mentioned wells. The Curtis and Nester families will have the right to choose the location of the Edwards Aquifer wells.

Both families also agree to let the excavated soils from the Seco Creek Project be deposited on their farms in the areas they designate saving the project millions of dollars in transportation and depositing cost.

This can all be accomplished without the cost for condemnation or easements if we work together, and that is what the Curtis and Nester farms propose to do.

Joel Curtis	Joseph Nester



LOCATION MAP
D'HANIS, TEXAS
MEDINA COUNTY, TEXAS

LEGEND

- X 2007 FLOOD HIGH WATER MARKS
- STREAMS
- USGS GAGE
- RAILROAD

NOTE:
REFER TO TABLE 4.0 IN THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY FOR THE JULY 21, 2007 STORM CALIBRATION DATA

EXHIBIT 1.0

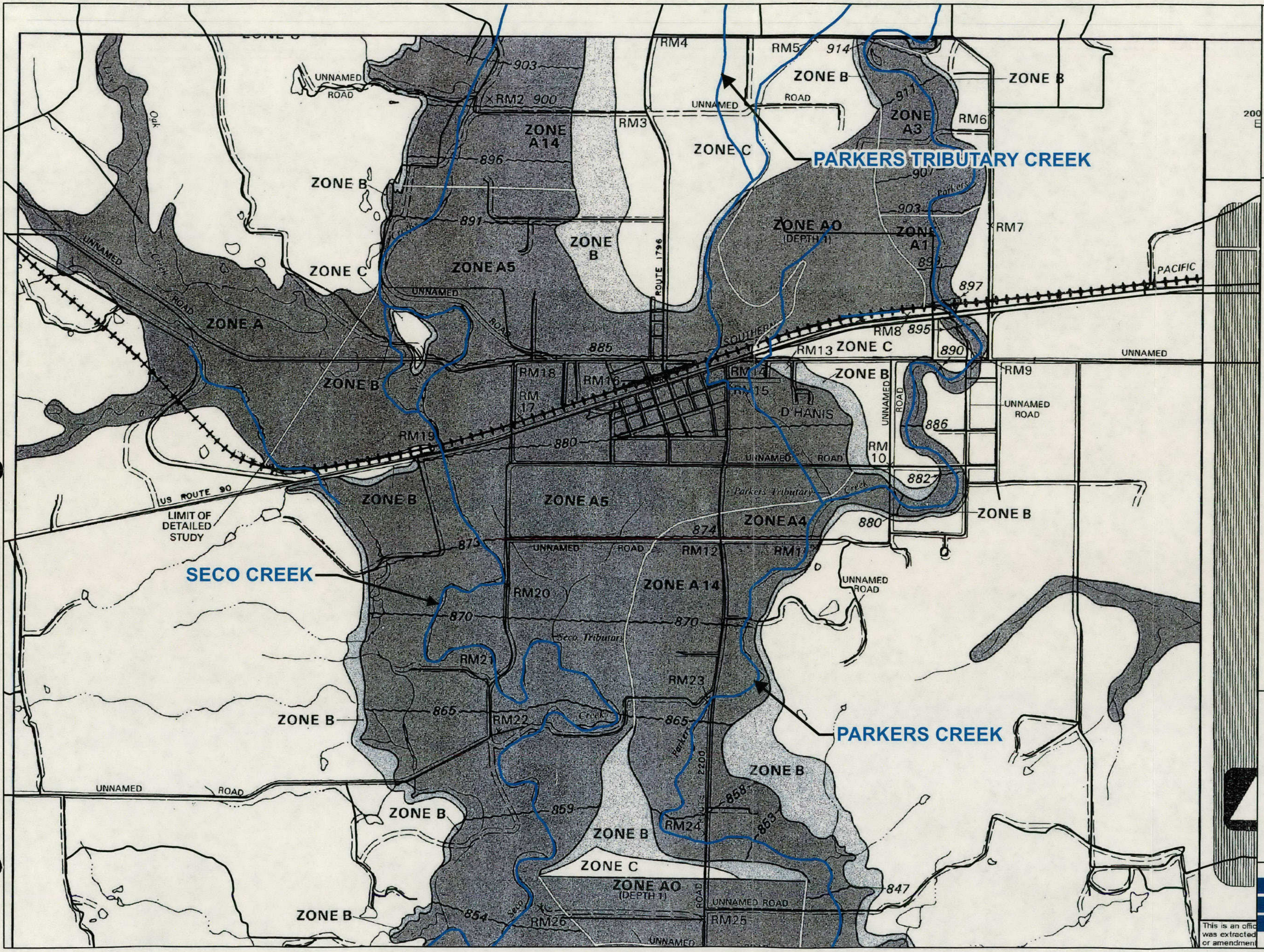
AUGUST 2011

N
W E
S

0 2,000 4,000 8,000 Feet

1 in = 4,000 ft

HALFF



FLOOD INSURANCE RATE MAP
MEDINA COUNTY, TEXAS
PANEL NUMBER: 480472 0200 B
EFFECTIVE DATE: AUGUST 15, 1980

LEGEND

STREAMS

EXHIBIT 2.0

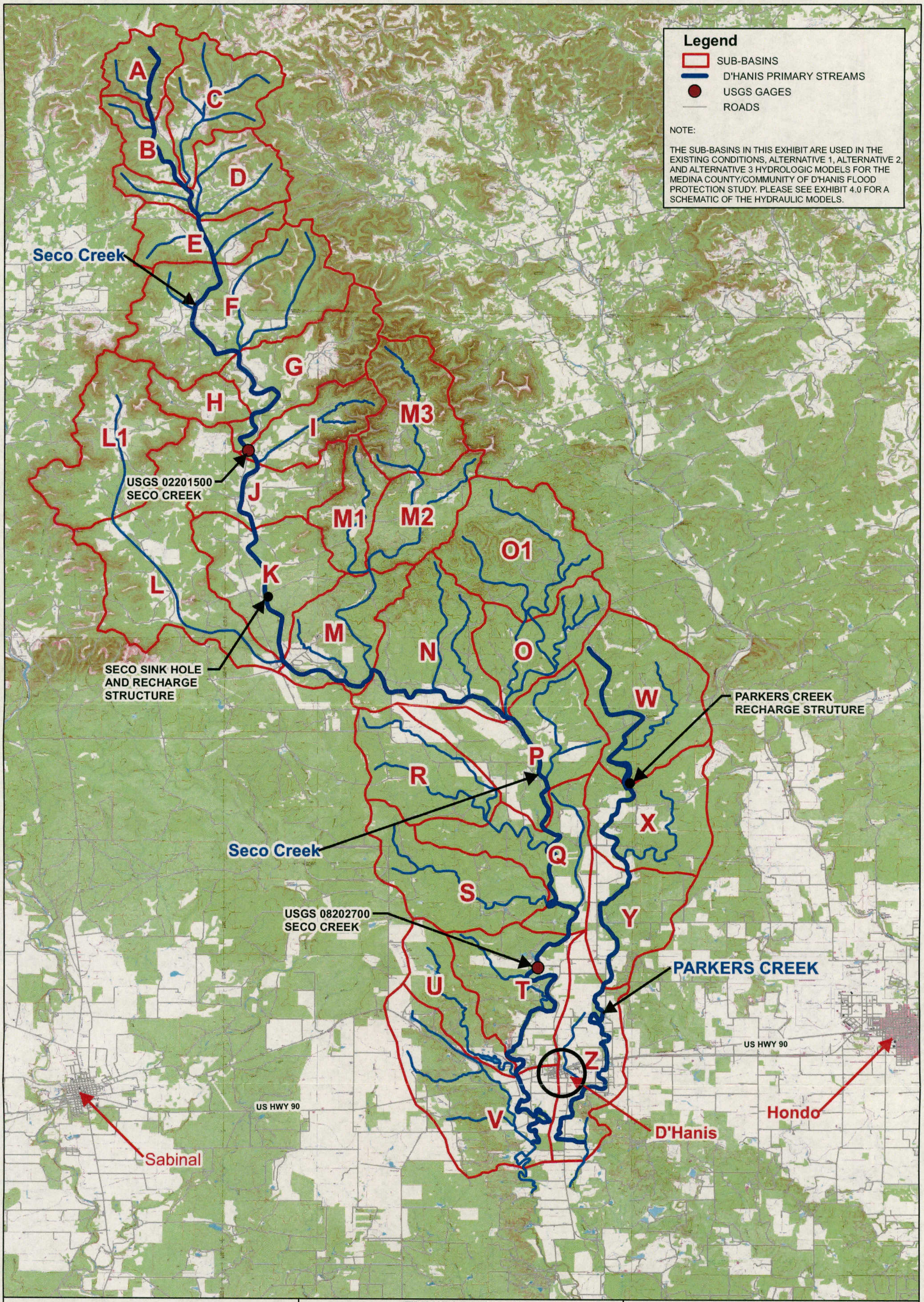
AUGUST 2011

N
W E
S

0 1,000 2,000 4,000 Feet

1 inch = 2,000 feet

HALFF



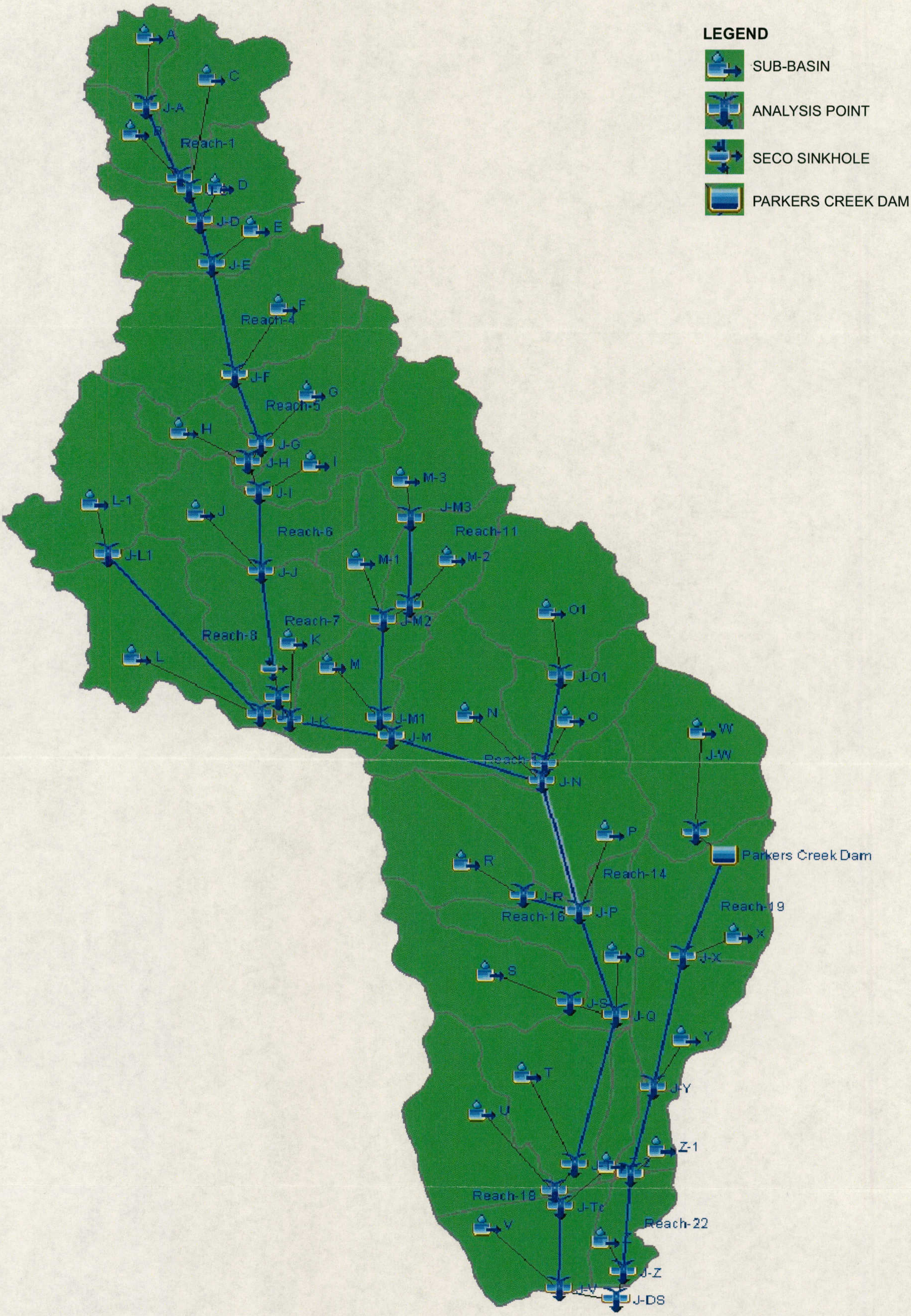
0 1.25 2.5 5 MILES

1 inch equals 2.42 miles

EXHIBIT 3.0
SECO WATERSHED MAP

HALFF

AUGUST 2011



NOTE:

SCHEMATIC REPRESENTS ELEMENTS USED IN THE EXISTING CONDITIONS, ALTERNATIVE 1, ALTERNATIVE 2, AND ALTERNATIVE 3 HYDROLOGIC MODELS (HEC-HMS) FOR THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY.

N W E S

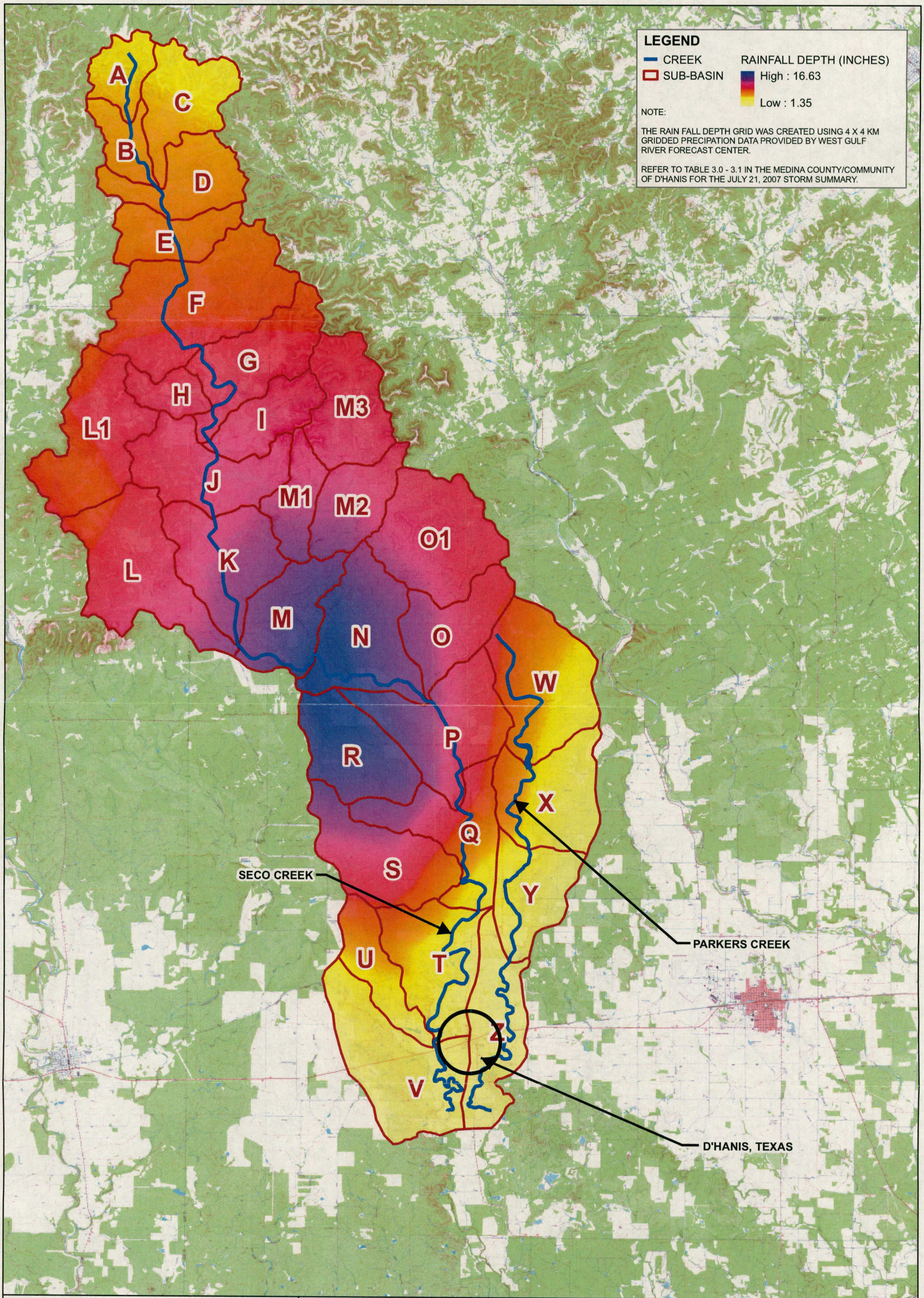
0 1.25 2.5 5 MILES

1 inch equals 2.42 miles

EXHIBIT 4.0
HYDROLOGY SCHEMATIC MAP

HALFF

AUGUST 2011



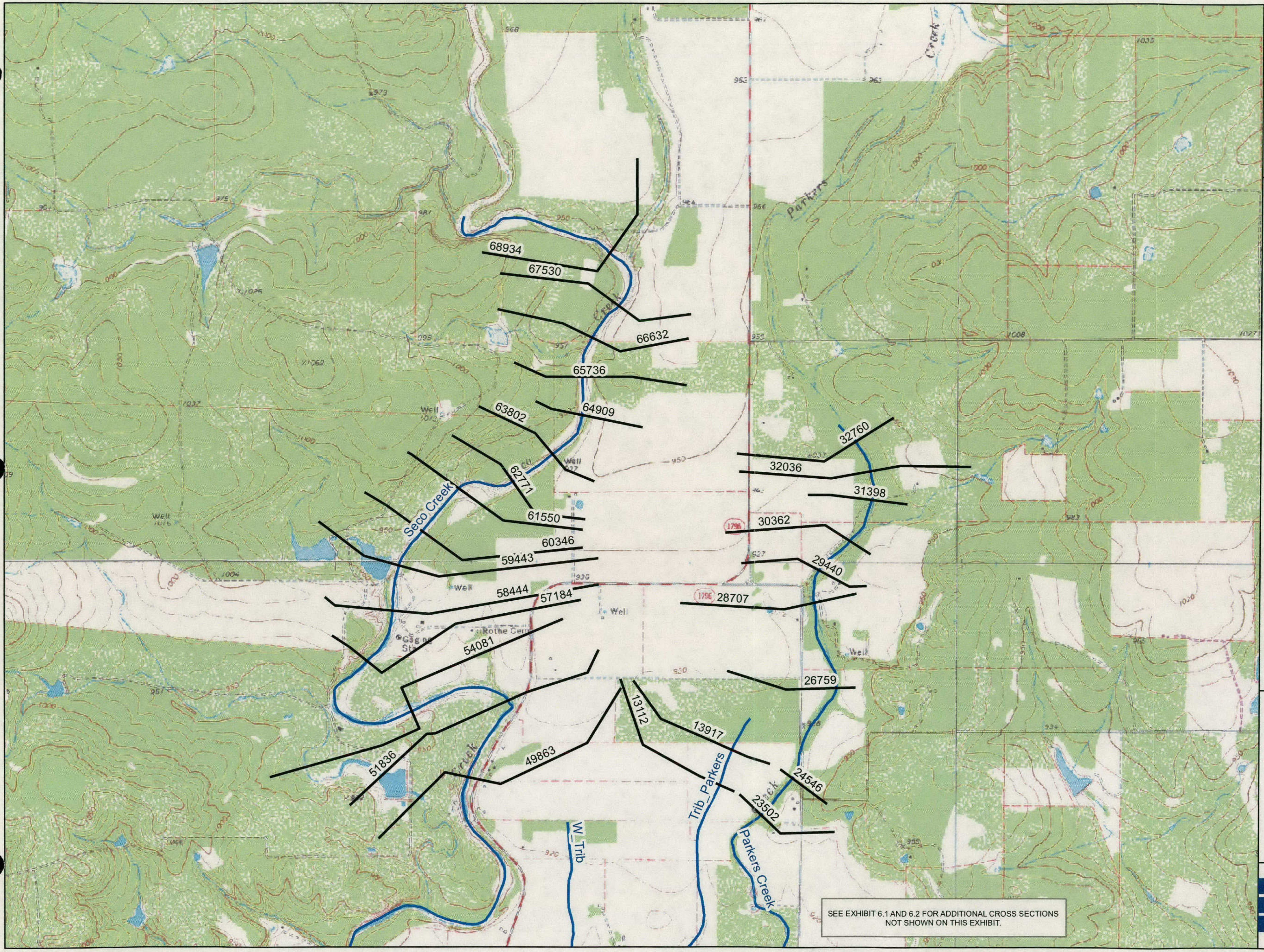
0 1.25 2.5 5 MILES

1 inch equals 2.5 miles

EXIHIBIT 5.0
D'HANIS, TX JULY 21, 2007
TOTAL RAINFALL MAP

HALFF

AUGUST 2011



THE STATE OF TEXAS · COUNTY OF MEDINA

TEXAS WATER DEVELOPMENT BOARD

EXISTING CONDITIONS CROSS SECTIONS MAP D'HANIS, TEXAS MEDINA COUNTY, TEXAS

LEGEND

- CROSS SECTIONS
- STREAMS
- 48183 CROSS SECTION ID

NOTE:

THE CROSS SECTIONS SHOWN ON THIS MAP ARE USED IN THE EXISTING CONDITIONS HYDRAULIC MODEL OF THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY.

