

# FLOOD PROTECTION PLANNING STUDY

COW BAYOU & ADAMS BAYOU

Orange County, Texas



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## FINAL REPORT

ORANGE COUNTY DRAINAGE DISTRICT  
and  
TEXAS WATER DEVELOPMENT BOARD

NOVEMBER 2015

**Carroll &  
Blackman,  
Inc.**

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STATE OF TEXAS  
ADMINISTRATIVE

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## EXECUTIVE SUMMARY

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### **Introduction**

In July 2013, The Orange County Drainage District commissioned the development of a Flood Protection Planning Study for the Adams Bayou and Cow Bayou watersheds in Orange County, Texas. The objective of the study is to provide the Drainage District with a strategy to address goals for flood prevention. The primary goal identified was to develop structural and non-structural alternatives which would mitigate the flooding impacts from a 100 year rainfall event. This report details the hydrologic and hydraulic analysis of the Cow and Adams Bayous watersheds and provides proposed flood protection alternatives. Additionally, this report provides information regarding the associated budgetary cost estimates, calculation of project benefits, and environmental considerations for the proposed alternative recommendations.

### **Analysis**

Peak flows were determined using the U.S. Army Corps of Engineers HEC-HMS software. The HEC-HMS flows, along with field survey data, were utilized in the HEC-RAS modeling software to determine the water surface elevations of the Study Area for the 10-, 25-, 50-, 100-, and 500-year rainfall events for existing conditions and proposed alternative designs. Cost estimating for the proposed alternative designs was developed using engineering estimates and information from knowledge of current construction costs. The environmental review of proposed construction was based on the most current environmental rules and regulations for activities in jurisdictional waters.

### **Conclusions and Recommendations**

Based on the analysis conducted, the limits of flooding within the study area were identified and mapped. Structural measures consisting primarily of detention impoundments were evaluated and cost estimates were developed. A flow diversion was similarly evaluated which would move runoff currently arriving from Jasper County, through a diversion channel westward to the Neches River. A list of potential non-structural measures was developed with measures ranging from acquisition of legal authority, development standards and regulations, to flood warning system installation and debris removal.

# 1.0 INTRODUCTION

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## 1.1 General

### *Statement of Purpose and Need*

*The Purpose of this project is to develop and update hydrologic and hydraulic models of the two primary watersheds draining the eastern and central regions of Orange County, Texas. The models will be utilized to develop solutions to reduce the impacts of heavy rainfall which will reduce the risk of harm to residents, damage to property and infrastructure, and economic loss within these watershed areas.*

The Orange County Drainage District was created as a State of Texas political subdivision in 1963 during the 58th legislative session. The District was formed to continue work that had been started by the Orange County Conservation and Reclamation District dating from 1931. The Orange County Drainage District is responsible for development and maintenance of the drainage system within the county boundaries of Orange County, Texas.

The mission of the Orange County Drainage District is to deliver efficient, responsive services which will enhance the quality of life of the citizens of Orange County, and to develop and manage a system which will meet the present and long term requirements for drainage needs of municipal, agricultural and industrial consumers within the District's boundaries, enhancing economic development throughout the District's area or jurisdiction.

The Orange County Drainage District entered into an agreement with Carroll & Blackman, Inc. in July of 2013 to conduct a Flood Protection Planning Study of Adams Bayou and Cow Bayou. This report summarizes the procedures used to analyze the existing flood problems and the recommendations of flood protection measures.

## 1.2 Objective and Scope

The focus of this project is to study the entire watersheds of Cow Bayou and Adams Bayou that have experienced significant prior flooding; hereinafter referred to as

the "study area". These are the two largest watersheds in Orange County, accounting for approximately 50% of the drainage within the county. The Cow Bayou watershed has been previously studied, but is in need of upgrade to a 100 year event plan and expansion to additional tributaries that serve developing areas. The Adams Bayou watershed has not been studied in its entirety and is in need of planning and improvements.

This study will meet the following objectives:

- To develop structural and non-structural alternatives of sufficient detail to serve as preliminary engineering designs of chosen alternatives for mitigation of the flooding impacts from a 100 year rainfall event.
- To select from the various flood reduction alternatives a cost effective, implementable plan that will reduce or eliminate flood damage and minimize environmental consequences while allowing continued watershed development.
- To assess the site-specific environmental consequences of alternative flood control improvements and to determine the potential for mitigation of environmental impacts.

The detailed scope of work for the development of this Flood Protection Planning Study is outlined in the following paragraphs. The work proposed will include a hydrologic and hydraulic examination of the Adams Bayou watershed. The work will also include an update of the hydrologic and hydraulic models of the previously studied Cow Bayou watershed. The Cow Bayou study considered 10, 50, and 100 year flows for analysis of the existing system, but only proposed mitigation projects for the 10-year storm event. This proposed study will model the 10, 50, 100, and 500-year storm events and will identify problem areas in the channel system, which have not been previously addressed. The overall study project will present options for solutions to the re-occurring flooding in both the Adams Bayou and Cow Bayou watersheds with an initial project level of the 100 year rainfall event. The major elements of the scope of work include: strong project management, data gathering,

planning level environmental review, watershed modeling, and identification of viable mitigation alternatives.

### **1.2.1 Data Collection**

#### Historical Data Information

The initial data collection activity for the Study was compilation and review of all known flood related data. Data was gathered regarding past flooding, chronic drainage problems and current development areas primarily through meetings with personnel of the Orange County Drainage District, Orange County, and the affected cities. The public meeting process provided a forum for residents and local governmental entities to provide comments and suggestions regarding affected areas.

#### Topographical Survey

A topographic survey of the Adams Bayou channel and tributaries made up a large part of the Data Collection effort for the project. No recent topographic survey of the channel system existed nor has any attempt been made in the past to quantify the issues related to the re-occurring flooding in the watershed. The topographic survey was performed by the Orange County Drainage District personnel. Data was collected for the channel flow line, top of bank elevations, overbank elevations, and channel configurations including side slopes at strategic locations. The survey work also focused on the geometry of existing drainage structures including bridges, culverts and other structures along the channel. All of the survey information collected provided data for input to hydrologic and hydraulic modeling and provided a basis for determination of the feasibility of proposed projects. The surveying information was augmented with existing LiDAR (Light Detection and Ranging) data, and data obtained from digital ortho quads and DEMs (Digital Elevation Models) for the study area acquired from TNRIS (Texas Natural Resource Information System) along with any additional mapping information provided by SETRPC (Southeast Texas Regional Planning Commission). Elevation datum and horizontal control is based on the USGS and NGS systems utilized by the Orange

County Appraisal District and FEMA.

### Environmental Review

A planning level environmental review was performed for the study area which guided the decision making processes with regard to flood relief recommendations. The environmental review included a review of existing state and federal agency databases such as the endangered species list, known jurisdictional waters, and historical preservation sites. The environmental review also included a review of the regulatory permit processes that will be necessary for project development and construction.

## **1.2.2 Hydrologic And Hydraulic Modeling**

### Drainage Basin Characterization

The characterization of the drainage basins is required to develop the hydrologic model in order to quantify the surface runoff characteristics. For Adams Bayou, this was a new effort because the watershed has not been previously surveyed or modeled. For Cow Bayou, the basic models existed and were utilized for update. Un-modeled tributaries within the Cow Bayou system were added to the updated models.

Drainage basin information compiled included; delineation of the overall drainage basin area and sub-basin areas, determination of general basin overland slopes, determination of general soil types and approximate current and future development runoff characteristics. Basin and sub-basin information was obtained from existing aerial photography, USGS Maps, soil maps and other available sources. Future development information was discussed with the personnel of the Orange County Drainage District.

Due to the lack of rainfall gauges and historical rainfall data within the watershed, the hypothetical 10, 50, 100, and 500-year frequency design storms were used to analyze the existing flooding potential of the Adams Bayou and Cow Bayou systems. The design rainfall used in the analysis was obtained from Technical Paper No. 40

prepared in 1961 by the National Oceanic and Atmospheric Administration, National Weather Service. The 24-hour point rainfall associated with the 100-year frequency storm is 13 inches.

The data required to derive the rainfall hyetograph (distribution of rainfall over time) for the design frequency storm was also obtained from Technical Paper 40 and entered into HEC-HMS (Hydrologic Modeling System). The program simulates a symmetrically distributed rainfall pattern around the peak rainfall value and generates a design hyetograph with quarter hour intervals.

#### HEC-HMS Modeling

The U.S. Army Corps of Engineers' HEC-HMS program was utilized to generate the basin surface runoff quantities and peak flows for each storm event for the Cow and Adams Bayou watersheds. HEC-HMS and HEC-RAS (River Analysis System) are modeling programs which are widely accepted by the engineering and governmental communities. Information compiled, related to the basin was used for input in the HEC-HMS program. The program provides stream flows for various rain events. Models were developed for the 10, 50, 100, and 500 year storm frequencies for anticipated future development conditions. For Cow Bayou, the existing model was augmented by addition of sub-basins of tributaries added to the stream network.

#### HEC-RAS Modeling

The U.S. Army Corps of Engineers' HEC-RAS program was utilized to generate the water surface profiles and elevations for the Cow and Adams Bayou watershed channels. The modeled stream flows along with the information compiled from the topographical survey activity was used as input for the HEC-RAS program which will provide water surface profiles for the desired rain events. Models were developed for the 10, 50, 100, and 500 year storm frequencies for anticipated future development conditions. For Cow Bayou, the existing model was augmented by addition of data from tributaries added to the stream network. The elevation datum of the existing model was checked and verified for consistency with new surveyed

information.

### **1.2.3 Development Of Flood Relief Alternatives**

#### Development of Alternatives

The initial HEC-HMS and HEC-RAS modeling effort described above created existing water surface profiles. This process provides the starting point for the development of the flood relief alternatives.

The models were modified to generate results of proposed mitigation projects designed to address negative effects of a 100 year storm event. Proposed mitigation projects based on the models were designed to avoid negative downstream impacts with regard to water surface issues and environmental impacts. Alternatives for flood mitigation may include: storm water detention, improvement or upgrade of storm water conveyance structures, channelization, diversion or other methods to ultimately provide relief to flood prone areas.

Because of the size of the study area, it is beyond the scope of this study project to assess benefits in the entire area. The full FEMA Benefit-Cost Analysis (BCA) process involves survey data acquisition of most of the residential and commercial structures in the study area. In order to assess the relative benefit to areas with known flooding problems, two focus areas were selected and projects which were identified to mitigate those problems were used for development of preliminary BCA's.

The final list of proposed alternatives was developed and presented to the Orange County Drainage District and to other involved entities and stakeholders for planning and input purposes.

#### Final Report and Recommendations

The final report summarizes the recommended courses of action to address the re-occurring flooding along the Adams and Cow Bayous watersheds. The final document describes the data collection, modeling, environmental evaluation, and alternatives identification and evaluation which will serve as a guide to the Orange

County Drainage District as they make decisions to improve the drainage infrastructure within the District boundaries.

#### **1.2.4 Project Management And Meeting Coordination**

##### Project Management and Owner Meetings

The Engineer produced periodic payment requests and has submitted the required reports to the TWDB. Monthly updates were provided at the regular public board meetings of the Orange County Drainage District. Meetings of the Engineer's study team were held on an as-needed basis, which was at least monthly. Meetings with District management and staff were also held on an as-needed basis to discuss key study issues such as survey coordination and problem area identification.

##### Public Meetings

The Orange County Drainage District conducted four (4) public meetings with citizens and interest groups with assistance from the Engineer. The Engineer prepared exhibits, handouts, and presentation materials for the public meetings. These public meetings were used to inform the public of the status of the study, to solicit comments and suggestions from the public, and to answer or address any questions or comments presented by the public.

Discussions of the detailed analysis methodologies, flood protection alternatives, study results, and recommended improvements are described in the following sections of this report.

### **1.3 Watershed Description**

The Orange County Drainage District is located in Orange County in the southeast corner of Texas near the Texas-Louisiana border. Orange County has a population of approximately 82,000 (2010 census). The Cow and Adams Bayou watersheds are adjacent to each other and drain approximately one-half of Orange County and are located in the central to eastern portion of the county. All or parts of the cities of Orange, West Orange, Pinehurst, Orangefield, Bridge City, and Vidor drain through these two watershed areas. The northern portions of these watersheds are mostly



rural with the southern portions containing the majority of the population in an urban/suburban setting. The watersheds run generally in a north to south direction.

Within Orange County, the Cow Bayou main channel is approximately 23 miles in length and consists of 68,660 acres. The ditch discharges into the Sabine River near the river's mouth at Sabine Lake. (See Appendix A for the Watershed Basin Map).

The Adams Bayou main channel is located entirely in Orange County and is approximately 17.5 miles in length and consists of 31,000 acres. The channel system discharges into the Sabine River just upstream from Cow Bayou. (See Appendix A for the Watershed Basin Map).

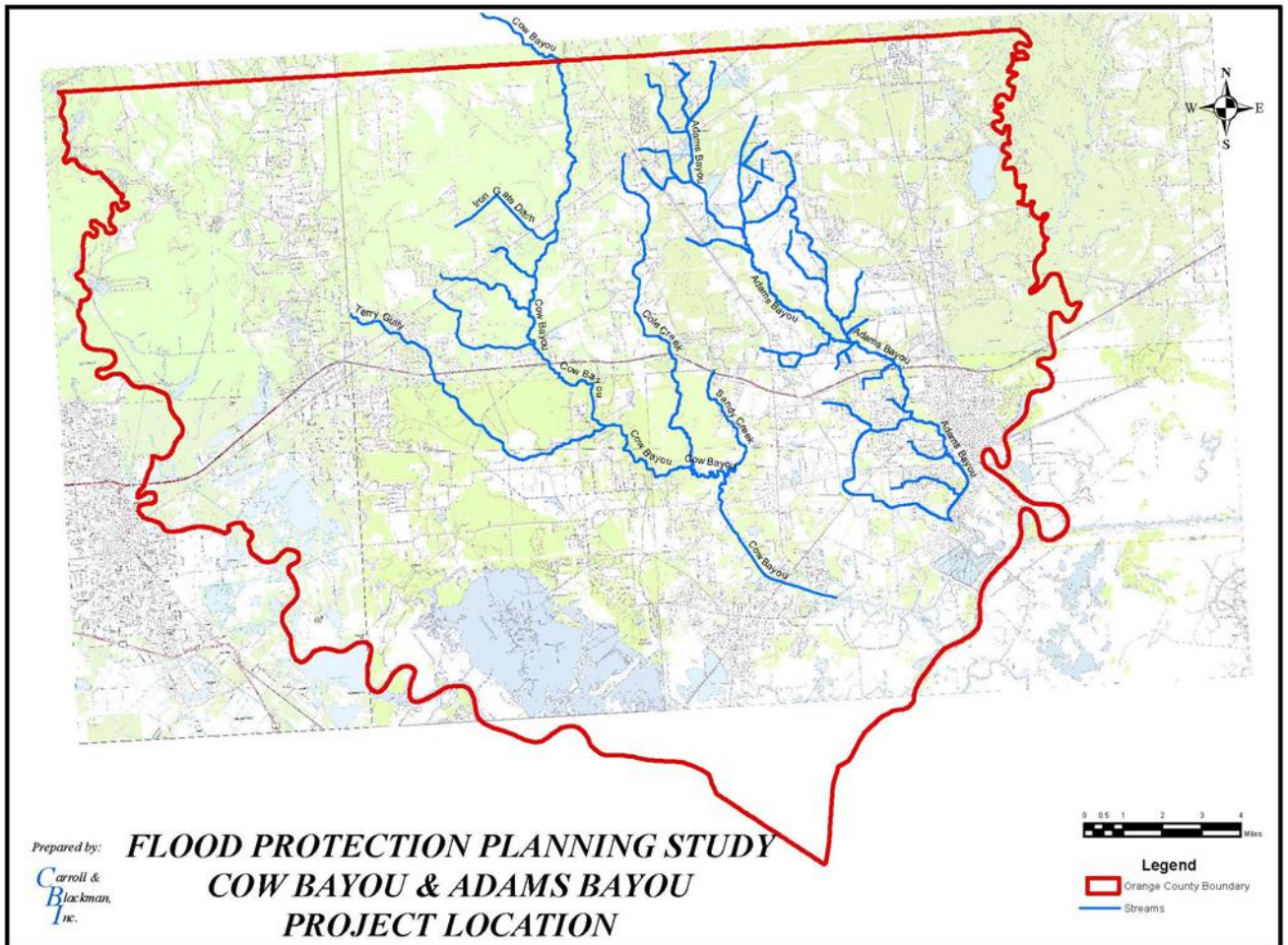


Figure 1-1  
Location Map

### 1.3.1 Topography

The topography of the study area is relatively flat with a slope of approximately 0.11% toward the south. Ground elevations vary from approximately 35 feet above mean sea level (M.S.L.) in the northern part of the watersheds to approximately 5 feet above M.S.L. at the discharge points into the Sabine River and Sabine Lake. These elevations were obtained from the United States Geological Survey (USGS) 7.5-minute quadrangle maps and are based upon the USC&GS 1959 datum.

### **1.3.2 Soil Characteristics**

The soils found within the study area consist of two major groups. The Orcadia-Urban land association is the most prevalent group in the northern section of the watershed. It is a silty loam and silty clay loam soil. A second soil group within the study area is the Vamont clay association which is a clayey soil. Due to the low permeability characteristics of all of the soil groups within the watershed and the consequent reduced infiltration of rainfall into the soil, high runoff volumes can be anticipated.

### **1.3.3 Climate**

The climate in Orange County is subtropical humid with the highest annual rainfall in the state. The annual precipitation average is fifty-six (56) inches, and the average humidity is 89 percent at 6:00 A.M. and 69 percent at 6:00 P.M. The annual average temperature is 68° F, with average temperatures ranging in January from a low of 42° F to a high of 61° F and in July from 74° F to 91° F. The growing season averages 240 days per year, with the last freeze in mid-March and the first freeze in early November. Although the average monthly rainfall is not excessive, concentrated rainfall of short duration from extreme meteorological storm events has been recorded.

## **1.4 History of Flooding**

The National Flood Insurance Program's (NFIP) flood claims database indicates that there have been seven major floods and several small events that have caused considerable damage within the study area in the past 27 years – see Table 1-1. For the purposes of this evaluation, a major flood is defined as any single event that caused greater than \$200,000 in damage. NFIP claims for the area total over \$125 million within the study area. It should be noted that the most recent event, 1791 DR in September 2008 resulted in \$117 million in paid claims within the study area. However, the damages associated with this hurricane event were primarily associated with storm surge which is not a subject addressed in this study. Additionally, four of the ten events listed are hurricanes or tropical storms and are

typically accompanied by heavy rainfall. The entire southeast Texas area which includes the study area is under threat from tropical storms and hurricanes for 6 months out of every year.

## RECORD WEATER EVENTS

TABLE 1-1

YEAR	DISASTER NUMBER	INCIDENT TYPE	PRESIDENTIAL DECLARATION	PAID CLAIMS
1979	580 DR	Flood	Yes	\$ 500,000
1982		Flood	No	\$ 500,000
1989	836 DR	Hurricane	Yes	\$ 600,000
1991		Flood	No	\$ 200,000
1994	1041 DR	Flood	Yes	\$ 700,000
2001	1379 DR	Tropical storm	Yes	\$ 500,000
2002	1439 DR	Severe storms, Tornado	Yes	\$ 3,200,000
2005	1606 DR	Hurricane	Yes	\$ 2,100,000
2006		Flood	No	\$ 2,100,000
2008	1791 DR	Hurricane	Yes	\$ 117,000,000

Records indicate that the storm event in October 2006 produced rainfall amounts of approximately 10 inches in a 24-hour period which equates approximately to a 25-year recurrence interval. Many of the more severe floods that have occurred are a result of prolonged or successive storms that produce heavy rainfall, such as the storm event in October 2006 or Hurricane Rita in September 2005. However, intense localized thunderstorms are common throughout the year and flooding may occur at any time.

### 1.5 General Areas of Recurring Flooding

Identification of areas for recurring structure and street flooding within the study area watersheds was accomplished primarily through the institutional knowledge of Orange County Drainage District staff. A preliminary identification and mapping effort was conducted early in the study process. The areas which were identified formed the basis for baseline model comparison and for flood relief strategy development.

### 1.6 Information Collection

The primary data collection for the study consisted of an extensive surveying effort

for Adams Bayou and tributaries from near FM 1006 in the south side of the City of Orange to the north Orange County boundary. The surveying data included 248 channel cross sections, 195 bridges, culverts, and other crossings surveyed. Soil characteristics were determined using the soil surveys and soil maps from the United States Department of Agriculture Natural Resources Conservation Service. Current land use patterns were determined from using the latest aerial photography of the study area. Additionally, the existing Cow Bayou hydrologic and hydraulic models (2002) were converted from an early version of HEC-HMS to the latest version and the HEC-RAS was also updated.

Beyond the extensive physical survey and mapping data that was collected for the hydrologic and hydraulic modeling, four Public Meetings were held in order to solicit information and to foster discussion with project stakeholders and citizens within the study area. Summaries of the four public meetings are as follows:

1st Public Meeting, August 27, 2013 – Presentation by Carroll & Blackman, Inc. about the study and all that it involves (i.e. data collection, modeling, improvement analysis, cost estimates, etc.).

2nd Public Meeting, March 11, 2014 – Presentation by Carroll & Blackman, Inc. to re-state the study objectives and provide an update of activities to attendees.

3rd Public Meeting, January 13, 2015 – Presentation by Carroll & Blackman, Inc. to re-state the study objectives and provide an update of activities to attendees. Results of baseline modeling was also presented and discussed.

4th Public Meeting, April 28, 2015 – An overall review of the study was presented to the public focusing mostly on the alternatives developed.

## 2.0 EXISTING CONDITIONS ANALYSIS

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### 2.1 General

In the development of a flood protection plan, it is necessary to establish the existing flooding potential of the watershed under investigation. The existing watershed conditions are used to determine where and to what extent flood control measures are needed. This phase of the analysis provides a base line for comparison between existing and proposed flood control improvements. The following sections describe the models developed and methods utilized to establish the flooding potential throughout the Adams Bayou watershed. For this planning study, existing models from a previous study for Cow Bayou (completed by Dodson & Associates, Inc. in 2002) were utilized and updated to establish the flooding potential and possible improvements for the Cow Bayou watershed. Sources of the base data and procedures utilized to construct the hydrologic and hydraulic models are addressed.

### 2.2 Hydrology

Hydrology is the study of the precipitation-runoff relationship within a drainage area or more specifically the determination of the amount of runoff associated with a defined rainfall event over a set area. The Corps of Engineers' HEC-Hydrologic Modeling System (HEC-HMS) computer program was used to develop a hydrologic model to simulate the precipitation-runoff relationship within the Adams Bayou and Cow Bayou watersheds. The basic parameters required to develop the hydrologic model and compute the peak discharge rates are drainage area, basin characteristics, rainfall, and infiltration loss rates. The procedure utilized to develop each parameter is described in the following sections of this report.

#### 2.2.1 Drainage Area

The Adams Bayou watershed encompasses an area of approximately 48.4 square miles or 31,000 acres. This watershed was divided into 58 sub-basins ranging in size from 0.18 square miles to 3.8 square miles. The Cow Bayou watershed encompasses an area of approximately 183 square miles (107 sq.

mi. in Orange County) or 117,300 acres. This watershed was divided into 29 sub-basins ranging in size from 0.42 square miles to 23.96 square miles. The drainage basins and sub-basins are delineated on Watershed Basin and Sub-Basin maps provided in Appendix A. The drainage areas and sub-basins were delineated utilizing topographic data from U.S.G.S. 7.5-minute quadrangle maps adjusted with 2013 aerial photographs, DEMs, and information collected from the field.

### **2.2.2 Basin Characteristics**

To develop flood hydrographs, or a graph of the time related runoff, certain basin characteristics were required to be defined. The characteristics required are determined by the modeling methodology used. The Clark Synthetic Unit Hydrograph Method was used for the Adams Bayou HEC-HMS model.

The two parameters required in the derivation of Clark unit hydrograph are time of concentration ( $T_c$ ) and Clark storage coefficient ( $R$ ). The time of concentration primarily affects the peak flow of the unit hydrograph while the storage coefficient primarily affects the shape of the hydrograph. Both time of concentration and storage coefficient are a function of topography and basin characteristics that can be estimated from available maps and topographic data. The existing land uses were verified by aerial photos and from U.S.G.S. quadrangle maps. The time of concentration is a function of the length and type of flow path that the runoff takes within a drainage sub-area. It is assumed that the time necessary for runoff to travel from the most hydraulically distant point to the outlet of the drainage sub-area is equal to the time of concentration. The Clark time of concentration and storage coefficient ranged from 0.1-7.3 hours and 0.4-18.9 hours, respectively, and were estimated using the Fort Bend County, Texas hydrologic methodology as follows:

$$T_c = \frac{48.64 \left( \frac{L}{\sqrt{S}} \right)^{0.57} N^{0.8} \log S_0}{S_0^{0.11} 10^I}$$

$$R = \frac{128 \left( \frac{L}{\sqrt{S}} \right)^{0.57} N^{0.8}}{S_0^{0.11} 10^I} - T_c$$

in which:

L = length of the longest watercourse within the drainage area (mi),

S = average slope along the longest watercourse (ft/mi),

N = Manning's weighted roughness coefficient along the longest watercourse,

S<sub>0</sub> = average basin slope of land draining overland into the watercourse (ft/mi),

I = percentage of impervious cover in the watershed, expressed as a fraction.

### 2.2.3 Rainfall Analysis

The 10-, 25-, 50-, 100-, and 500-year flood events were used to analyze the existing flooding potential of the Adams Bayou and Cow Bayou watershed. These events have a 10, 4, 2, 1, and 0.2 percent chance, respectively, of being equaled or exceeded during any one year. Although the recurrence interval represents the long term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The design rainfall used in the analysis was obtained from the National Weather Service Publication *Technical Paper No. 40* and from the National Oceanic and Atmospheric (NOAA) Technical Memorandum *Hydro-35*. See Table 2-1 for a list of the rainfall amounts used for this study.



**Table 2-1**

**Rainfall Depth / Duration for the Adams Bayou and Cow Bayou Study Area**

Return Period (years)	Point Rainfall Depths (inches) for the Adams and Cow Bayous Study Area							
	5-min	15-min	1-hour	2-hour	3-hour	6-hours	12-hour	24-hour
10-Year	0.69	1.52	2.28	4.40	4.80	6.10	7.50	8.80
25-Year	0.77	1.72	3.81	5.00	5.65	7.00	8.60	10.20
50-Year	0.84	1.87	4.23	5.53	6.30	8.00	9.90	11.80
100-Year	0.90	2.03	4.65	6.20	7.00	8.80	11.00	13.00
500-Year	1.64	3.19	5.64	7.44	8.40	10.56	13.20	15.60

The data required to derive the rainfall hyetograph (distribution of rainfall over time) for the design frequency storm was obtained from Technical Paper 40 and entered into HEC-HMS. The program then simulated a symmetrically distributed rainfall pattern around the peak rainfall value and generated a design hyetograph with quarter hour intervals.

**2.2.4 Infiltration Loss Rates**

Infiltration loss is the quantity of rainfall expected to be absorbed into the soil throughout the duration of the storm. The Soil Conservation Service (SCS) Curve Number Loss method was used to determine the infiltration loss rates for the study area.

The Soil Conservation Service (now the Natural Resource Conservation Service), of the U.S. Department of Agriculture, has instituted a soil classification system for use in soil survey maps across the country. Based on experimentation and experience, the agency has related the drainage characteristics of soil groups to a Curve Number (CN). The SCS provides information on relating soil group type to the curve number as a function of soil cover, land use type and antecedent moisture conditions. For Orange County, a curve number of 80 is applicable in most areas.

Infiltration loss is calculated based on values of curve number and initial loss. The initial loss is the surface moisture capacity at the beginning of the storm event, in inches. The initial loss is normally assumed to be 20 percent of the soil moisture storage deficit available at the beginning of the storm, in inches. The percent impervious cover (such as streets, roofs, parking lots, etc.) is the factor which governs the amount of area for which no infiltration loss occurs.

#### **2.2.5 Peak Discharge Computation**

The U.S. Army Corps of Engineer's HEC-HMS computer program was used to develop the flood hydrograph for existing conditions at various discharge points throughout the Study area. For several return intervals, hydrographs were computed for each individual sub-area and were combined and routed through the water course network to calculate the flood hydrographs at downstream discharge points.

### **2.3 Hydraulics**

The hydraulic analysis of the Study area was accomplished by calculating the water surface profile along the ditch. The water surface profiles were prepared using the U.S. Army Corps of Engineers' Hydraulic Engineering Center - River Analysis System (HEC-RAS). The program utilizes field survey data supplemented with topographic map data, HEC-HMS generated flow data, and structure data to compute flood elevations along the channels within this study. These flood profiles are presented in Appendix B. Physical data describing the flow characteristics of the ditch along with the computed flood flows were modeled to establish the water surface profiles. The following paragraphs describe the data required to calculate the water surface

profiles and the results presented in the final section.

### **2.3.1 Surveys of Bridges and Structures**

Channel or culvert invert and top of bridge elevations were collected along with culvert dimensions of each crossing. Dimensions were measured in the field to an accuracy of  $\pm 0.1$  foot. Data was collected on 384 ditch crossing structures.

### **2.3.2 Cross Sections**

Stream cross sections were obtained along the entire 128 miles of ditch and were taken utilizing field survey methods to an accuracy of  $\pm 1/10$ th of a foot. Field measurements included the establishment of elevations throughout the watershed tied to the NAD 83 datum.

### **2.3.3 Roughness Coefficients**

Manning's "n" for the study area were estimated from field inspection, photos, and aerial photographs. Roughness values for the channel areas were estimated to be approximately 0.03 to 0.04, while the roughness values for the overbank areas were estimated as an average of 0.05. The roughness values for culverts varied between 0.011 and 0.026. The estimated "n" values appear to be representative of the flow characteristics of the watershed, as compared to current flood plain studies on drainage ways of similar characteristics.

### **2.3.4 Other**

In the development of the hydraulic models used to compute water surface profiles, it was necessary to supplement field data with topographic maps to simulate the overbank areas adjacent to the watercourse being studied. The maps used to supplement the survey data were the U.S.G.S. 7.5-minute quadrangle maps and corresponding DEMs.

## **2.4 Calibration of Models**

There was no gauged precipitation or stream gauge data available for the Adams Bayou and Cow Bayou watersheds in order to calibrate the models. There have been numerous storm events in the past few years for which rainfall amounts could be obtained from meteorologists. However, observed high water marks at crossings were not obtained during any of these storms. Peak discharges from the Adams Bayou HEC-HMS models were compared on a per-acre basis to the peak discharges from the previous study of Cow Bayou. The modeled peak flows from the hydrologic models of Adams Bayou closely matched the unit flows per acre from watershed basins of similar characteristics from the previous Cow Bayou study referenced in Section 2.

Areas of reported flooding which were the subject of focus in the study, were confirmed by the baseline model runs. Additionally, the preliminary FEMA maps were compared to the mapping results from the baseline model runs. The general floodplain shapes match reasonably well, considering differences in base terrain models.

## **3.0 DEVELOPMENT OF FLOOD PROTECTION ALTERNATIVES**

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### **3.1 General**

As previously stated in this report, the objectives for this study are:

- To develop structural and non-structural alternatives of sufficient detail to serve as preliminary engineering designs of chosen alternatives for mitigation of the flooding impacts from a 100 year rainfall event.
- To select from the various flood reduction alternatives a cost effective, implementable plan that will reduce or eliminate flood damage and minimize environmental consequences while allowing continued watershed development.
- To assess the site-specific environmental consequences of alternative flood control improvements and to determine the potential for mitigation of environmental impacts.

The primary steps for reaching the stated objectives are:

- Acquire adequate topographical data in previously un-surveyed stream reaches
- Characterize the drainage basin with regard to sub-basin boundaries, soil types, vegetative cover, and impervious areas
- Develop a hydrologic model of existing conditions utilizing the US Army Corps of Engineers (USACE) HEC-HMS computer program
- Develop a hydraulic model of existing conditions utilizing the USACE HEC-RAS computer program
- Develop a list of problem areas within the studied watersheds
- Develop and consider preliminary environmental considerations to be utilized for alternatives development and screening

- Develop a preliminary list of specific structural alternatives and begin screening based on environmental constraints and institutional history and knowledge
- Prepare and enter list of structural measures into Hydrologic and Hydraulic baseline models
- Consider results and adjust model parameters to optimize flood plain reduction
- Develop preliminary cost estimates for identified alternatives
- Develop and publish report of study findings

### **3.2 Baseline Models**

The existing conditions 100 year H & H models provided a baseline for flood plain and flood levels. They also were utilized for confirmation of residual flood plain areas within noted problem areas within the watersheds. The impact of the various flood relief alternatives were compared to the baseline models for determination of potential benefits.

### **3.3 Alternatives Identification**

Based primarily on environmental constraints, the strategies for flood relief alternatives were limited to regional detention and diversion through new channels. The main channels for the study area are considered to be Waters of the US and further rectification of these channels would be an extremely difficult challenge with regard to environmental permitting (discussed in more detail in Appendix E.)

### **3.4 Future Watershed Conditions**

Development in the study area above I-10 has occurred at a very low level in the last 20 years. US Census Bureau data from the 1990 and 2010 census indicates a total population increase from 80,509 to 81,837. Residential developments within the study area consist primarily of rural style subdivisions with large lots. This style of development does not noticeably increase impervious surface area. The study area below I-10 is mostly developed and is reflected in the existing conditions H & H models. No adjustment to model parameters was made to plan for land

development for the next 20 years.

### **3.5 Analysis of Flood Protection Measures**

After developing the existing conditions (baseline) models, the next step was the evaluation of flood control alternatives. The primary goals of the study are the mitigation of the flooding impacts from a 100 year rainfall event, focusing on existing problem areas identified during the course of the study. These goals were considered when choosing flood protection options for the study area. While the focus of flood control measures is structural, particularly with regard to H & H model development, non-structural measures are also considered to be an integral part of the District's overall flood control strategy.

#### **3.5.1 Structural Measures**

Structural measures include construction of storm water detention or retention basins, diversions, enlargement of stream channels, modification or reconstruction of bridges, other crossing improvements, dams, levees, pump stations, control of coastal erosion, or beach nourishment. The structural measures considered for this study are discussed in the following sections.

##### **3.5.1.1 Detention**

Detention is a widely utilized method of flood control that involves holding or "detaining" runoff in constructed impoundments and releasing the impounded water at a reduced rate, thereby reducing the peak flows in the stream reaches immediately downstream from the impoundment facility. These detention facilities are normally constructed by excavation of the natural ground to a depth that will allow gravity drainage through a structure designed to release at flow rates that are manageable in the downstream stream reaches. If the natural topography allows, the impoundment can be formed by constructing dams or levees to act as the storage area with the detention occurring over the natural ground elevation.

Normally, excavation of detention facilities or “ponds” is not a regulated activity with regard to federal regulations so it is feasible from that perspective. The location of spoil areas is the primary environmental consideration when planning a detention facility.

#### **3.5.1.2 Diversion**

Construction of flow diversions is a flood control strategy that involves excavation of a new channel or construction of an underground conduit (pipe or box) which conveys runoff flows from one area in a watershed to either another watershed or to another point downstream in the same watershed. A flow diversion has been in place for many years on Adams Bayou near the north Orange County boundary. This diversion moves flows from outside of the county directly to the Sabine River. Without this diversion, the additional flow from the watershed area north of Orange County would flow along Adams Bayou through the heart of the county and the City of Orange.

#### **3.5.1.3 Crossing Improvements**

Bridges and culverts span waterways to convey vehicular traffic on the roadway while also allowing the channel to convey stream flows. Crossings with cross-sectional areas that are inadequate to handle the stream flows in a large storm event tend to result in flooding upstream of the property and may result in overtopping of the crossing. Crossing improvements consist of enlargement by either adding to or replacing an existing roadway, railroad or other stream crossing with pipe or box culverts, or bridges. This measure results in more efficient crossings which do not create excessive head losses and which also promote more efficient flow within the channel system.

#### **3.5.1.4 Channel Improvements**

Channel improvements (channelization) consist of widening, deepening, and/or straightening of a channel to improve its conveyance. Increasing stream capacity decreases water surface elevations, however, it also increases downstream flood flows due to reduction of overbank storage and



time of concentration. Because the study area consists of primarily natural, riverine channels that are classified as Waters of the US, channelization was not considered to be a feasible option for flood relief along the main stream and tributary reaches. It might be possible to perform rectification on the very upper reaches of a few tributary channels if they are in upland areas that are not classified as Waters of the US. This would be considered on a very local basis, probably in conjunction with future land development planning.

### **3.5.2 Non-Structural Measures**

Non-structural measures include no action, developmental regulations, watershed management, debris removal, greenbelt alternatives, acquisition of flood plain land for use as public open space, acquisition and removal of buildings located in a flood plain, relocation of residents of buildings removed from a flood plain, and flood warning systems. The following sections describe the non-structural measures considered for this study.

#### **3.5.2.1 Developmental Regulations**

The Orange County Drainage District does not currently have any authority under the enabling statute or the Water Code to specifically regulate development and related impacts within its' jurisdictional area. Chapter 49, Section 211 of the Texas Water Code, as amended by the State Legislature in 2003, provides drainage districts with the ability to acquire the legal authority that would enable them to adequately address the design and construction of storm water conveyance structures and platting requirements for subdivisions within their jurisdictional boundaries. The process involves the development of a master drainage plan, including rules relating to the plan and design criteria for drainage channels, facilities, and flood control improvements.

The Orange County Drainage District understands the importance of this issue and is presently considering the development of their authority under

Chapter 49-211 and is committed to its implementation.

### **3.5.2.2 Buy-Outs**

Buy-outs of flood-prone properties utilizing the FEMA Hazard Mitigation Assistance program were used extensively in the aftermath of Hurricane Ike in 2008. This option will remain a viable, non-structural option for flood plain management in the wake of future disaster declarations.

### **3.5.2.3 Flood Warning System**

Flood Warning Systems consist of a network of rainfall, stream level, and weather data collection stations located at strategic locations throughout the District stream and channel network. Collected data is reported in real time usually via radio transmission, to a base station. The real time collection of data allows District personnel to monitor critical locations throughout the network and to provide timely information to emergency management agencies for their use. The data collected over a period of time and particularly during record rainfall events, becomes an important tool for the calibration of hydrologic and hydraulic models, and for identification and verification of flood events and associated damages.

### **3.5.2.4 Debris Removal**

Obstructions to flow due to the accumulation of trash, dead or fallen trees, brush, and other debris in the channels or at culverts and bridges can have significant impacts on water surface levels upstream of the crossings and significantly affect the flood carrying capacity of the waterway. The accumulated debris can also cause physical damage to the ditch crossings. The removal of debris can reduce flood damage and potential hazards.

## **3.6 Improvement Options**

To determine the most feasible options for flood relief, several combinations of improvements were analyzed for the study area. These improvement options were then put into alternative groupings to achieve the objectives described in Section

1.2. The following sections describe the alternatives developed to increase the flood carrying capacity of Adams Bayou and Cow Bayou. Hydraulic Profiles are provided in Appendix B.

### **3.6.1 Detention Ponds**

The main cause of flooding in the study area watersheds is due to the high water surface elevation caused by the inadequately sized riverine channels. The peak flows of the 100 Year Storm from the study area watersheds are more than most of the channels can adequately contain within the banks of the channels. This results in overbank flooding along the channels. As stated in Section 3.5.1.4, channelization to increase the size and capacity of the channels was not considered to be a feasible option for flood relief. In order to lower the water surface elevations in the channels without altering the channels, it became necessary to lower the peak flows within the channel reaches in the modeling analysis through the use of detention ponds.

#### **3.6.1.1 Cow Bayou**

Detention ponds were analyzed at various points along the Cow Bayou main channel and tributaries in order to achieve reductions in the peak flows that resulted in lowered water surface elevations and decreased floodplain footprints with target areas identified by Orange County Drainage District staff. For the Cow Bayou watershed, the target areas for reduced flood levels included the areas along the main channel of Cow Bayou beginning at the confluence of Doty Ditch (identified as NW Vidor #1 in the models) and then downstream, the upper sections of Terry Gully which have numerous residential properties along the channel, and the upper sections of Cole Creek which also has residential properties along the channel.

The improvements analysis began with lowering the water surface on the main channel of Cow Bayou. Two detention ponds were analyzed for Cow Bayou, which are shown as Cow Bayou Ponds 1 and 2 on the 100 Year Floodplain map in Appendix A. Cow Bayou Pond 1 reduces the peak flow on that reach from 5,656 cfs to 2,550 cfs and Cow Bayou Pond 2 reduces the peak flow from 4,990 cfs to 1,966 cfs. The ponds surface area size, general information about the outlet structure, and

overall estimated costs are listed in Table 3-1. Detailed cost estimates are presented in Appendix D. The reductions of the peak flows on Cow Bayou due to the two proposed detention ponds reduced the water surface elevations by approximately 4' along Cow Bayou thereby reducing or eliminating potential flood damages in the Parkview subdivision, near Claiborne West Park, and along developed residential areas near the intersection of FM 1442. The reduced water surface levels on the main channel of Cow Bayou also provided a lower starting tailwater condition for the tributaries that drain into Cow Bayou.

Four detention ponds were analyzed for Terry Gully. Terry Gully Pond 1 reduces the peak flow from 1,154 cfs to 191 cfs. Terry Gully Pond 2 reduces the peak flow from 394 cfs to 110 cfs. Terry Gully Pond 3 has a reduction from 922 cfs to 615 cfs. Terry Gully Pond 4 has a reduction from 1,066 cfs to 544 cfs. The stated peak flow reductions are cumulative (i.e. the peak flows account for the proposed ponds upstream on the reach.) The peak flow reductions result in water surface reductions of approximately 3'-5' along Terry Gully. The improvements for Terry Gully Ponds 3 and 4 were previously proposed in the Cow Bayou study completed in 2002. The properties at the locations of these ponds are currently owned by the Orange County Drainage District. The implementation of these four detention ponds will drastically reduce the 100 Year floodplain and eliminate or reduce a considerable amount of potential flood damages along Terry Gully within the Maplecrest subdivision.

A detention pond near the intersection of Cole Creek and Old Buna Road was analyzed in order to reduce the peak flows and water surface elevation along Cole Creek. The proposed Cole Creek Pond 1 reduces the peak flow from 1,698 cfs to 559 cfs. This implementation of this pond will result in lowered water surface elevations of approximately 2'-3' and reduce flooding for the residential areas along Cole Creek downstream of the proposed pond.

### **3.6.1.2 Adams Bayou**

Detention ponds were analyzed at various points in the Adams Bayou watershed in an effort to reduce peak flows and water surface elevations within target areas identified by Orange County Drainage District staff. The target areas for floodplain reduction within the Adams Bayou watershed included the northeast area of Mauriceville north of Hwy. 12 (specifically the Greenwood Acres subdivision along Sparks Road and Burdine Street), a large floodplain area near the intersection of the two main upstream forks of Adams Bayou, residential areas along Bancroft Road, and areas south of Interstate 10 along Adams Bayou.

Detention pond analysis began with a proposed pond on the upstream section of Lateral 14 north of the Greenwood Acres subdivision along Burdine Street. Almost the entire length of Burdine and all of its cross streets fall within the existing conditions 100 Year floodplain. Adams Bayou Pond 1 was modeled north of this neighborhood. The 300 acre pond reduced the peak flows from 1878 cfs to 77 cfs, but it did not remove the entire neighborhood from the 100 Year floodplain due to high starting tailwater conditions for Lateral 14 from Adams Bayou. Another 200 acre detention pond, Adams Bayou Pond 2, was modeled on Adams Bayou south of the railroad tracks and Highway 12. The combination of these two ponds sufficiently reduced the water surface elevations in the Greenwood Acres subdivision and completely removed it from the 100 Year floodplain. Information about the proposed ponds can be found in Table 3-1 and in Appendix D.

The next target area was the intersection of the two forks of Adams Bayou just south of Eight Gate Road. This is a naturally low area consisting of pasture fields. A 700 acre detention pond named Adams Bayou Pond 3 was modeled near the intersection of the two main forks. The pond resulted in peak flow reductions from 3,826 cfs to 202 cfs. The reductions in peak flow generated a drop in water surface elevations of approximately 1.5'-3' downstream of the pond. Due to the proposed pond area being a naturally low lying area, an above ground detention would be suitable rather than an excavated "hole in the ground". The above ground detention pond would use the natural ponding characteristics of the area and contain the

floodwaters through the use of a constructed levee system. However, for the purpose of this report, the cost estimates presented in Appendix D are for the excavated ponds.

To achieve reduced water surface elevations along the residential areas near Bancroft Road, a detention pond named Adams Bayou Pond 4 was modeled on Lateral 8A. The 100 acre pond reduced peak flows from 1299 cfs to 517 cfs. This reduction of flows, combined with the decreased water surface elevations on Adams from the other proposed ponds, resulted in lowered water surface elevations of 0.5' – 1.5' near Bancroft Road and downstream.

In order to reduce the peak flows and water surface elevations along Adams Bayou south of Interstate 10, a large detention pond was modeled north of Interstate 10. This was necessary because there is not enough available property south of Interstate 10 along Adams Bayou for a proposed detention pond. The proposed pond, Adams Bayou Pond 5, needed to be approximately 1,500 acres in size in order to achieve an adequate reduction in peak flow. However, due to the near lack of downstream channel slope on Adams Bayou and the starting tailwater conditions on the Sabine River, the peak flow reductions from the large Adams Bayou Pond 5 did not correspond to any appreciable reductions in water surface elevation or floodplain reduction. As such, we are not including Adams Bayou Pond 5 in the detailed output and tables of this report. It would not result in any objectives being met as part of this study.

**Table 3-1**

**Proposed Detention Ponds for the Adams Bayou and Cow Bayou Study Area**

PROPOSED DETENTION POND	SURFACE AREA (ACRES)	OUTLET SIZE AND TYPE	WEIR LENGTH (FT)	TOTAL ESTIMATED COST
Cow Bayou #1	1,500	4' x 8' BOX	100	\$219,437,250
Cow Bayou #2	1,000	4' x 8' BOX	100	\$153,545,700
Terry Gully #1	100	2' x 3' BOX	15	\$15,493,950
Terry Gully #2	100	3' x 5' BOX	25	\$15,500,850
Terry Gully #3	38	5' x 10' BOX	40	\$5,444,100
Terry Gully #4	85	3' x 6' BOX	20	\$12,475,200
Cole Creek #1	100	5' x 5' BOX	50	\$15,507,750
Adams Bayou #1	300	36" PIPE	20	\$44,922,850
Adams Bayou #2	200	36" PIPE	20	\$30,539,400
Adams Bayou #3	700	36" PIPE	50	\$107,450,250
Adams Bayou #4	100	36" PIPE	40	\$15,493,950

**3.6.2 Diversion Channel**

In order to lower the water surface elevations adequately to reduce the flooding areas of Cow Bayou and to allow the tributaries to have a lower starting tailwater, the proposed detention ponds on Cow Bayou need to be extremely large and therefore become prohibitively expensive. As such, the Orange County Drainage District staff asked for an analysis of a diversion channel from Cow Bayou to the Neches River, similar to the existing diversion channel on the Adams Bayou watershed to the Sabine River, referenced in Section 3.5.1.2.

The analysis of a proposed diversion channel for Cow Bayou showed that in order to achieve a similar reduction of flow that is achieved from Cow Bayou Pond 1, the diversion channel will need to be able to convey approximately 3,500 cfs from Cow Bayou to the Neches River. The approximately 13 mile route of the diversion channel runs parallel to and just south of the county line. The diversion channel needs to be approximately 10' deep with a bottom width of 75'. The diversion channel will need to have three major crossings (FM 105, FM 1131, and a freshwater canal) along with several small crossings and pipeline crossings. The total estimated cost of the Cow Bayou Diversion Channel is \$52,095,000. While this is a substantial cost estimate, it represents a cost of approximately 15% of the total costs associated with constructing Cow Bayou Ponds 1 and 2. The detailed cost estimate is presented in Appendix D.

### **3.7 Construction Level Design Consideration**

The proposed ditch crossing and channel configuration designs presented in this study should be recognized as planning level designs. Actual construction level designs of structures and channel improvement may vary from the sizes and configurations presented and utilized in the proposed model. Modifications can and should be made on a project to project basis to best fit the construction level design constraints. Construction level designs should, however, still provide the desired water surface profiles represented in the study models.

### **3.8 Environmental Considerations**

Horizon Environmental Services, Inc. provided a review of the general jurisdictional determination and permitting requirements for the flood protection alternatives presented in this study. Based on the areas to be impacted by the proposed flood relief alternatives, Horizon evaluated the sites for potential wetlands and other "waters of the U.S." subject to jurisdiction under Section 404 of the Clean Water Act and regulated by the U.S. Army Corps of Engineers (USACE). The process and conclusions are presented in Appendix E, Environmental Considerations.



A detailed jurisdictional delineation and impact analysis will be required to identify the extent of impacts of the proposed improvements with regards to the level of USACE permitting and mitigation requirements for each project. Because of the wide variation in project sizes and locations within the county, an estimated cost for the environmental delineation and analyses that will be necessary for each project undertaken is not included in this report.

### **3.9 Benefit-Cost Analysis**

Because of the size of the study area, it is beyond the scope of this study project to assess benefits in the entire area. The full FEMA Benefit-Cost Analysis (BCA) process involves survey data acquisition of most of the residential and commercial structures in the study area.

Benefit-cost Ratios (B/C Ratios) are typically utilized to evaluate study plan Alternatives with regard to grant review processes. Evaluating agencies tend to look at projects with higher B/C Ratio as being more cost effective. However, the decision to ultimately implement flood protection plan project lies with the entity considering flood protection projects. Table 3-2 is a summary of the benefit-cost ratios.

#### **3.9.1 Flood Damage Costs Analysis**

In order to assess the general benefit of proposed flood relief measures with regard to cost of the proposed projects, two of the identified problem areas were focused on. Because of the size of the study area, it is beyond the scope of this study project to assess benefits in the entire area. It is reported that both of the focus areas experience chronic flooding. The proposed projects in each of the focus areas will be designed to eliminate the residual 100 year flood plain.

The focus areas are on the upper end of Terry Gully (Cow Bayou) in the Maplecrest Subdivision and on the upper end of Adams Bayou in the Greenwood Acres Subdivision. The approach to assessing potential flood damages utilized the Flood

Insurance Administration (FIA) developed generic (national) depth vs. damage curves for input into the HEC-FDA model. A similar approach was utilized in the previous study of Cow Bayou. These curves relate the amount of damages incurred at a residence to the depth of flooding experienced and the value of the structure and its contents. The curves used for this study were derived from the FDA generic curves specifically for New Orleans, LA. It was felt that these were more applicable than the national curves due to the proximity of the study area to New Orleans.

DEPTH TO DAMAGE RATIOS  
Table 3-2

Depth of Flooding Experienced (ft)	Ratio of Damage Incurred by Structure to Cost of Structure (Percent)	Ratio of Damage Incurred by Contents to Cost of Contents (Percent)
Not measurable (0)	20.5%	0.0%
0.0 – 0.5	40.5%	28.1%
0.5 – 1.0	41.5%	41.8%
1.0 – 1.5	45.1%	49.3%
1.5 – 2.0	52.3%	62.9%

The estimated cost of a single-family residence in the area is \$130,000. For this average cost of the home the contents are valued at 46.6%, which equates to \$60,580. This percentage is according to the FIA, and is adjusted for New Orleans. The estimated average value of a home plus its contents in the area is therefore calculated at \$190,580.

The number of homes in each of the tables below represents the total number in the respective subdivisions. This scenario represents a worst case, but it provides a general indication of potential flood damages in each area. A rough estimate of total damages to residential structures and their contents can be calculated as shown in the following table.

Adams Bayou - Greenwood Acres Subdivision  
Table 3-3

Depth (ft)	Approximate Number of Homes	Cost of Damage to Structure	Cost of Damage to Contents	Total Cost to Individual Homeowner	Total Damages
0	20	\$26,650	\$ -	\$26,650	\$533,000
0-0.5	30	\$52,650	\$ 17,023	\$69,673	\$2,090,189
0.5-1.0	50	\$53,950	\$ 25,322	\$79,272	\$3,963,622
1.0-1.5	30	\$58,630	\$ 29,866	\$88,496	\$2,654,878
1.5-2.0	20	\$67,990	\$ 38,105	\$106,095	\$2,121,896
150		<b>Total</b>			<b>\$11,363,586</b>

Terry Gully - Maplecrest Subdivision  
Table 3-4

Depth (ft)	Approximate Number of Homes	Cost of Damage to Structure	Cost of Damage to Contents	Total Cost to Individual Homeowner	Total Damages
0	30	\$26,650	\$ -	\$26,650	\$799,500
0-0.5	40	\$52,650	\$ 17,023	\$69,673	\$2,786,919
0.5-1.0	60	\$53,950	\$ 25,322	\$79,272	\$4,756,346
1.0-1.5	40	\$58,630	\$ 29,866	\$88,496	\$3,539,838
1.5-2.0	30	\$67,990	\$ 38,105	\$106,095	\$3,182,845
200		<b>Total</b>			<b>\$15,065,448</b>

The estimated damage costs in the tables above provide a general picture of potential benefits in these two focus areas. Each project should undergo an extensive Benefit-Cost Analysis (BCA) in order to make decisions regarding structural vs non-structural strategies, and grant and other funding options.

Within the Cow Bayou watershed, a record rainfall event in October 2002 caused preliminary estimated damages of \$8,728,250 to residences, businesses, and public infrastructure. Based on the analysis in the 2002 Cow Bayou Study (Dodson), these damages are approximately the damages incurred by a 100-yr design storm. This provides a gross comparison to the analysis described above.

**Benefit-Cost Ratios of the Focus Area Improvement Alternatives**  
**Table 3-5**

Project	Estimated Cost	Avoided Damages	Benefit-Cost Ratio
TG-1	\$15,493,950	\$11,363,586	0.73
AB-1	\$44,922,850	\$11,363,586	0.25

## 4.0 PROJECT FUNDING

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### 4.1 Funding Sources

This section summarizes potential funding sources for planning and implementation of flood control and drainage projects.

The following is a partial list of potential funding sources and strategies:

- Texas Water Development Board (TWDB)
- Federal Emergency Management Agency (FEMA) Grants
- Storm water Control Districts
- Watershed Drainage Districts
- Fresh-Water Supply Corporations
- Municipal Drainage Utility System (Drainage Charge)
- Impact Fees

### 4.2 Texas Water Development Board (TWDB) Programs

According to the TWDB rules, there are two types of funding available for flood control planning and projects:

1. A grant program for flood protection planning, as described in Section 355 of the Texas Administrative Code. This study is partially funded through this type of grant.
2. A loan program for flood control projects, as described in Section 363 of the Texas Administrative Code. This loan program also includes a provision for making loans for the development of flood plain management plans. The general application requirements for the loan program include demonstration of engineering feasibility and performing adequate environmental assessments and reviews.

### **4.3 TWDB Loan Program for Flood Control Projects**

Financial assistance for Flood Control may include structural and nonstructural flood protection improvements such as:

- construction of storm water retention basins
- enlargement of stream channels
- modification or reconstruction of bridges
- acquisition of floodplain land for use in public open space
- relocation of residents of buildings removed from a floodplain
- public beach re-nourishment
- flood warning systems
- control of coastal erosion
- development of flood management plans

An engineering feasibility report must be prepared, providing:

1. description and purpose of the project
2. entities to be served and current and future population;
3. the cost of the project;
4. a description of innovative and conventional alternatives considered and reasons for the selection of the project proposed;
5. sufficient information to evaluate the engineering feasibility; and
6. maps and drawings as necessary to locate and describe the project area. The executive administrator may request additional information or data as necessary to evaluate the project.

Additionally, a complete environmental assessment and review of the proposed flood protection projects is required for approval of the TWDB loan application.

#### **4.4 FEMA Flood Mitigation Assistance Grant Program (FMA)**

Administered by the TWDB, the Flood Mitigation Assistance grant program under the Federal Emergency Management Agency (FEMA), provides federal funding to assist states and communities to fund cost effective measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program (NFIP).

#### **4.5 FEMA Severe Repetitive Loss Grant Program (SRL)**

The Severe Repetitive Loss Grant Program, under the Federal Emergency Management Agency, provides federal funding to assist state and communities in implementing mitigation measures to reduce or eliminate the long-term risk of flood damage to severe repetitive loss structures insured under the National Flood Insurance Program. SRL was created as part of the National Flood Insurance Reform Act of 2004 (42 U.S.C. 40.30) with the goal of reducing or eliminating claims under the NFIP. The TWDB administers the SRL grant program for the State of Texas on behalf of FEMA.

#### **4.6 FEMA Hazard Mitigation Grant Program**

The Hazard Mitigation Grant Program (HMGP) provides grants to States and local governments to implement long-term hazard mitigation measures after a major disaster declaration. Authorized under Section 404 of the Stafford Act and administered by FEMA, HMGP was created to reduce the loss of life and property due to natural disasters. The program enables mitigation measures to be implemented during the immediate recovery from a disaster. The objectives of the HMGP are:

- To prevent future losses of lives and property due to disaster;
- To implement State or local mitigation plans;

- To enable mitigation measures to be implemented during a State's or community's immediate recovery from a disaster; and
- To provide funding for previously identified mitigation measures that benefit the disaster area.

To meet these objectives, FEMA can fund up to 75% of the eligible costs of each project. The State or local cost-share match does not need to be cash; in kind services or materials may also be used.

In order to be eligible for this program, the State or community must first develop (and have approved by FEMA) a flood mitigation plan that describes the activities to be carried out with the assistance provided under this program. The plan must be consistent with a comprehensive strategy for mitigation activities, and be adopted by the State or community following a public hearing.

#### **4.7 Texas General Land Office - GLO (formerly ORCA and TDRA)**

- Community Development Fund

Funds are available every 2 years on a regional competition basis. Funding for drainage is eligible along with funding for water and wastewater improvements. Usually large drainage projects are limited to \$250,000 or regional project size limits. In addition, drainage projects are usually lower priority in regional scoring.

- Texas Capital Fund

Funding available to local communities for specific economic development projects to retain/create jobs.

- Disaster Relief / Urgent Need Fund

Funding has been available to local communities for response to natural disasters including flooding. This funding is only available after a disaster occurs.

#### **4.8 Corps of Engineers Funding**



Direct funding or construction by the U.S. Army Corps of Engineers is an available option, usually for very large scale projects. Normally requires an Act of Congress for funding.

#### **4.9 Impact Fees**

Impact fees are an available funding source to construct capital improvements for drainage or flood control facilities to accommodate new development. The 70th Texas Legislature enacted the nation's first comprehensive impact fee enabling statute in 1987. The statute is commonly known as "SB336". The bill has now been incorporated within the Texas Local Government code as Ch. 396 – Financing Capital Improvements Required by New Development in Municipalities, Counties, and Certain Other Local Governments. Ch. 395 authorizes municipalities and certain special districts to impose impact fees against new development.

An impact fee is a charge or assessment imposed by a political subdivision against new development in order to generate revenues for funding or recouping the costs of capital improvements or facility expansions necessitated by and attributable to the new development. The term includes amortized charges, lump-sum charges, capital recovery fees, contributions in aid of construction, and any other fee that functions as described by this definition. Specifically, impact fees are charges which are imposed only on "new development." New development means that subdivision of land; the construction, reconstruction, redevelopment, conversion, structural alteration, relocation, or enlargement of any structure; or any use or extension of the use of land; any of which increases the number of service units. Capital improvements include public facilities for (1) storm water, drainage, and flood control facilities; (2) water supply treatments and distribution facilities; (3) wastewater collection and treatment facilities; and, (4) roadway facilities. Facility expansion refers to the expansion of the capacity of an existing facility of one of these types of capital improvements.

#### **4.10 Maintenance Tax**

**4.11** Chapter 56, Paragraph 242 of the Texas Water Code provides for Drainage Districts

to issue “negotiable notes payable” in order to maintain, repair, and preserve district improvements and to pay legal debts, demands, and obligations of the District. The notes are secured by a portion of the maintenance tax assessed annually on property owners within the District. The services of legal counsel and financial advisor(s) is necessary for this funding option.

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

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### 5.1 Conclusions

Cow Bayou and Adams Bayou drain roughly half of Orange County which has an area of approximately 380 square miles. Both channels drain large areas and their discharges pass through the cities of Orange (Adams Bayou) and Bridge City (Cow Bayou). Additionally, Cow Bayou drains a large area (approx. 75 sq. mi.) in Jasper County which is conveyed through Orange County. Additionally, the terrain is flat (.11%) not unlike other coastal plain regions. Accordingly, developing cost beneficial drainage solutions in a county with a population less than 100,000 is a challenging subject.

The primary goal of the study, simply stated, is to develop structural and non-structural alternatives which would mitigate the flooding impacts from a 100 year rainfall event. To address the primary goal of the study, a new hydrologic and hydraulic model was created for Adams Bayou and an existing model for Cow Bayou was updated. A series of potential projects were identified and were entered into the models.

An environmental review of the channel reaches and drainage areas provided constraints which eliminated the possibility of channelization of the main channel reaches and many of the tributaries. The primary structural alternative identified is detention of runoff in basins of varying size. A list of non-structural alternatives was also developed which will likely become an integral part of the overall flood control strategy for the Orange County Drainage District.

## 5.2 Recommendations

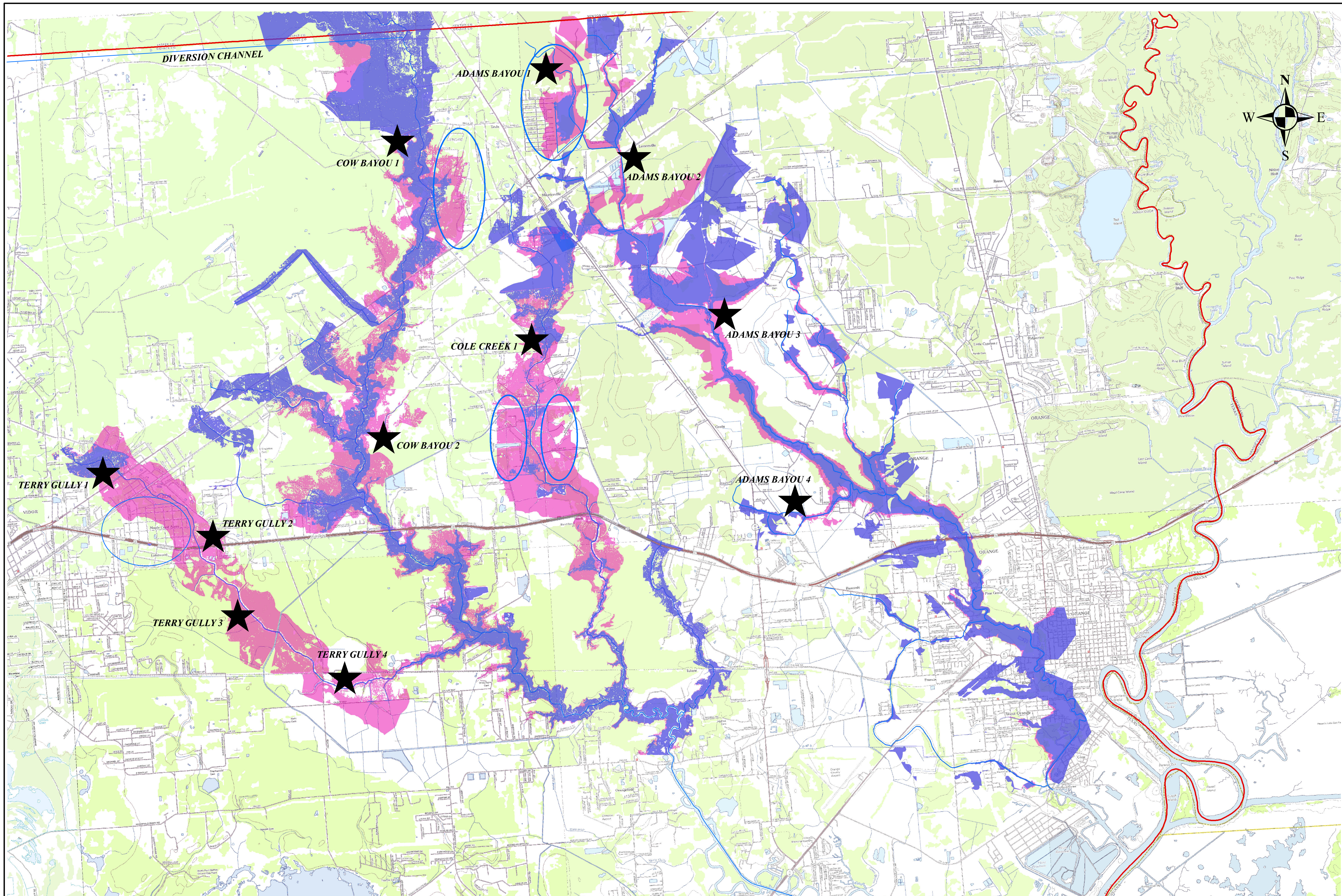
The flood protection alternatives listed in Section 3 address the objectives of this study. Because of the high estimated cost of the majority of the structural measures, prioritization of the measures was not conducted. The District will need to develop a comprehensive strategy for flood control based on the proposed structural and non-structural measures identified.

Some specific recommendations are listed in non-prioritized order.

- Conduct detailed benefit-cost analyses for the less expensive projects to identify possible grant funding opportunities
- Begin detailed evaluation of the Cow Bayou flow diversion and investigate possible funding strategies
- Proceed with the development of a Master Drainage Plan to establish legal authority according to Texas Water Code 49-211
- Evaluate installation of a flood warning/data collection system, possibly on an annually budgeted basis
- Evaluate the construction of detention ponds utilizing the personnel and equipment of the Orange County Drainage District. By constructing the ponds “in-house”, the District should be able to realize significant cost savings instead of using bid contracted labor.