EXHIBIT 6.0

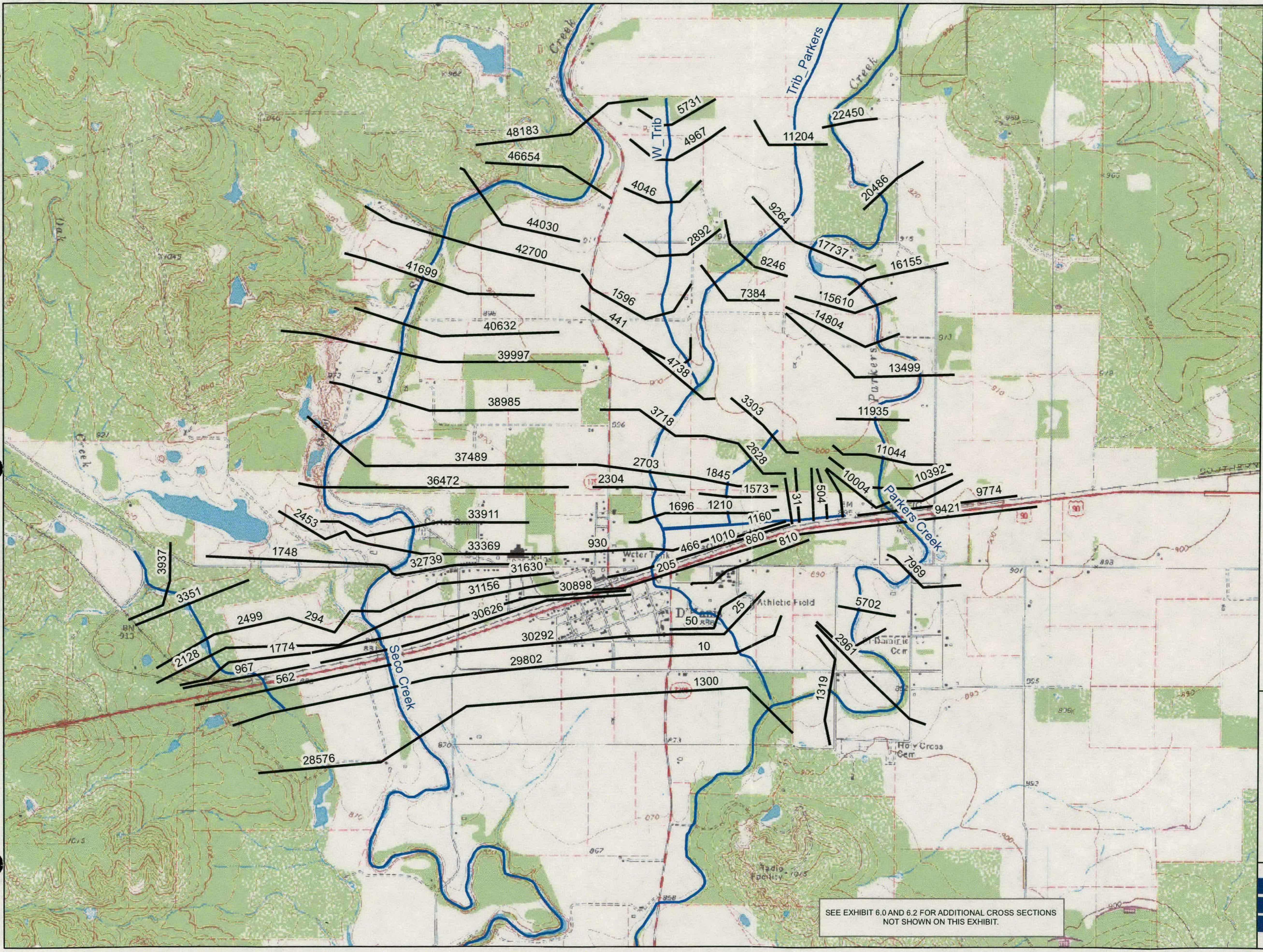
AUGUST 2011

N
W E
S

0 1,000 2,000 4,000 Feet

1 inch = 2,000 feet

HALFF



THE STATE OF TEXAS COUNTY OF MEDINA

TEXAS WATER DEVELOPMENT BOARD

EXISTING CONDITIONS CROSS SECTIONS MAP
D'HANIS, TEXAS
MEDINA COUNTY, TEXAS

LEGEND

CROSS SECTIONS
STREAMS
48183 CROSS SECTION ID

NOTE:

THE CROSS SECTIONS SHOWN ON THIS MAP ARE USED IN THE EXISTING CONDITIONS HYDRAULIC MODEL OF THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY.

EXHIBIT 6.1

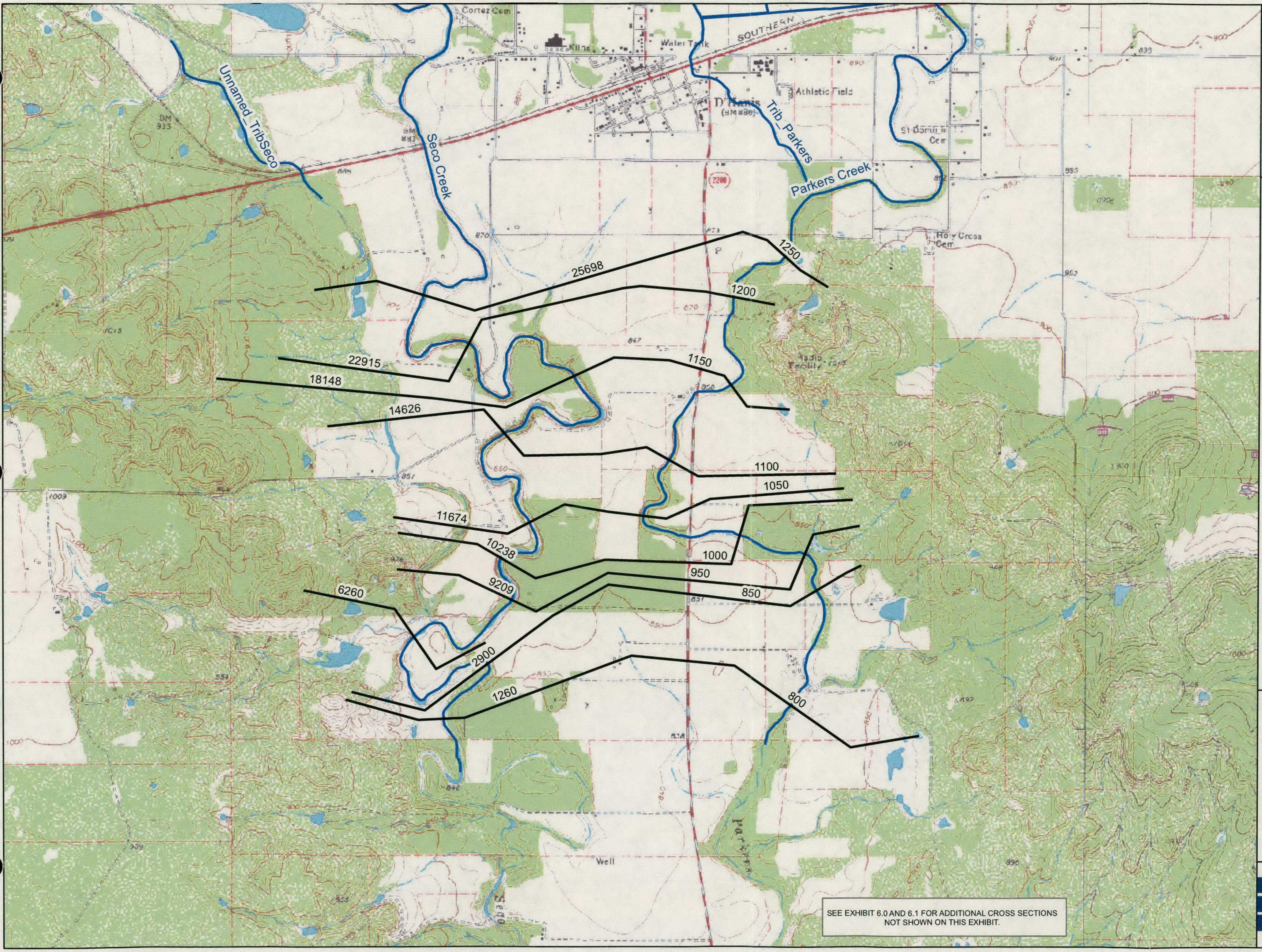
AUGUST 2011

N W E S

0 1,000 2,000 4,000 Feet

1 inch = 2,000 feet

HALFF



**EXISTING CONDITIONS
CROSS SECTIONS MAP
D'HANIS, TEXAS
MEDINA COUNTY, TEXAS**

LEGEND

CROSS SECTIONS
STREAMS
25698 CROSS SECTION ID

NOTE:
THE CROSS SECTIONS SHOWN ON THIS MAP ARE USED IN THE EXISTING CONDITIONS HYDRAULIC MODEL OF THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY.

EXHIBIT 6.2

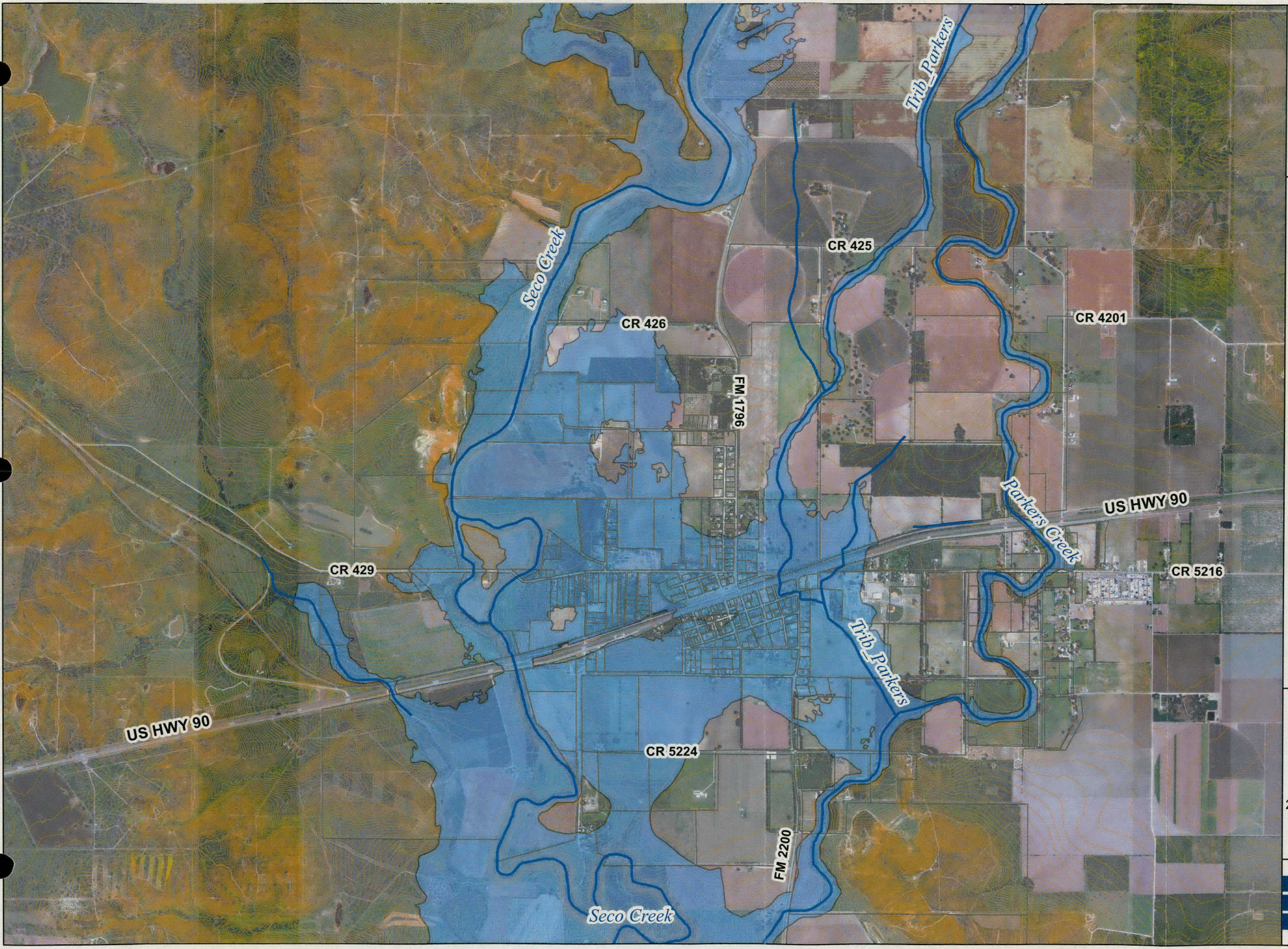
AUGUST 2011

N
W E
S

0 1,000 2,000 4,000
Feet

1 inch = 2,000 feet

HALFF



JULY 21, 2007
FLOODPLAIN MAP
D'HANIS, TEXAS
MEDINA COUNTY, TEXAS

LEGEND

JULY 21, 2007 FLOODPLAIN

NOTE:

THE JULY 21, 2007 FLOODPLAIN WAS CREATED FROM THE EXISTING CONDITIONS HYDRAULIC MODEL IN THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY.

THE TOPOLOGY SHOWN ON THIS MAP ARE FROM THE UNITED STATES GEOLOGICAL SURVEY DIGITAL TERRAIN MODEL.

EXHIBIT 7.0

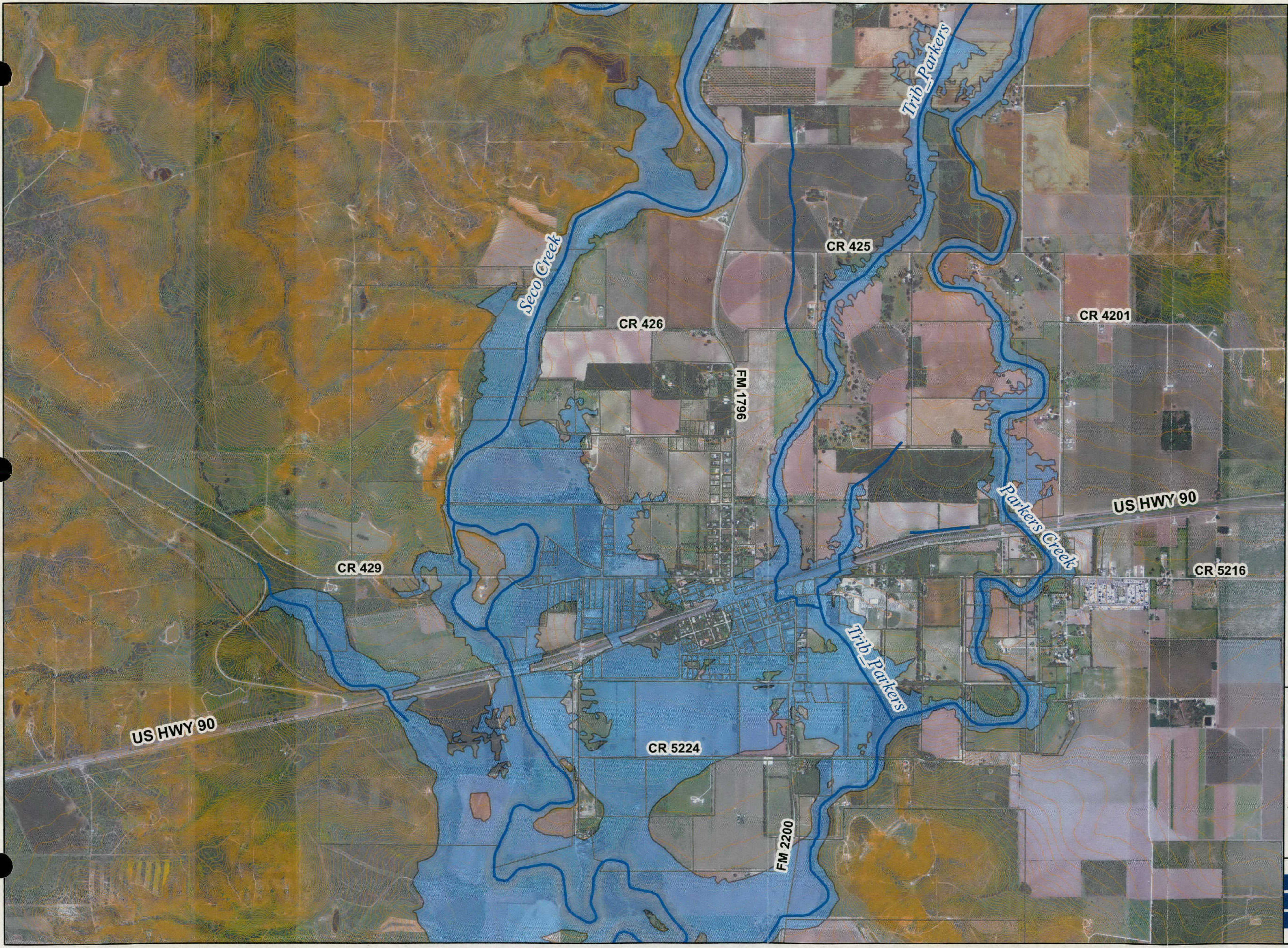
AUGUST 2011

N
W E
S

2,000 1,000 0 2,000
Feet

1 inch = 2,000 feet

HALFF



EXISTING CONDITIONS 10 YEAR FLOODPLAIN
D'HANIS, TEXAS
MEDINA COUNTY, TEXAS

LEGEND

EXISTING CONDITIONS 10 YEAR FLOODPLAIN

NOTE:

THE EXISTING CONDITIONS 10 YEAR FLOODPLAIN WAS CREATED FROM THE EXISTING CONDITIONS HYDRAULIC MODEL IN THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY.

THE TOPOLOGY SHOWN ON THIS MAP ARE FROM THE UNITED STATES GEOLOGICAL SURVEY DIGITAL TERRAIN MODEL.