# APPENDIX A





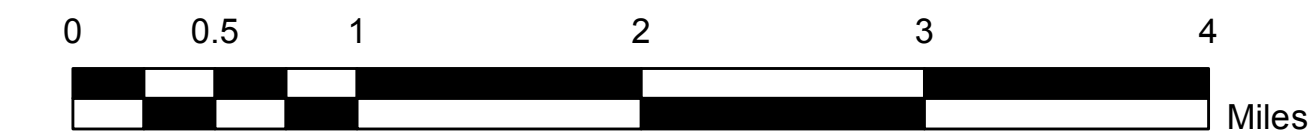
Prepared by:

**Carroll & Blackman, Inc.**

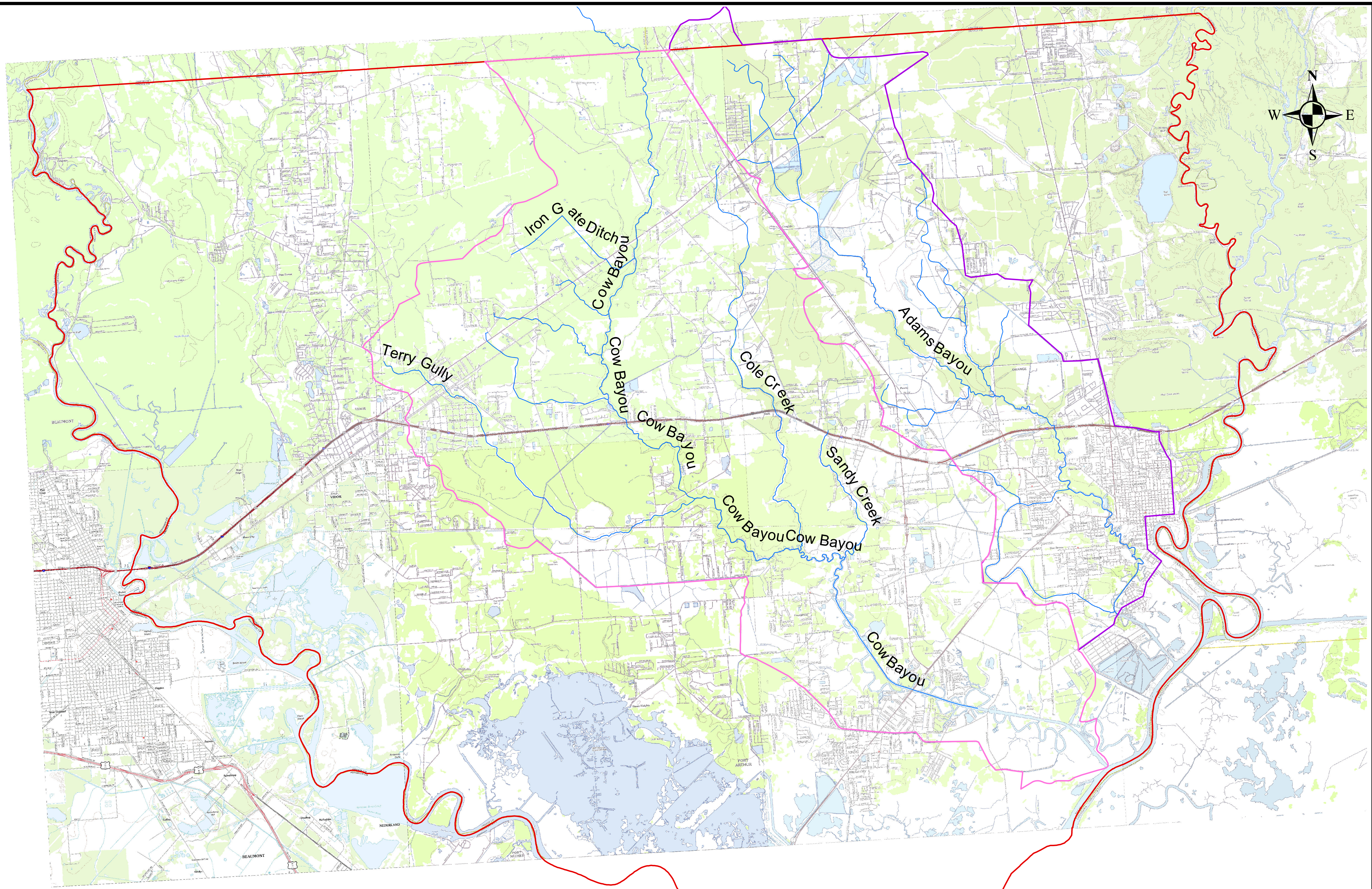
**FLOOD PROTECTION PLANNING STUDY  
COW BAYOU & ADAMS BAYOU  
EXISTING & PROPOSED 100YR FLOODPLAIN**

**Legend**

- Orange County Boundary
- Existing 100YR Floodplain
- Proposed 100yr Floodplain
- ★ Potential Improvement Locations



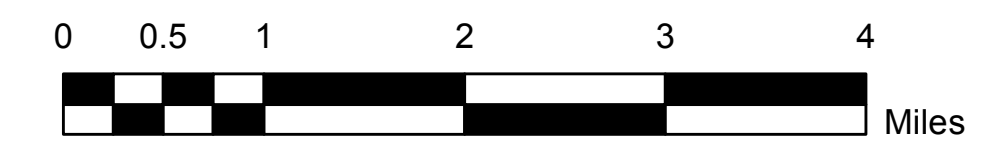




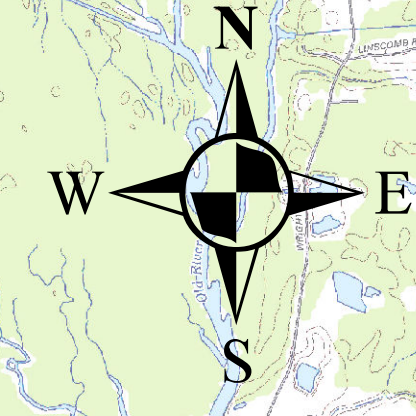
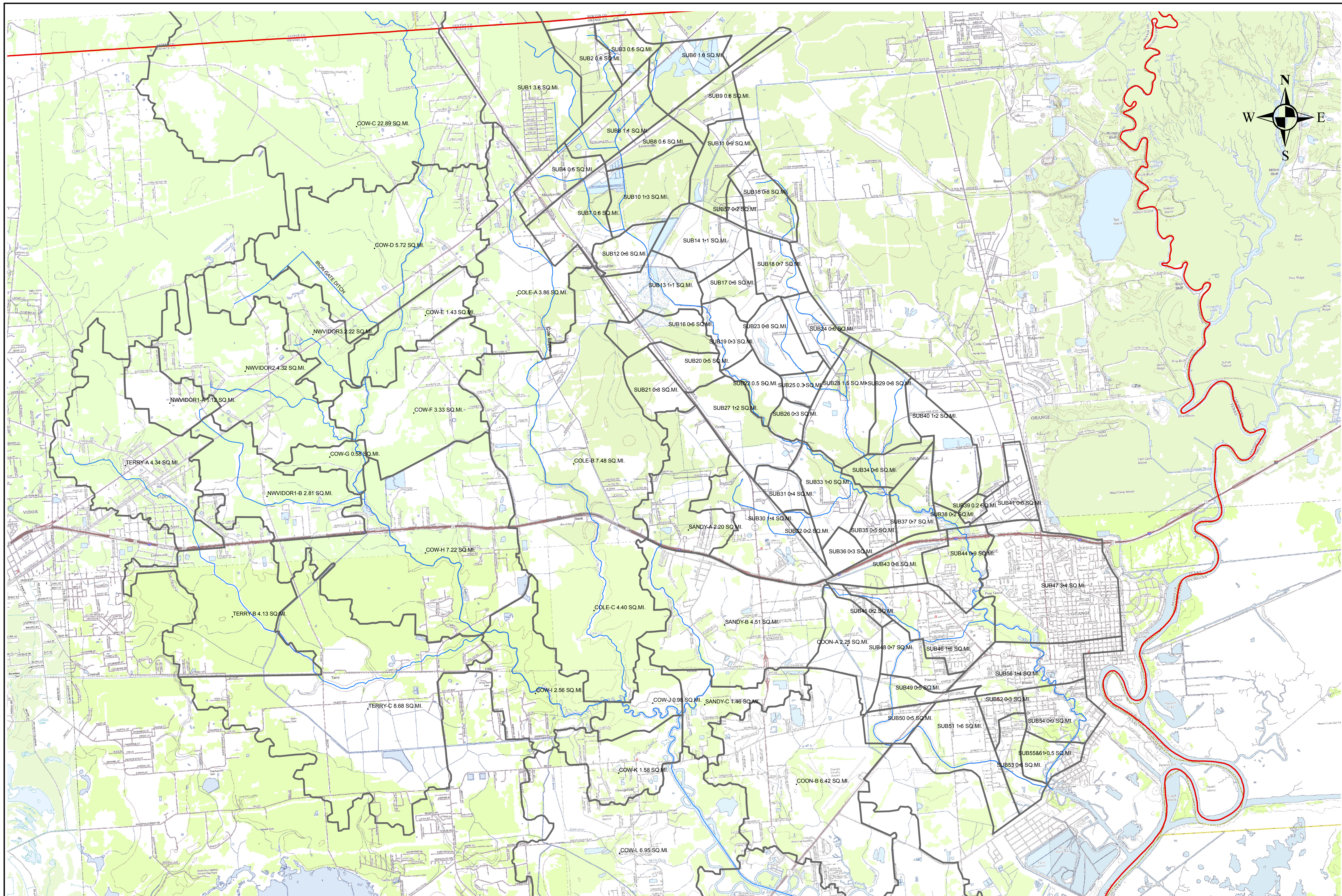
**FLOOD PROTECTION PLANNING STUDY**  
**COW BAYOU & ADAMS BAYOU**  
**WATERSHED MAP**

Prepared by:  
**Carroll & Blackman, Inc.**

- Legend**
- ▭ Orange County Boundary
  - ▭ Cow Bayou Watershed
  - ▭ Adams Bayou Watershed