EXHIBIT 8.0

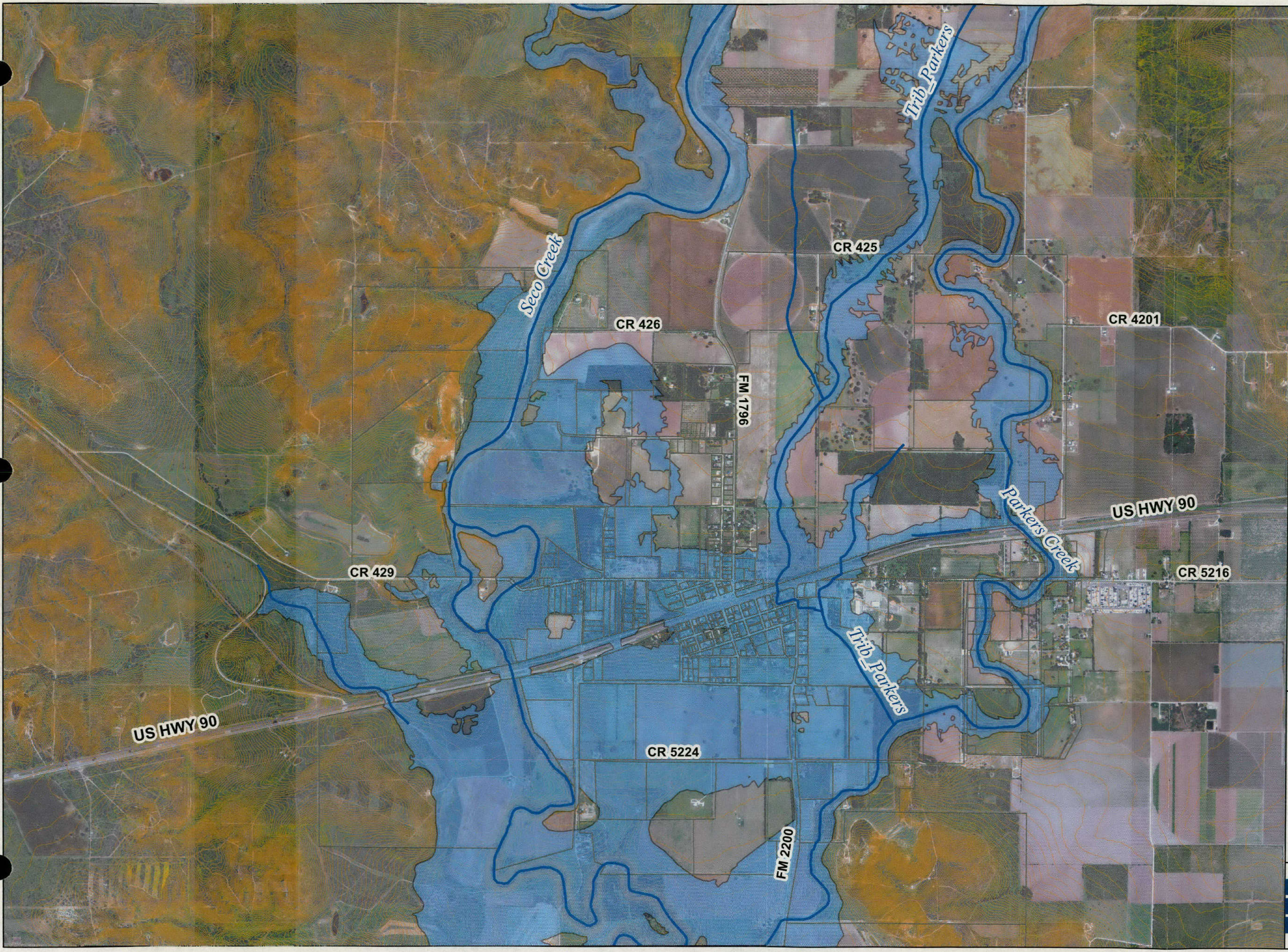
AUGUST 2011

N W E S

2,000 1,000 0 2,000 Feet

1 inch = 2,000 feet

HALFF



EXISTING CONDITIONS 25 YEAR FLOODPLAIN D'HANIS, TEXAS MEDINA COUNTY, TEXAS

LEGEND

EXISTING CONDITIONS 25 YEAR FLOODPLAIN

NOTE:

THE EXISTING CONDITIONS 25 YEAR FLOODPLAIN WAS CREATED FROM THE EXISTING CONDITIONS HYDRAULIC MODEL IN THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY.

THE TOPOLOGY SHOWN ON THIS MAP ARE FROM THE UNITED STATES GEOLOGICAL SURVEY DIGITAL TERRAIN MODEL.

EXHIBIT 9.0

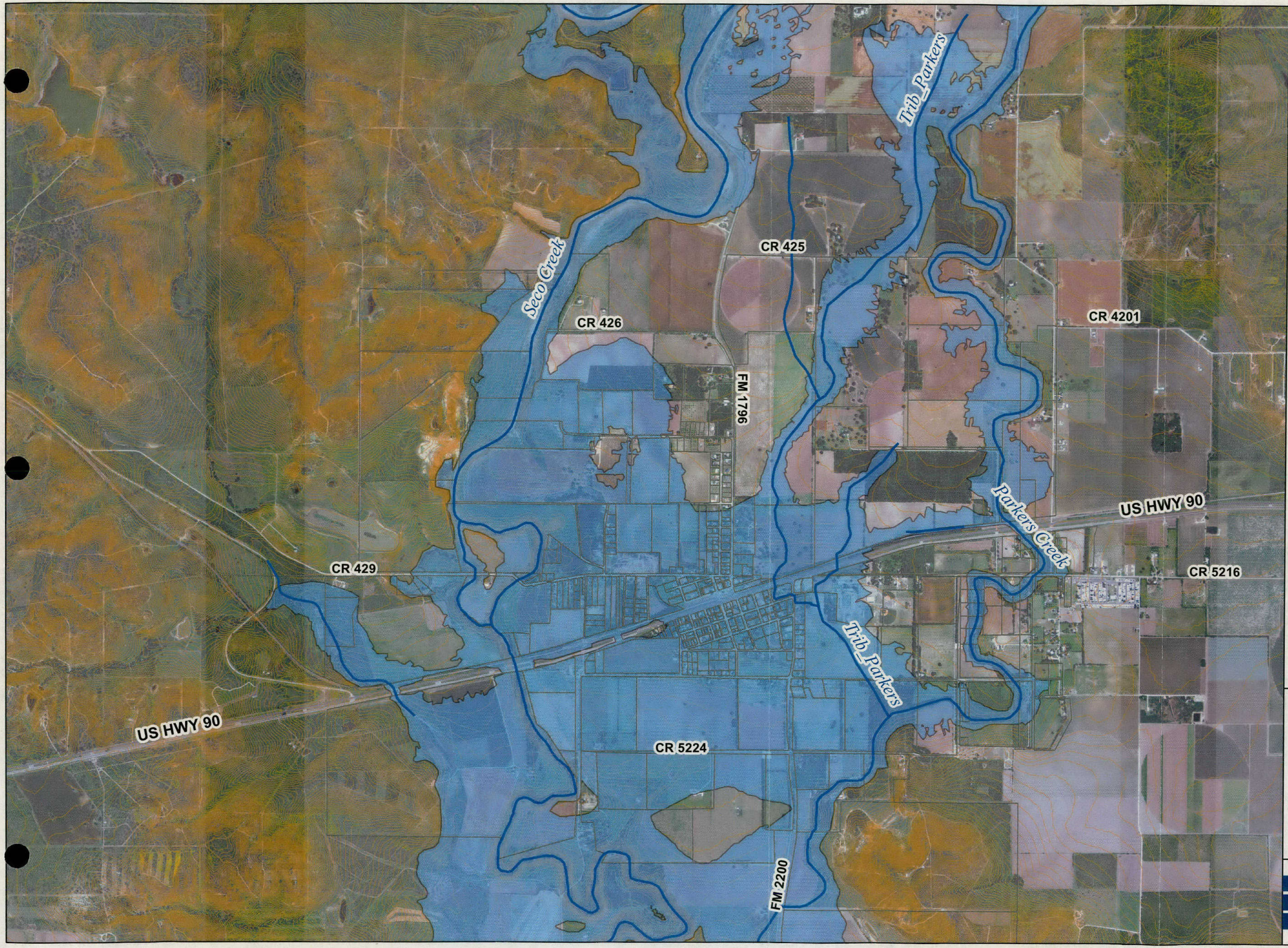
AUGUST 2011

N
W E
S

2,000 1,000 0 2,000
Feet

1 inch = 2,000 feet

HALFF



EXISTING CONDITIONS 50 YEAR FLOODPLAIN
D'HANIS, TEXAS
MEDINA COUNTY, TEXAS

LEGEND

EXISTING CONDITIONS 50 YEAR FP FLOODPLAIN

NOTE:

THE EXISTING CONDITIONS 50 YEAR FLOODPLAIN WAS CREATED FROM THE EXISTING CONDITIONS HYDRAULIC MODEL IN THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY.

THE TOPOLOGY SHOWN ON THIS MAP ARE FROM THE UNITED STATES GEOLOGICAL SURVEY DIGITAL TERRAIN MODEL.

EXHIBIT 10.0

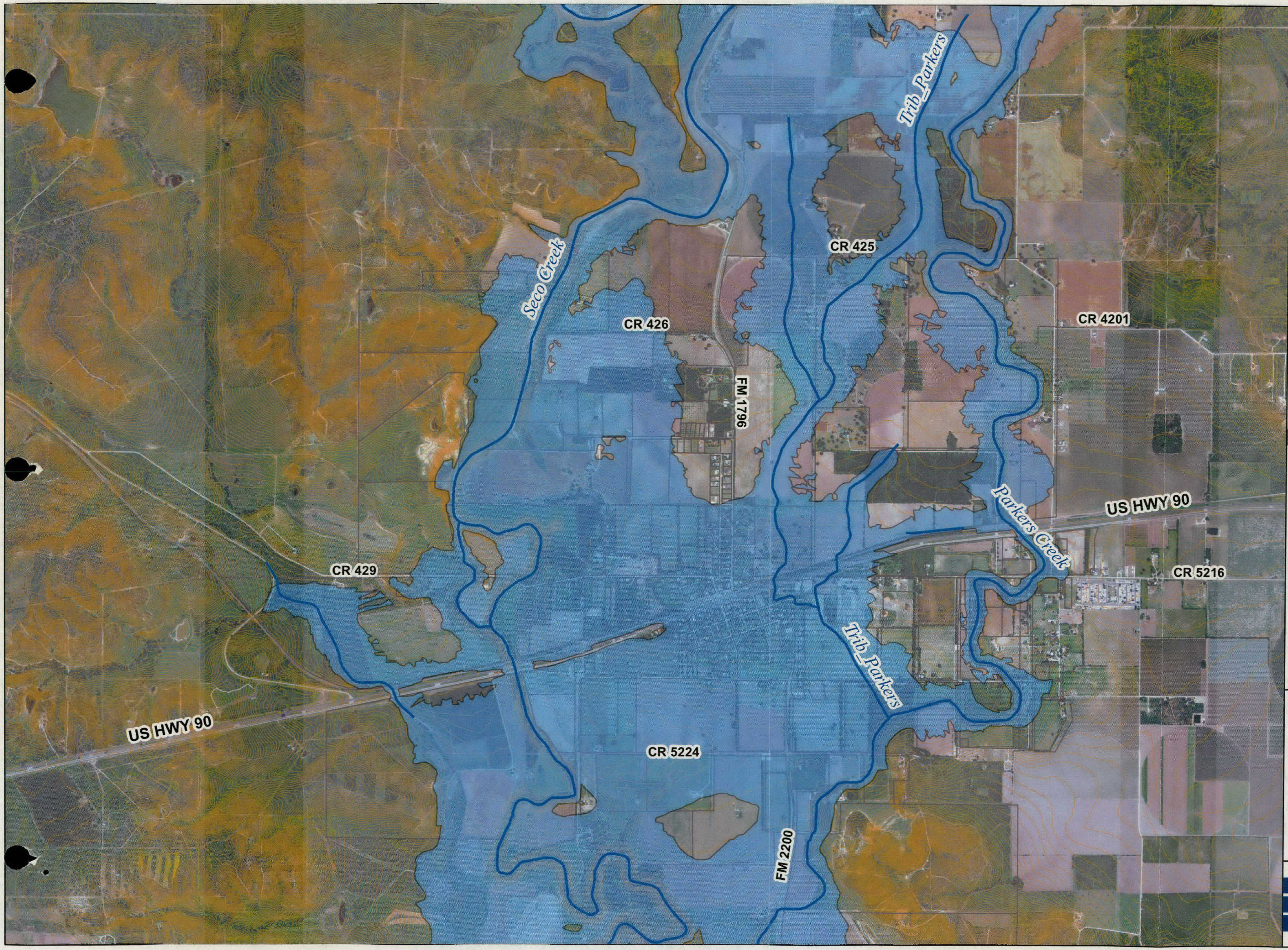
AUGUST 2011

N
W E
S

2,000 1,000 0 2,000
Feet

1 inch = 2,000 feet

HALFF



EXISTING CONDITIONS 100 YEAR FLOODPLAIN
D'HANIS, TEXAS
MEDINA COUNTY, TEXAS

LEGEND

EXISTING CONDITIONS 100 YEAR FLOODPLAIN

NOTE:

THE EXISTING CONDITIONS100 YEAR FLOODPLAIN WAS CREATED FROM THE EXISTING CONDITIONS HYDRAULIC MODEL IN THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY.

THE TOPOLOGY SHOWN ON THIS MAP ARE FROM THE UNITED STATES GEOLOGICAL SURVEY DIGITAL TERRAIN MODEL.

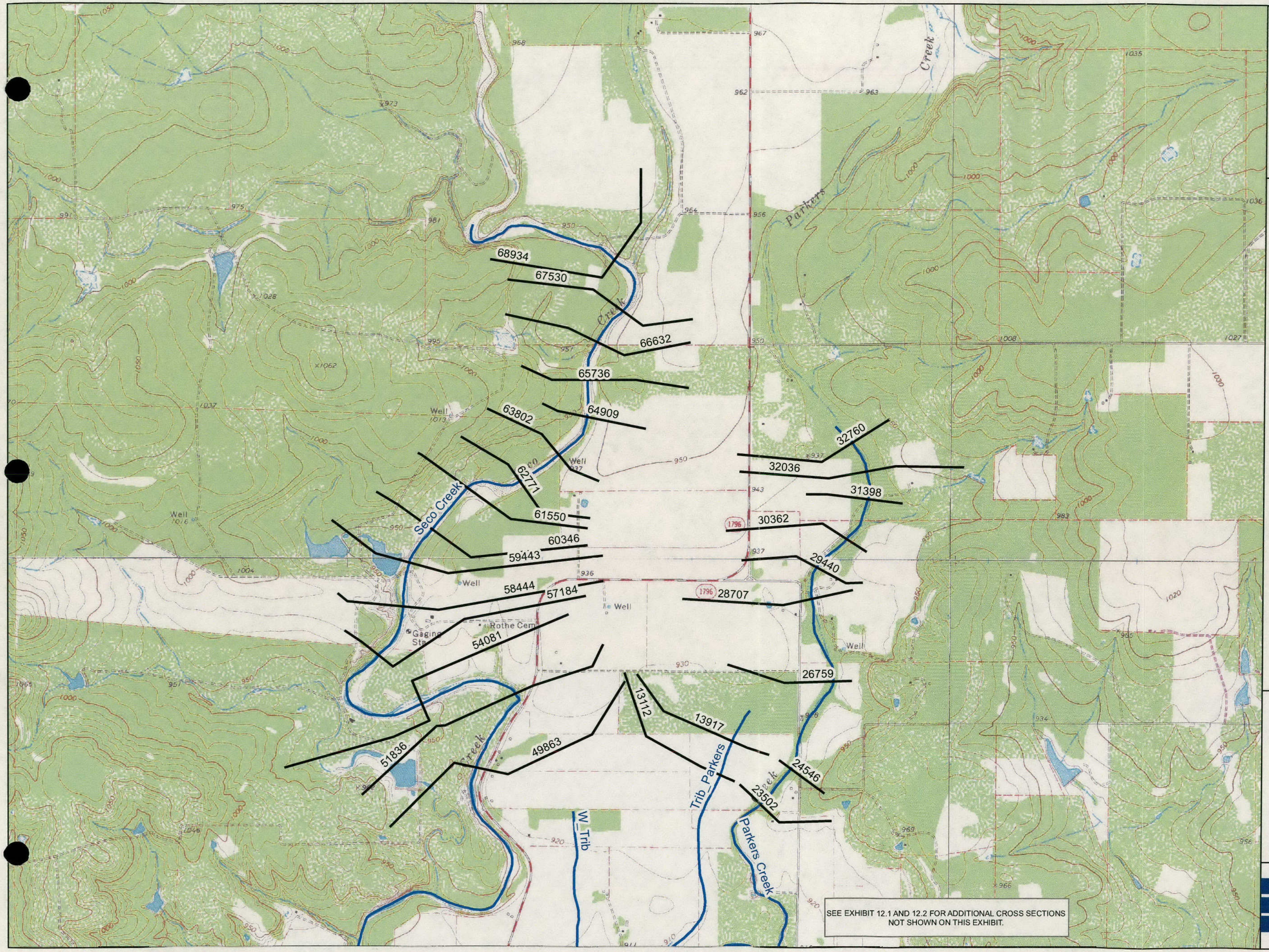
EXHIBIT 11.0

AUGUST 2011

N
W E
S

2,000 1,000 0 2,000
Feet
1 inch = 2,000 feet

HALFF



ALTERNATIVE 1
CROSS SECTIONS MAP
D'HANIS, TEXAS
MEDINA COUNTY, TEXAS

LEGEND

—	CROSS SECTIONS
—	STREAMS
68934	CROSS SECTION ID

NOTE:

THE CROSS SECTIONS SHOWN ON THIS MAP ARE USED IN THEALTERNATIVE 1 HYDRAULIC MODEL OF THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY.

EXHIBIT 12.0

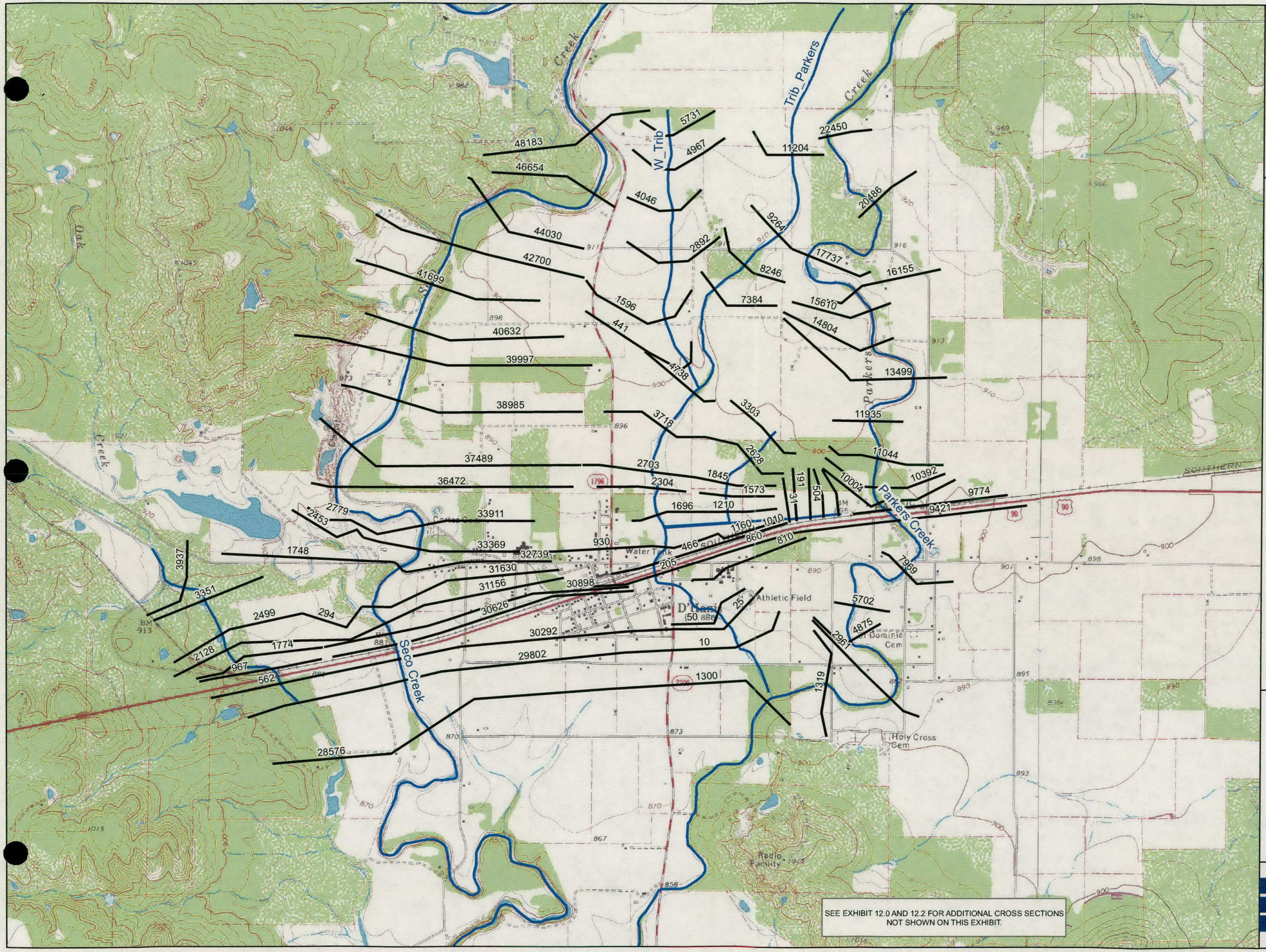
AUGUST 2011

N
W E
S

0 1,000 2,000 4,000 Feet

1 inch = 2,000 feet

HALFF



THE STATE OF TEXAS · COUNTY OF MEDINA

TEXAS WATER DEVELOPMENT BOARD

ALTERNATIVE 1
CROSS SECTIONS MAP
D'HANIS, TEXAS
MEDINA COUNTY, TEXAS

LEGEND

—	CROSS SECTIONS
—	STREAMS
48183	CROSS SECTION ID

NOTE:

THE CROSS SECTIONS SHOWN ON THIS MAP ARE USED IN THE ALTERNATIVE 1 HYDRAULIC MODEL OF THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY.