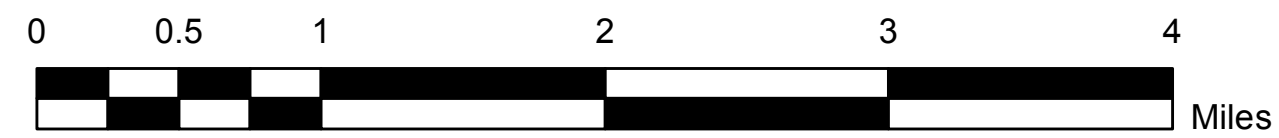


**FLOOD PROTECTION PLANNING STUDY**  
**COW BAYOU & ADAMS BAYOU**  
**SUB-BASIN MAP**

Prepared by:  
**Carroll & Blackman, Inc.**

**Legend**

- Orange County Boundary
- SUB-BASIN AREAS



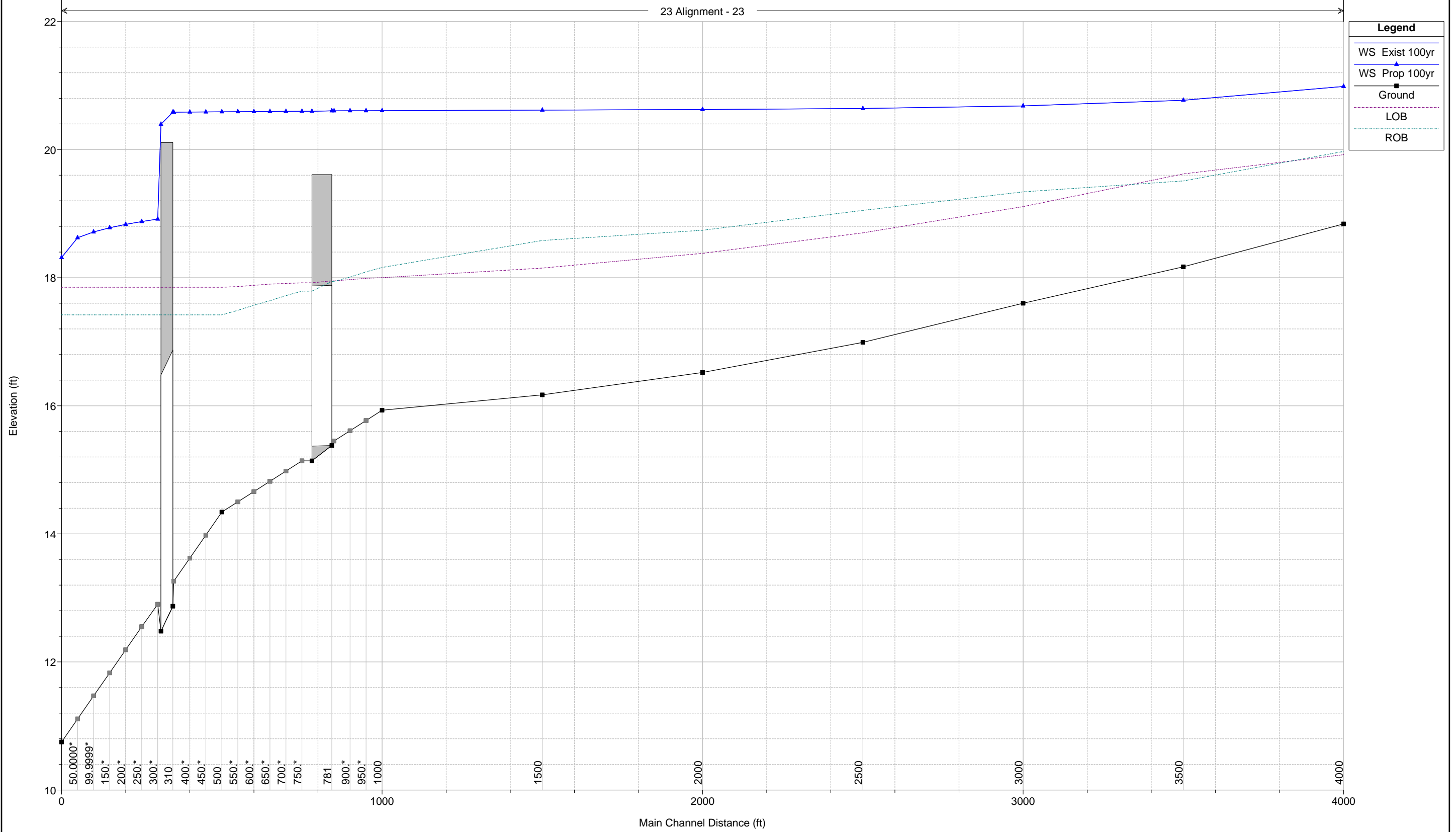


# **APPENDIX B**

# ADAMS-IMPROV

Geom: Existing Conditions with IMPROV Flow: 100 Year Storm-IMPROV

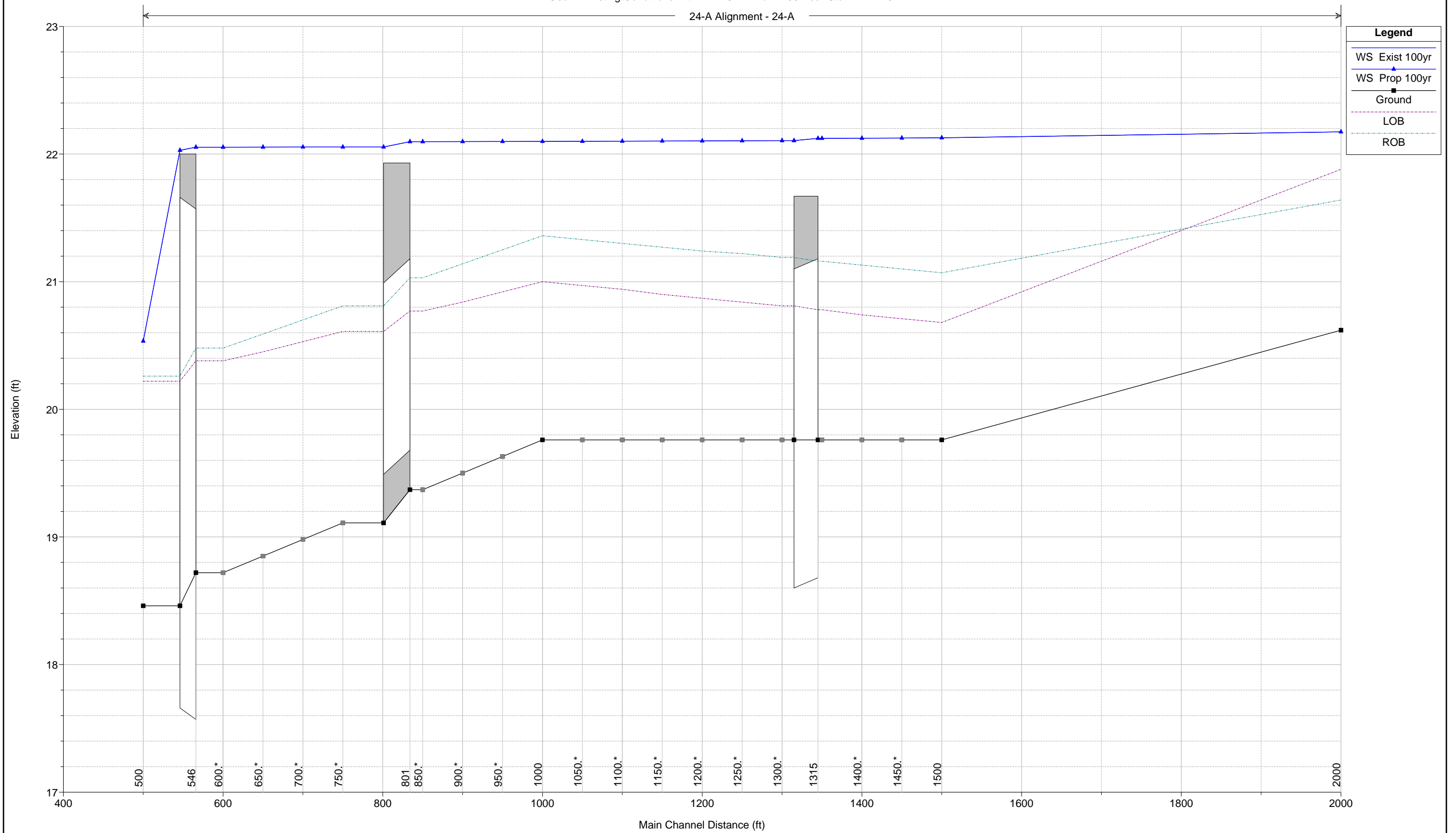
23 Alignment - 23



# ADAMS-IMPROV

Geom: Existing Conditions with IMPROV Flow: 100 Year Storm-IMPROV

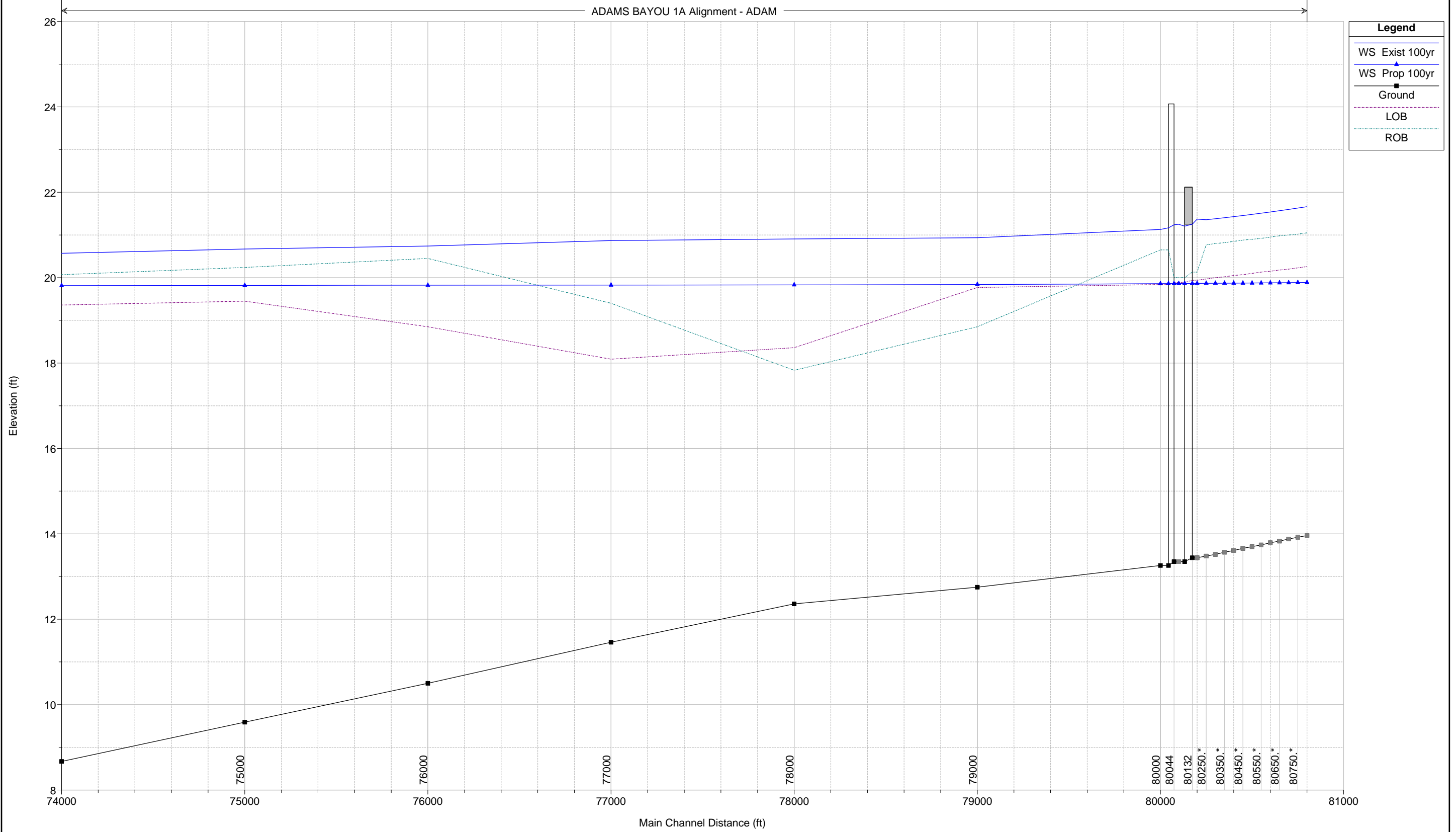
24-A Alignment - 24-A

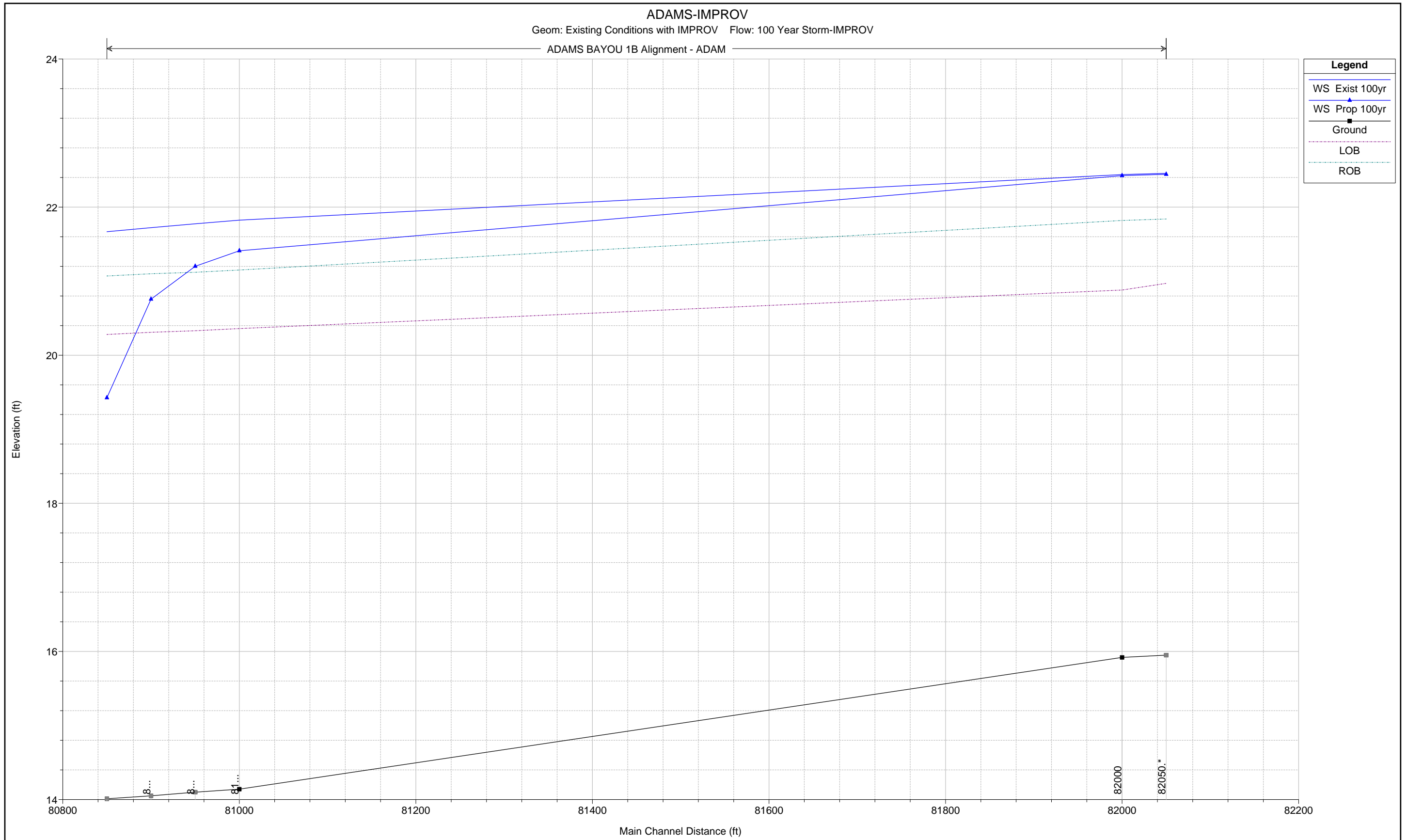


### ADAMS-IMPROV

Geom: Existing Conditions with IMPROV Flow: 100 Year Storm-IMPROV

ADAMS BAYOU 1A Alignment - ADAM

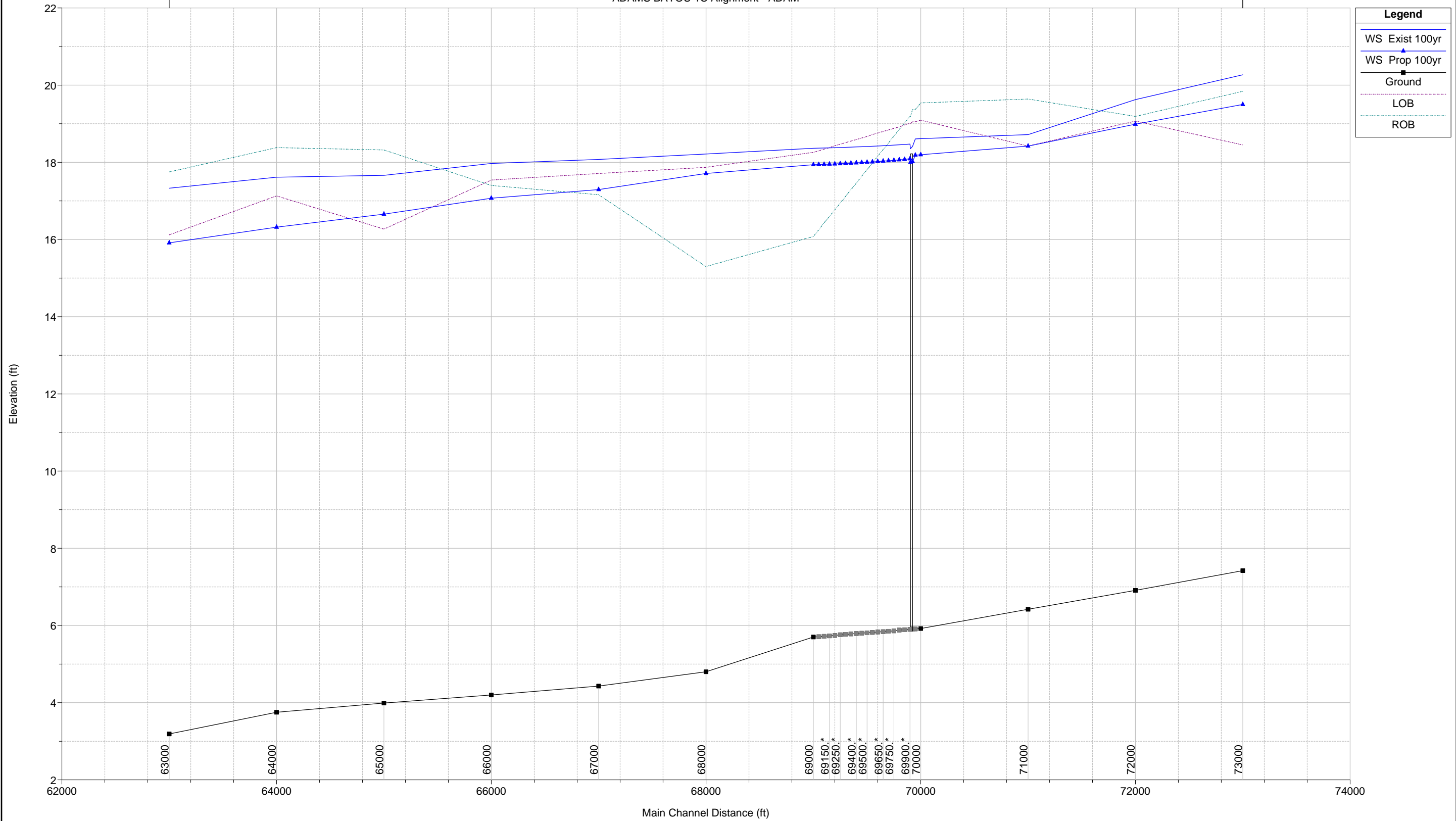


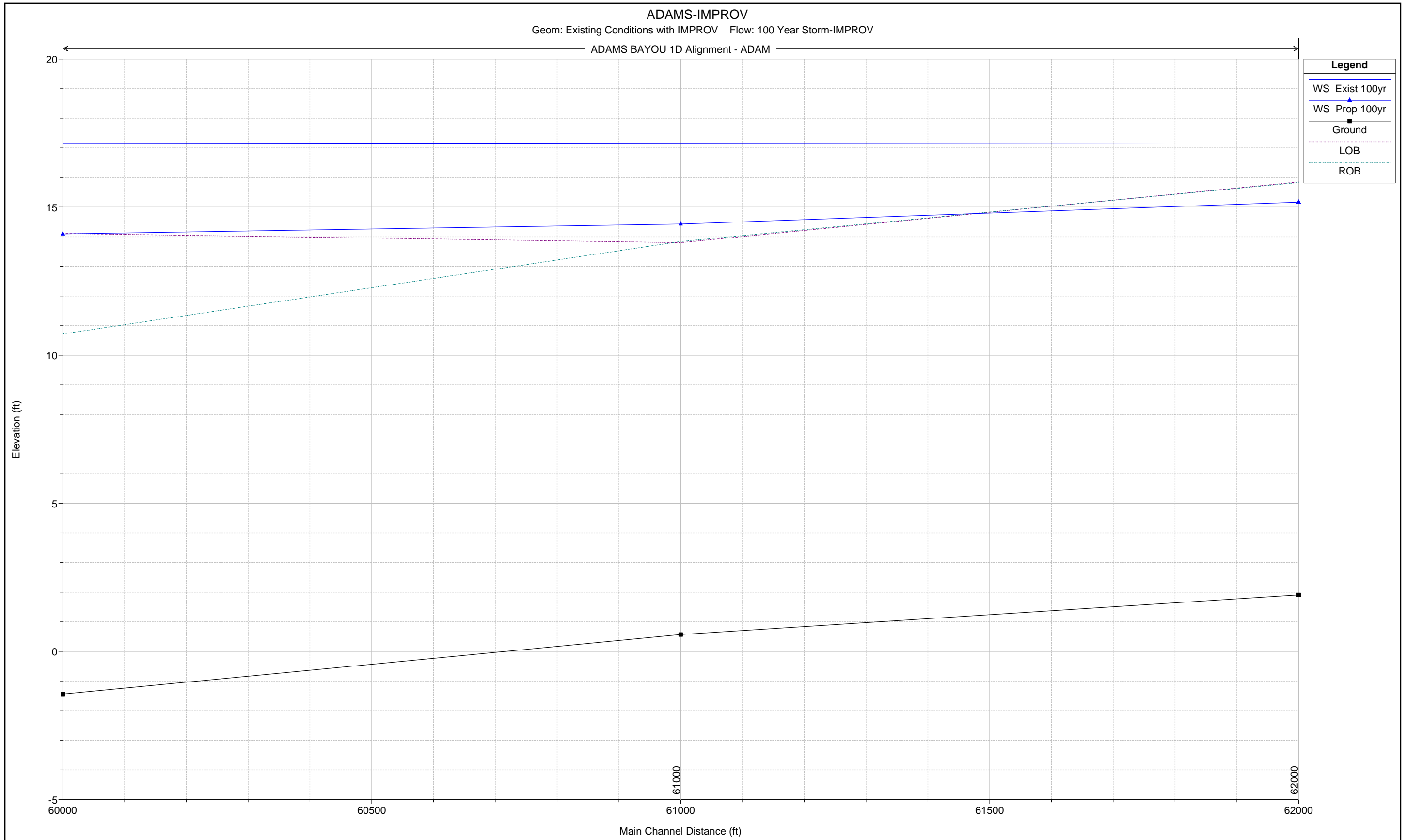


# ADAMS-IMPROV

Geom: Existing Conditions with IMPROV Flow: 100 Year Storm-IMPROV

ADAMS BAYOU 1C Alignment - ADAM

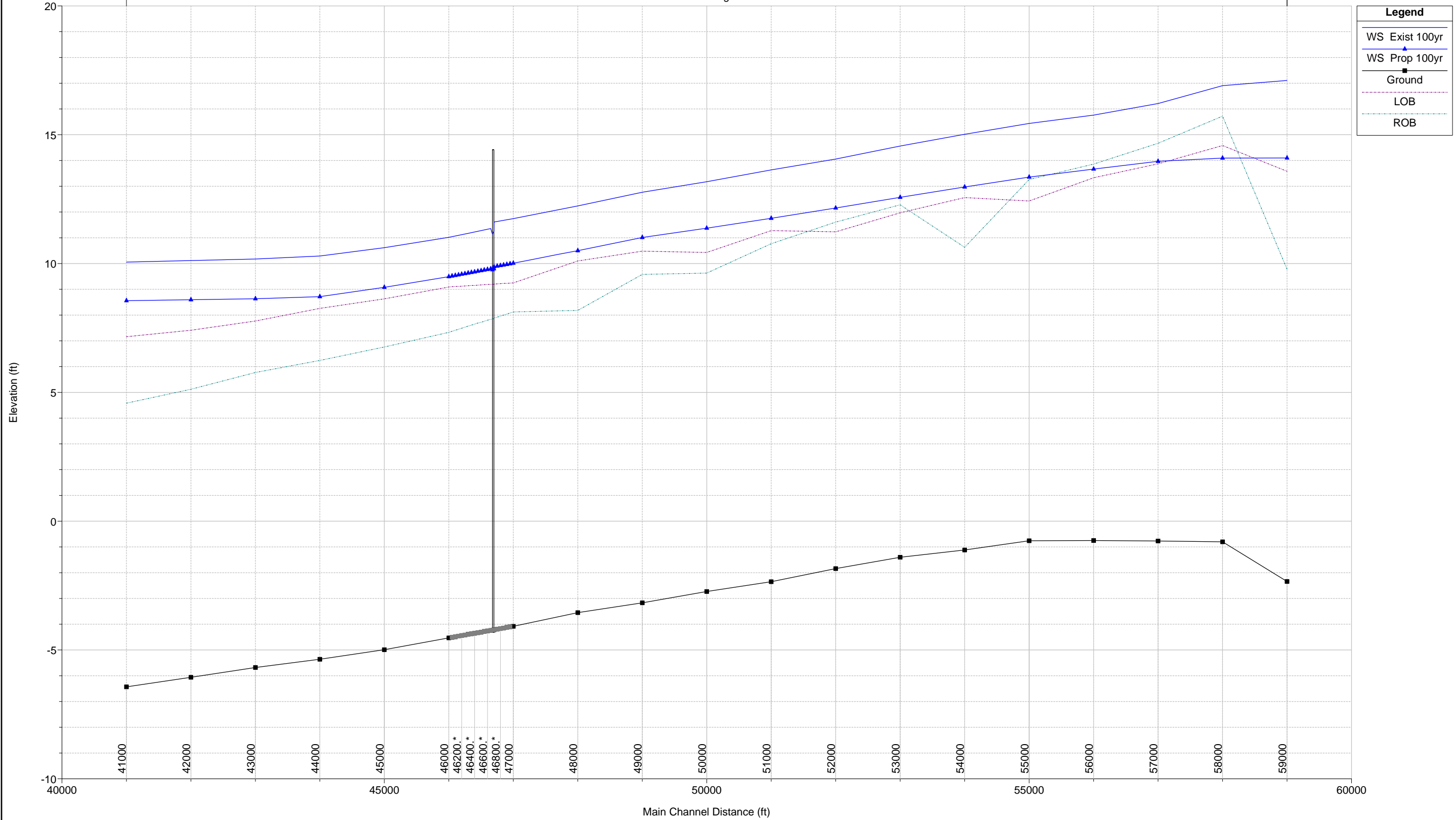




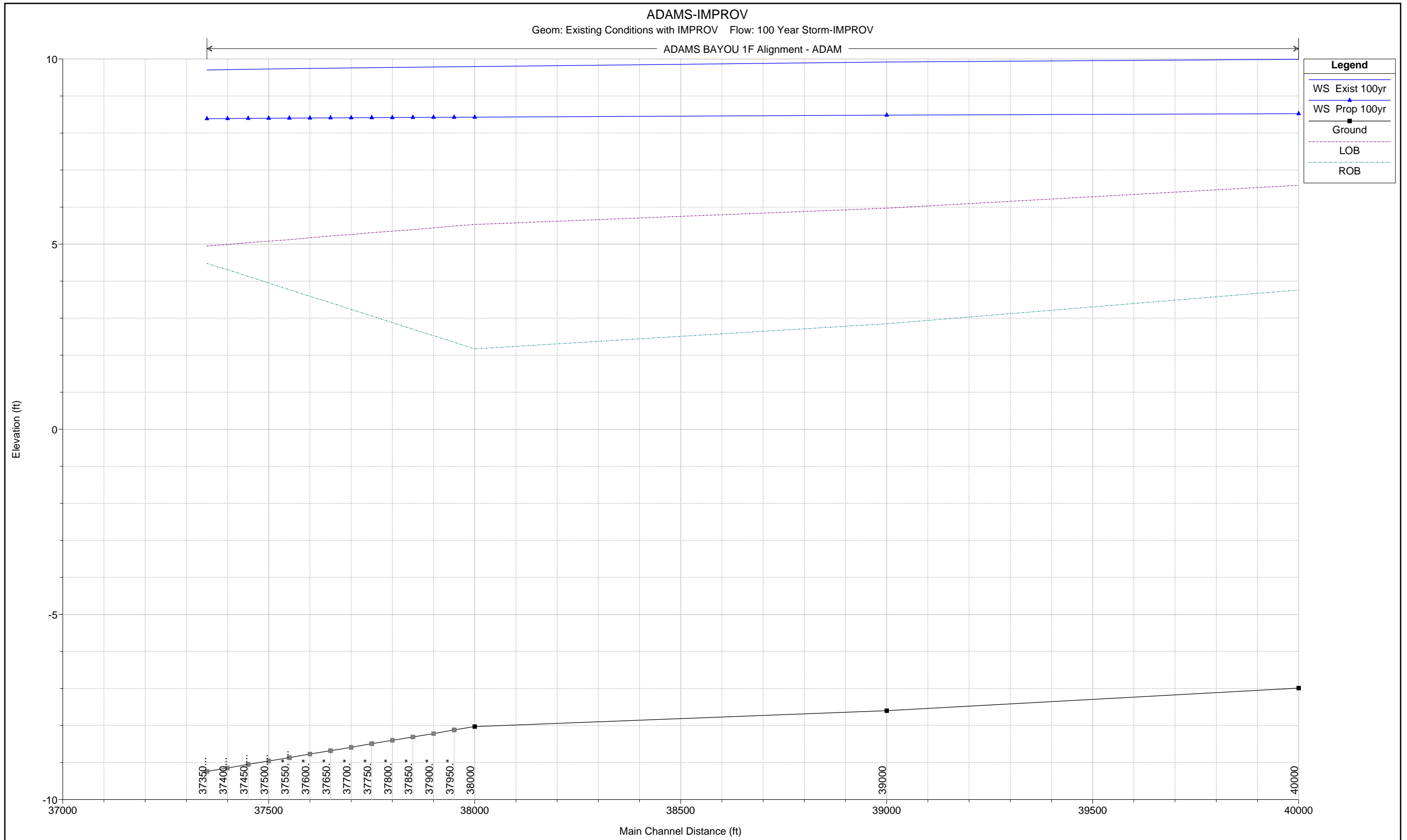
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Geom: Existing Conditions with IMPROV Flow: 100 Year Storm-IMPROV

ADAMS BAYOU 1E Alignment - ADAM



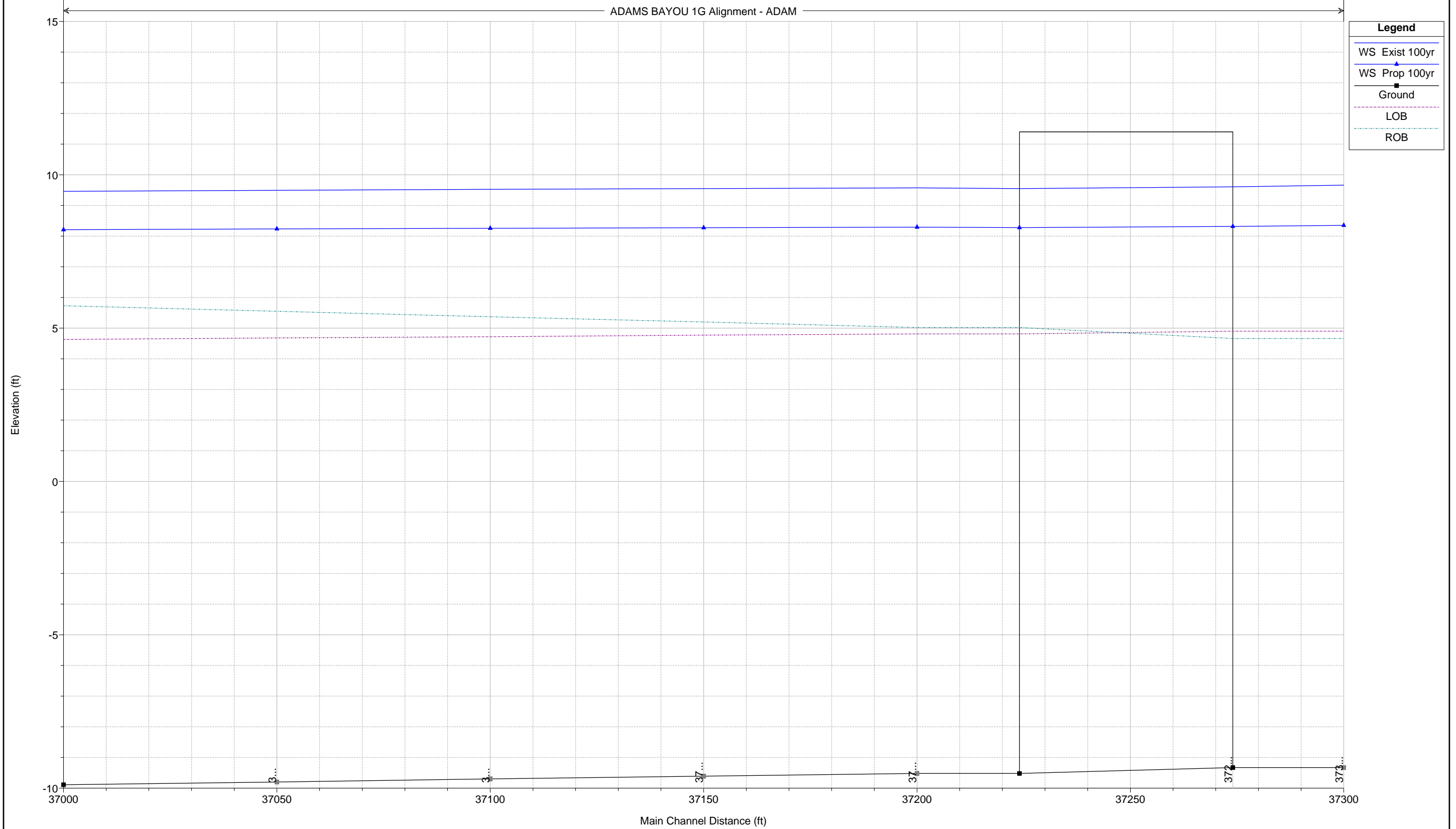


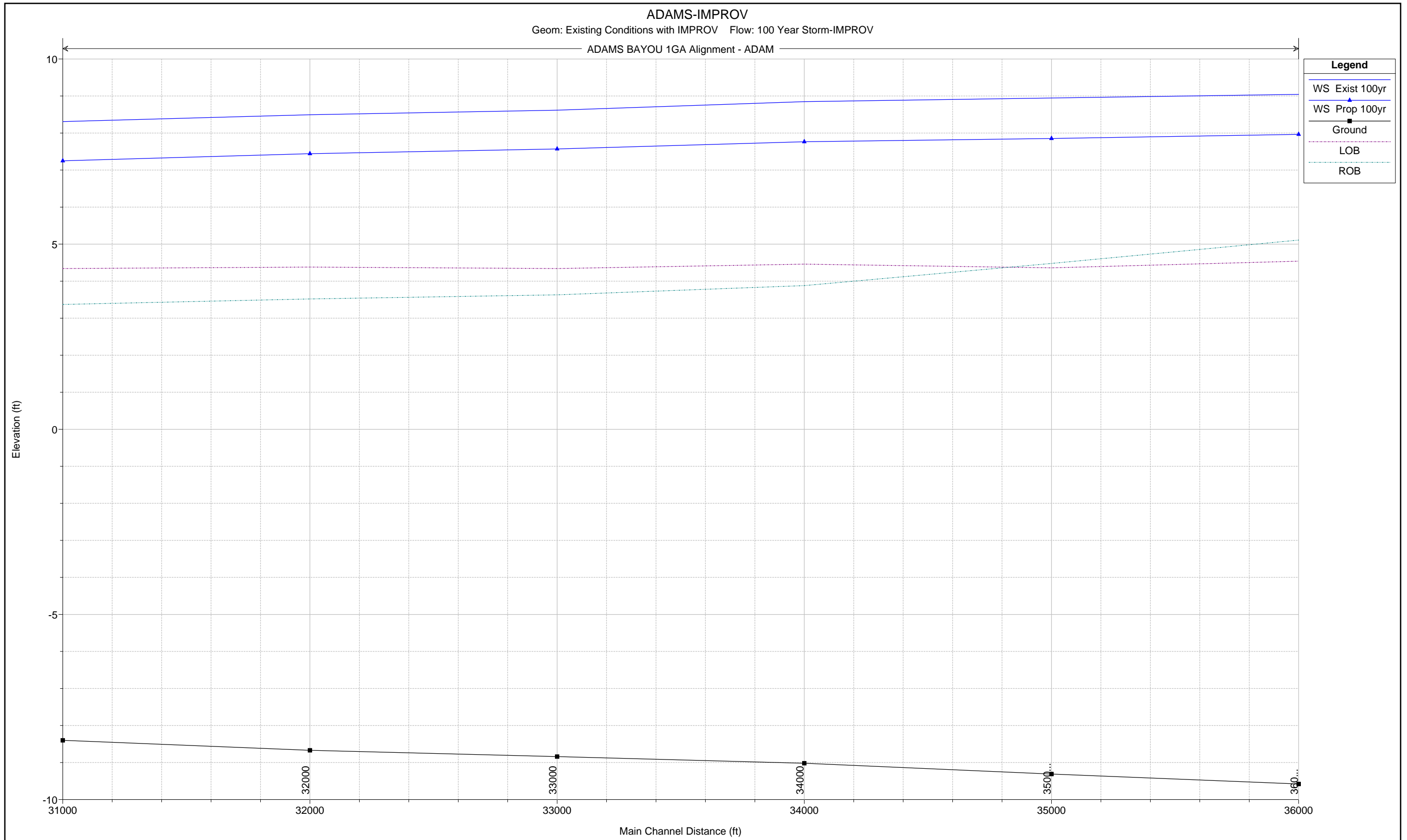


### ADAMS-IMPROV

Geom: Existing Conditions with IMPROV Flow: 100 Year Storm-IMPROV

ADAMS BAYOU 1G Alignment - ADAM

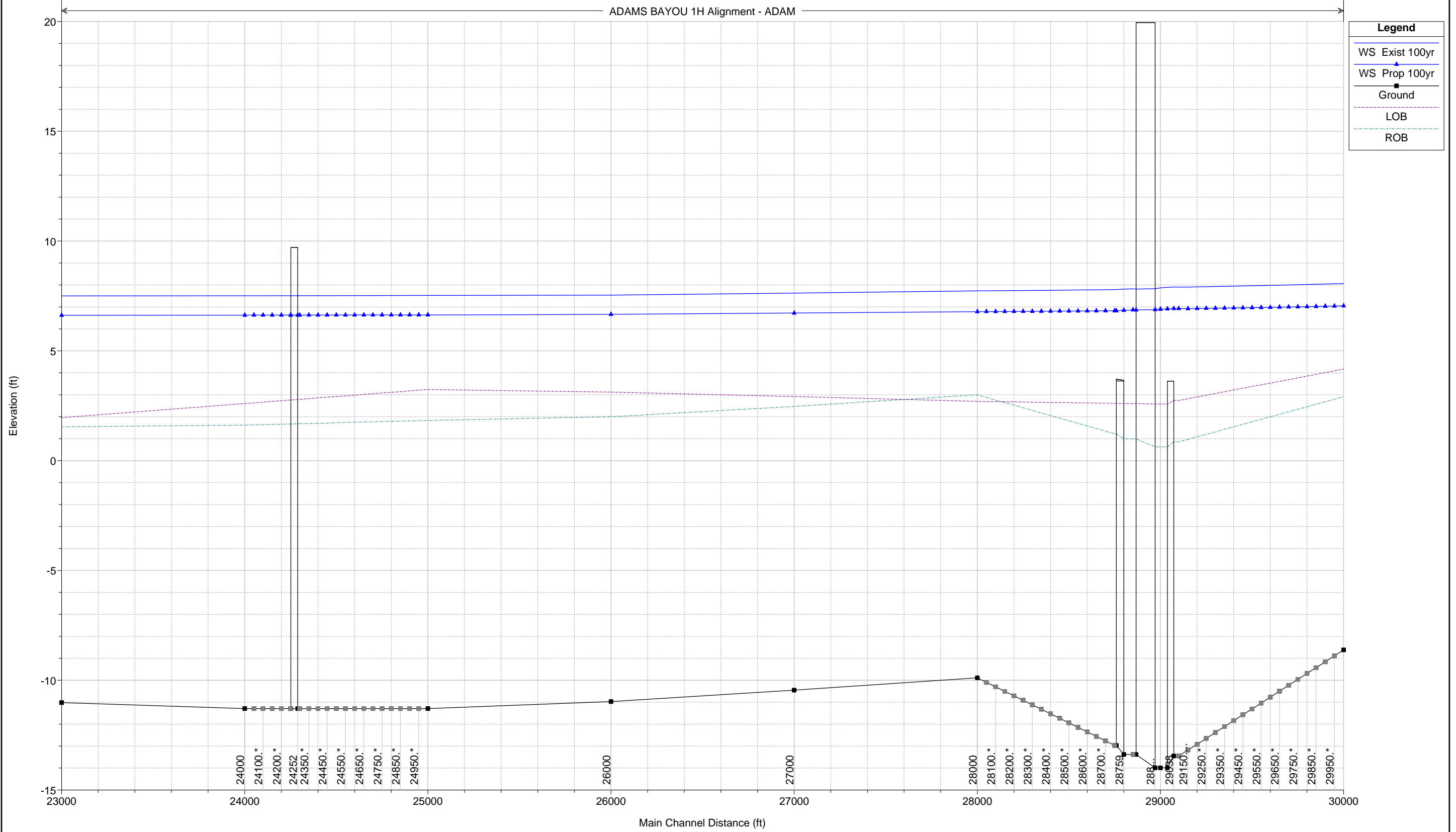


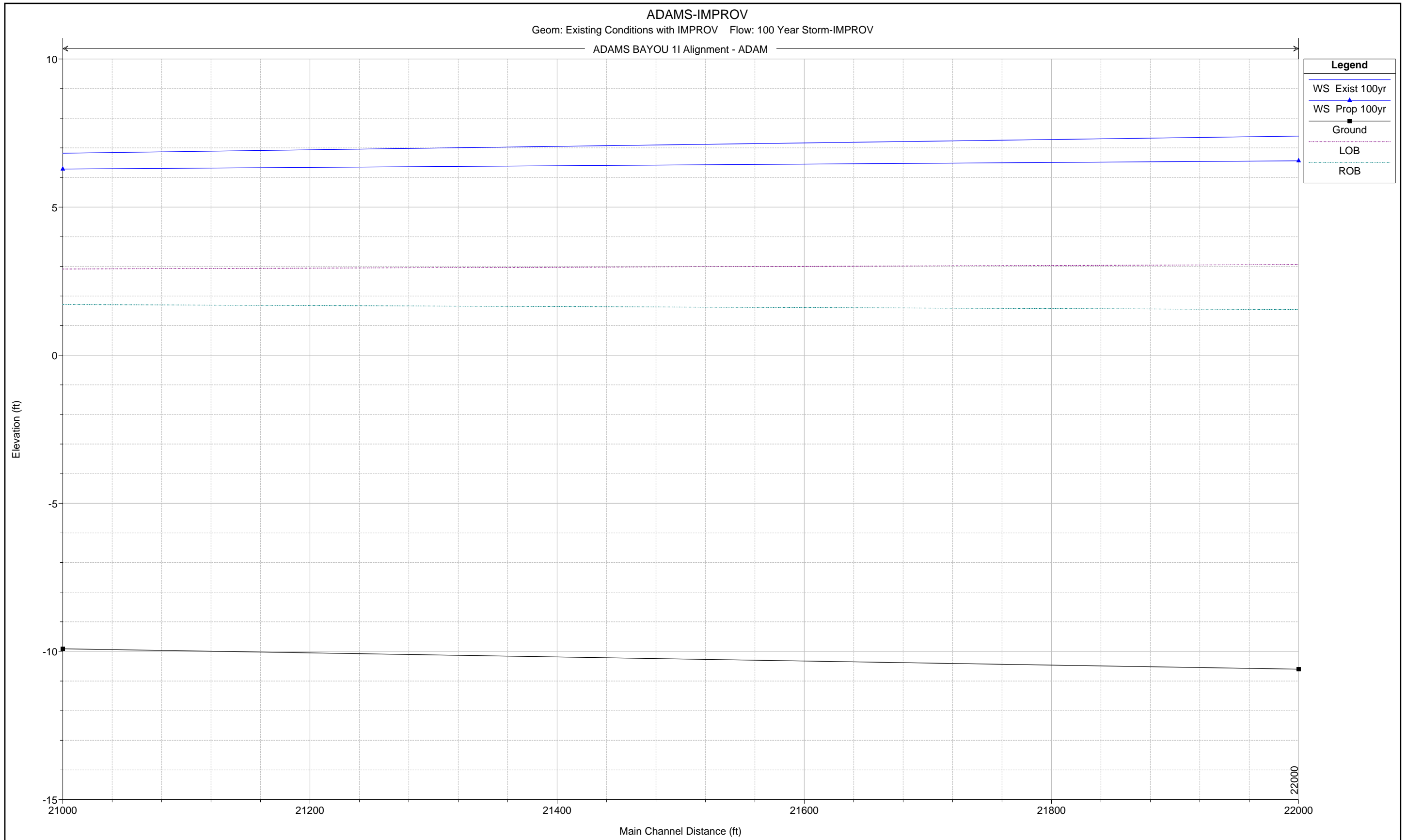


# ADAMS-IMPROV

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ADAMS BAYOU 1H Alignment - ADAM

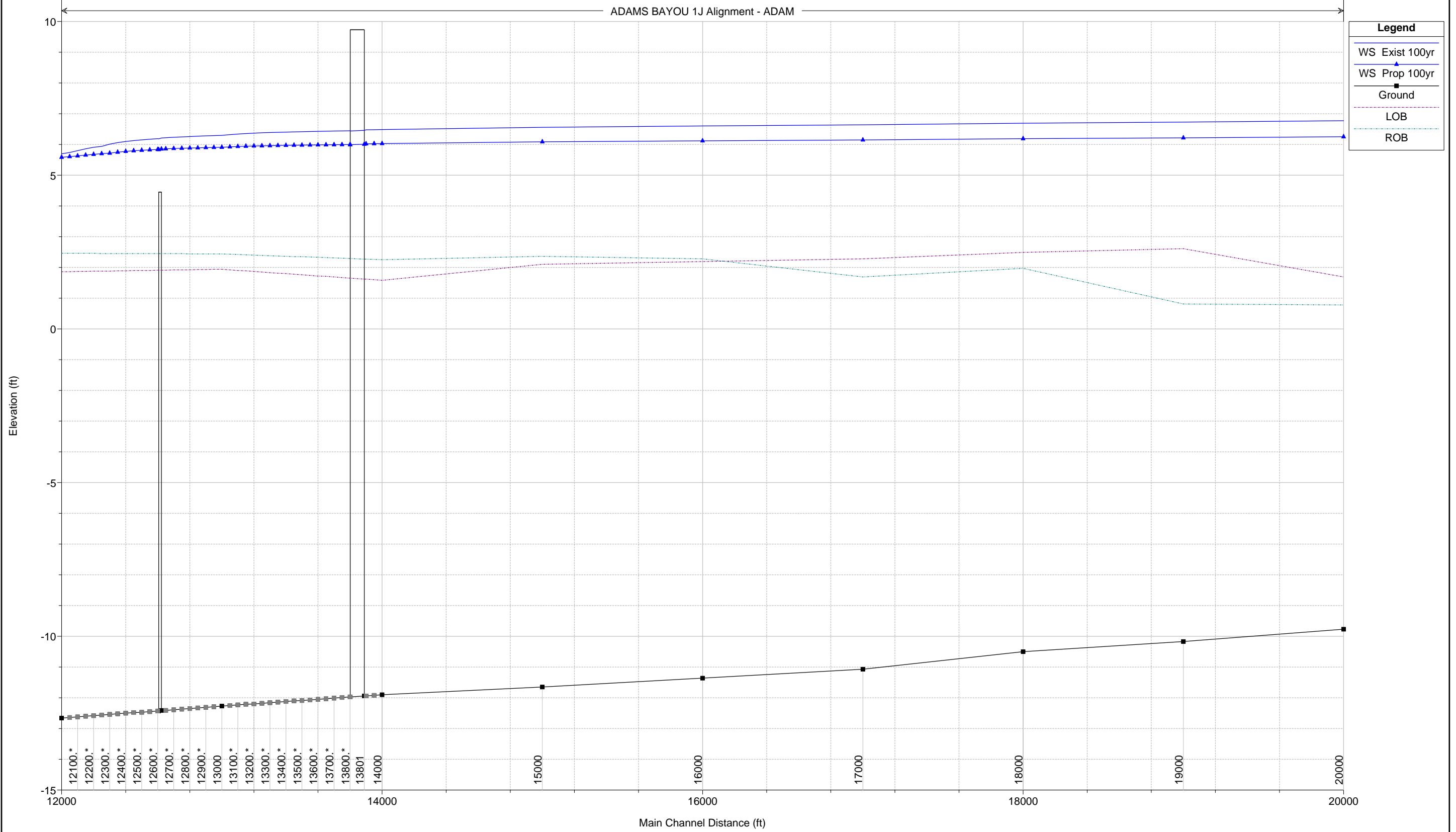


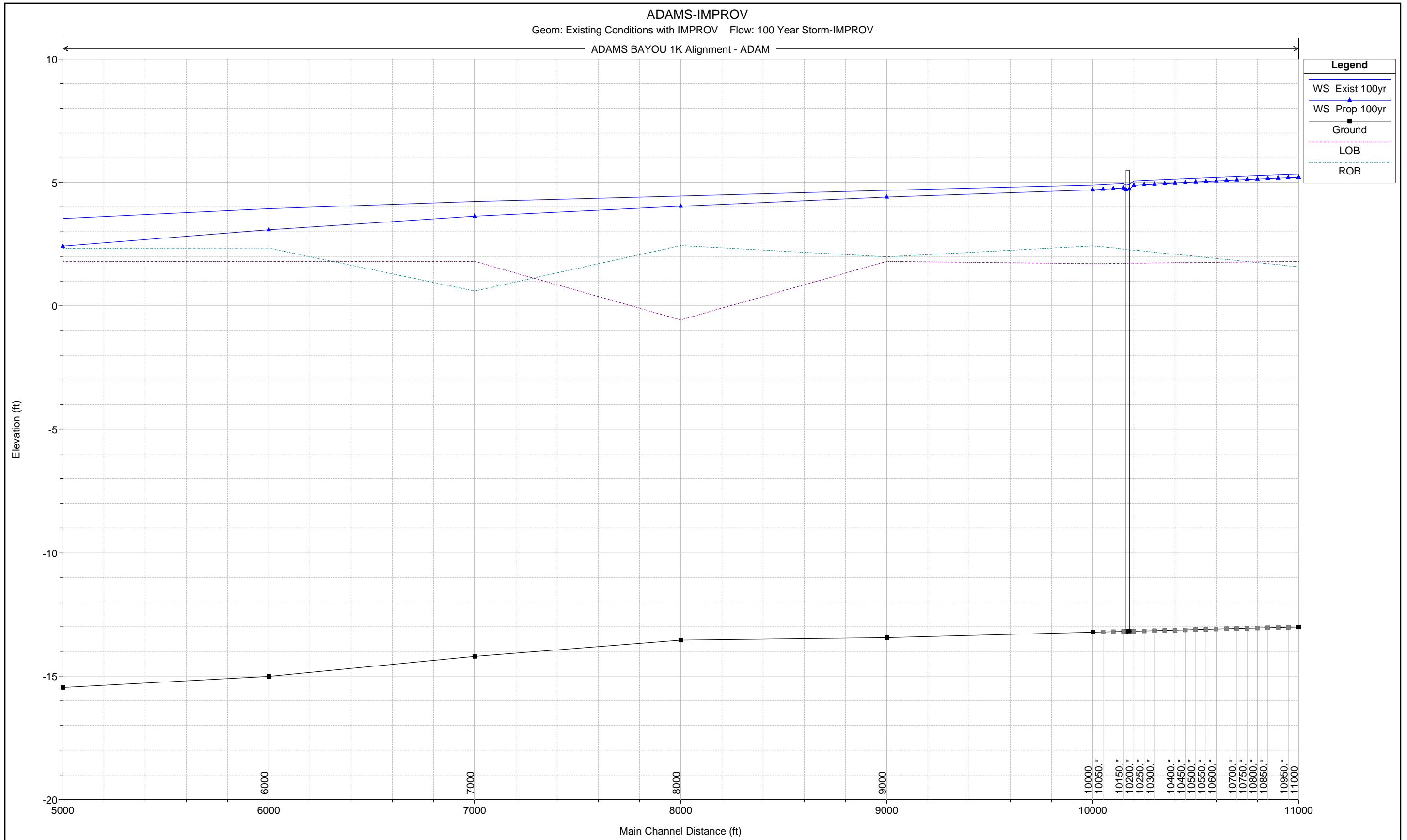


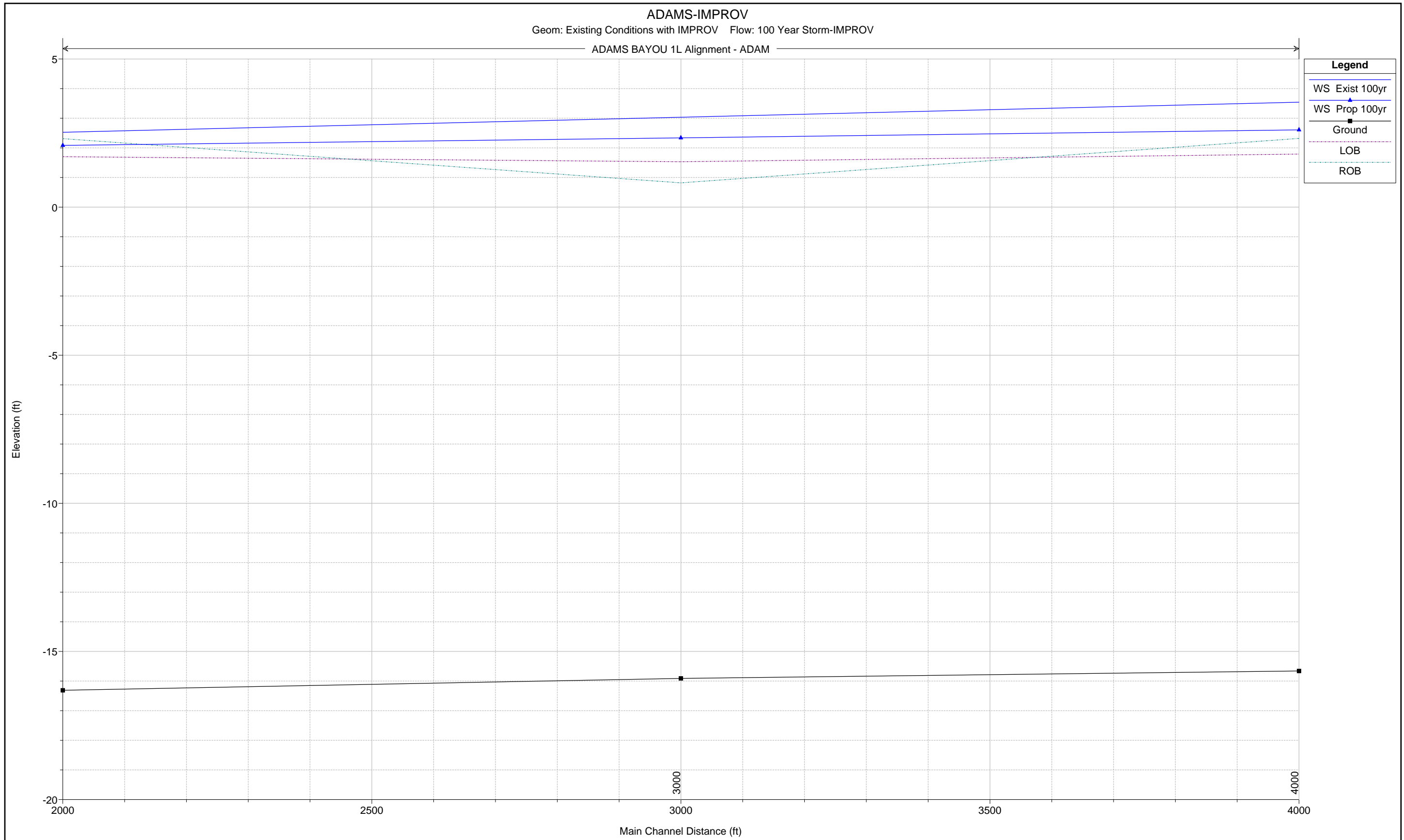
ADAMS-IMPROV

Geom: Existing Conditions with IMPROV Flow: 100 Year Storm-IMPROV

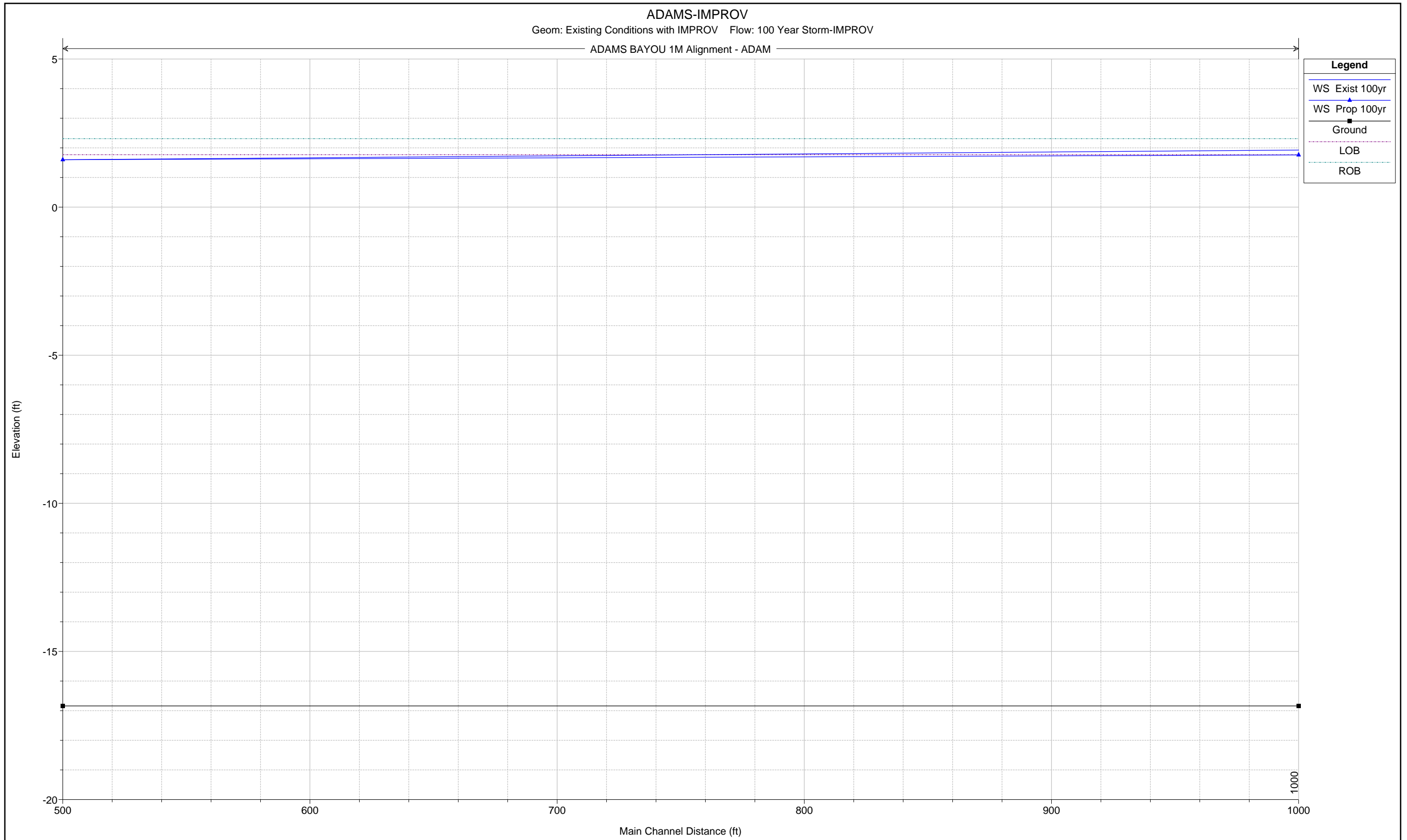
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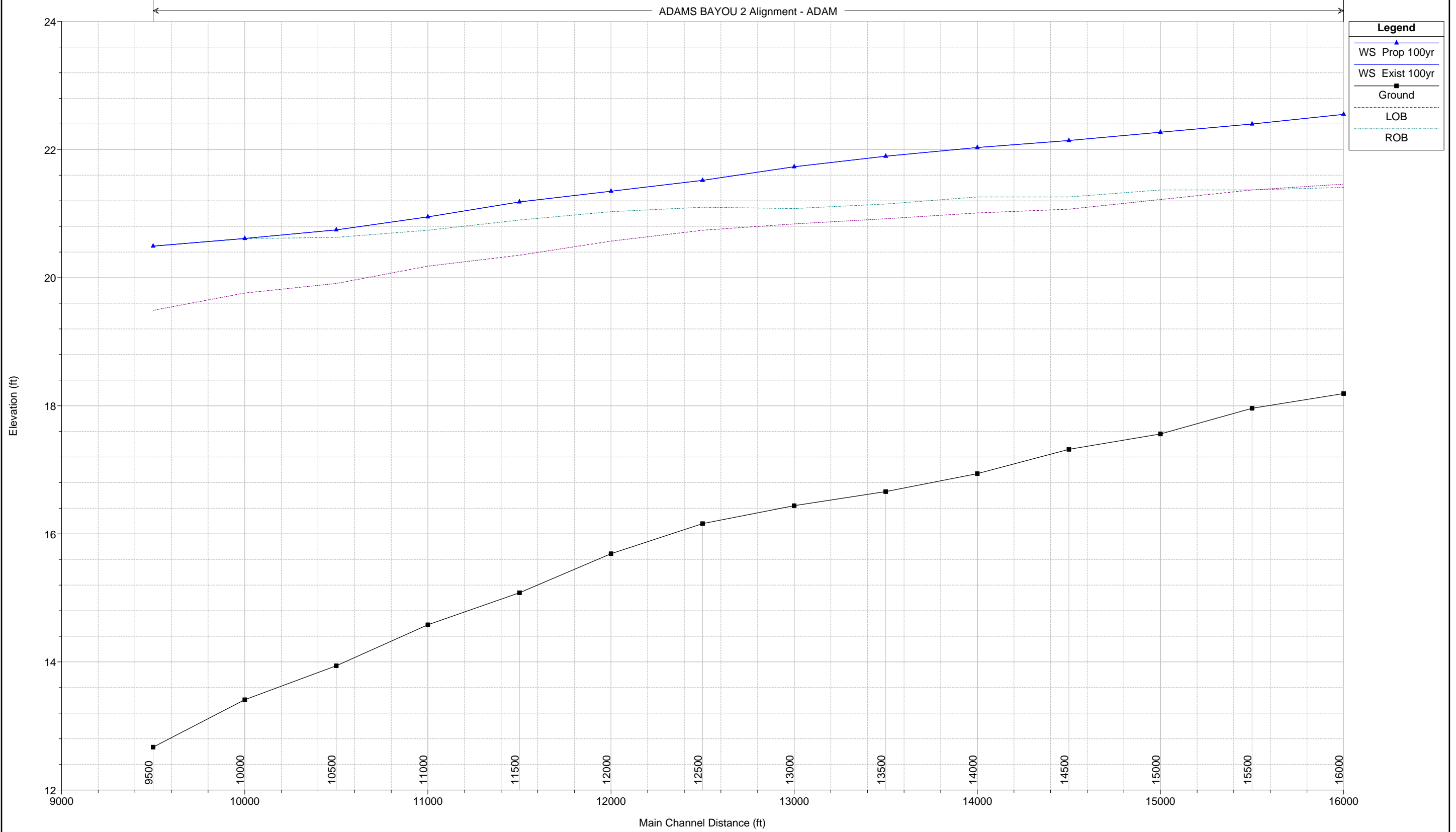




ADAMS-IMPROV

Geom: Existing Conditions with IMPROV Flow: 100 Year Storm-IMPROV

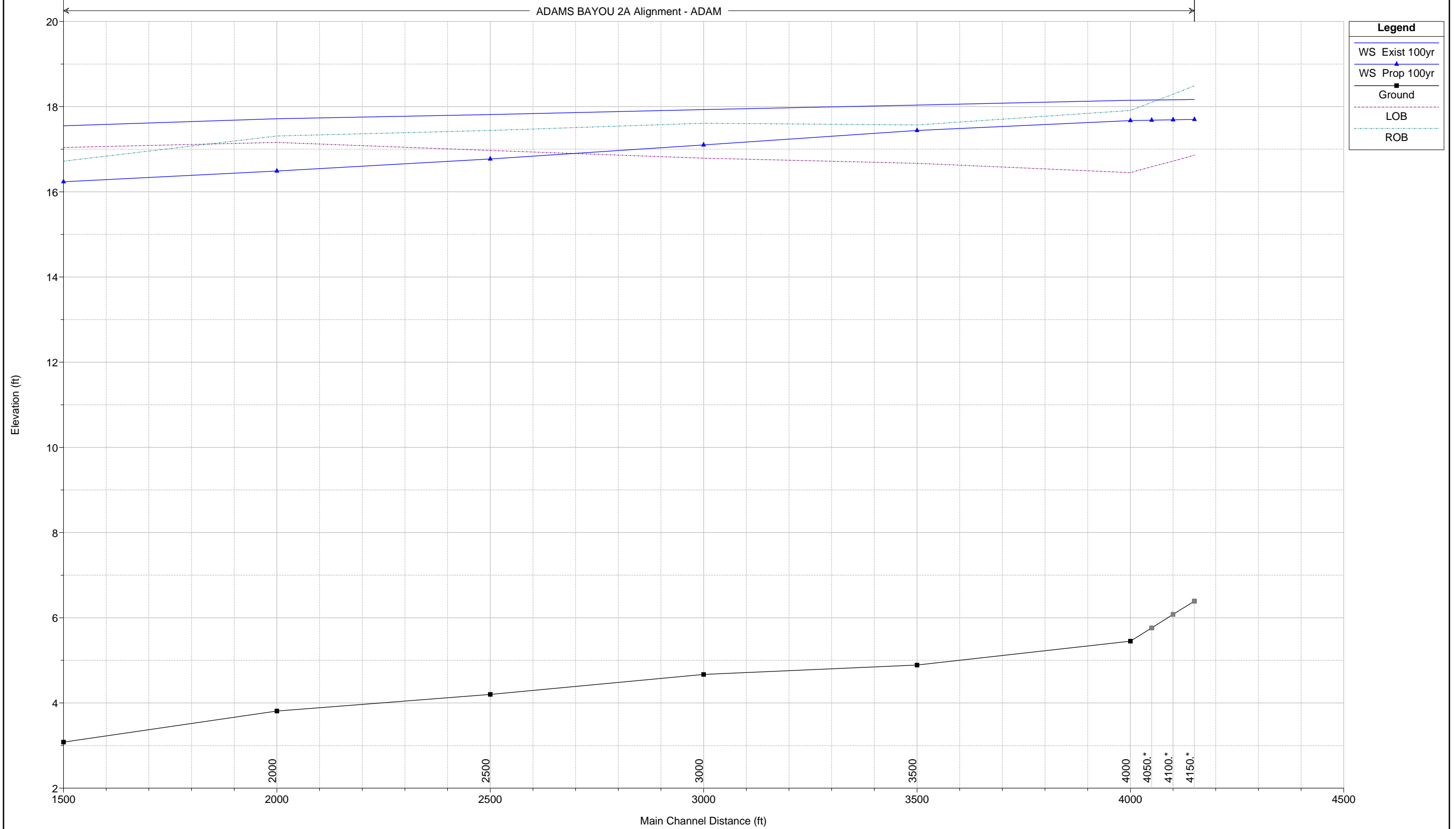
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ADAMS-IMPROV

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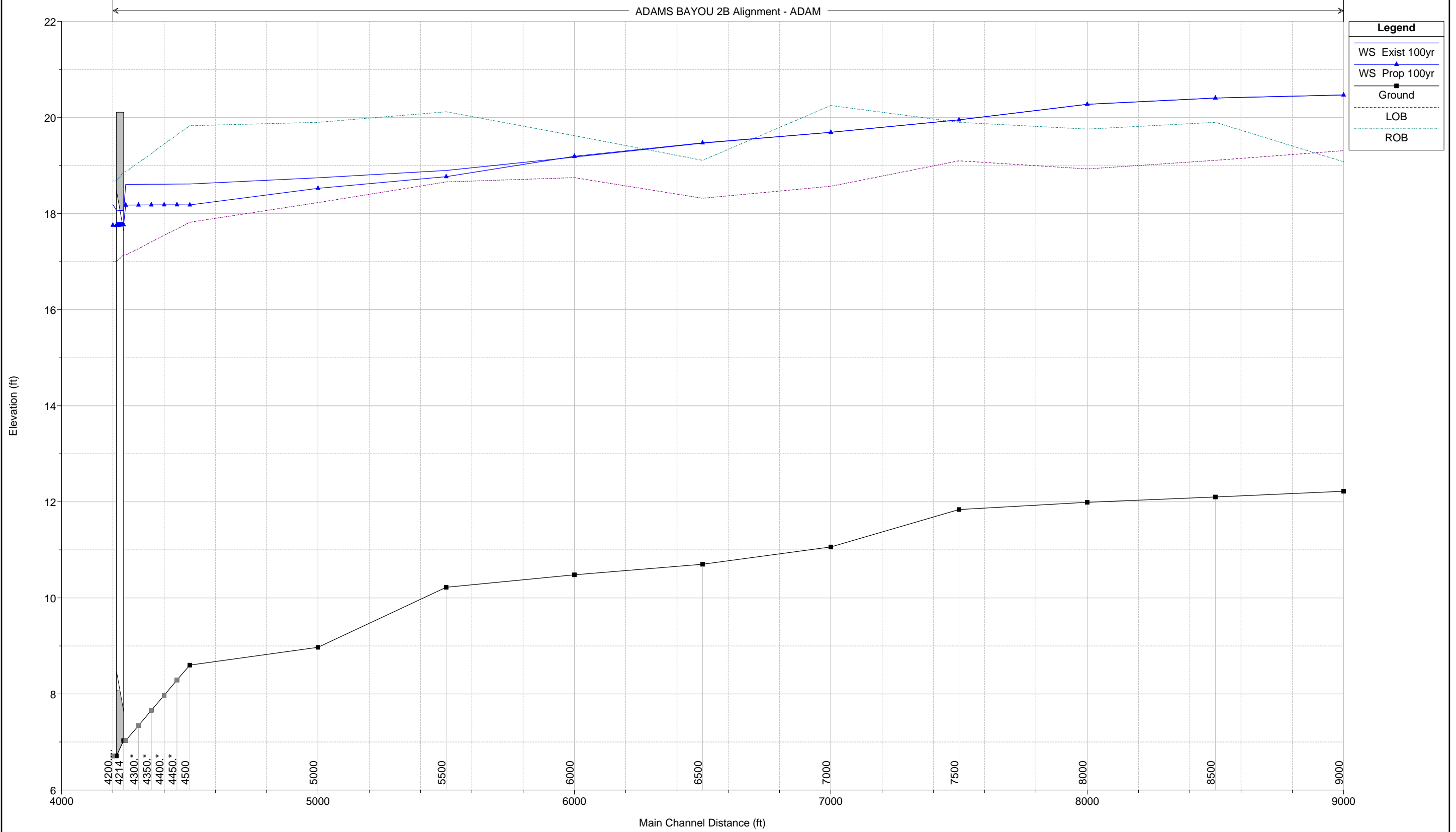
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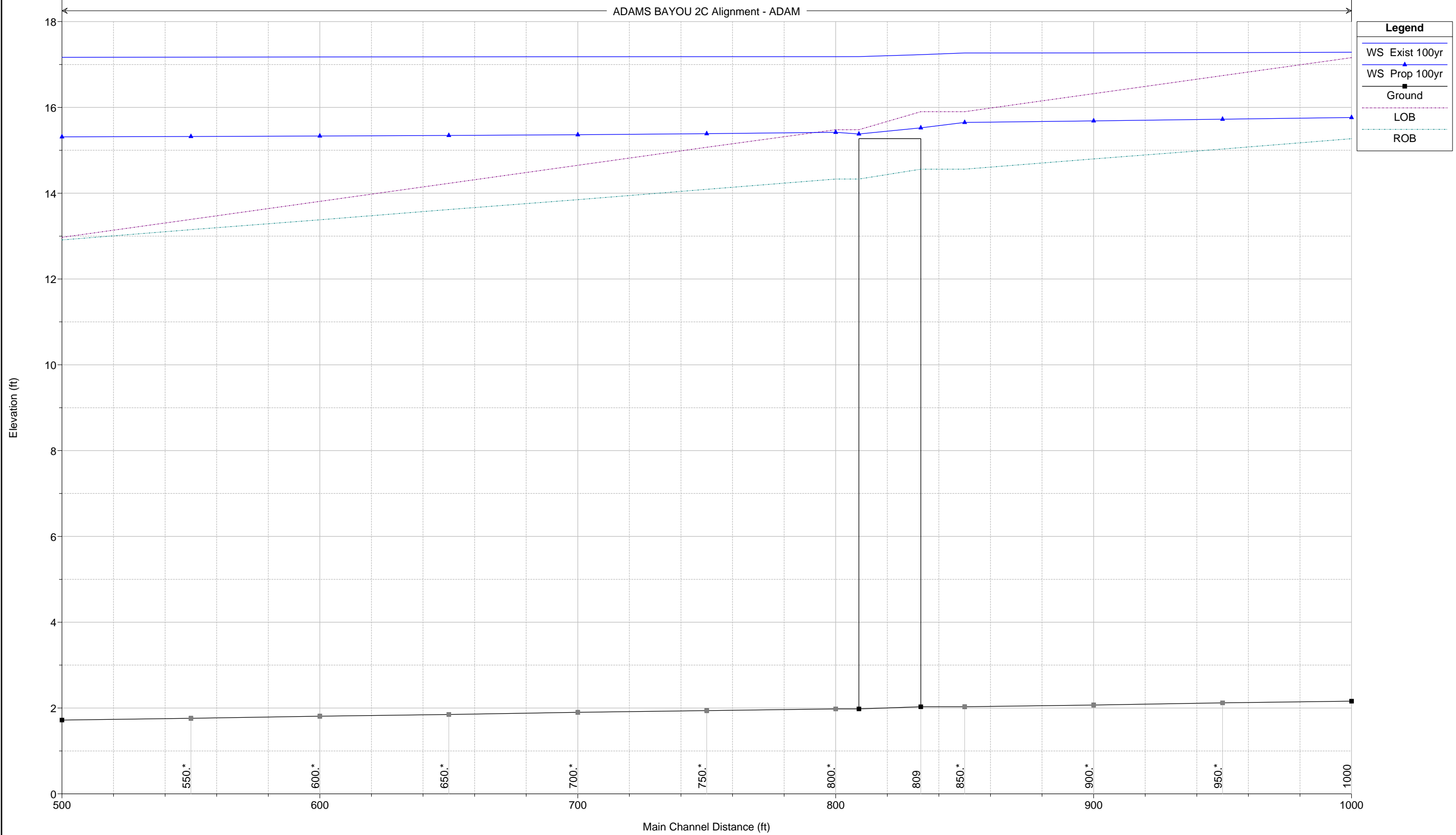
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### ADAMS-IMPROV

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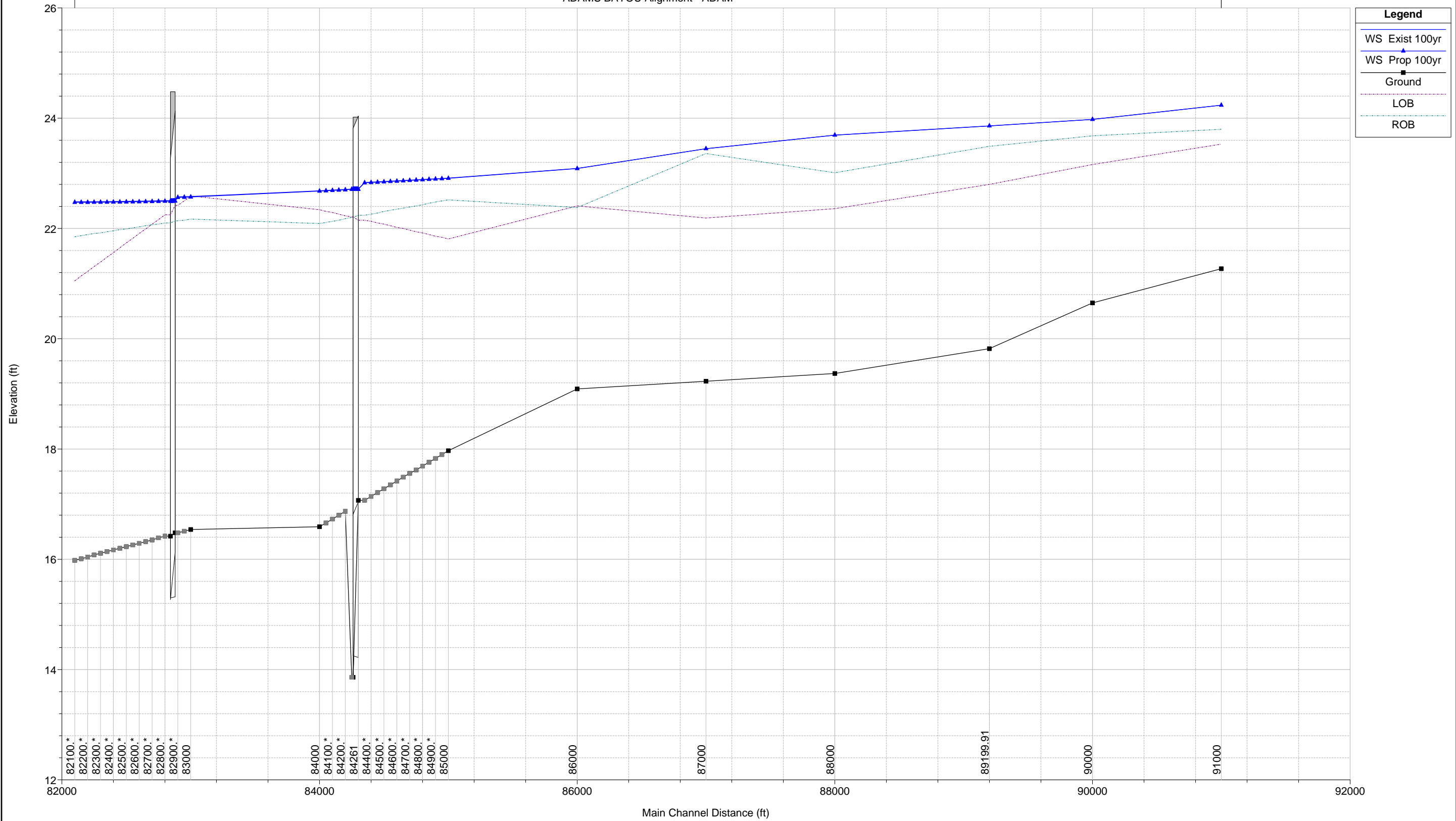
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ADAMS-IMPROV

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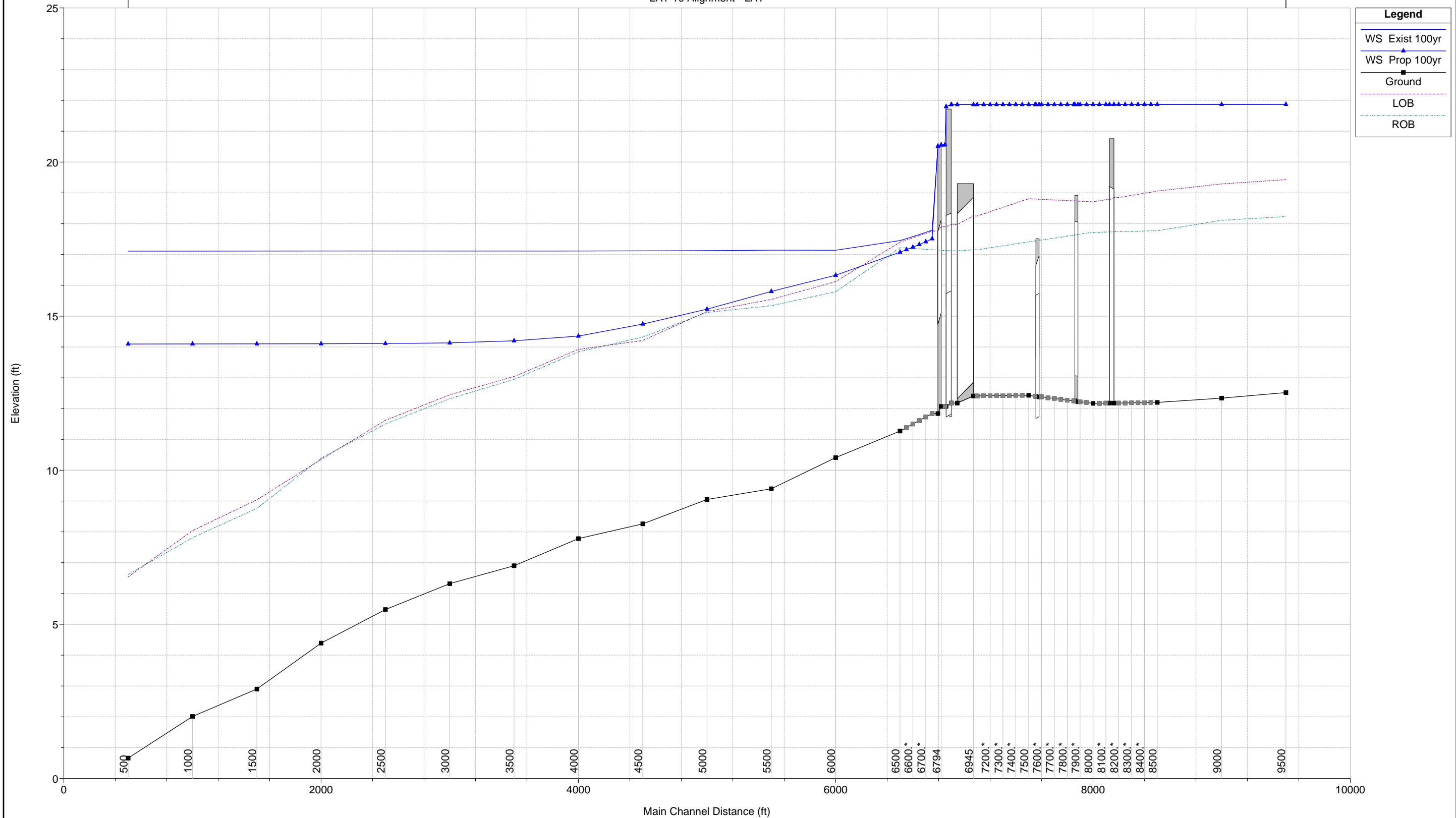
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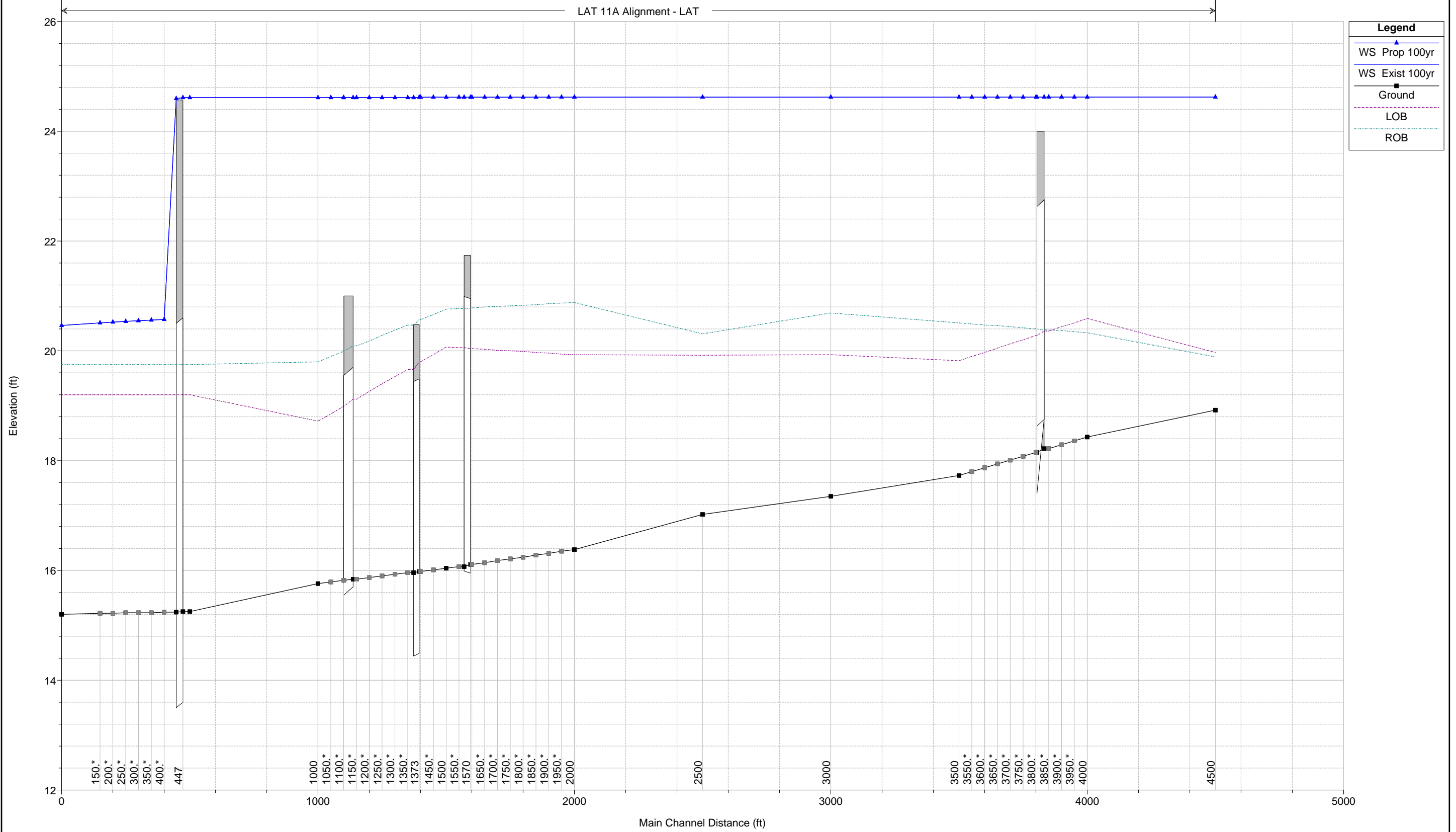
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ADAMS-IMPROV