EXHIBIT 12.1

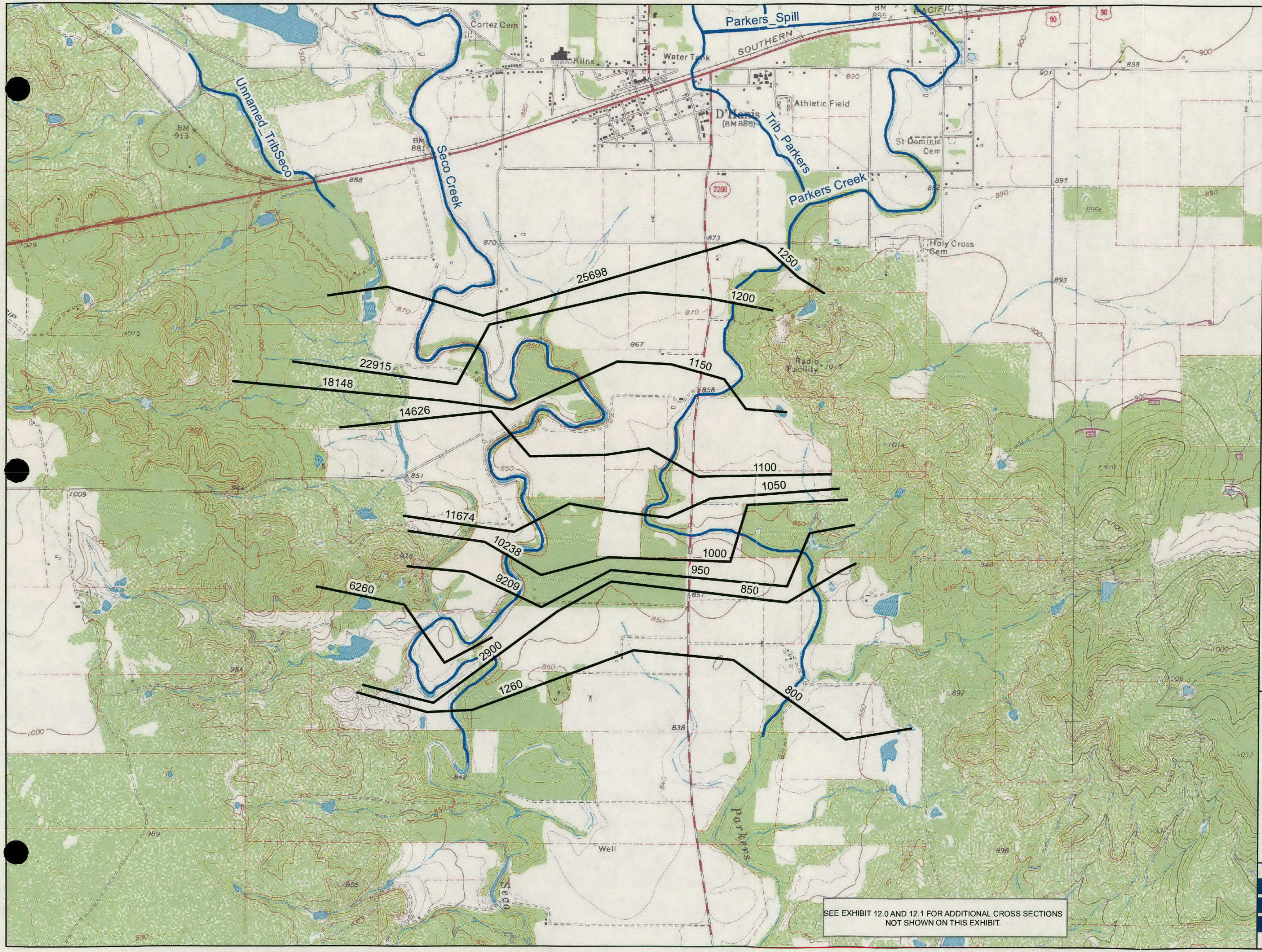
AUGUST 2011

N
W E
S

0 1,000 2,000 4,000 Feet

1 inch = 2,000 feet

HALFF



SEE EXHIBIT 12.0 AND 12.1 FOR ADDITIONAL CROSS SECTIONS NOT SHOWN ON THIS EXHIBIT.

ALTERNATIVE 1
CROSS SECTIONS MAP
D'HANIS, TEXAS
MEDINA COUNTY, TEXAS

LEGEND

- CROSS SECTIONS
- STREAMS
- 25698 CROSS SECTION ID

NOTE:

THE CROSS SECTIONS SHOWN ON THIS MAP ARE USED IN THE ALTERNATIVE 1 HYDRAULIC MODEL OF THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY.

EXHIBIT 12.2

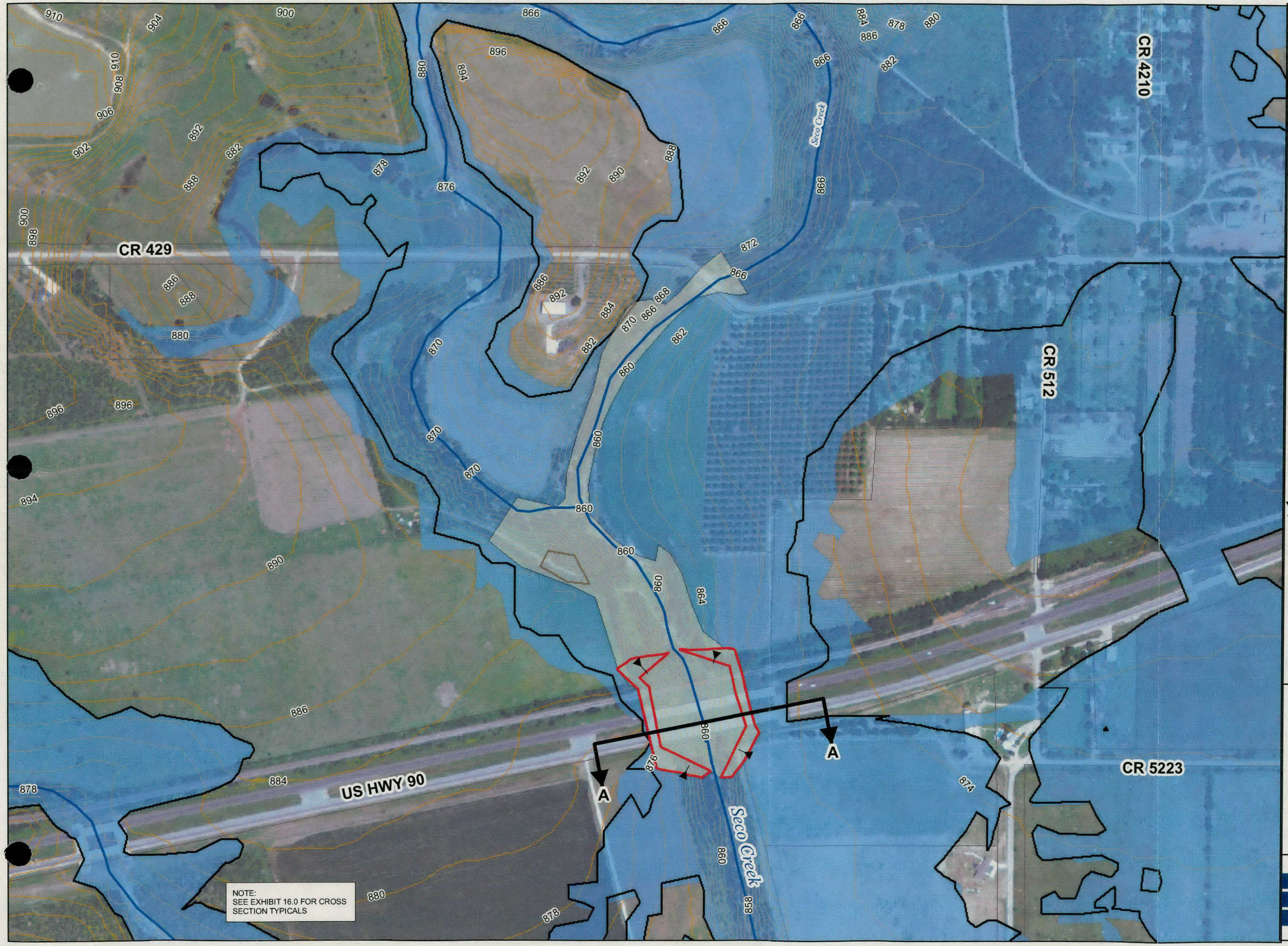
AUGUST 2011

N W E S

0 1,000 2,000 4,000 Feet

1 inch = 2,000 feet

HALFF



ALTERNATIVE 1 IMPROVEMENTS
D'HANIS, TEXAS
MEDINA COUNTY, TEXAS

LEGEND

- CHANNELIZATION
- CHANNEL MODIFICATION
- ALTERNATIVE 1 10 YEAR FLOODPLAIN
- EXISTING CONDITIONS 10 YEAR FLOODPLAIN
- A A CROSS SECTION

NOTE:

SEE TABLE 8.0 IN THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY FOR CONSTRUCTION COST OF ALTERNATIVE 1.

EXHIBIT 13.0

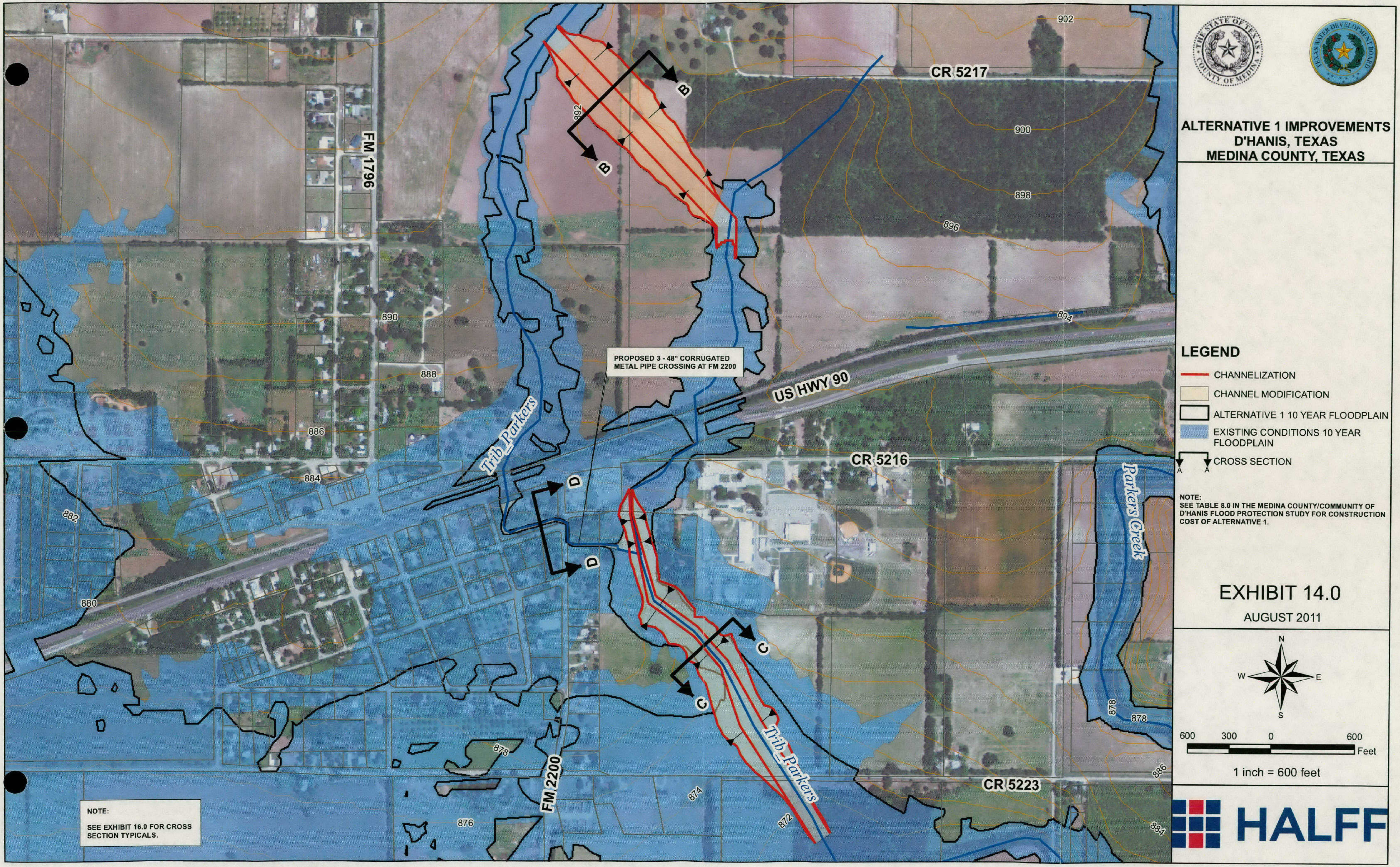
AUGUST 2011

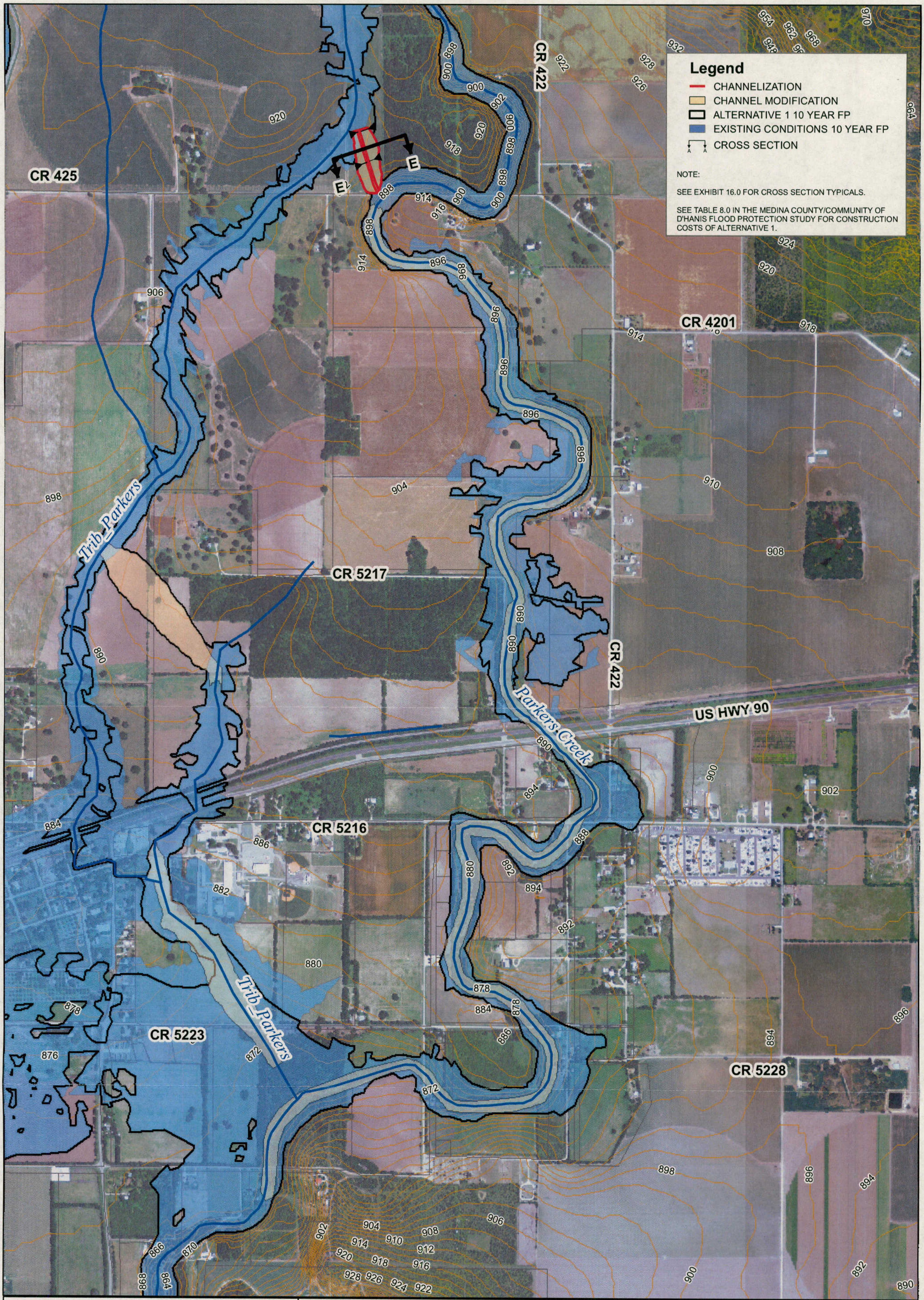
N
W E
S

400 200 0 400
Feet

1 inch = 400 feet

HALFF


ALTERNATIVE 1 IMPROVEMENTS
D'HANIS, TEXAS
MEDINA COUNTY, TEXAS
LEGEND
CHANNELIZATION
CHANNEL MODIFICATION
ALTERNATIVE 1 10 YEAR FLOODPLAIN
EXISTING CONDITIONS 10 YEAR FLOODPLAIN
CROSS SECTION
NOTE:
SEE TABLE 8.0 IN THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY FOR CONSTRUCTION COST OF ALTERNATIVE 1.
EXHIBIT 14.0
AUGUST 2011
N
S
E
W
600 300 0 600
Feet
1 inch = 600 feet
HALFF
PROPOSED 3 - 48" CORRUGATED METAL PIPE CROSSING AT FM 2200
NOTE:
SEE EXHIBIT 16.0 FOR CROSS SECTION TYPICALS.
CR 5217
CR 5216
CR 5223
FM 1796
FM 2200
US HWY 90
Trib_Parkers
Parkers Creek
B
C
D
902
900
898
896
894
892
890
888
886
884
882
880
878
876
874
872