Geom: Existing Conditions with IMPROV Flow: 100 Year Storm-IMPROV

LAT 11A Alignment - LAT

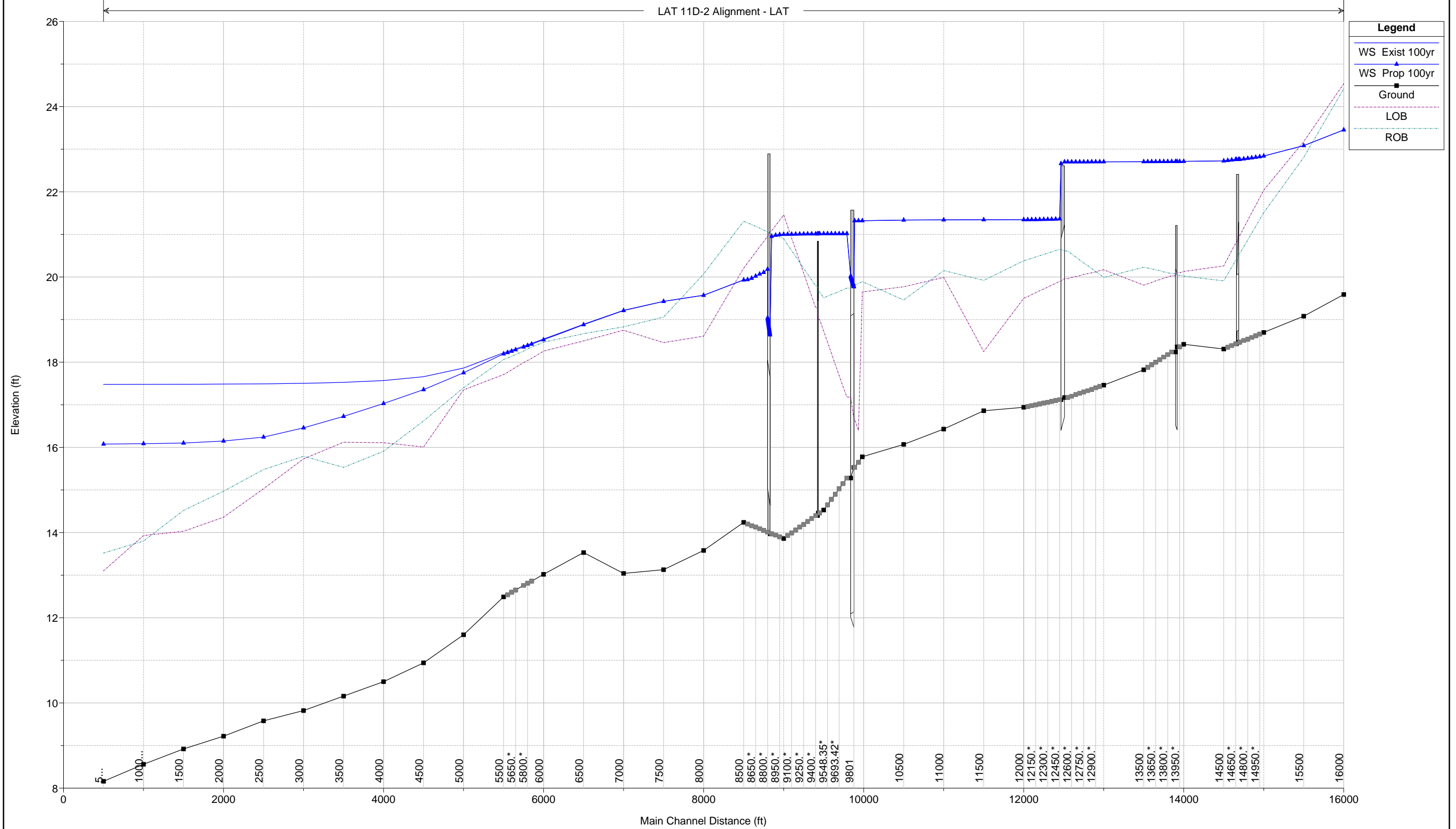


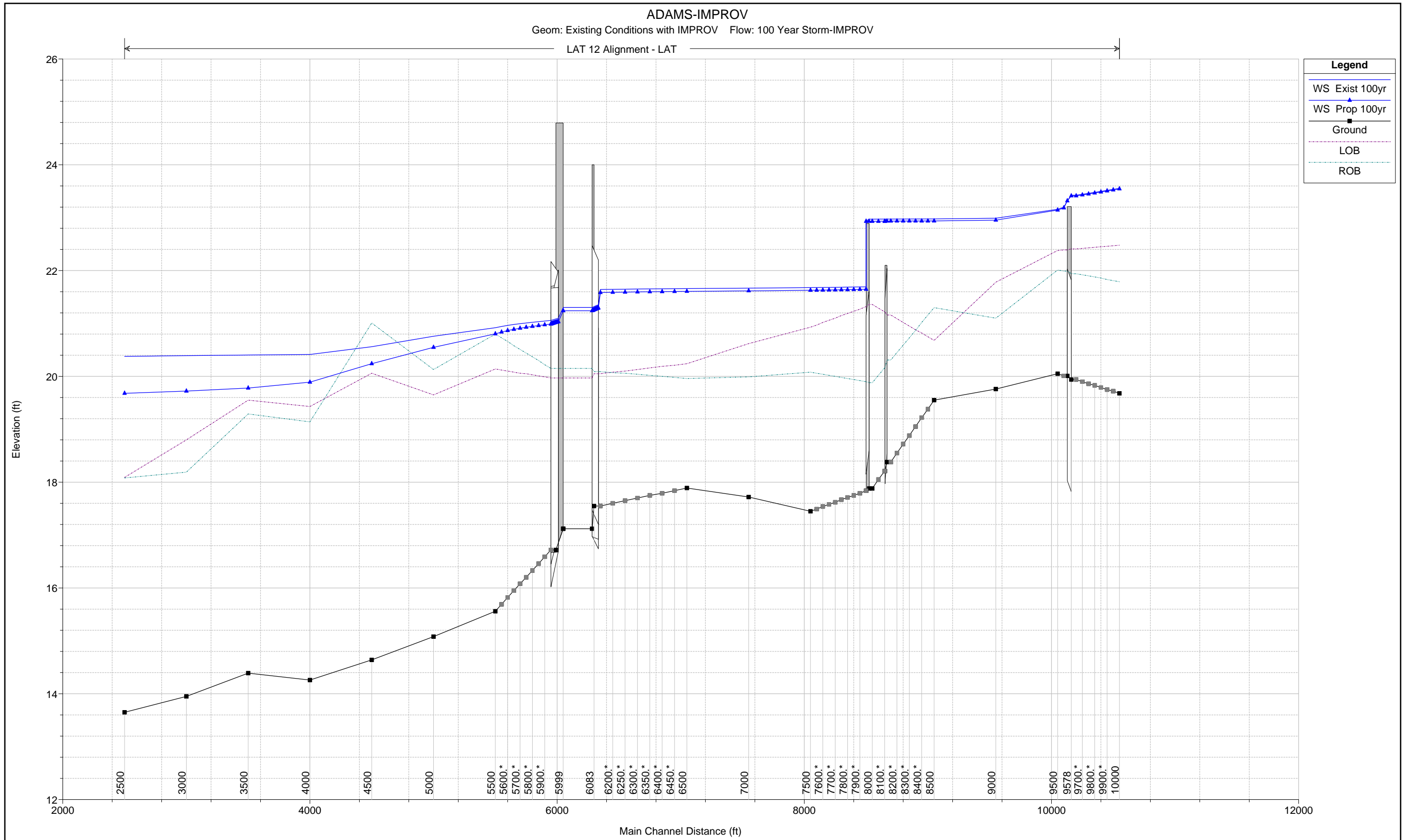


ADAMS-IMPROV

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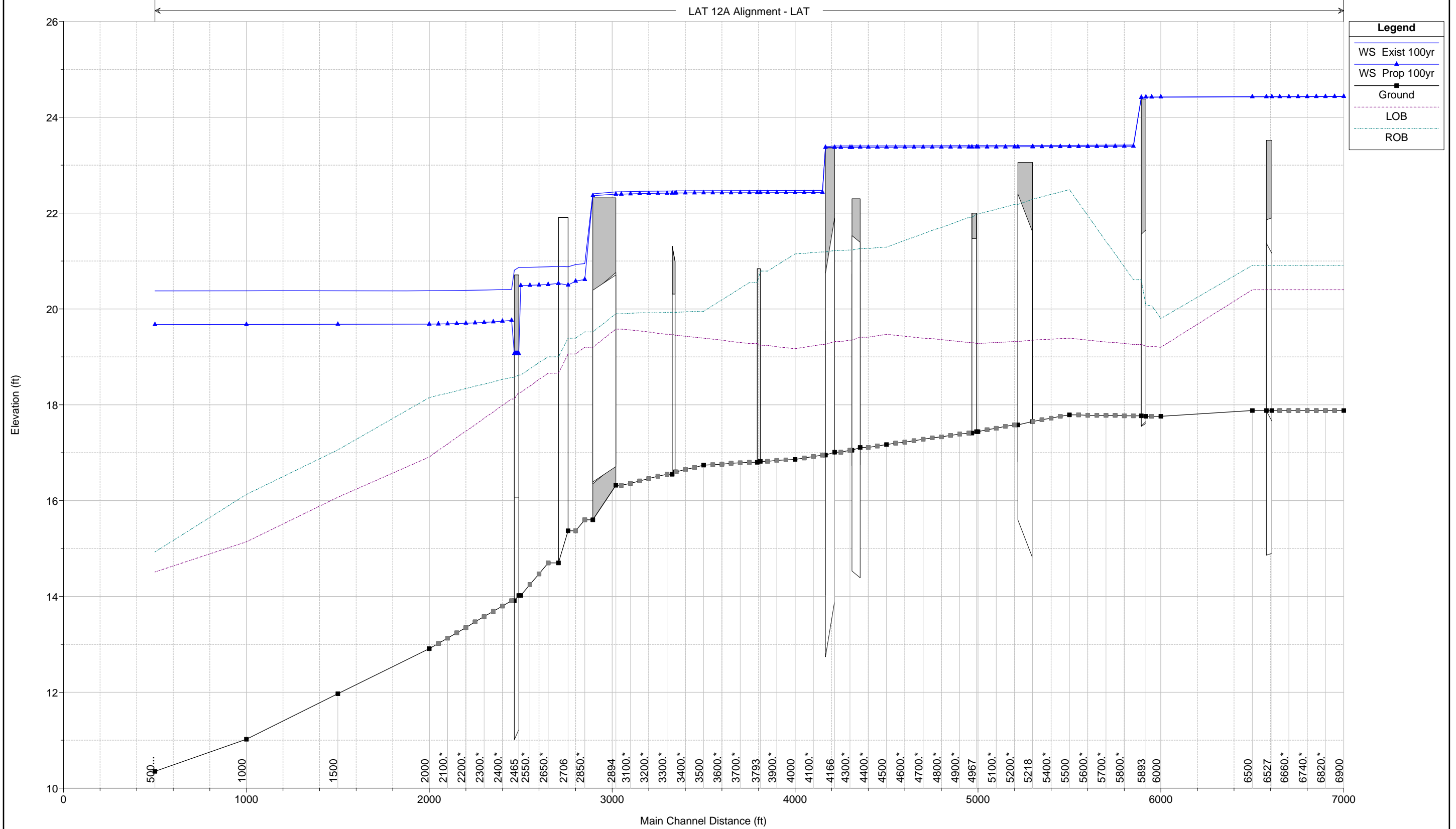




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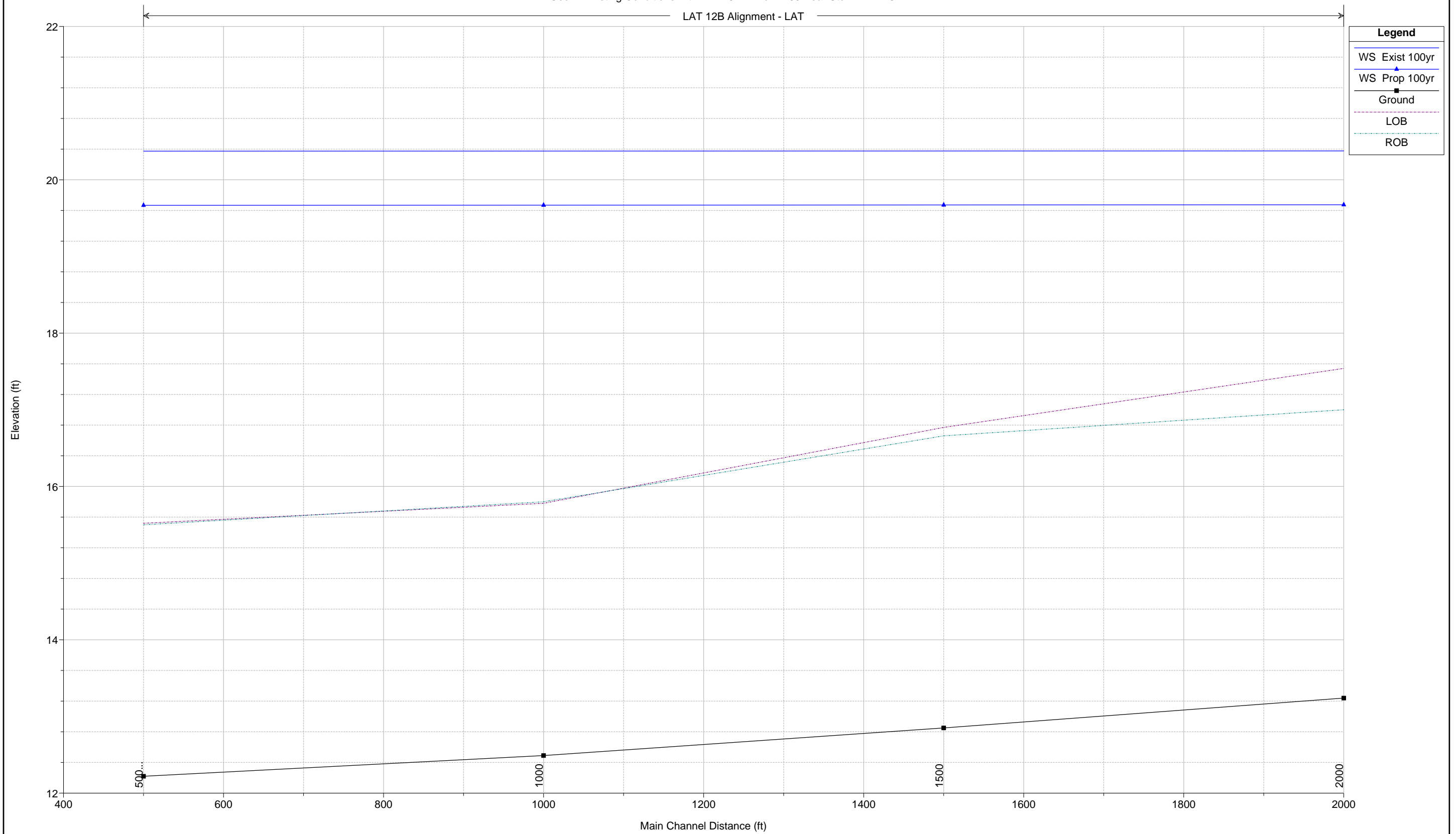
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ADAMS-IMPROV

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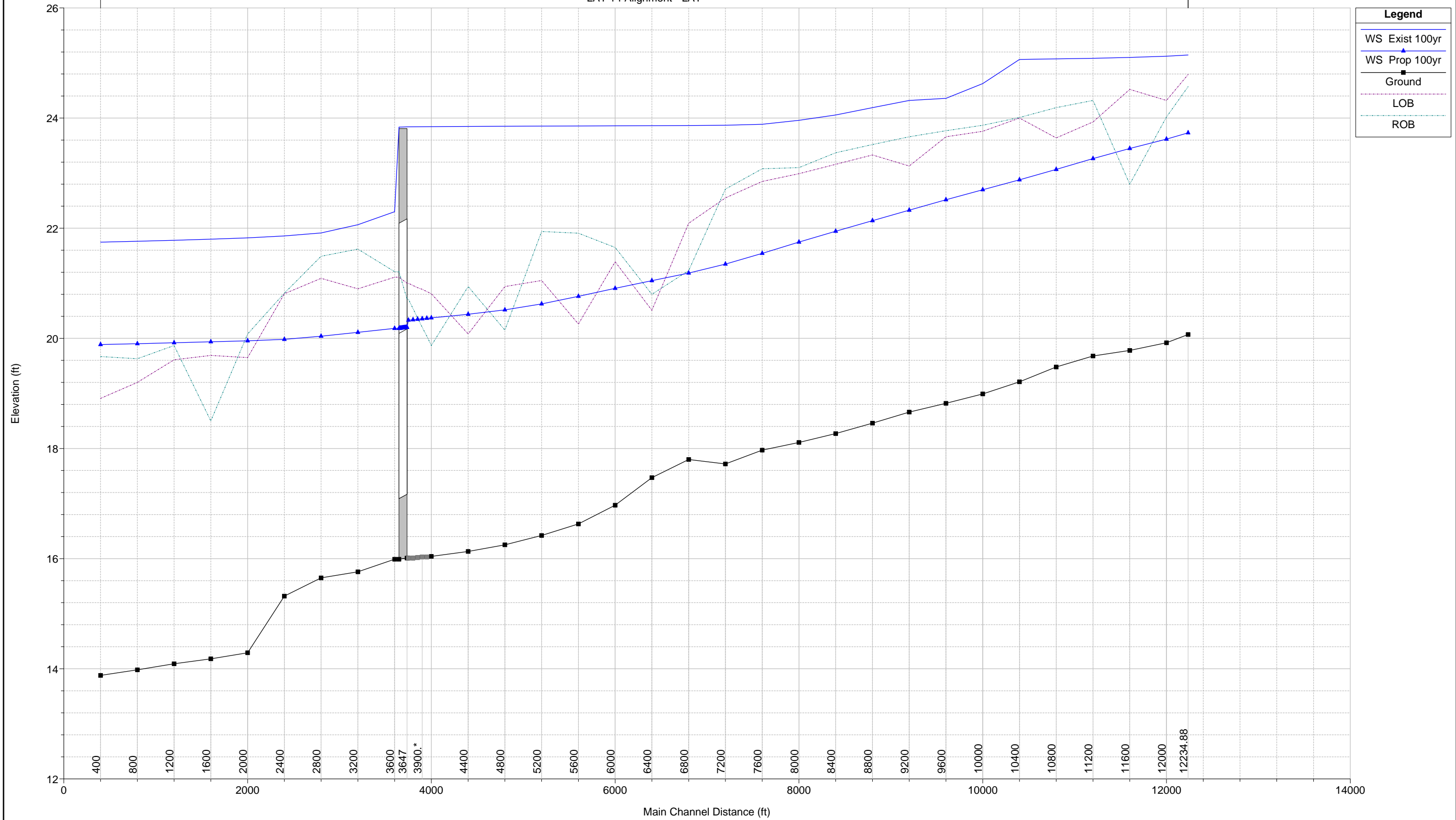
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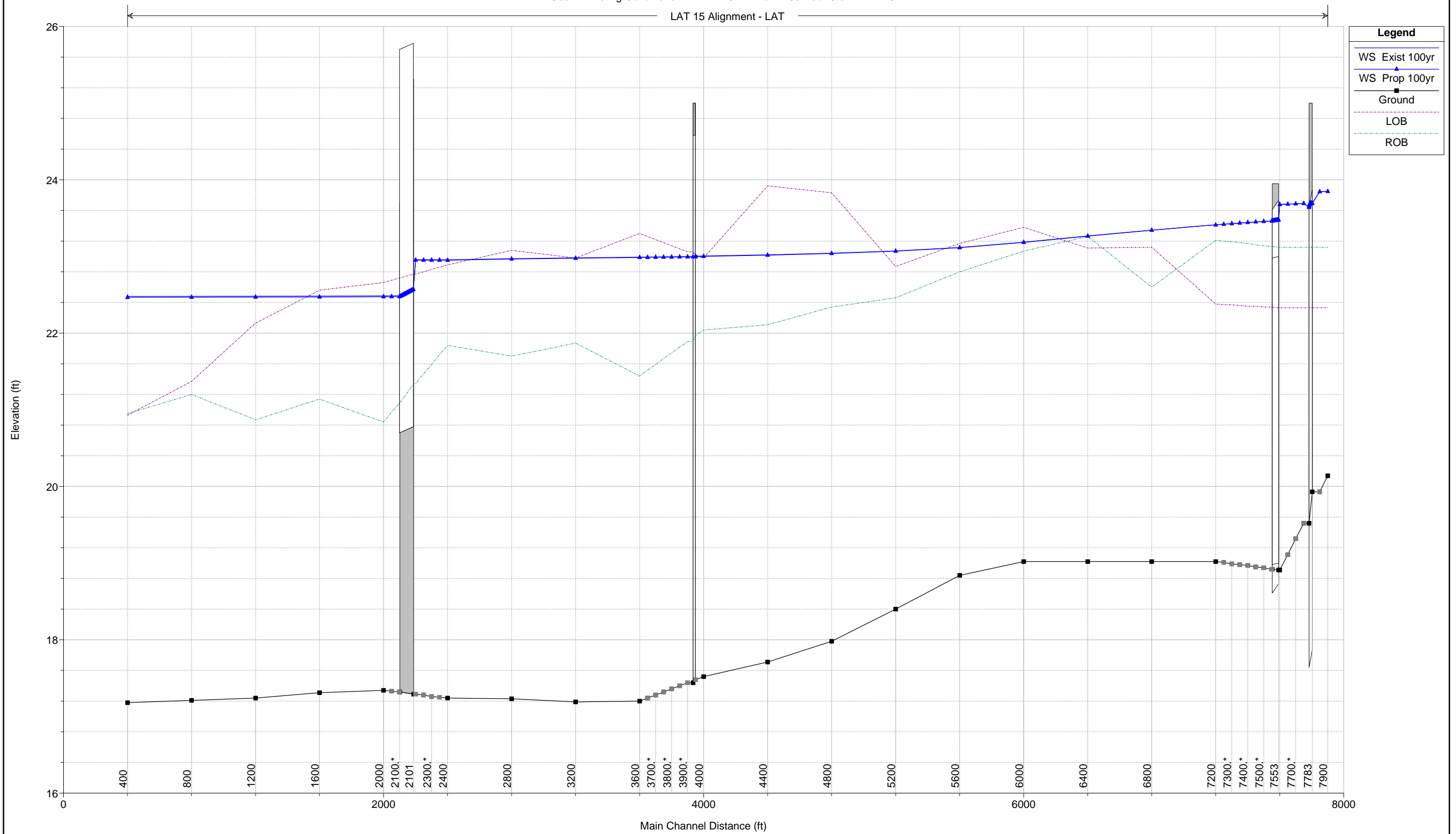
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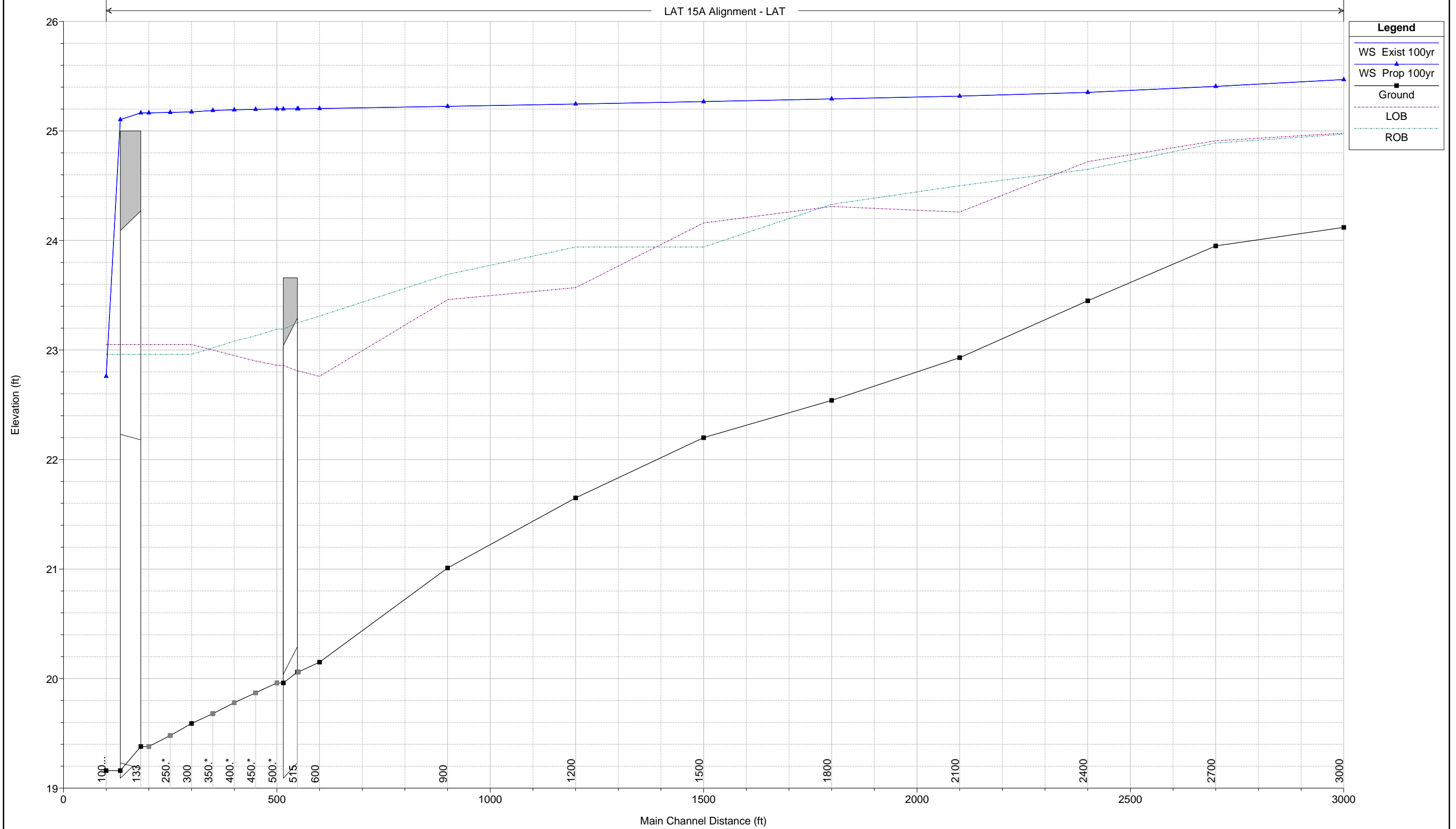
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ADAMS-IMPROV

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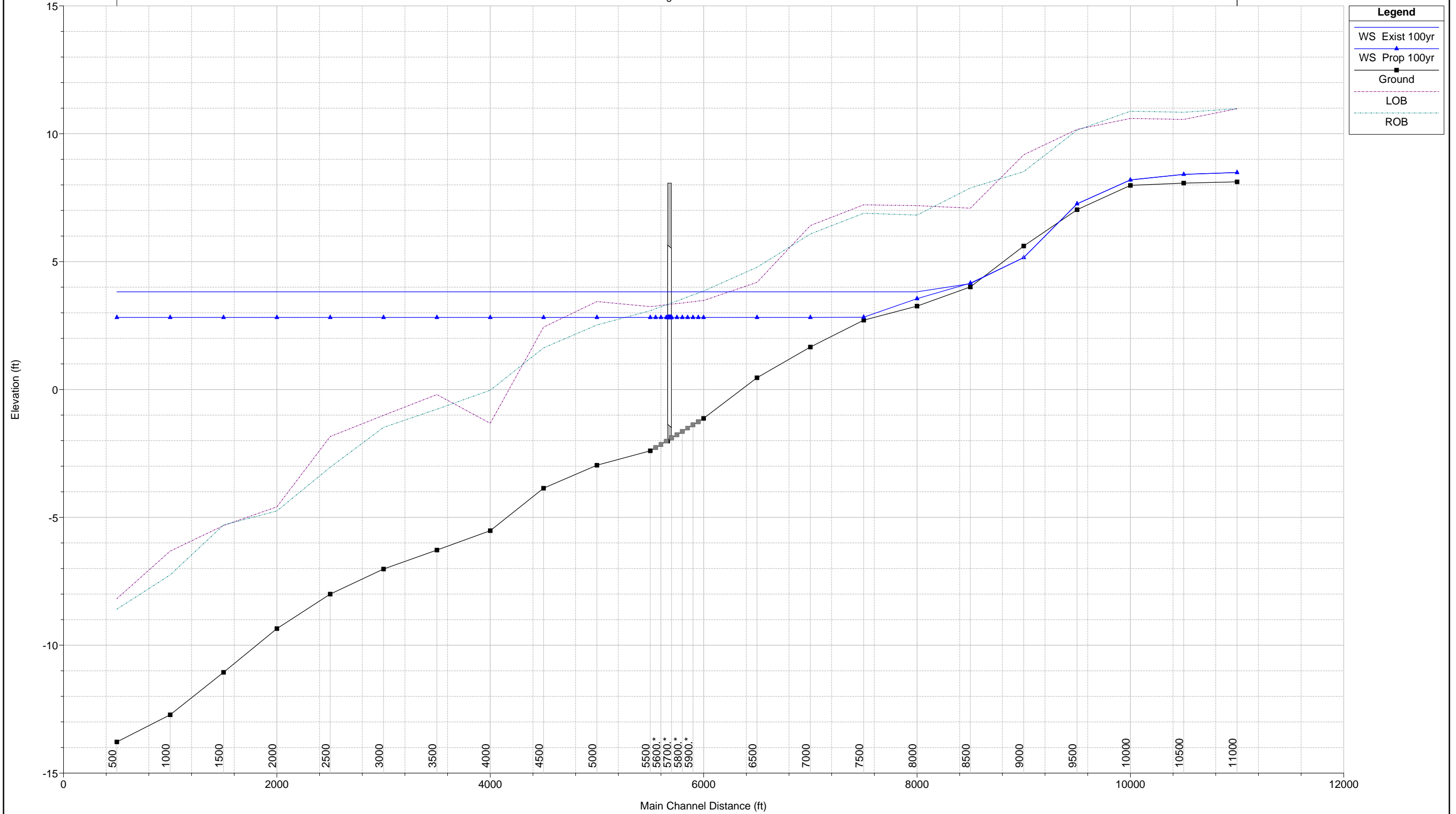
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ADAMS-IMPROV

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LAT 2 Alignment - LAT

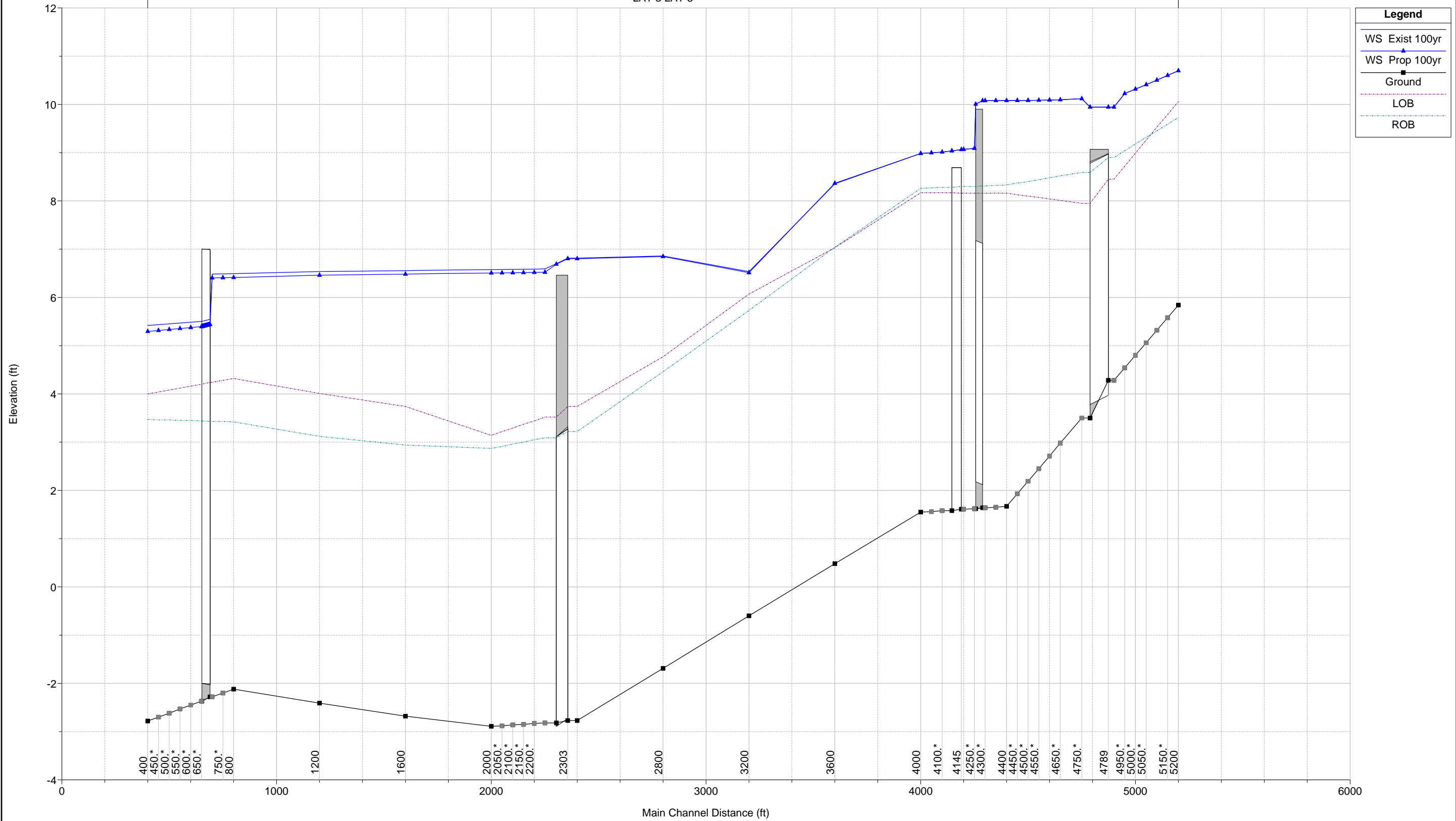




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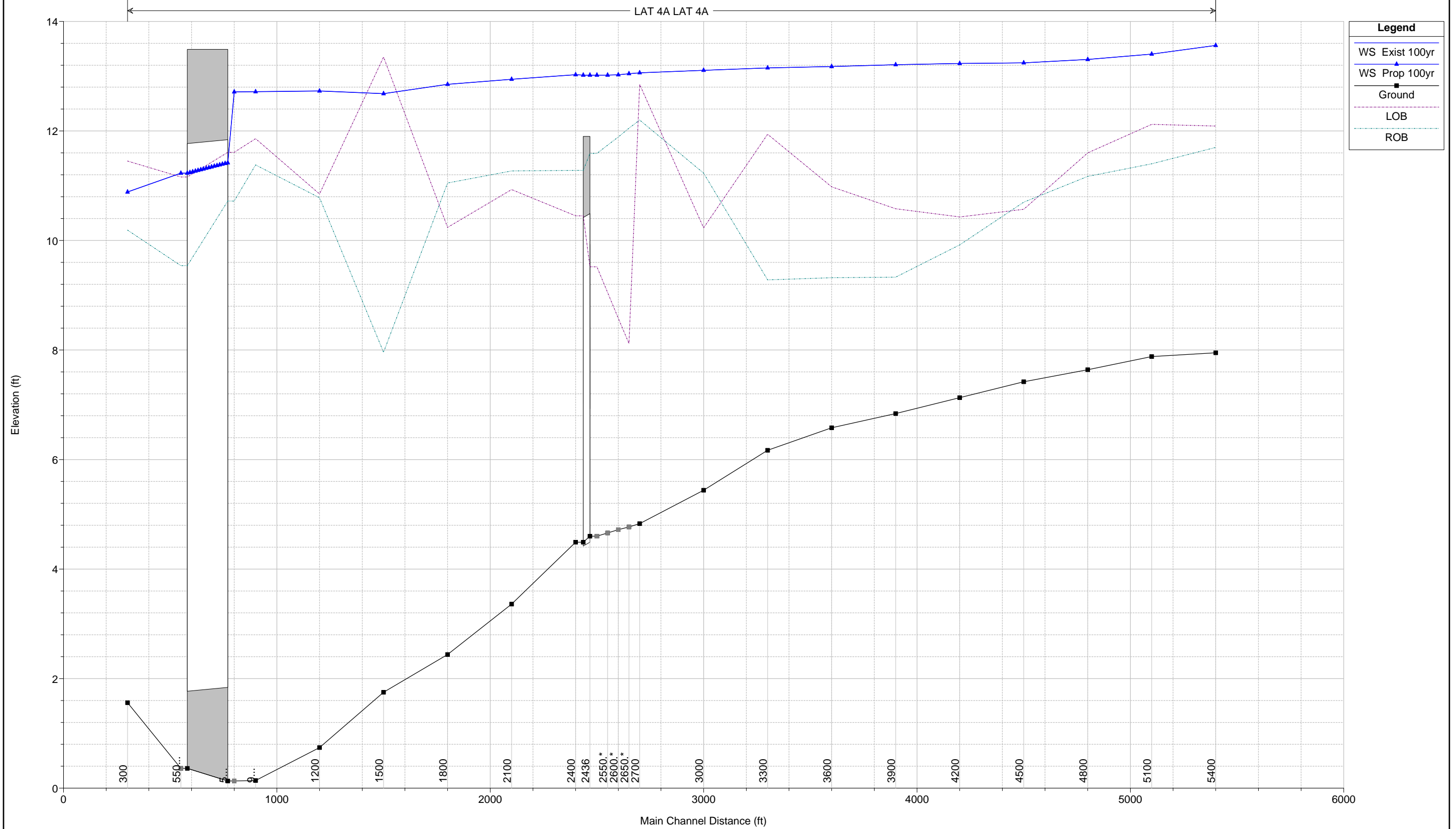
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ADAMS-IMPROV