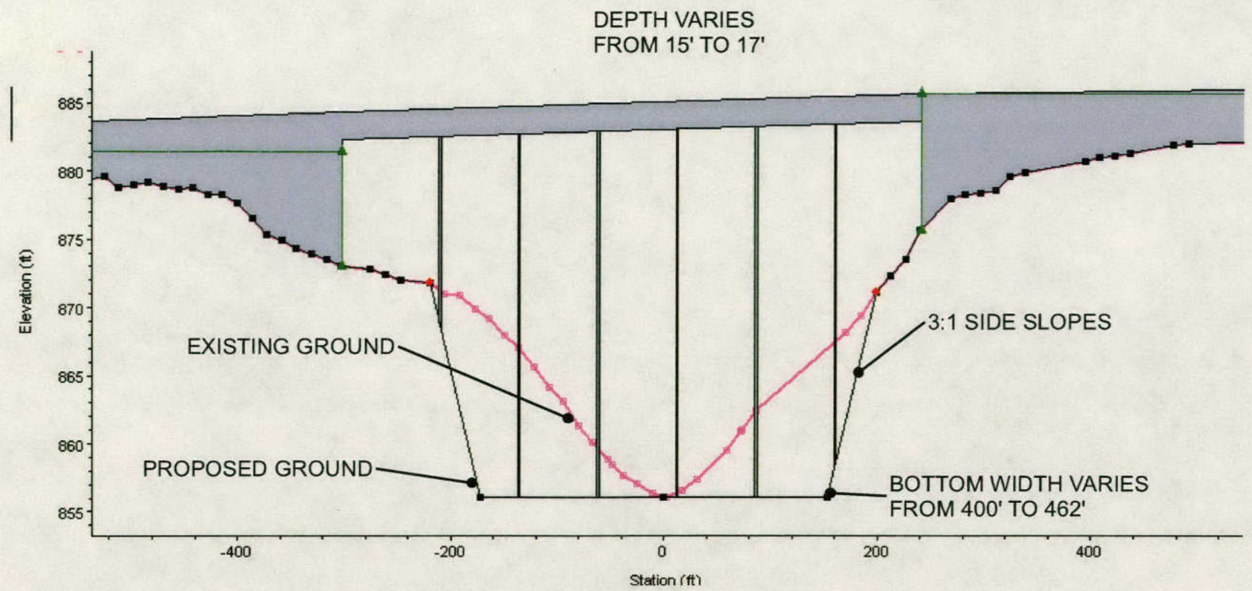
0 500 1,000 2,000 FEET

1 INCH = 1,000 FEET

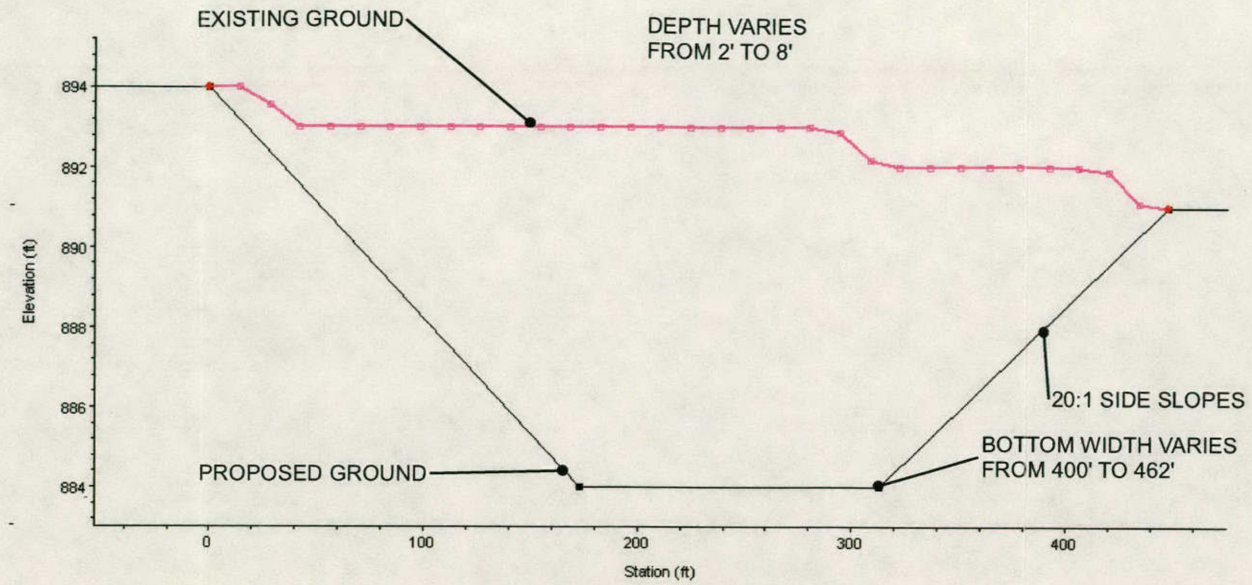
EXHIBIT 15.0
ALTERNATIVE 1 IMPROVEMENTS

HALFF

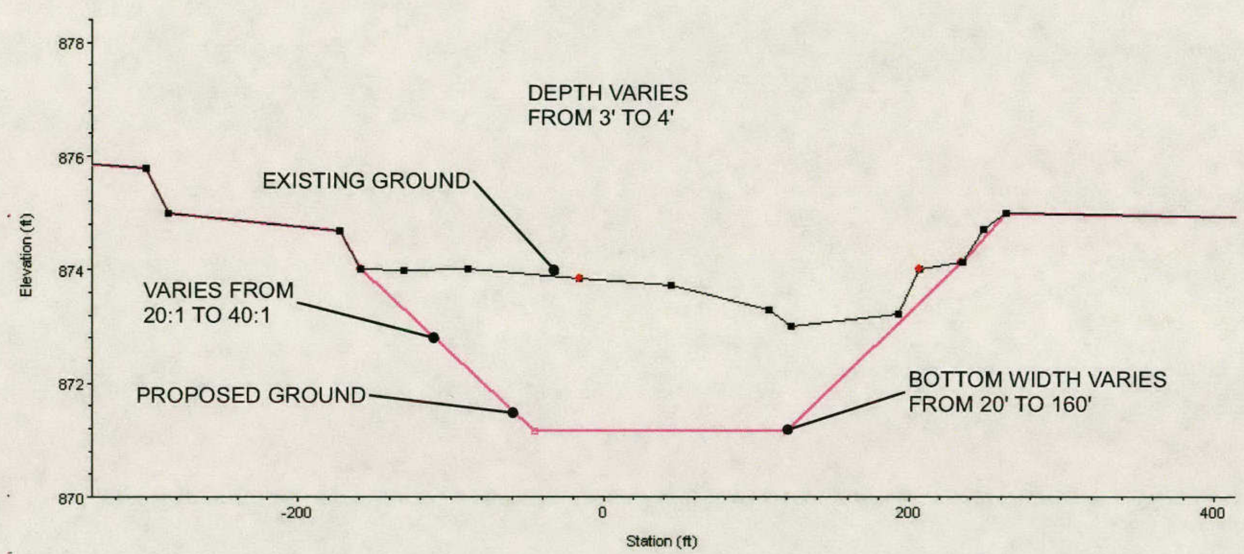
AUGUST 2011



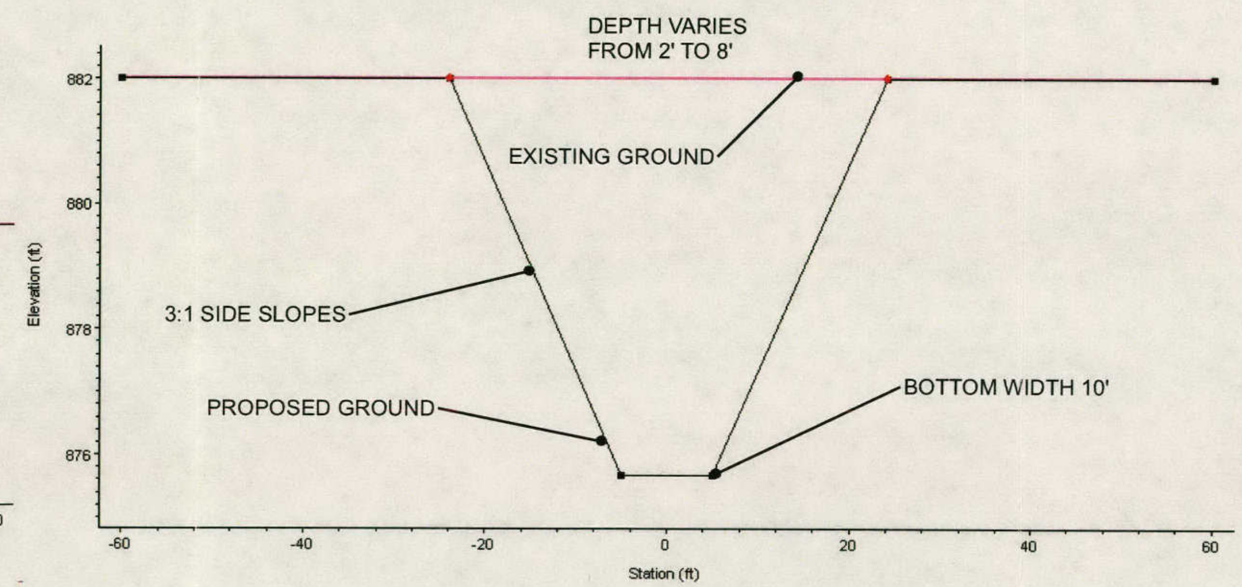
CROSS SECTION A-A



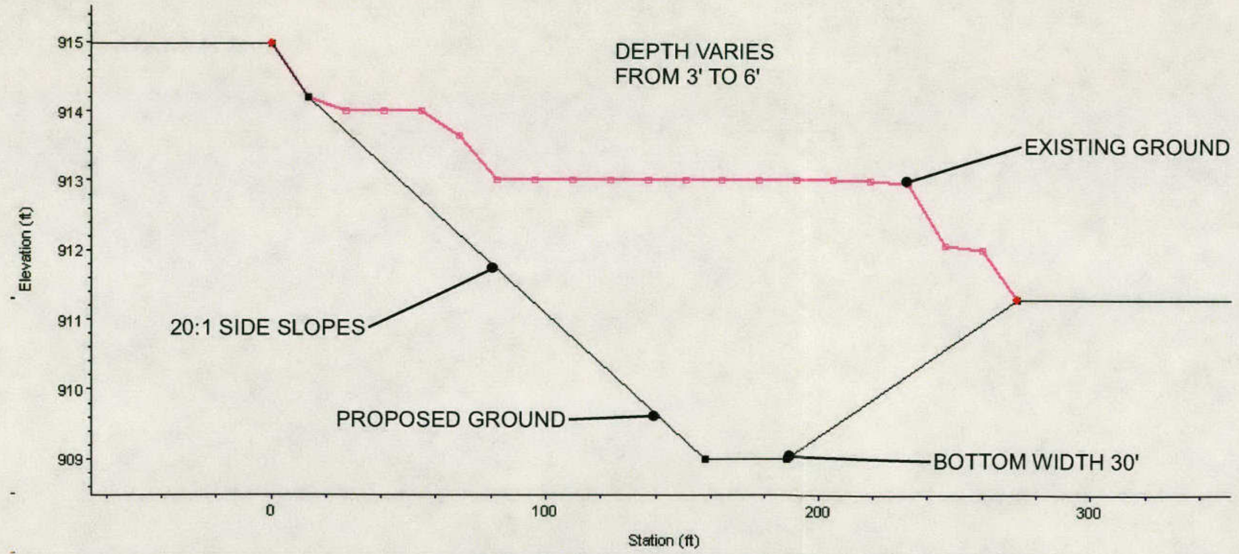
CROSS SECTION B-B



CROSS SECTION C-C



CROSS SECTION D-D



CROSS SECTION E-E

ALTERNATIVE 1 IMPROVEMENTS
TYPICAL CROSS SECTIONS
D'HANIS, TEXAS
MEDINA COUNTY, TEXAS

NOTE:

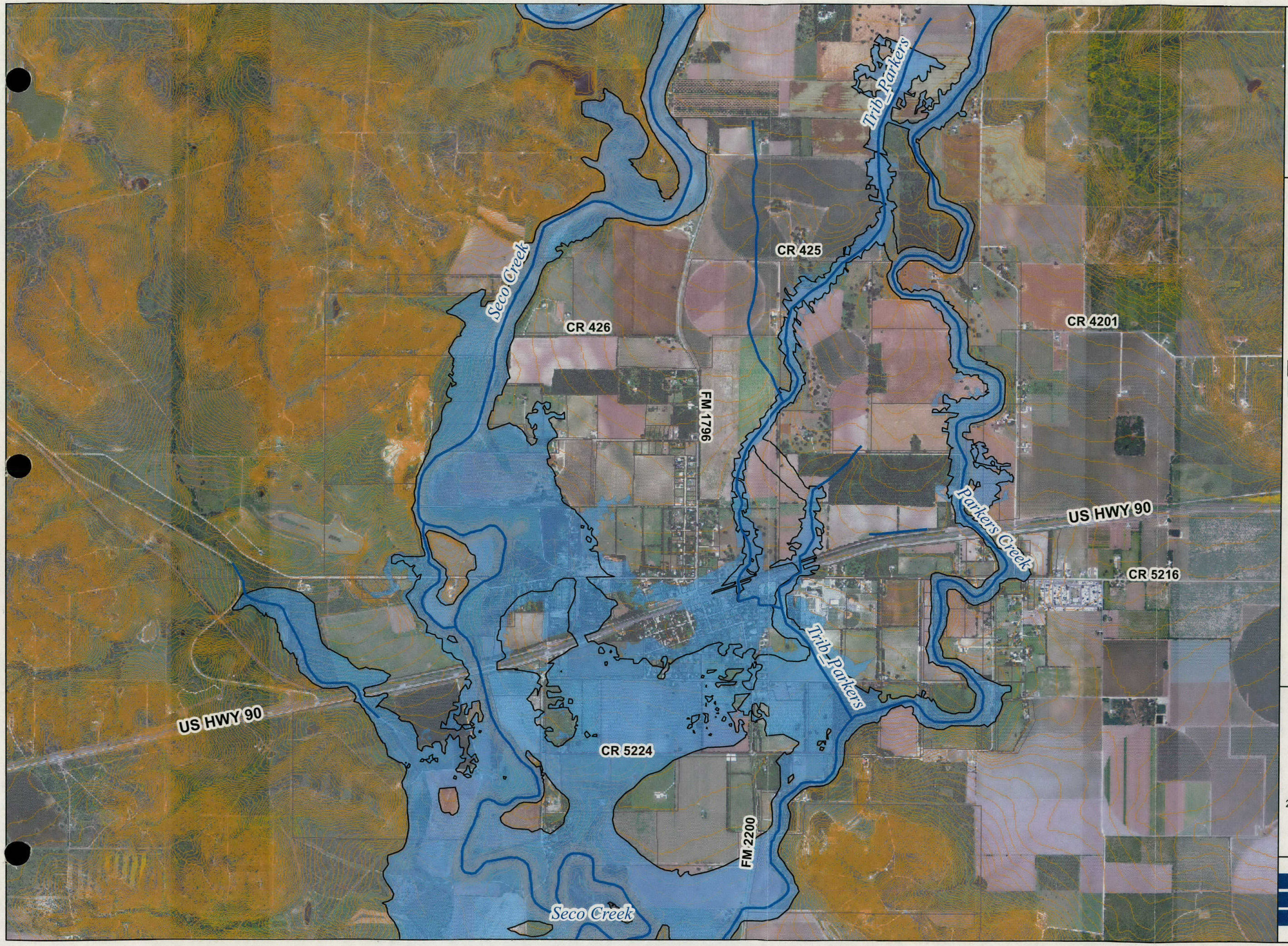
SEE TABLE 8.0 IN THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY FOR CONSTRUCTION COST OF ALTERNATIVE 1.

SEE EXHIBITS 17.0 - 19.0 FOR CROSS SECTIONS LOCATIONS.

EXHIBIT 16.0

AUGUST 2011

HALFF



ALTERNATIVE 1

10 YEAR FLOODPLAIN
D'HANIS, TEXAS
MEDINA COUNTY, TEXAS

LEGEND

- ALTERNATIVE 1 10 YEAR FLOODPLAIN
- EXISTING CONDITIONS 10 YEAR FLOODPLAIN

NOTE:

SIMILAR TO A JUNE 30, 2004 STORM

THE ALTERNATIVE 1 10 YEAR FLOODPLAIN WAS CREATED FROM THE ALTERNATIVE 1 HYDRAULIC MODEL IN THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY.

THE TOPOLOGY SHOWN ON THIS MAP ARE FROM THE UNITED STATES GEOLOGICAL SURVEY DIGITAL TERRAIN MODEL.