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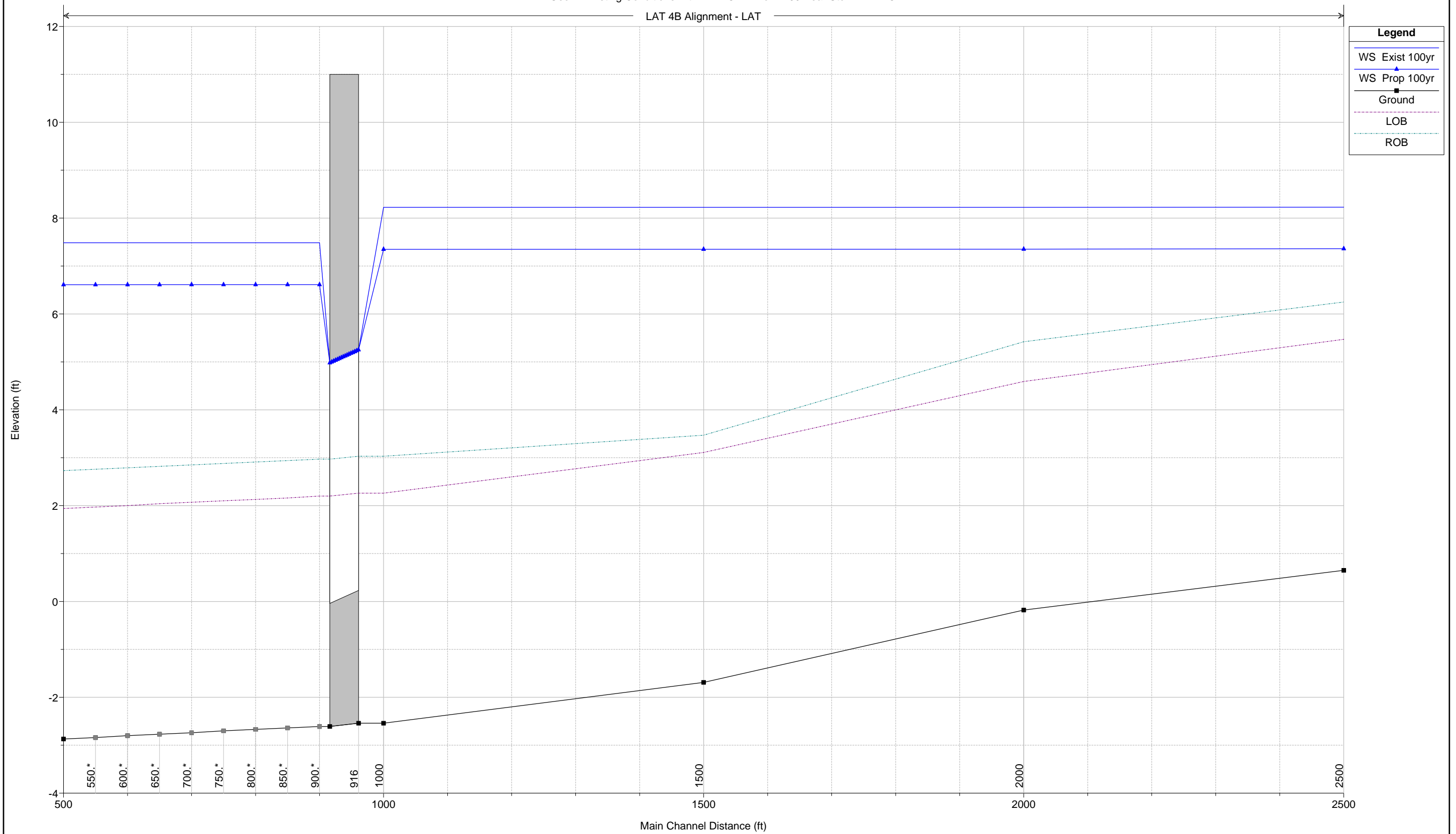
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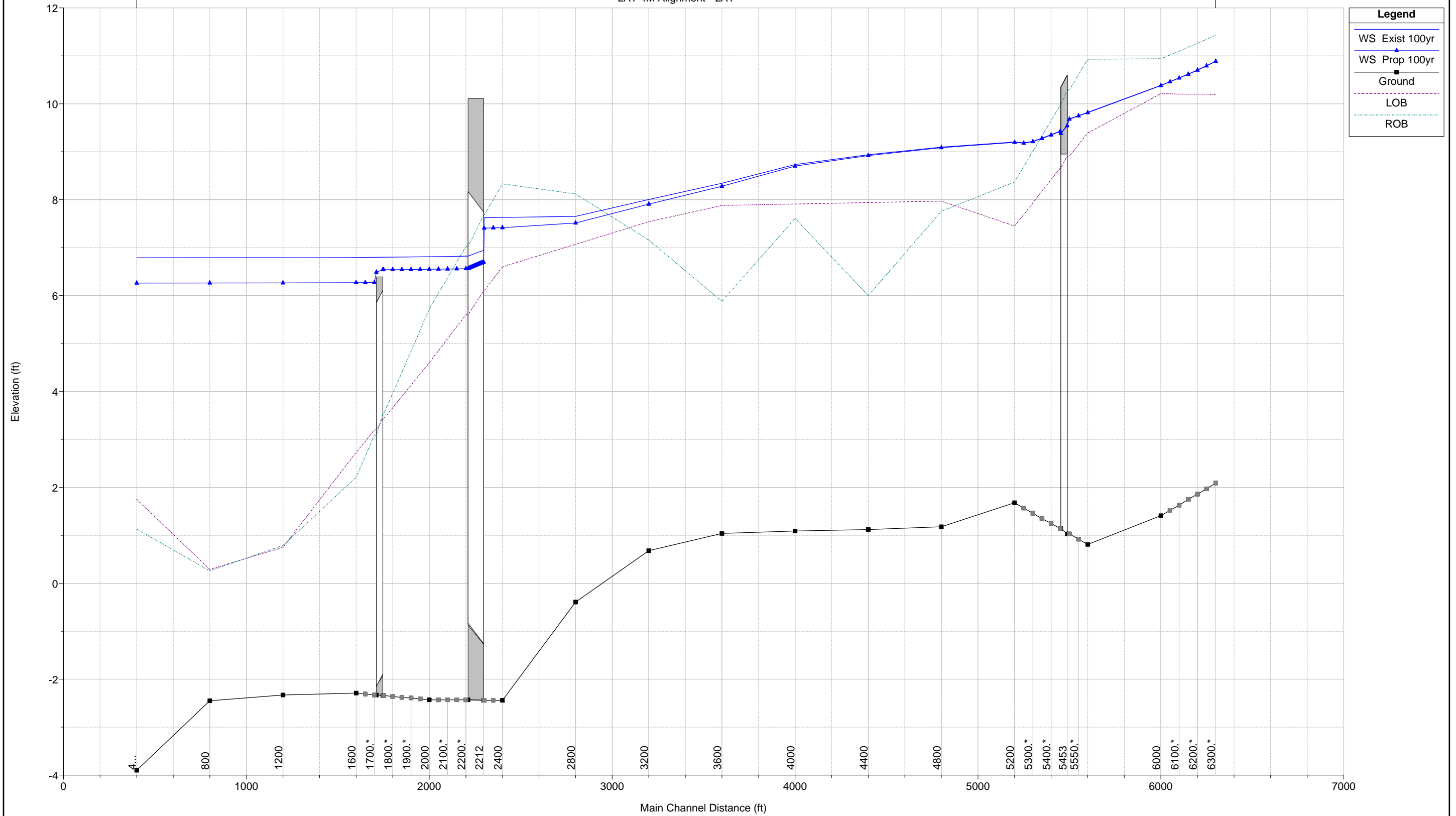
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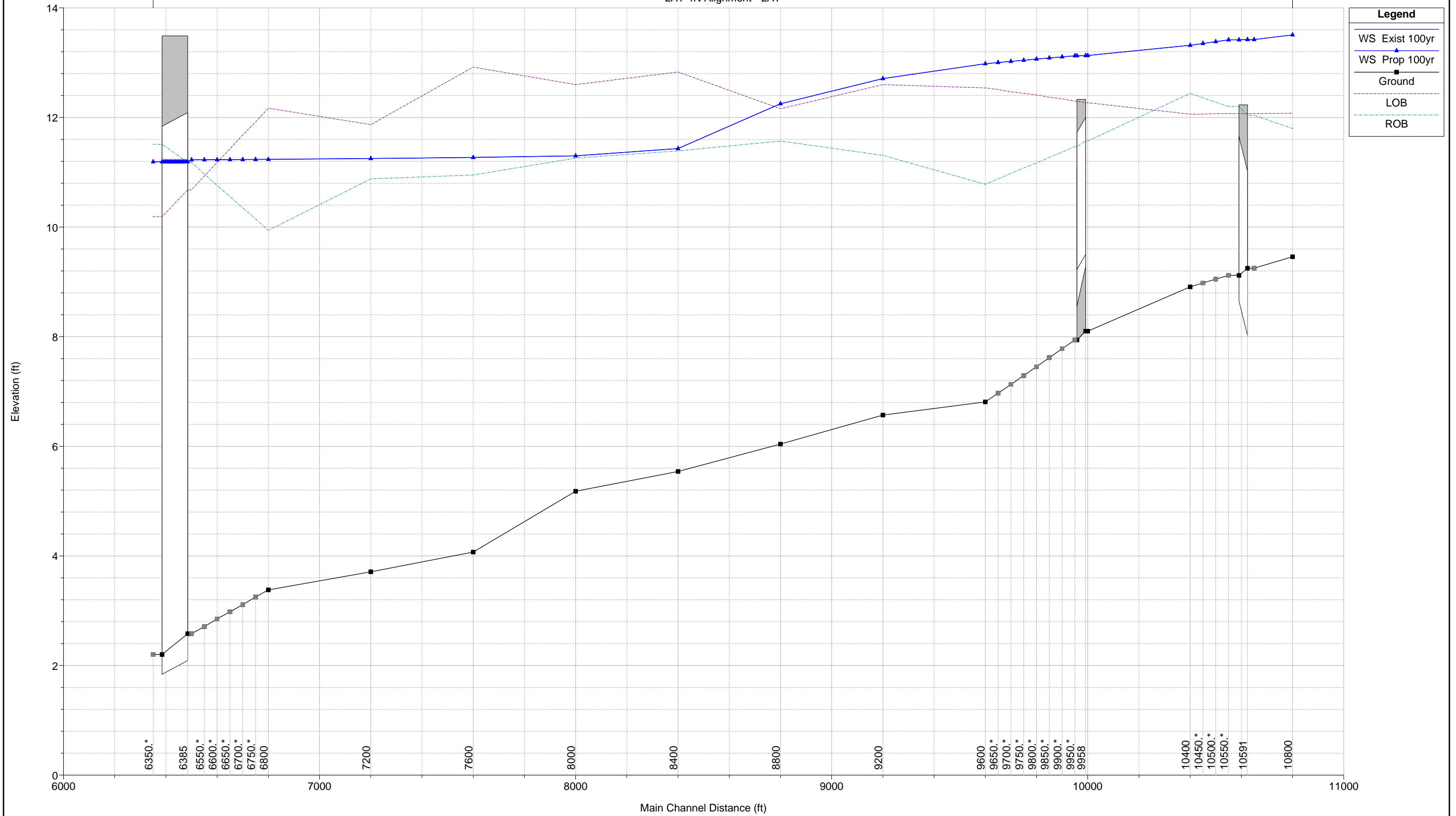
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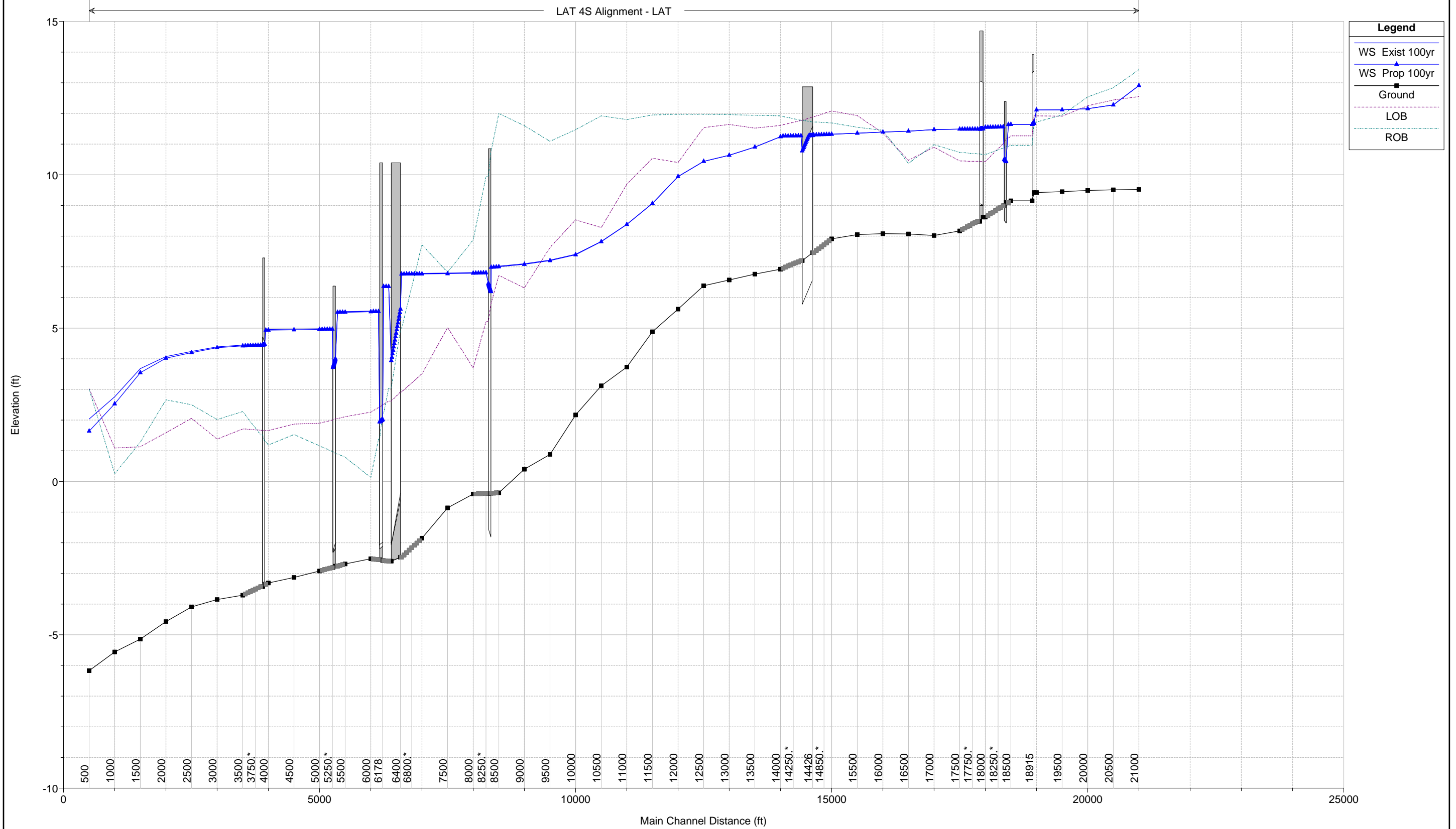
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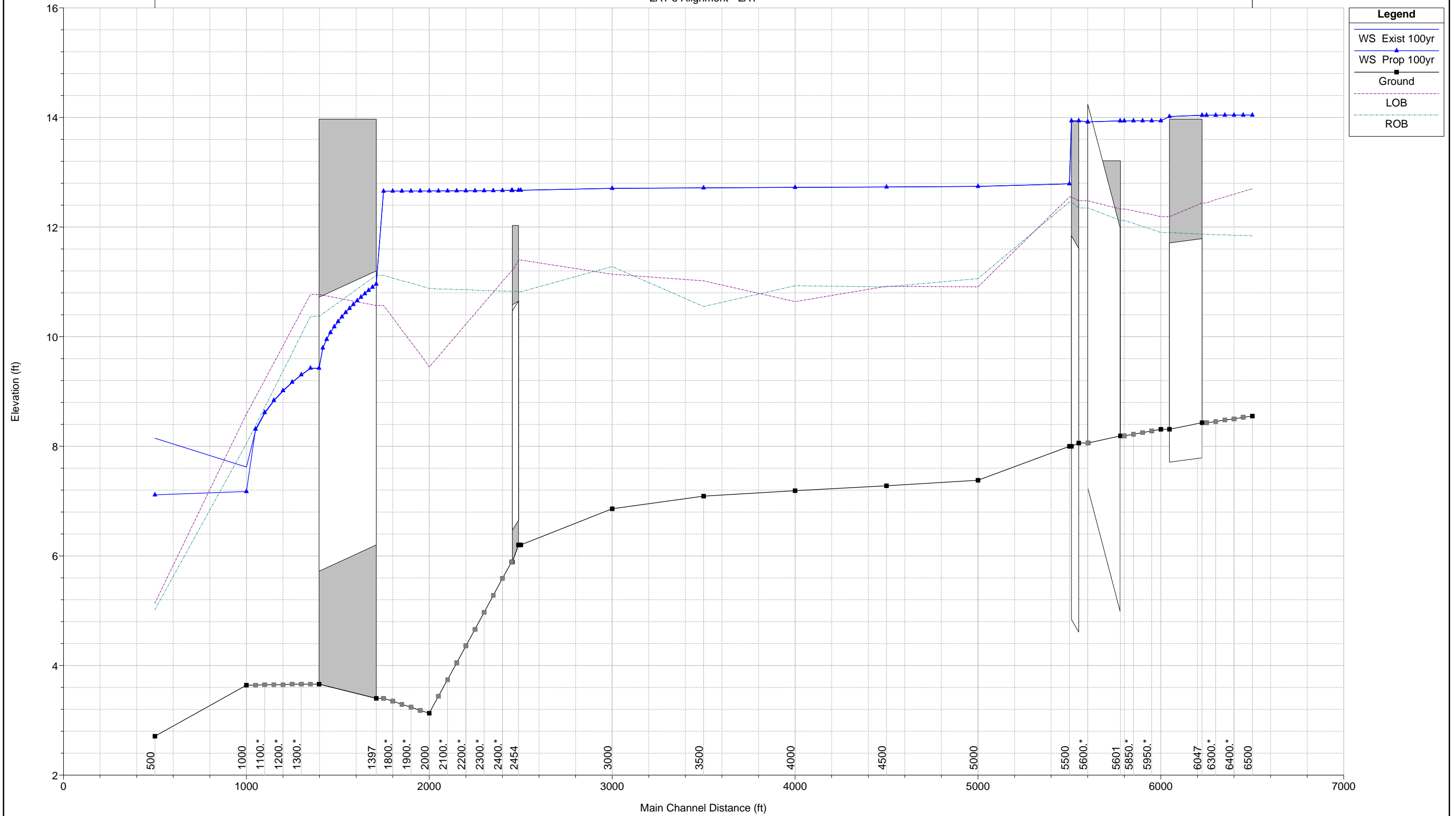
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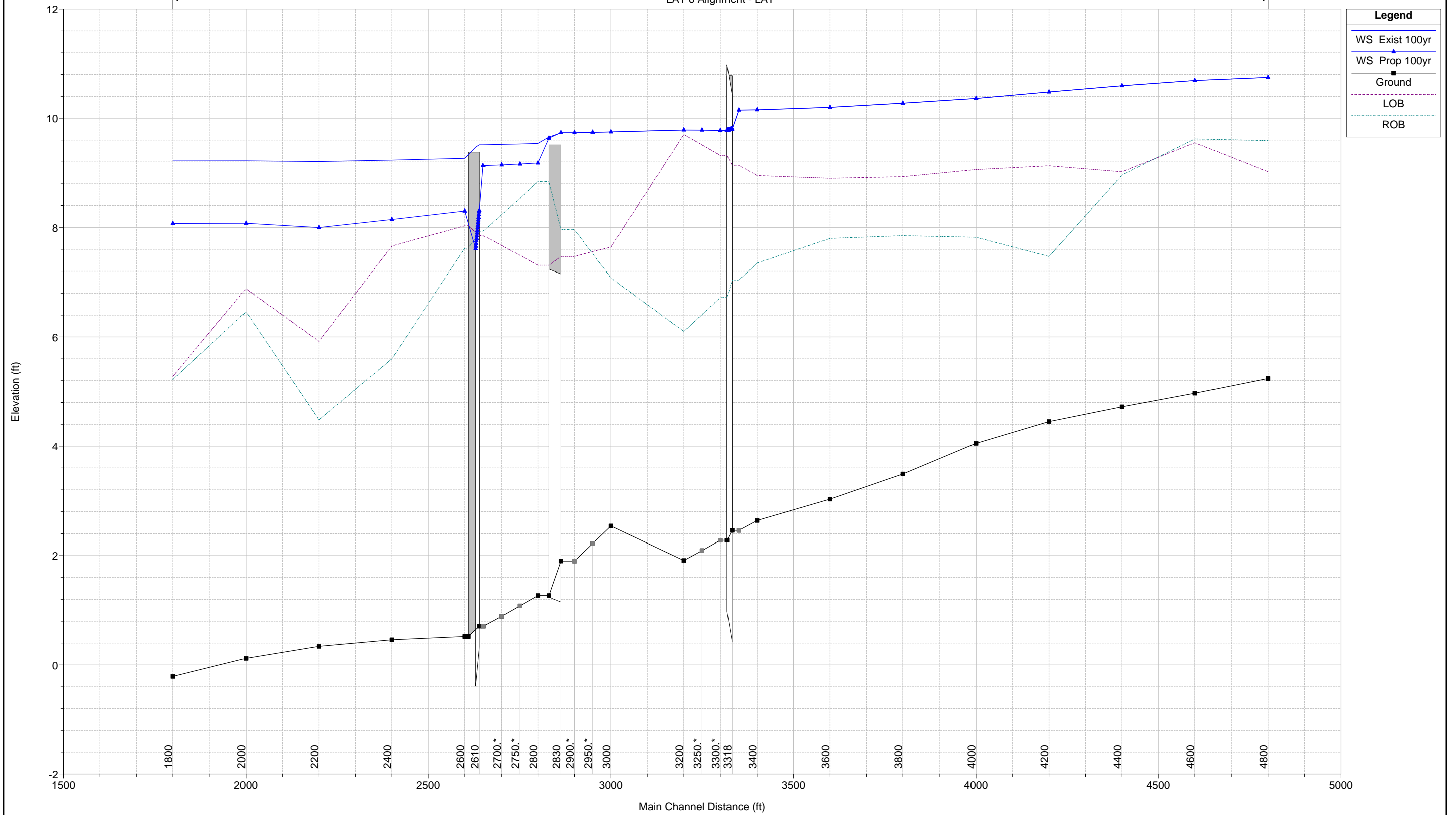
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LAT 6 Alignment - LAT