EXHIBIT 17.0

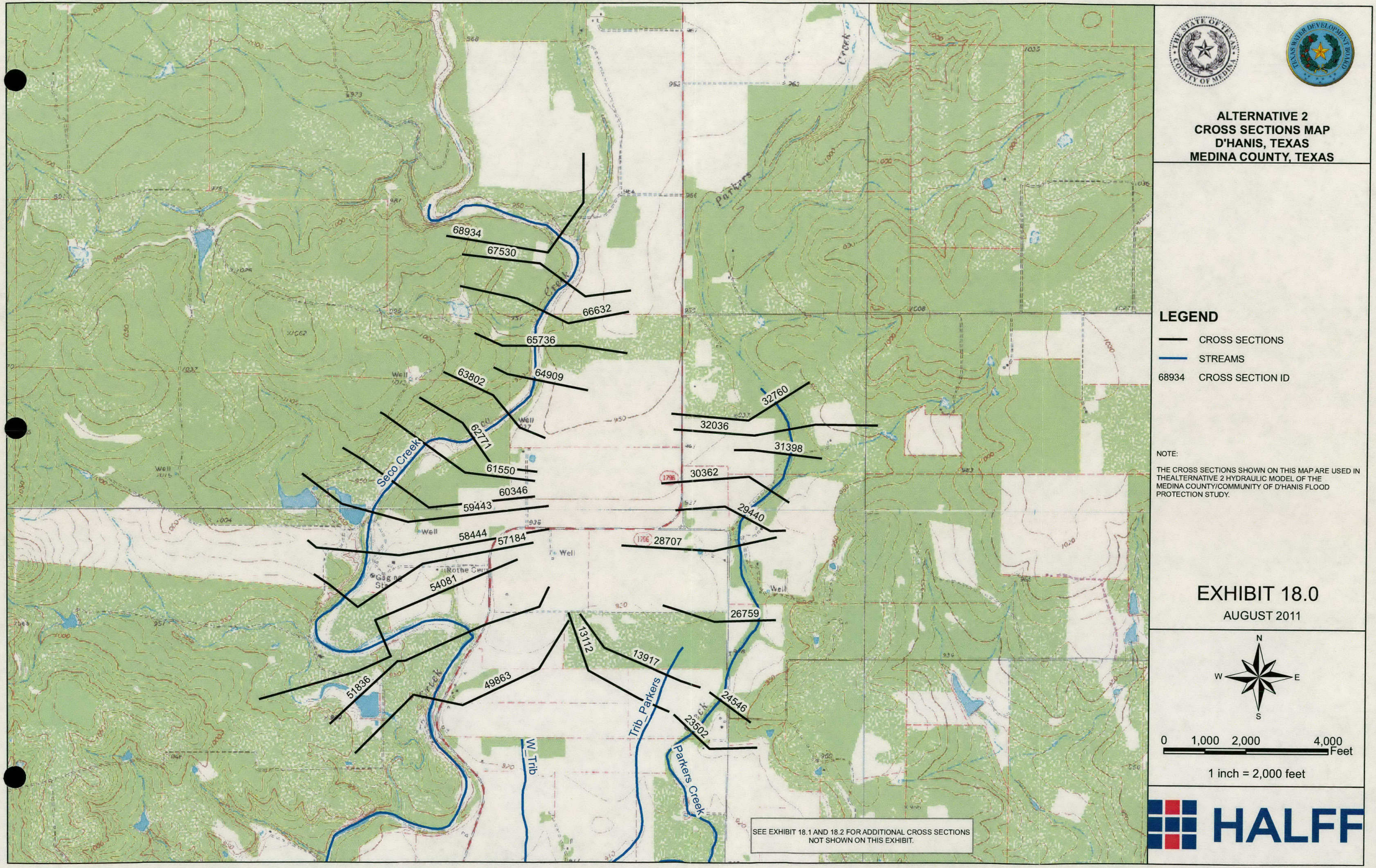
AUGUST 2011

N
W E
S

2,000 1,000 0 2,000 Feet

1 inch = 2,000 feet

HALFF


ALTERNATIVE 2
CROSS SECTIONS MAP
D'HANIS, TEXAS
MEDINA COUNTY, TEXAS
LEGEND
CROSS SECTIONS
STREAMS
68934 CROSS SECTION ID
NOTE:
THE CROSS SECTIONS SHOWN ON THIS MAP ARE USED IN THEALTERNATIVE 2 HYDRAULIC MODEL OF THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY.
EXHIBIT 18.0
AUGUST 2011
N
S
E
W
0 1,000 2,000 4,000
Feet
1 inch = 2,000 feet
HALFF
SEE EXHIBIT 18.1 AND 18.2 FOR ADDITIONAL CROSS SECTIONS NOT SHOWN ON THIS EXHIBIT.
Seco Creek
Parkers Creek
Trib_Parkers
W_Trib
68934
67530
66632
65736
64909
63802
62771
61550
60346
59443
58444
57184
54081
51836
49863
13112
13917
32760
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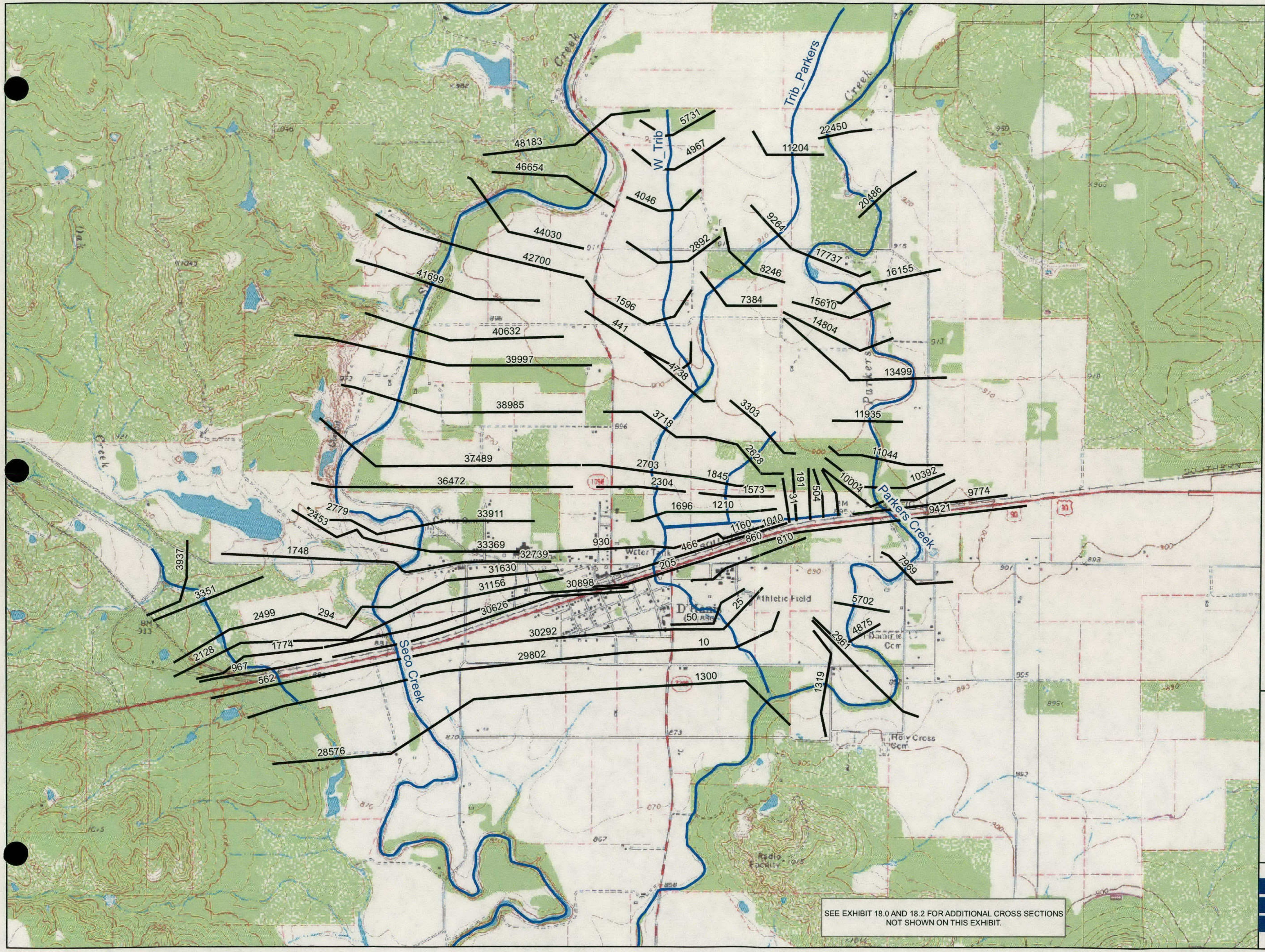
30362
29440
28707
26759
24546
23502



ALTERNATIVE 2
CROSS SECTIONS MAP
D'HANIS, TEXAS
MEDINA COUNTY, TEXAS

LEGEND

CROSS SECTIONS

STREAMS

48183 CROSS SECTION ID

NOTE:

THE CROSS SECTIONS SHOWN ON THIS MAP ARE USED IN THE ALTERNATIVE 2 HYDRAULIC MODEL OF THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY.

SEE EXHIBIT 18.0 AND 18.2 FOR ADDITIONAL CROSS SECTIONS NOT SHOWN ON THIS EXHIBIT.

EXHIBIT 18.1

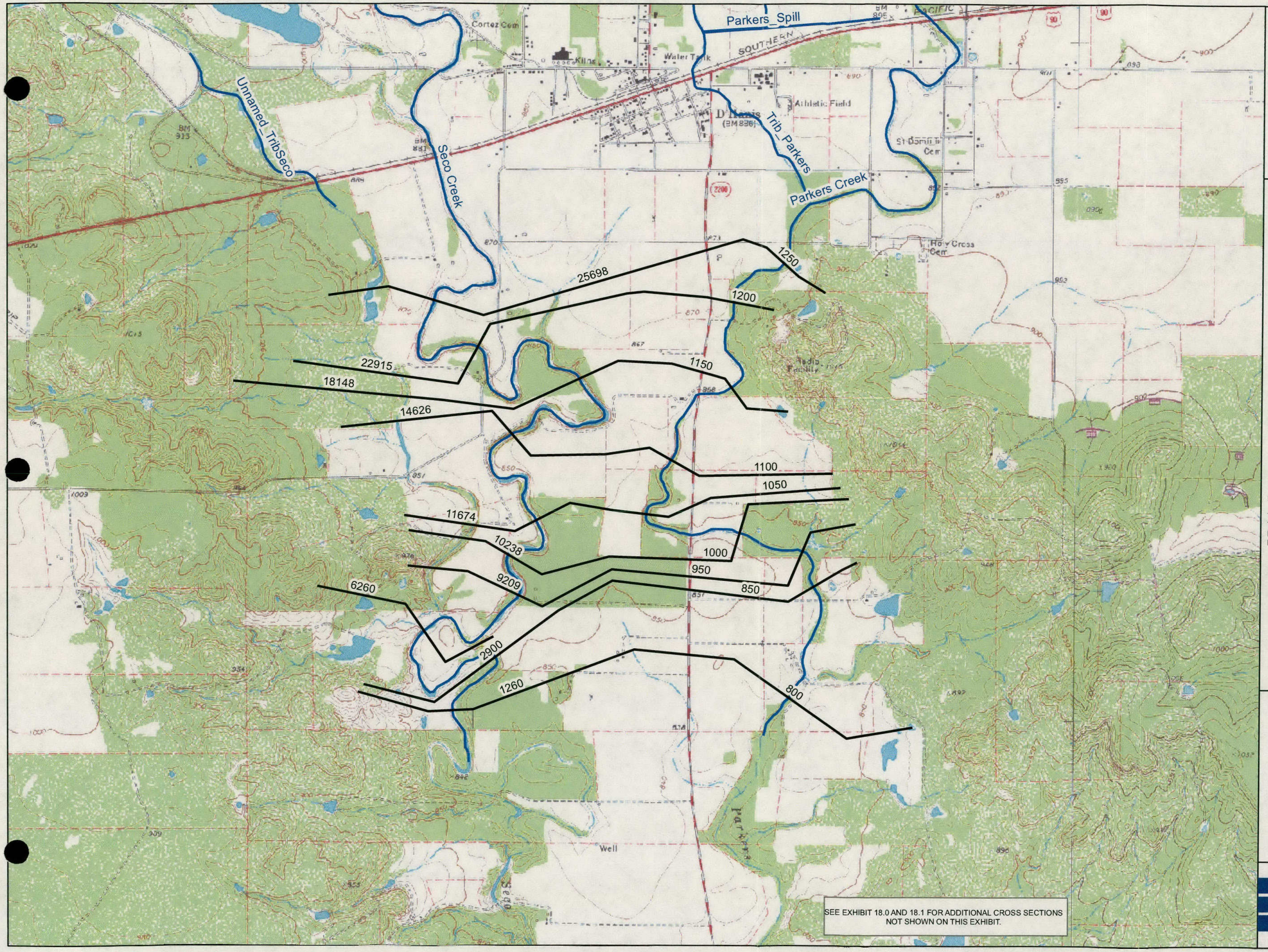
AUGUST 2011

N
W E
S

0 1,000 2,000 4,000 Feet

1 inch = 2,000 feet

HALFF



ALTERNATIVE 2
CROSS SECTIONS MAP
D'HANIS, TEXAS
MEDINA COUNTY, TEXAS

LEGEND

(black line)	CROSS SECTIONS
(blue line)	STREAMS
25698	CROSS SECTION ID

NOTE:

THE CROSS SECTIONS SHOWN ON THIS MAP ARE USED IN THE ALTERNATIVE 2 HYDRAULIC MODEL OF THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY.

EXHIBIT 18.2

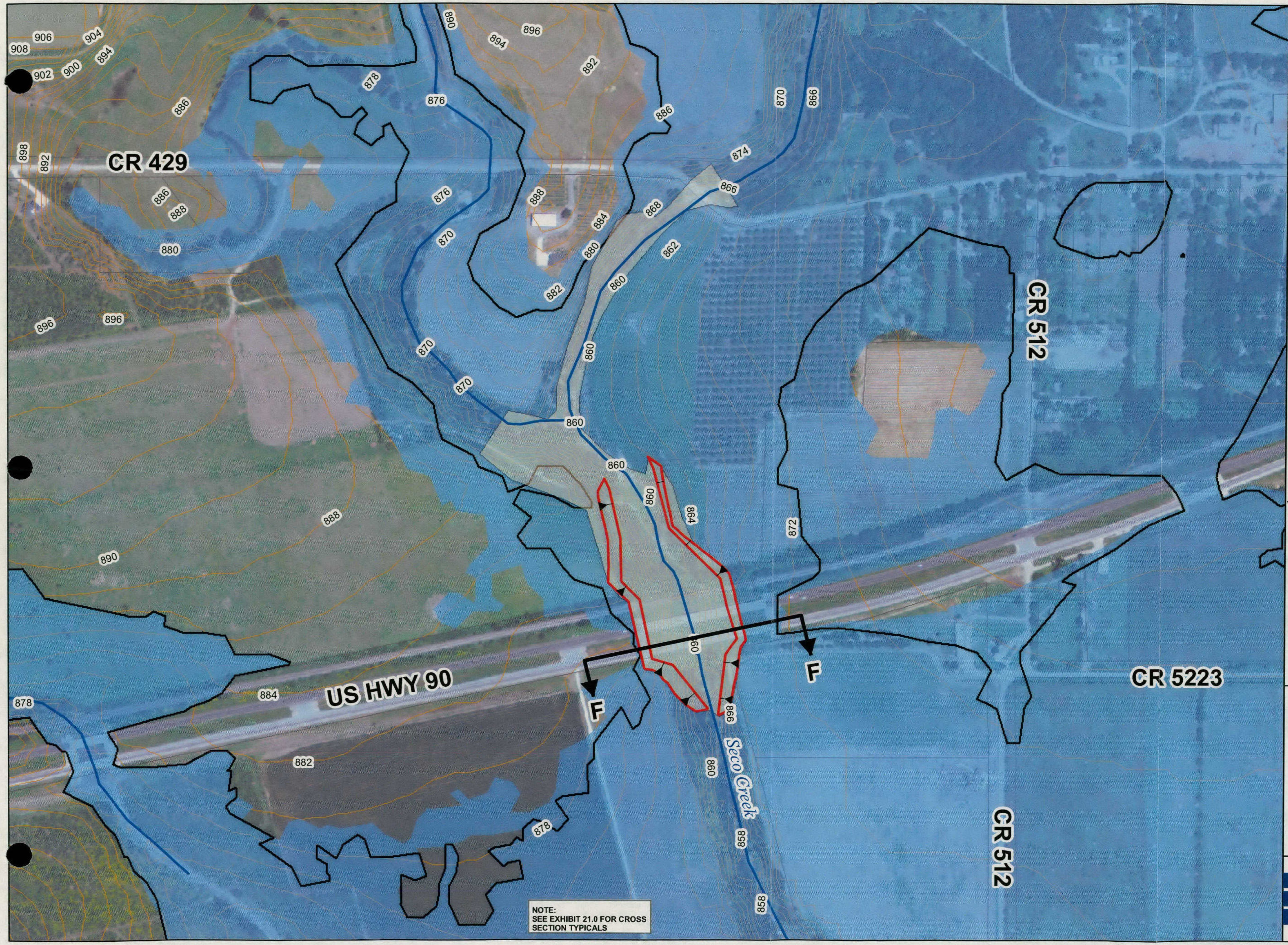
AUGUST 2011

N
W E
S

0 1,000 2,000 4,000 Feet

1 inch = 2,000 feet

HALFF



ALTERNATIVE 2 IMPROVEMENTS
D'HANIS, TEXAS
MEDINA COUNTY, TEXAS

LEGEND

- CHANNELIZATION
- CHANNEL MODIFICATION
- ALTERNATIVE 2 25 YEAR FLOODPLAIN
- EXISTING CONDITIONS 25 YEAR FLOODPLAIN
- CROSS SECTION

NOTE:

ALTERNATIVE 2 INCLUDES THE PROPOSED IMPROVEMENTS FROM ALTERNATIVE 1.

SEE TABLE 9.0 IN THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY FOR CONSTRUCTION COST OF ALTERNATIVE 2.

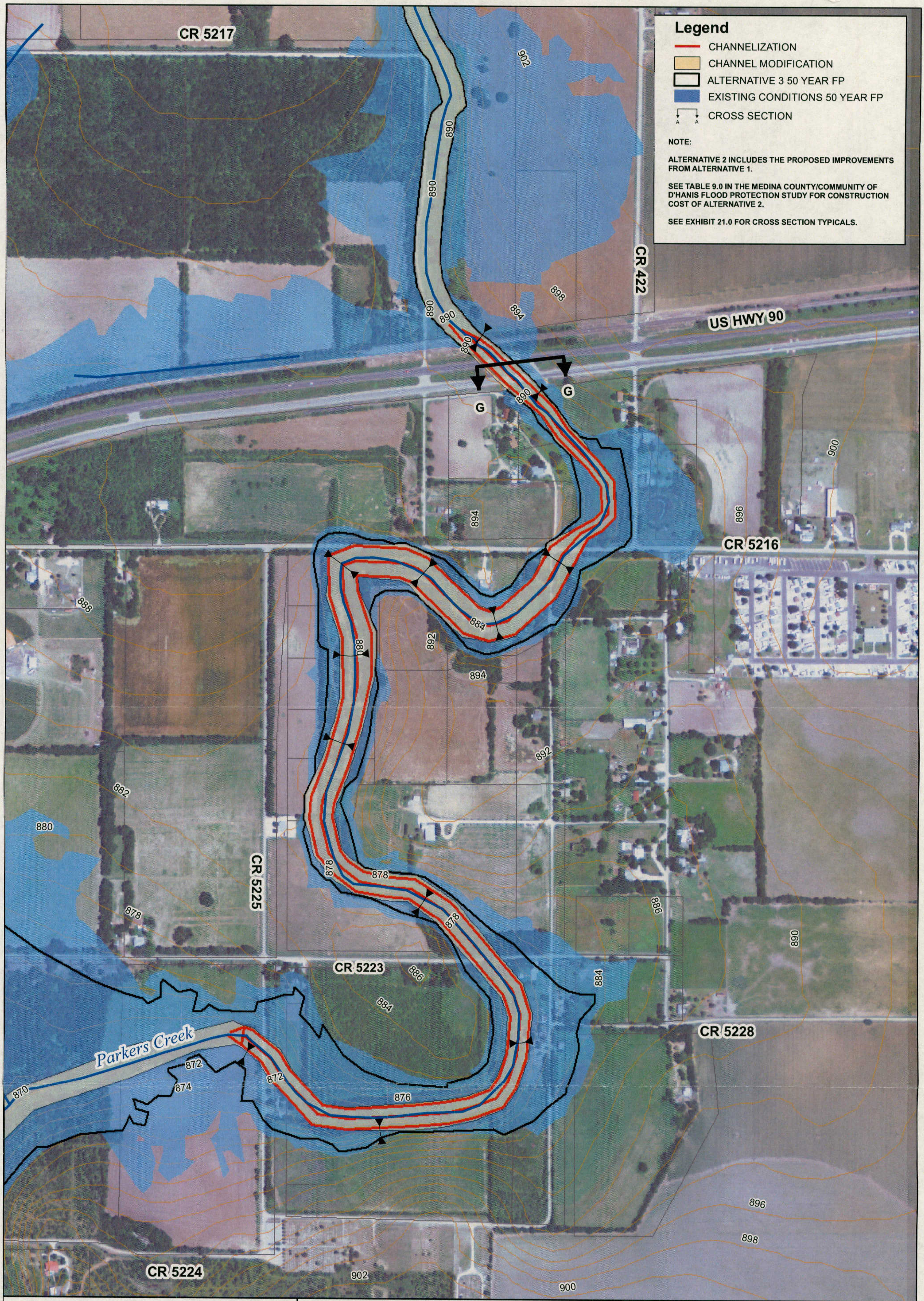
EXHIBIT 19.0

AUGUST 2011

400 200 0 400 Feet

1 inch = 400 feet

HALFF

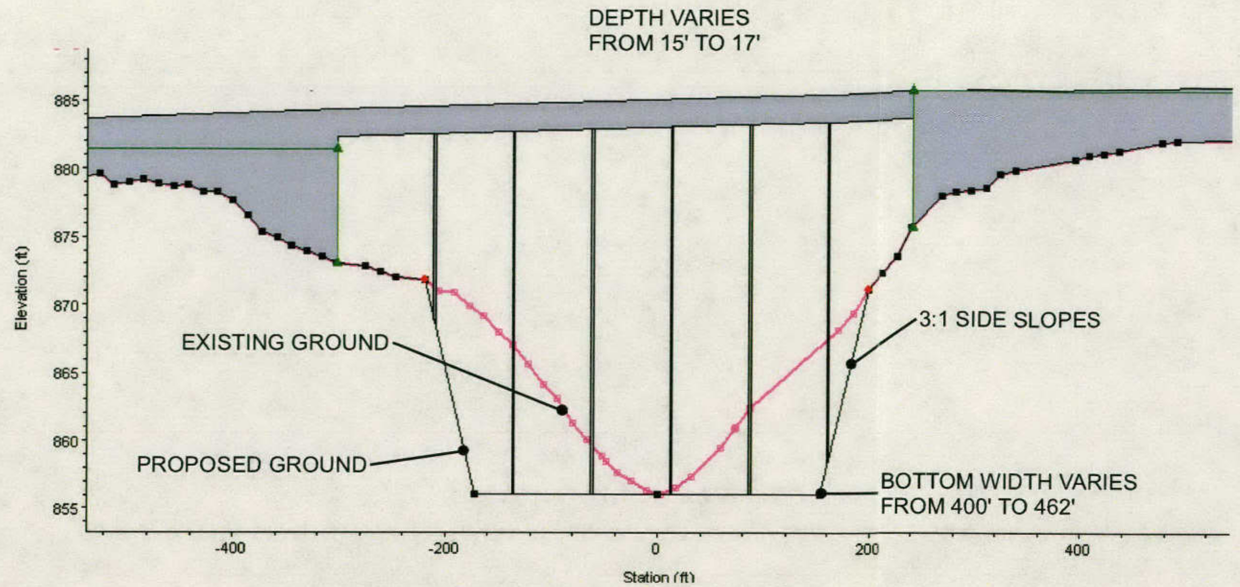


0 250 500 1,000 FEET
1 INCH = 500 FEET

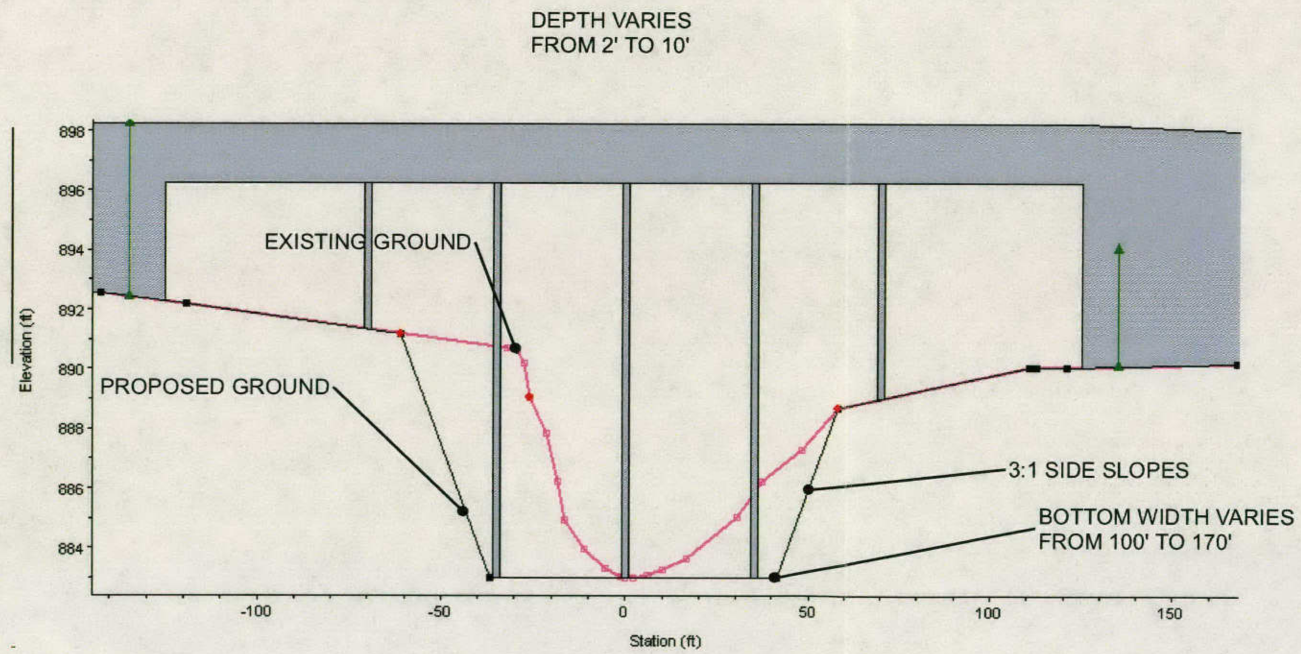
EXHIBIT 20.0
ALTERNATIVE 2 IMPROVEMENTS

HALFF

AUGUST 2011



CROSS SECTION F-F



CROSS SECTION G-G

ALTERNATIVE 2 IMPROVEMENTS
TYPICAL CROSS SECTIONS
D'HANIS, TEXAS
MEDINA COUNTY, TEXAS

NOTE:

ALTERNATIVE 2 INCLUDES THE PROPOSED IMPROVEMENTS FROM ALTERNATIVE 1.

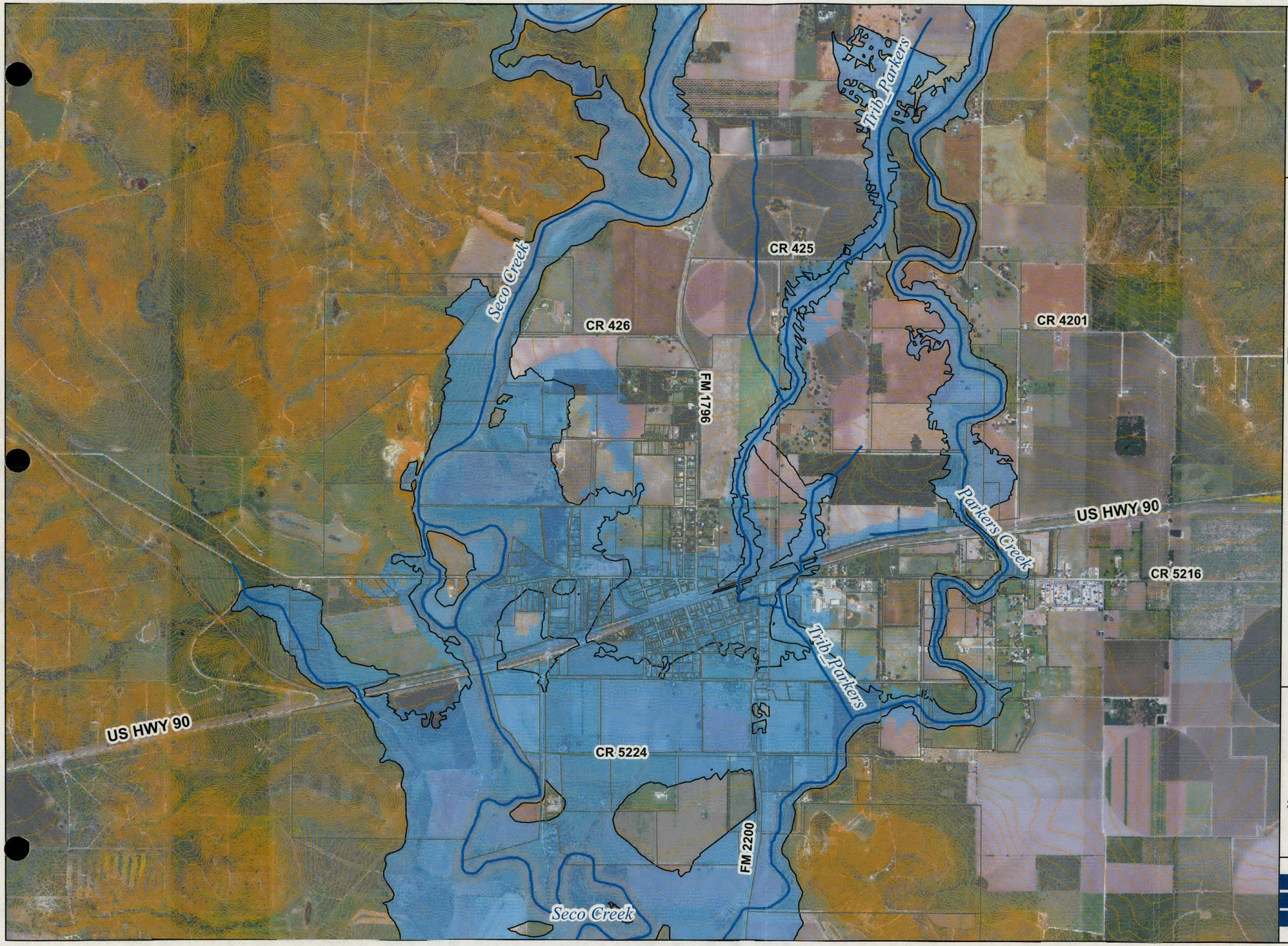
SEE TABLE 9.0 IN THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY FOR CONSTRUCTION COST OF ALTERNATIVE 2.

SEE EXHIBITS 24.0 AND 25.0 FOR CROSS SECTIONS LOCATIONS.

EXHIBIT 21.0

AUGUST 2011

HALFF



ALTERNATIVE 2

25 YEAR FLOODPLAIN
D'HANIS, TEXAS
MEDINA COUNTY, TEXAS

LEGEND

ALTERNATIVE 2 25 YEAR FLOODPLAIN

EXISTING CONDITIONS 25 YEAR FLOODPLAIN

NOTE:

SIMILAR TO A JULY 5, 2002 STORM

THE ALTERNATIVE 2 10 YEAR FLOODPLAIN WAS CREATED FROM THE ALTERNATIVE 2 HYDRAULIC MODEL IN THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY.

THE TOPOLOGY SHOWN ON THIS MAP ARE FROM THE UNITED STATES GEOLOGICAL SURVEY DIGITAL TERRAIN MODEL.

EXHIBIT 22.0

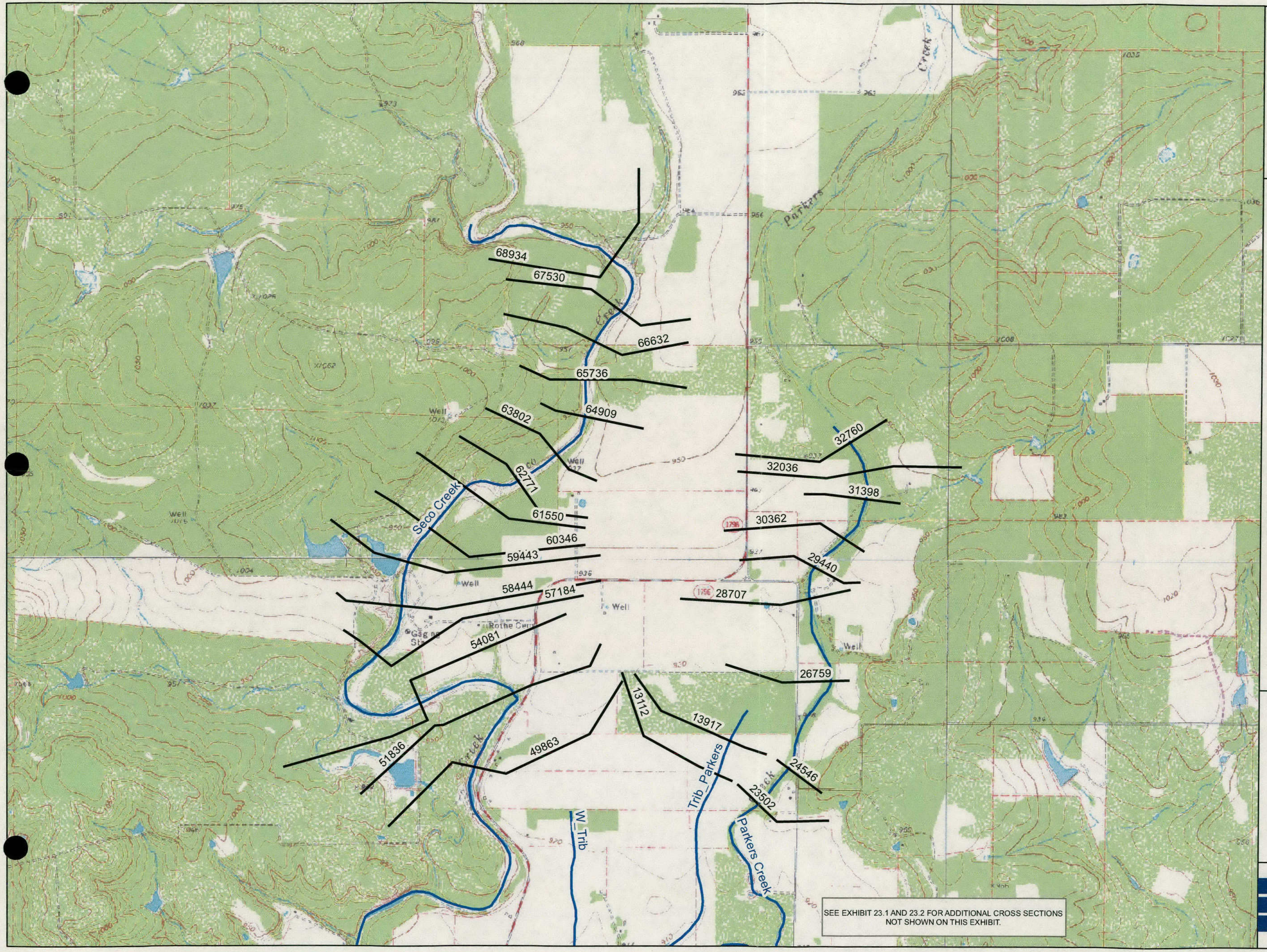
AUGUST 2011

N
W E
S

2,000 1,000 0 2,000
Feet

1 inch = 2,000 feet

HALFF



ALTERNATIVE 3
CROSS SECTIONS MAP
D'HANIS, TEXAS
MEDINA COUNTY, TEXAS

LEGEND

CROSS SECTIONS

STREAMS

68934 CROSS SECTION ID

NOTE:

THE CROSS SECTIONS SHOWN ON THIS MAP ARE USED IN THEALTERNATIVE 3 HYDRAULIC MODEL OF THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY.

EXHIBIT 23.0

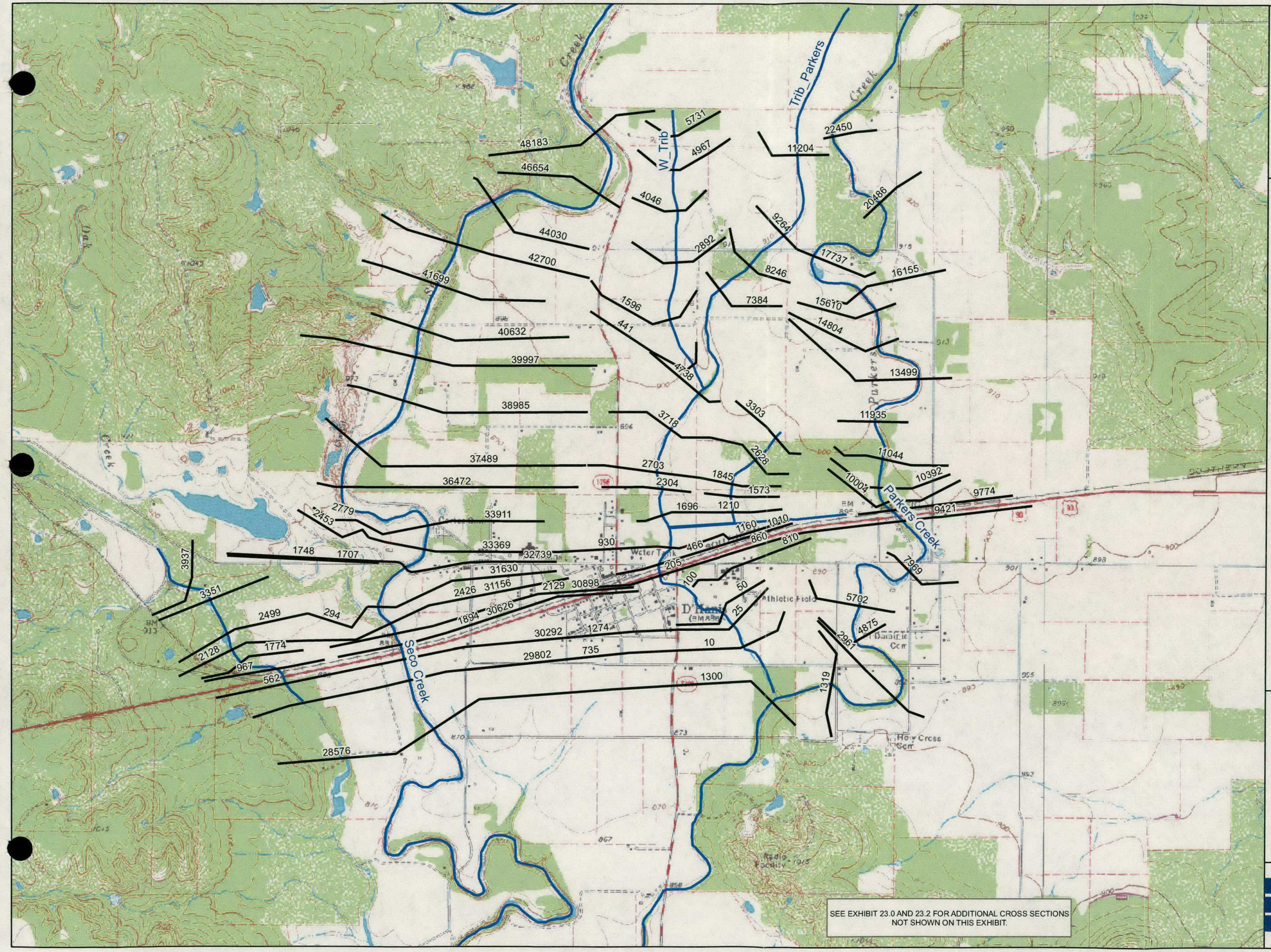
AUGUST 2011

N
W E
S

0 1,000 2,000 4,000 Feet

1 inch = 2,000 feet

HALFF



ALTERNATIVE 3
CROSS SECTIONS MAP
D'HANIS, TEXAS
MEDINA COUNTY, TEXAS

LEGEND

CROSS SECTIONS

STREAMS

48183 CROSS SECTION ID

NOTE:

THE CROSS SECTIONS SHOWN ON THIS MAP ARE USED IN THE ALTERNATIVE 3 HYDRAULIC MODEL OF THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY.

EXHIBIT 23.1

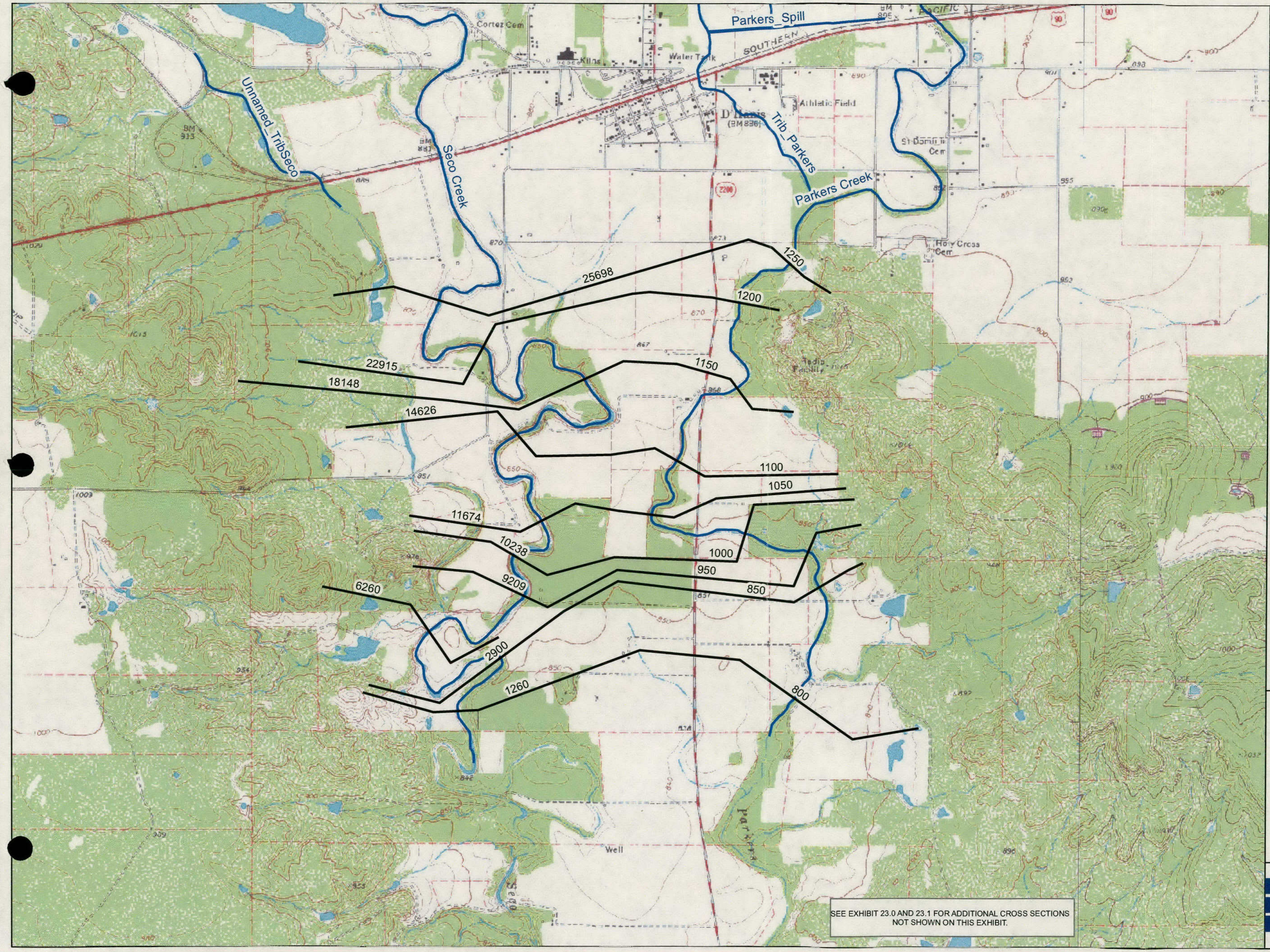
AUGUST 2011

N W E S

0 1,000 2,000 4,000 Feet

1 inch = 2,000 feet

HALFF



ALTERNATIVE 3
CROSS SECTIONS MAP
D'HANIS, TEXAS
MEDINA COUNTY, TEXAS

LEGEND

—	CROSS SECTIONS
—	STREAMS
25698	CROSS SECTION ID

NOTE:

THE CROSS SECTIONS SHOWN ON THIS MAP ARE USED IN THE ALTERNATIVE 3 HYDRAULIC MODEL OF THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY.

EXHIBIT 23.2

AUGUST 2011

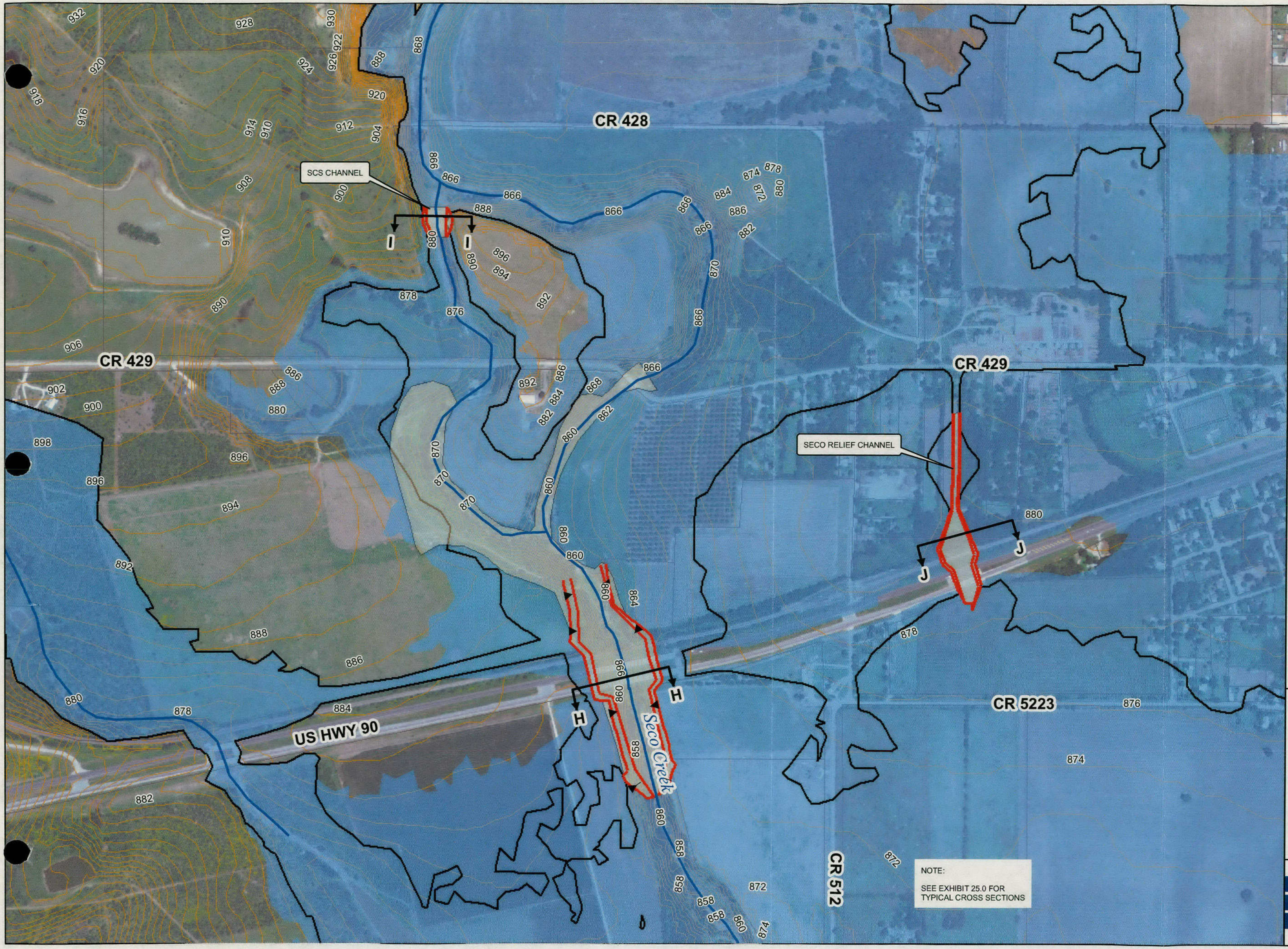
N
W E
S

0 1,000 2,000 4,000 Feet

1 inch = 2,000 feet

HALFF

ALTERNATIVE 3 IMPROVEMENTS
D'HANIS, TEXAS
MEDINA COUNTY, TEXAS



LEGEND

- CHANNELIZATION
- CHANNEL MODIFICATION
- ALTERNATIVE 3 50 YEAR FLOODPLAIN
- EXISTING CONDITIONS 50 YEAR FLOODPLAIN
- A A CROSS SECTION

NOTE:

SIMILAR TO JULY 21, 2007 STORM EVENT.

ALTERNATIVE 3 INCLUDES THE PROPOSED IMPROVEMENTS FROM ALTERNATIVE 1 AND 2.

SEE TABLE 10.0 IN THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY FOR CONSTRUCTION COST OF ALTERNATIVE 3.

EXHIBIT 24.0

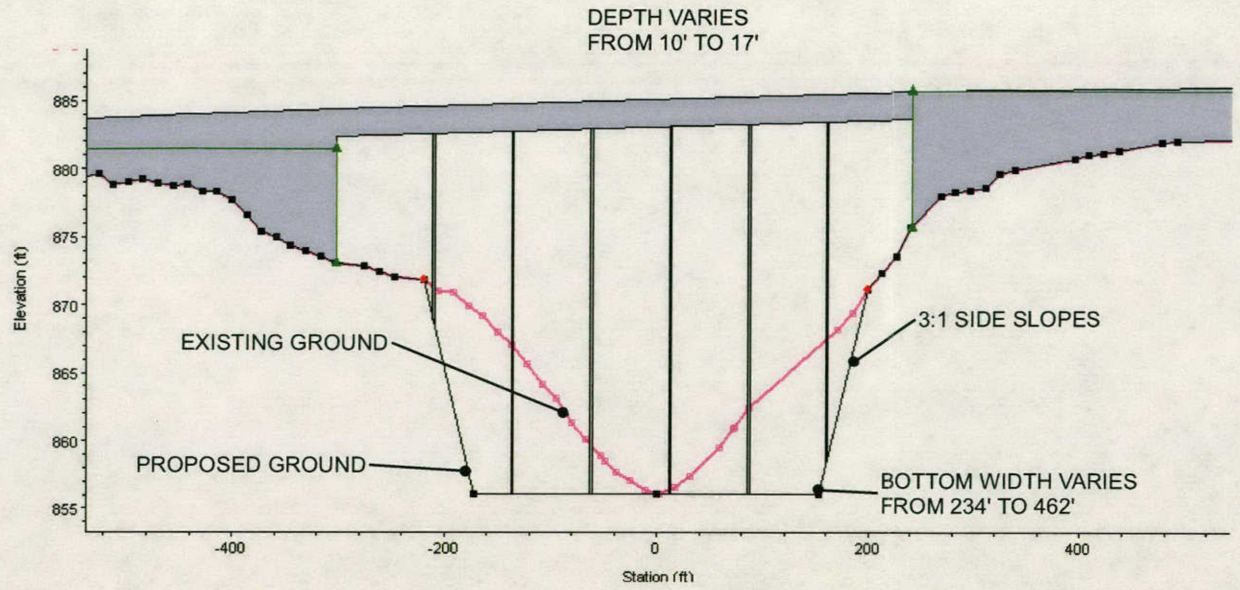
AUGUST 2011

N W E S

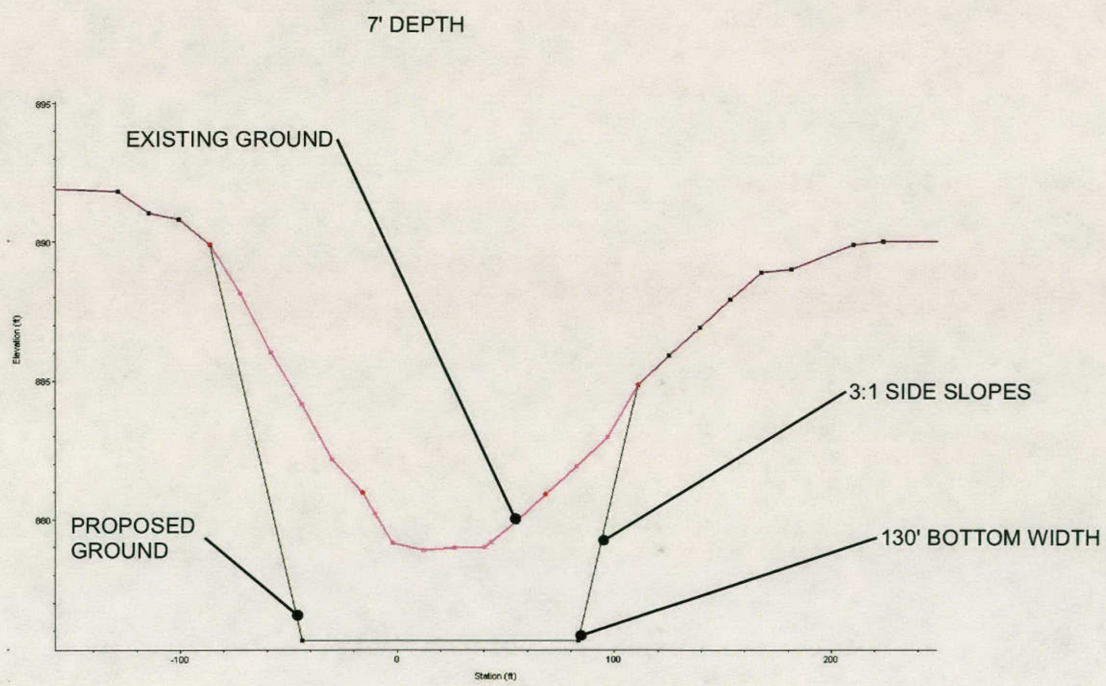
600 300 0 600 Feet

1 inch = 600 feet

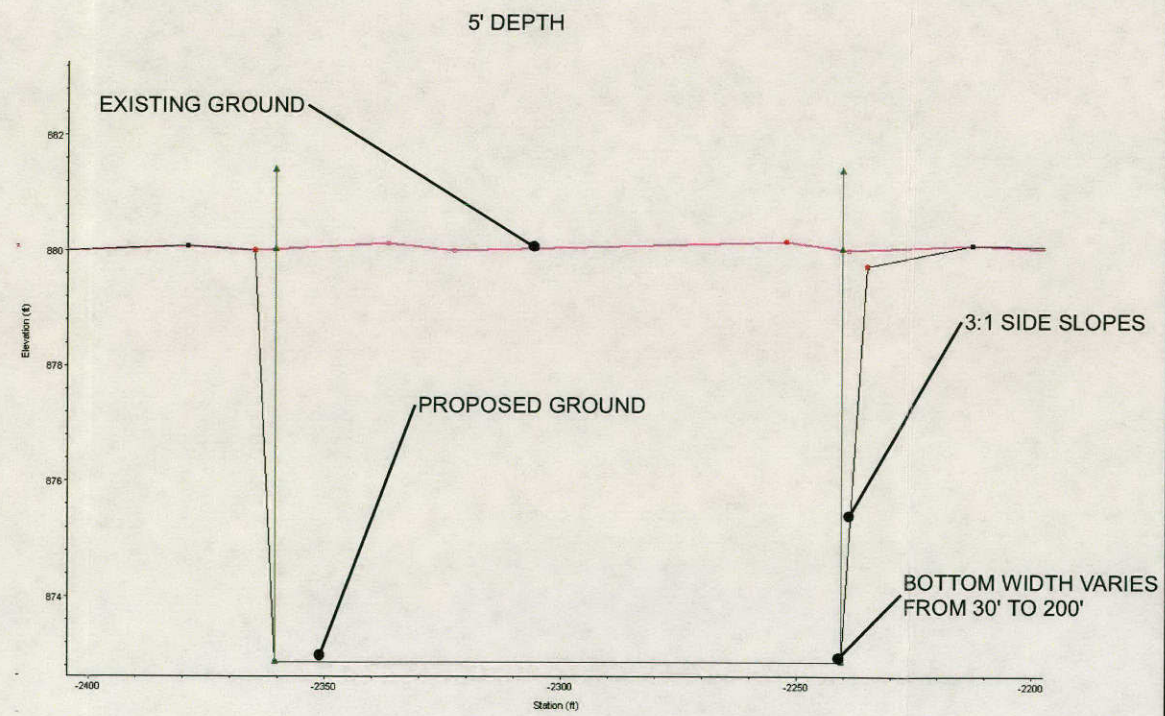
HALFF



CROSS SECTION H-H



CROSS SECTION I-I



CROSS SECTION J-J

ALTERNATIVE 3 IMPROVEMENTS
TYPICAL CROSS SECTIONS
D'HANIS, TEXAS
MEDINA COUNTY, TEXAS

NOTE:

ALTERNATIVE 3 INCLUDES THE PROPOSED IMPROVEMENTS FROM ALTERNATIVE 1 AND 2.

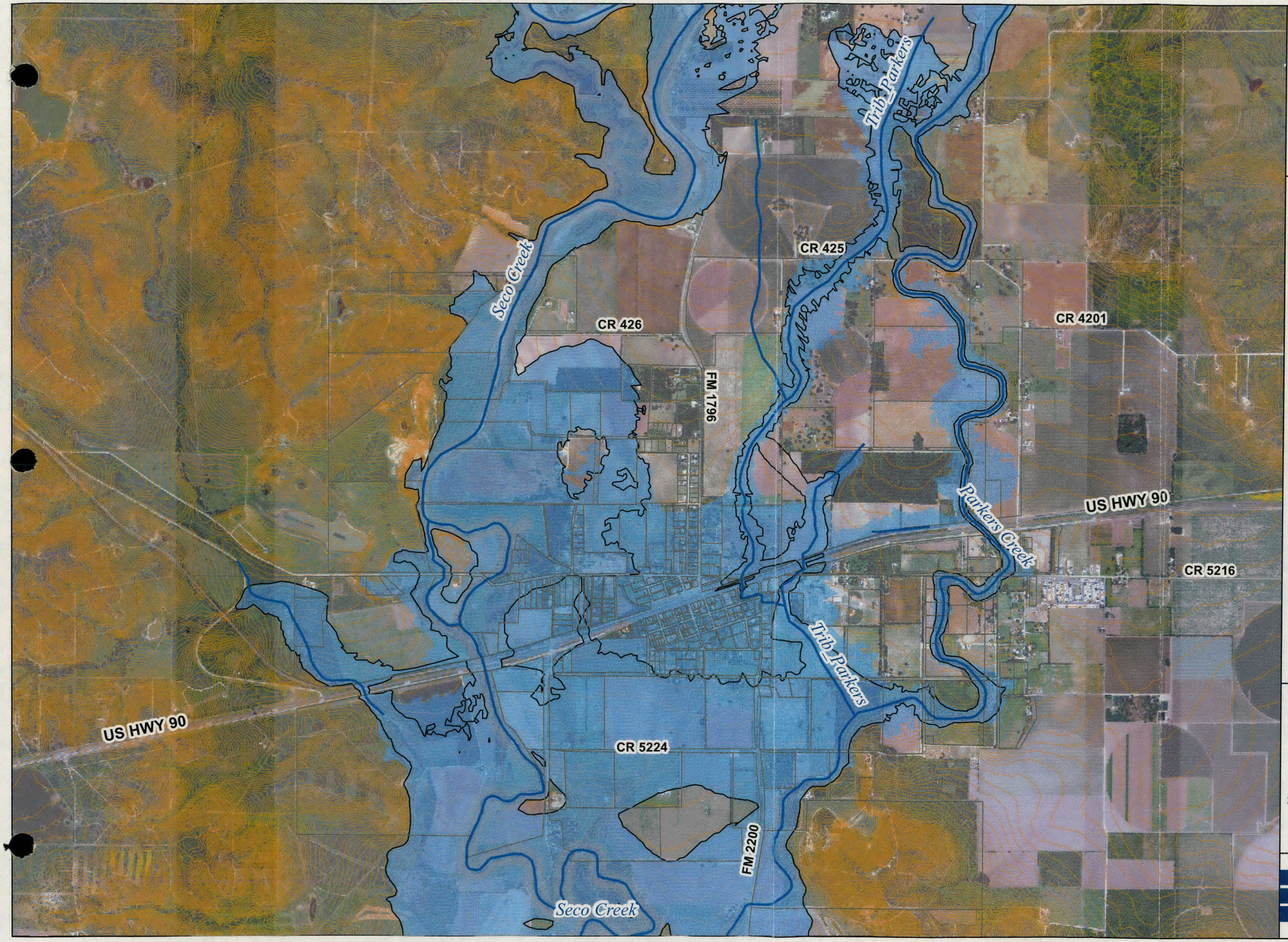
SEE TABLE 10.0 IN THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY FOR CONSTRUCTION COST OF ALTERNATIVE 3.

SEE EXHIBITS 30.0 FOR CROSS SECTIONS LOCATIONS.

EXHIBIT 25.0

AUGUST 2011

HALFF



ALTERNATIVE 3

50 YEAR FLOODPLAIN
D'HANIS, TEXAS
MEDINA COUNTY, TEXAS

LEGEND

ALTERNATIVE 3 50 YEAR FLOODPLAIN

EXISTING CONDITIONS 50 YEAR FLOODPLAIN

NOTE:

SIMILAR TO JULY 21, 2007 STORM EVENT

THE ALTERNATIVE 3 50 YEAR FLOODPLAIN WAS CREATED FROM THE ALTERNATIVE 3 HYDRAULIC MODEL IN THE MEDINA COUNTY/COMMUNITY OF D'HANIS FLOOD PROTECTION STUDY.

THE TOPOLOGY SHOWN ON THIS MAP ARE FROM THE UNITED STATES GEOLOGICAL SURVEY DIGITAL TERRAIN MODEL.

EXHIBIT 26.0

AUGUST 2011

N
W E
S

2,000 1,000 0 2,000
Feet

1 inch = 2,000 feet

HALFF