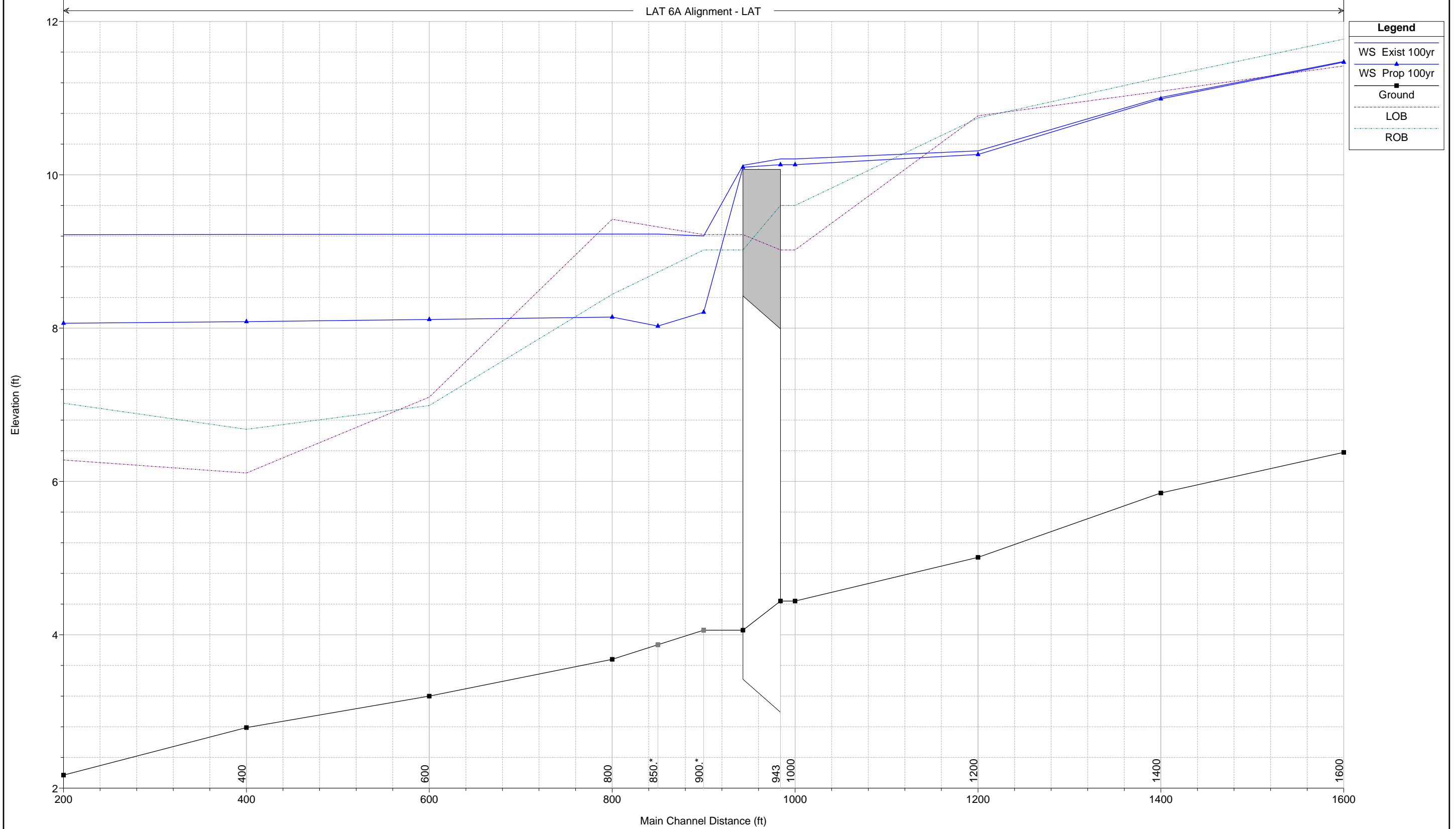




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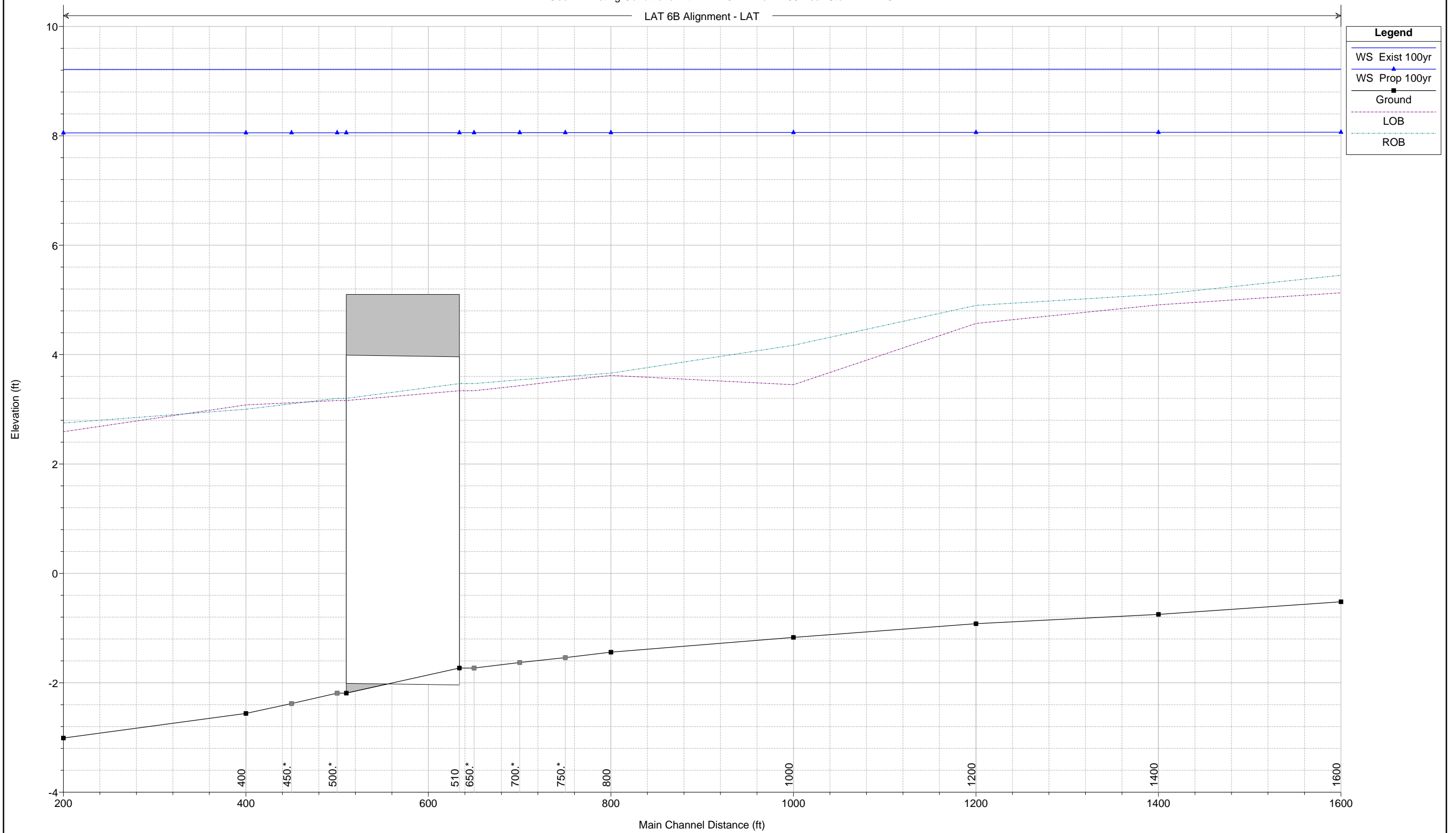
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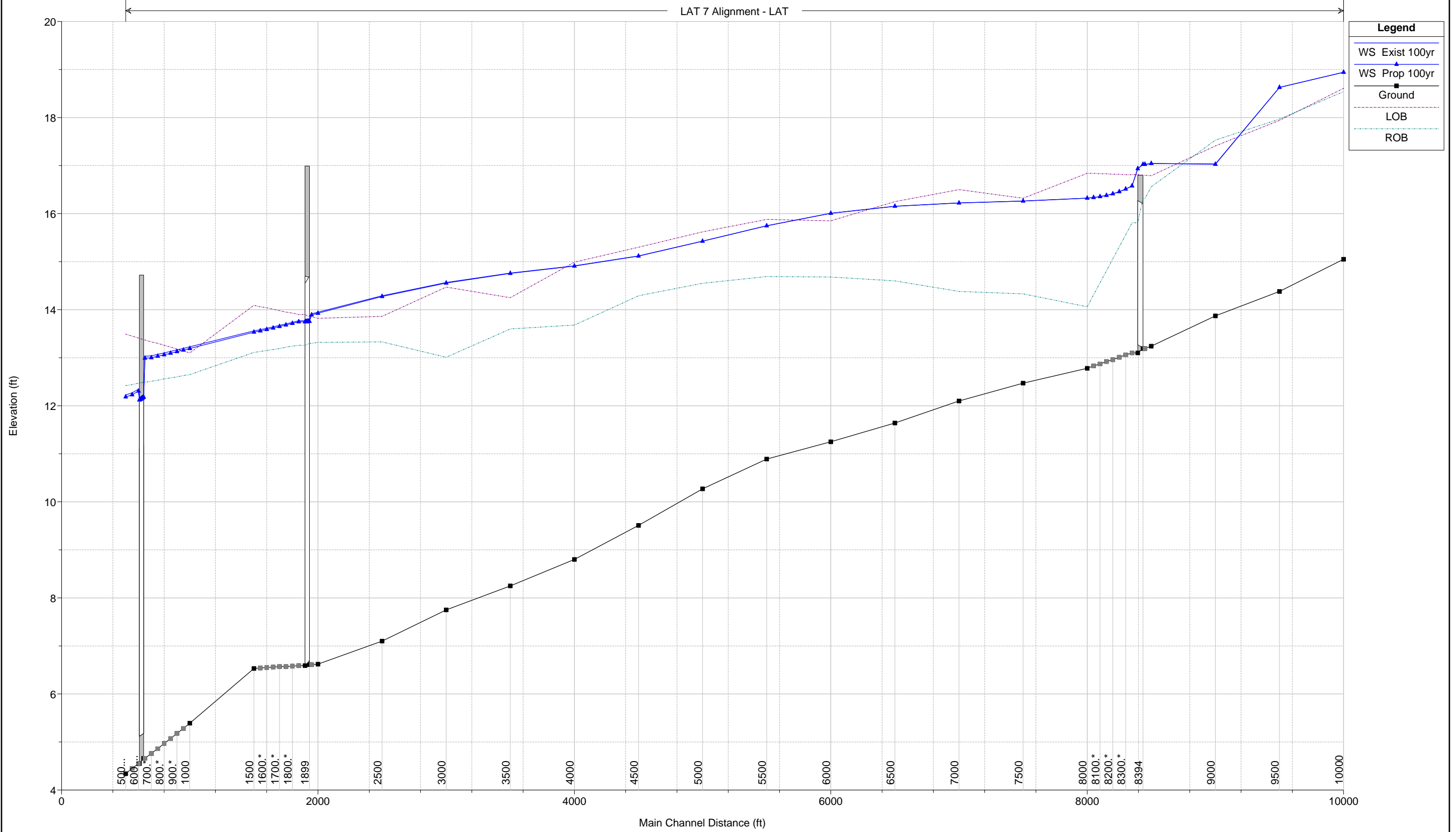
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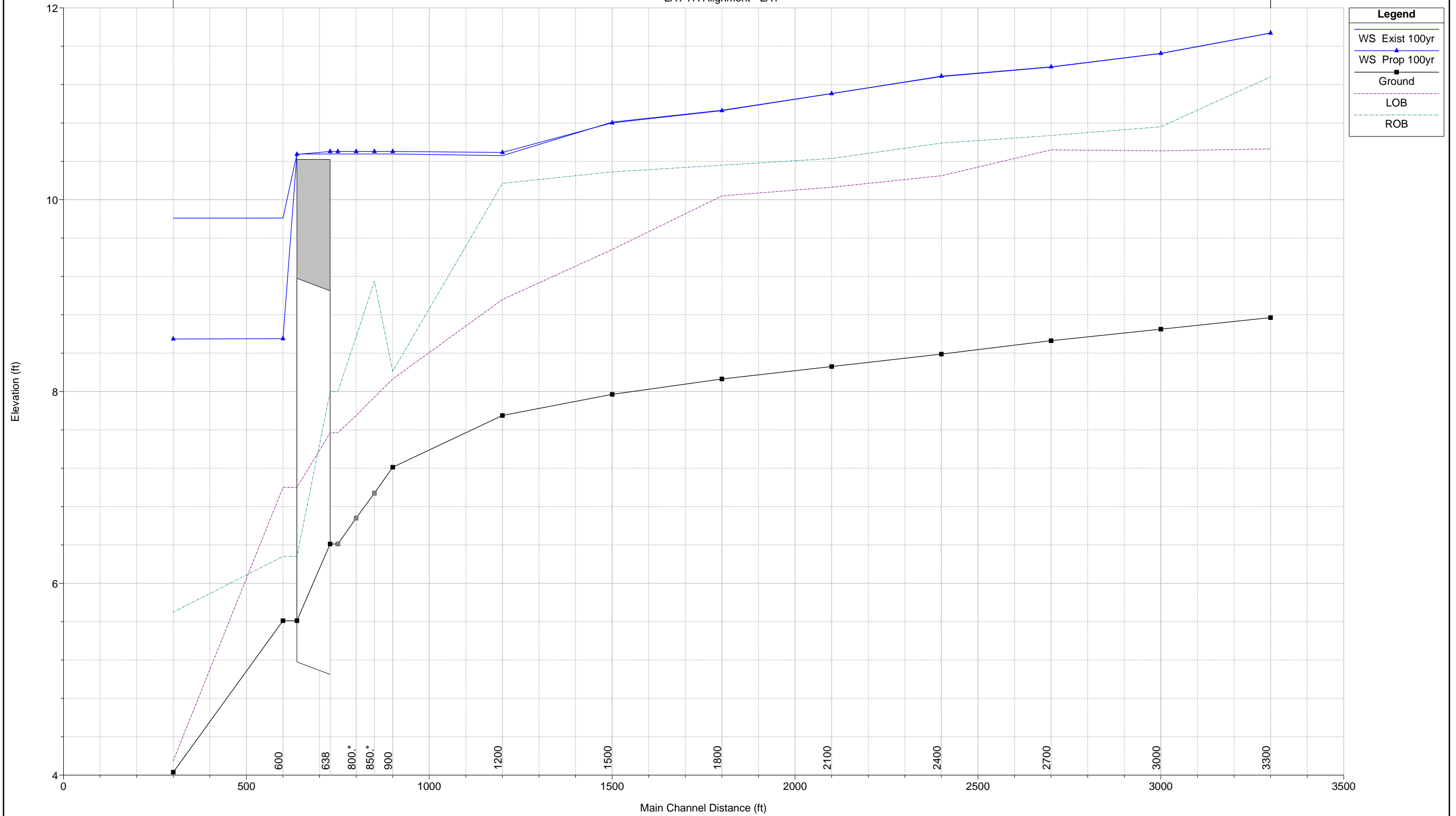
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ADAMS-IMPROV

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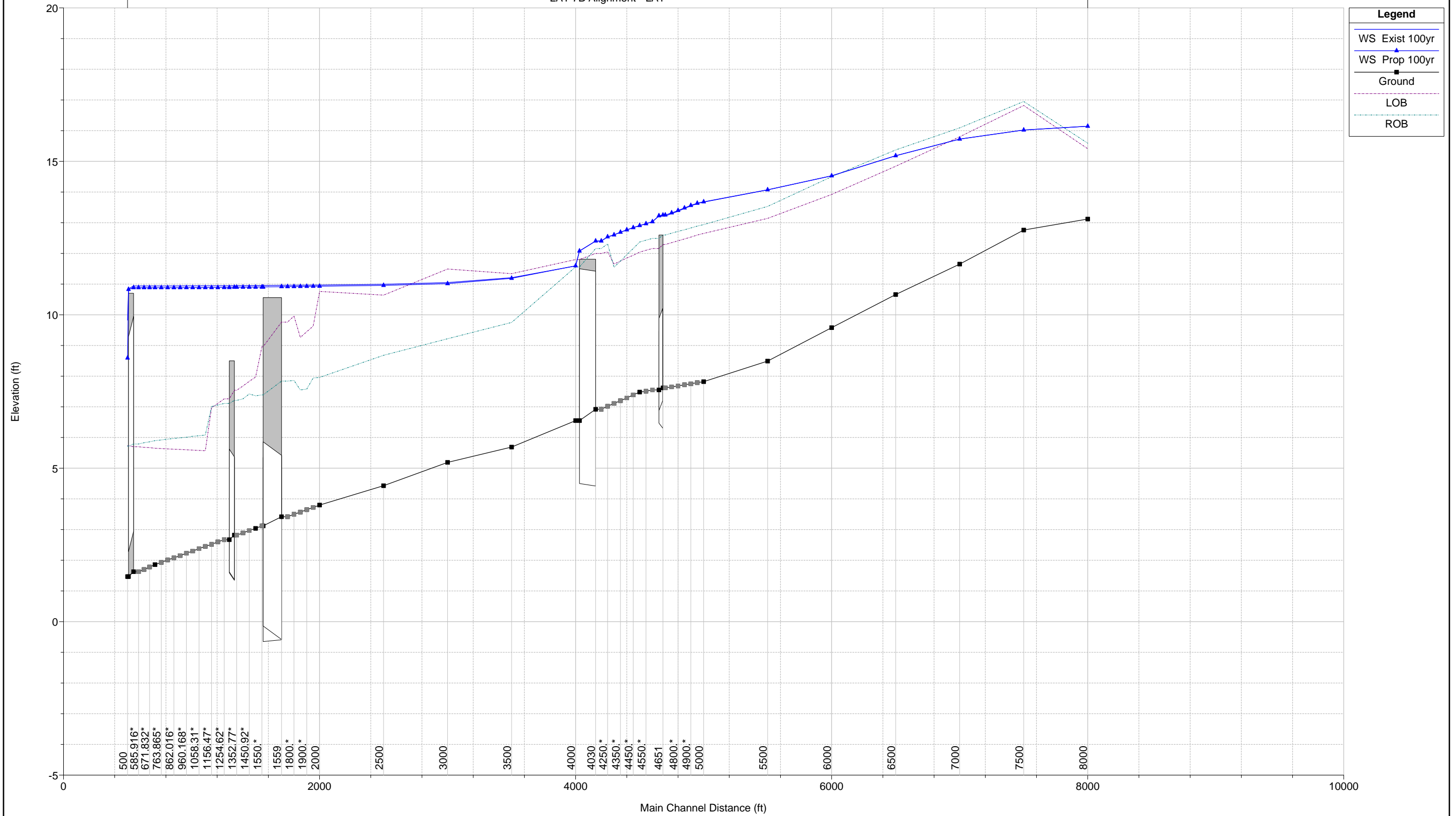
LAT 7A Alignment - LAT



ADAMS-IMPROV

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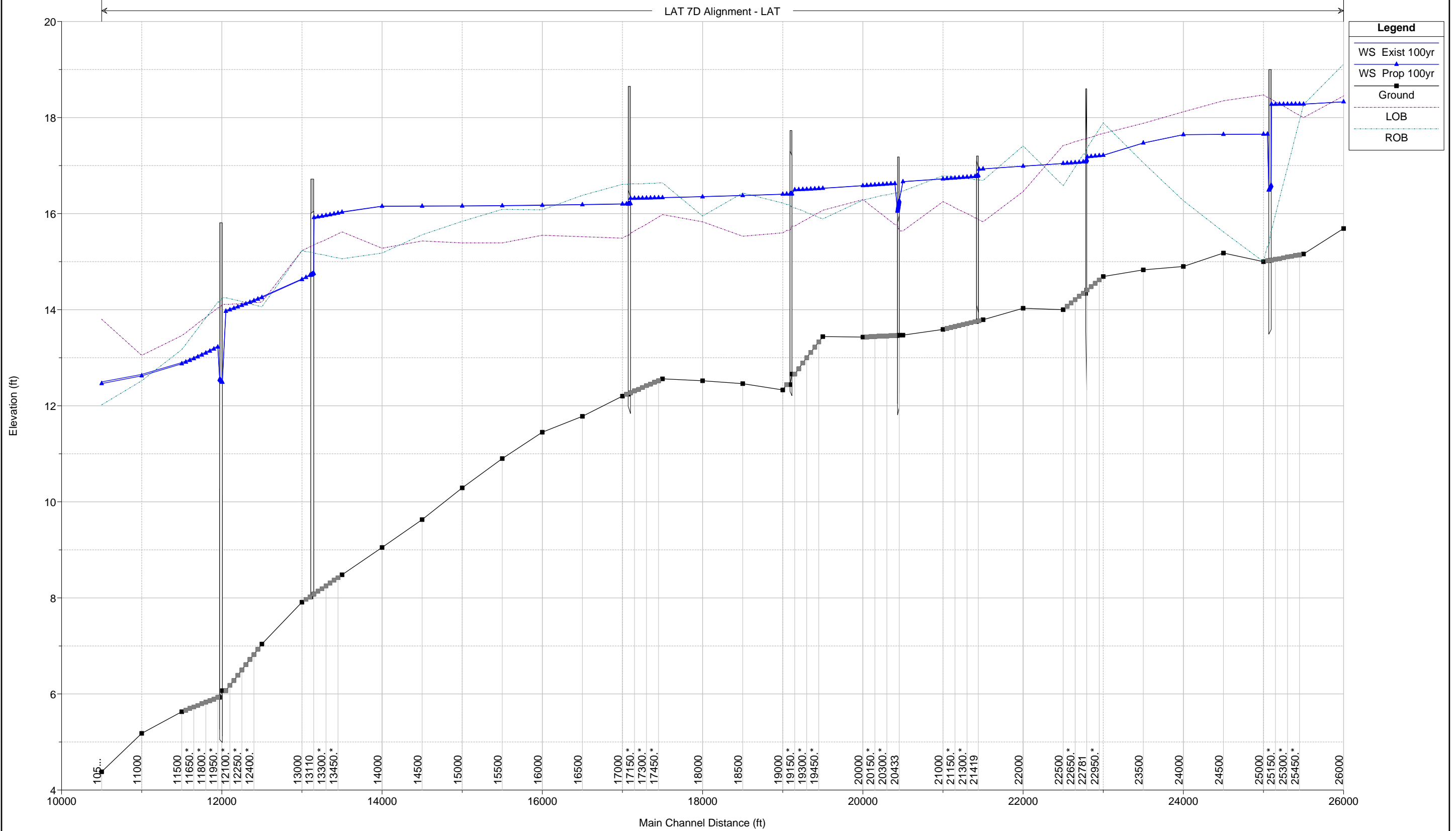
LAT 7B Alignment - LAT



ADAMS-IMPROV

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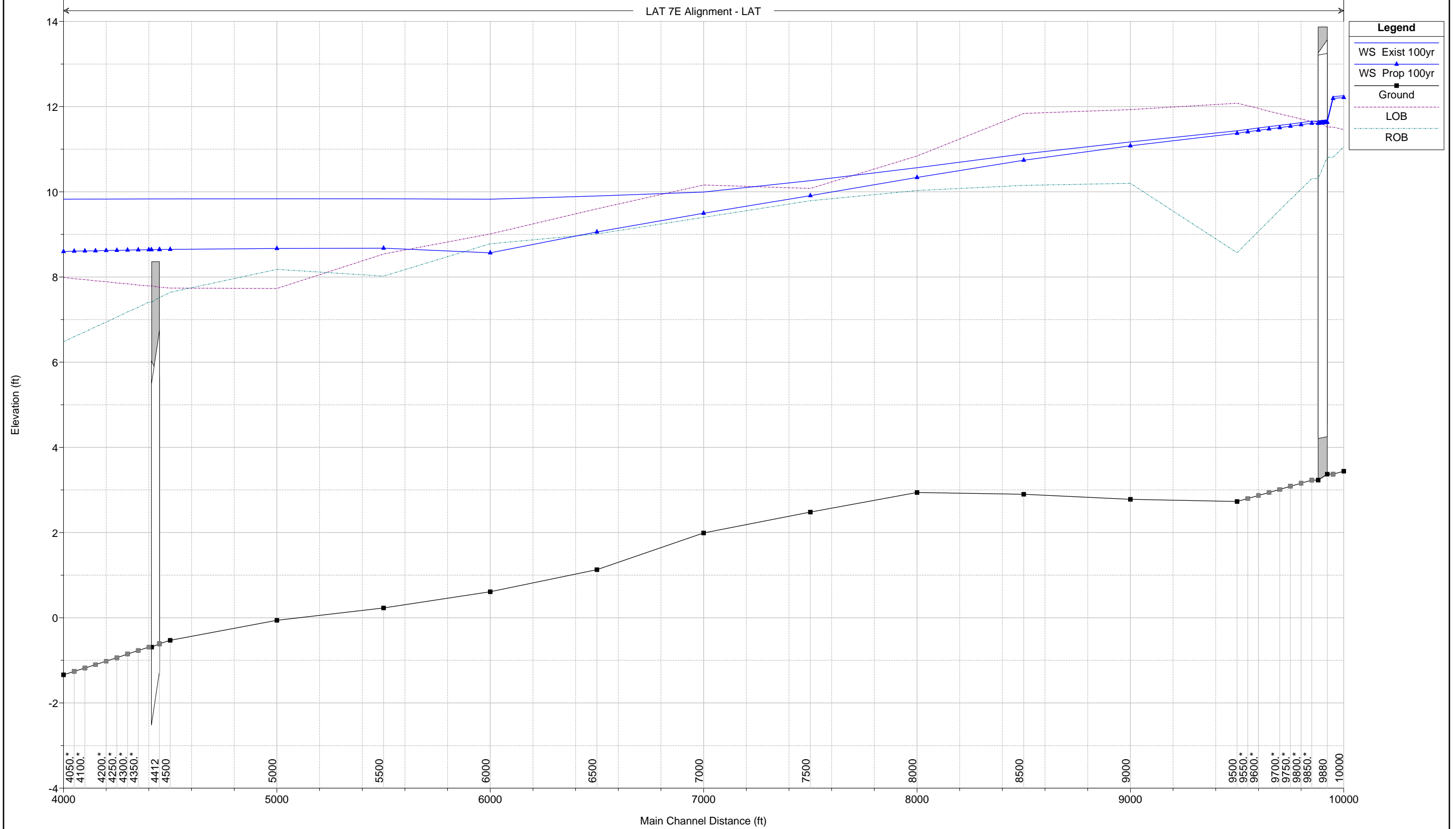
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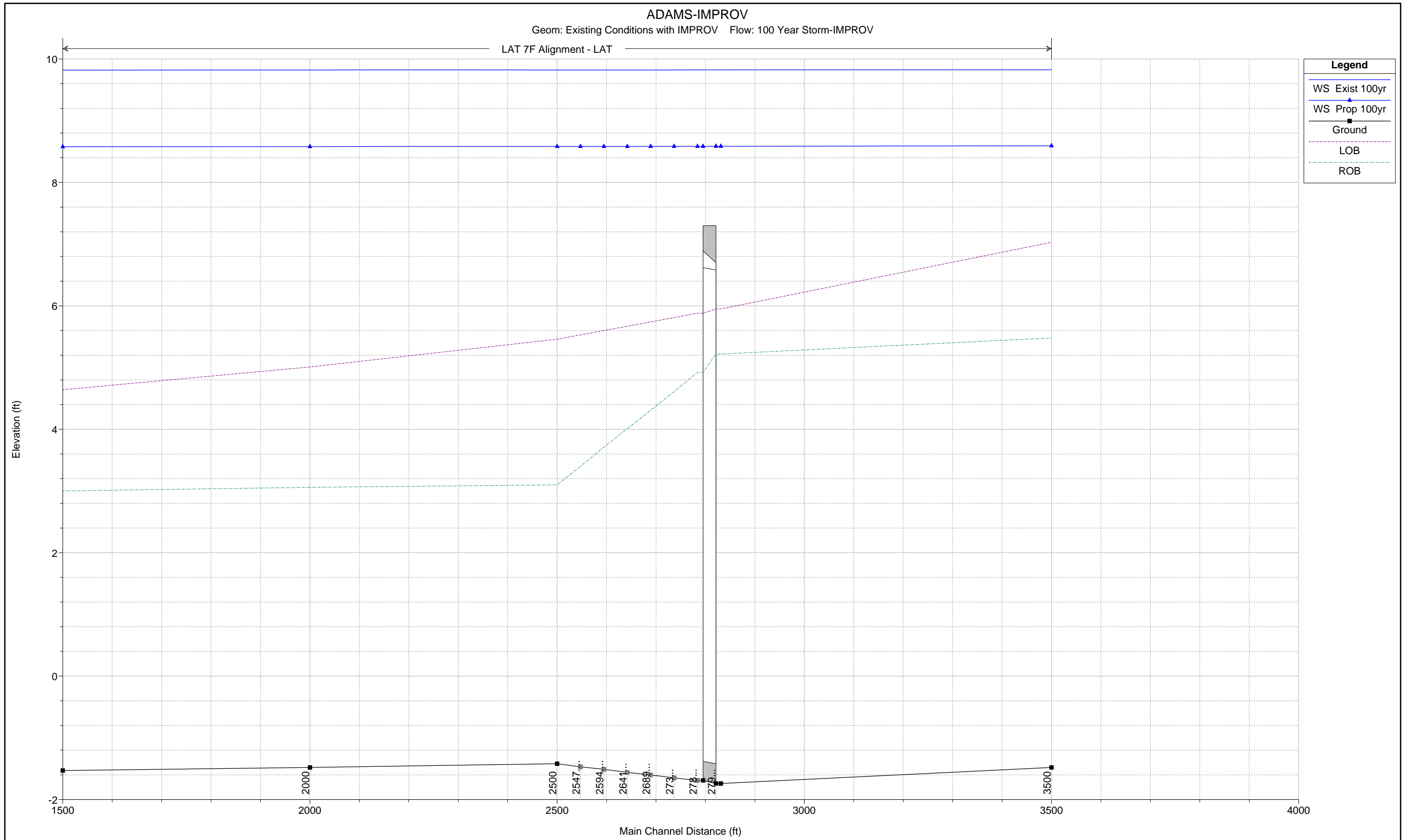


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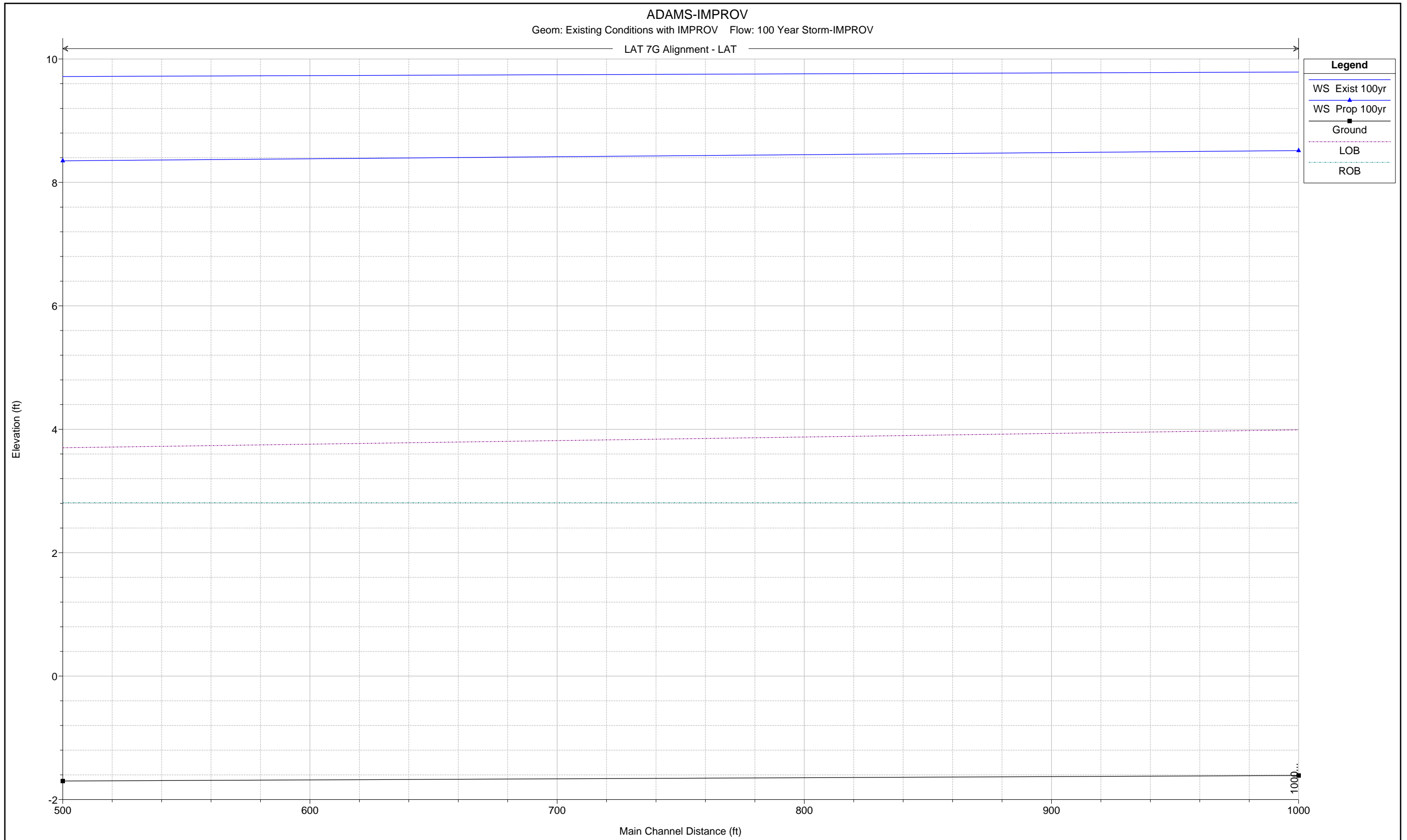
Geom: Existing Conditions with IMPROV Flow: 100 Year Storm-IMPROV

LAT 7E Alignment - LAT





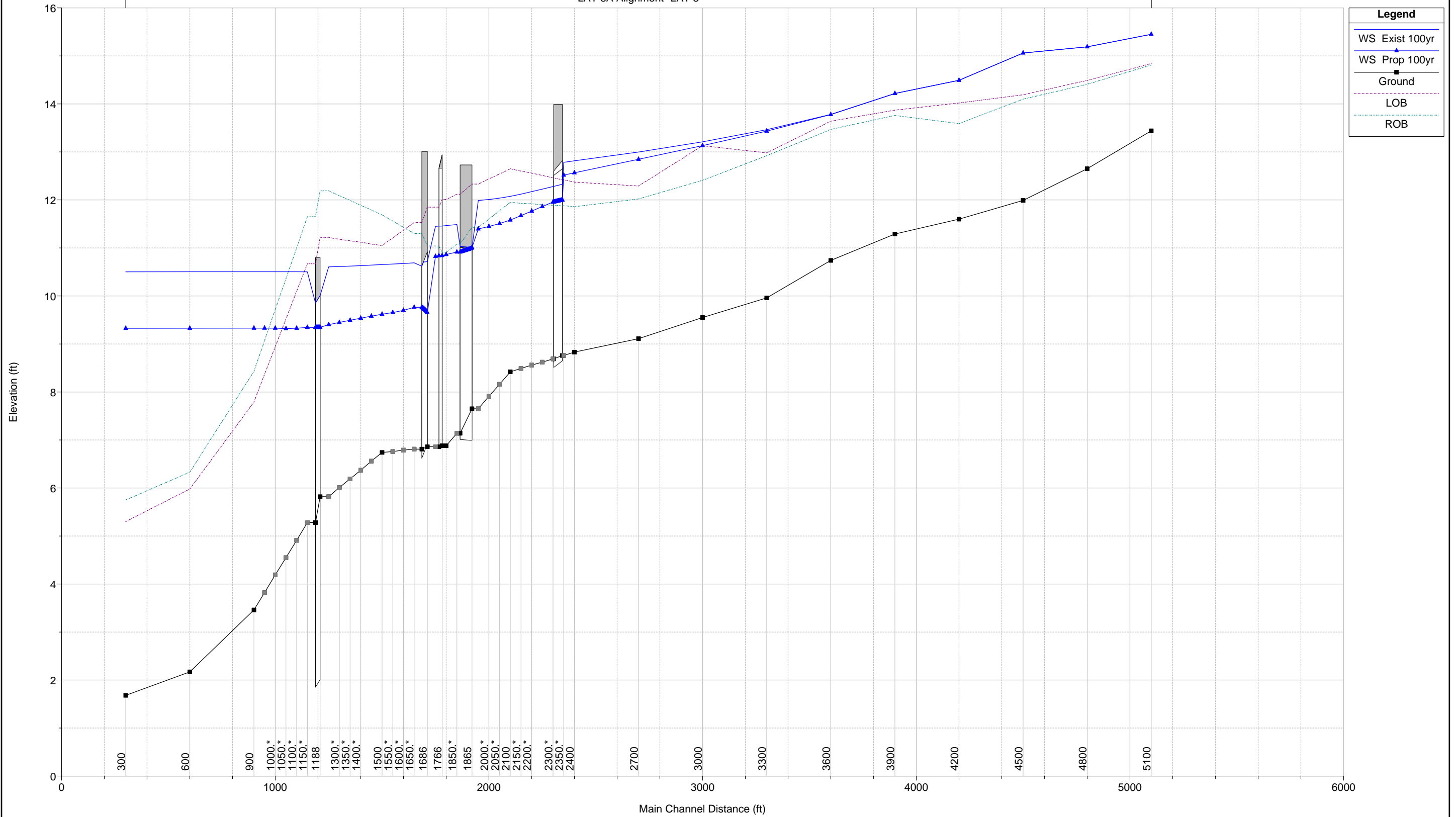


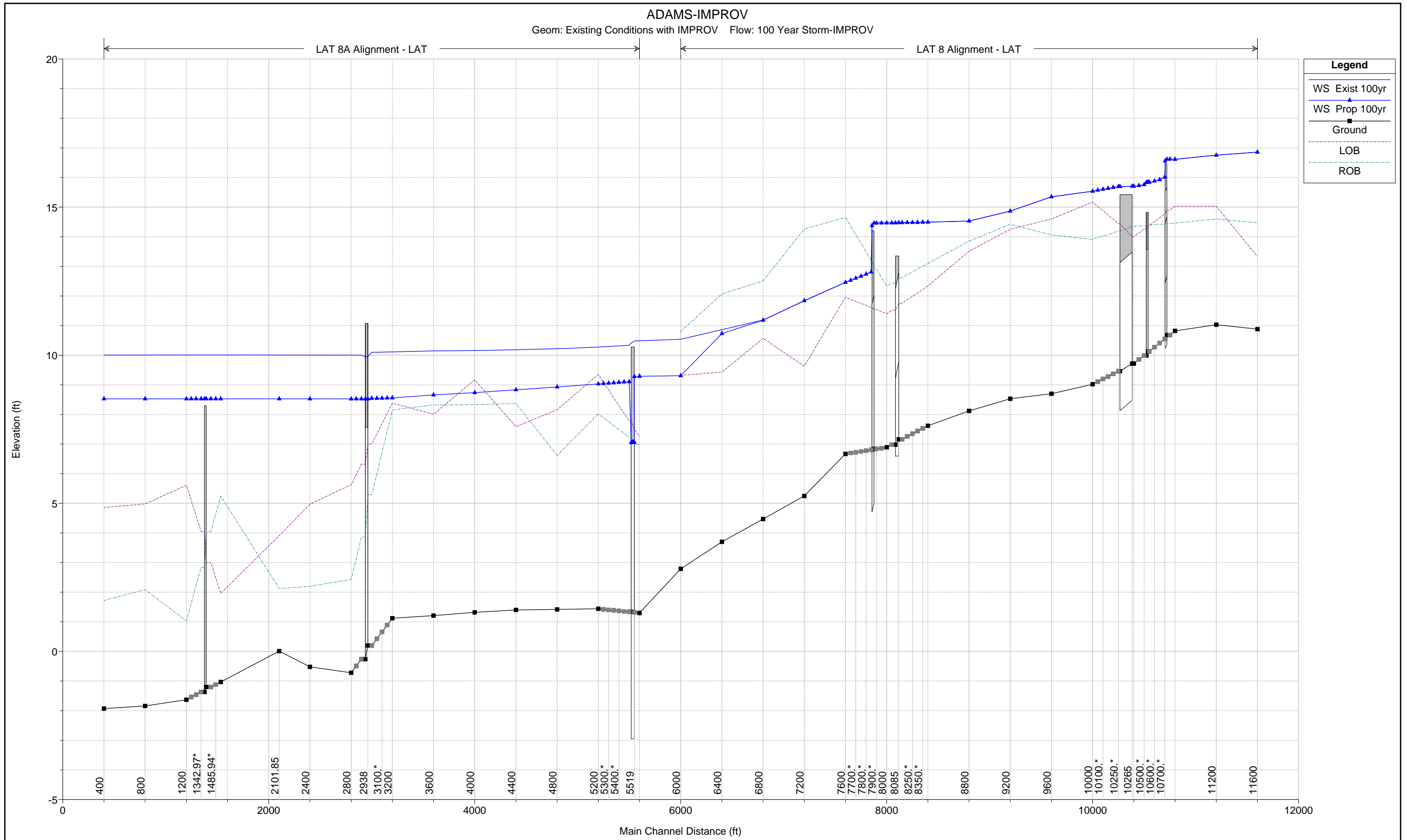


ADAMS-IMPROV

Geom: Existing Conditions with IMPROV Flow: 100 Year Storm-IMPROV

LAT 8A Alignment -LAT 8

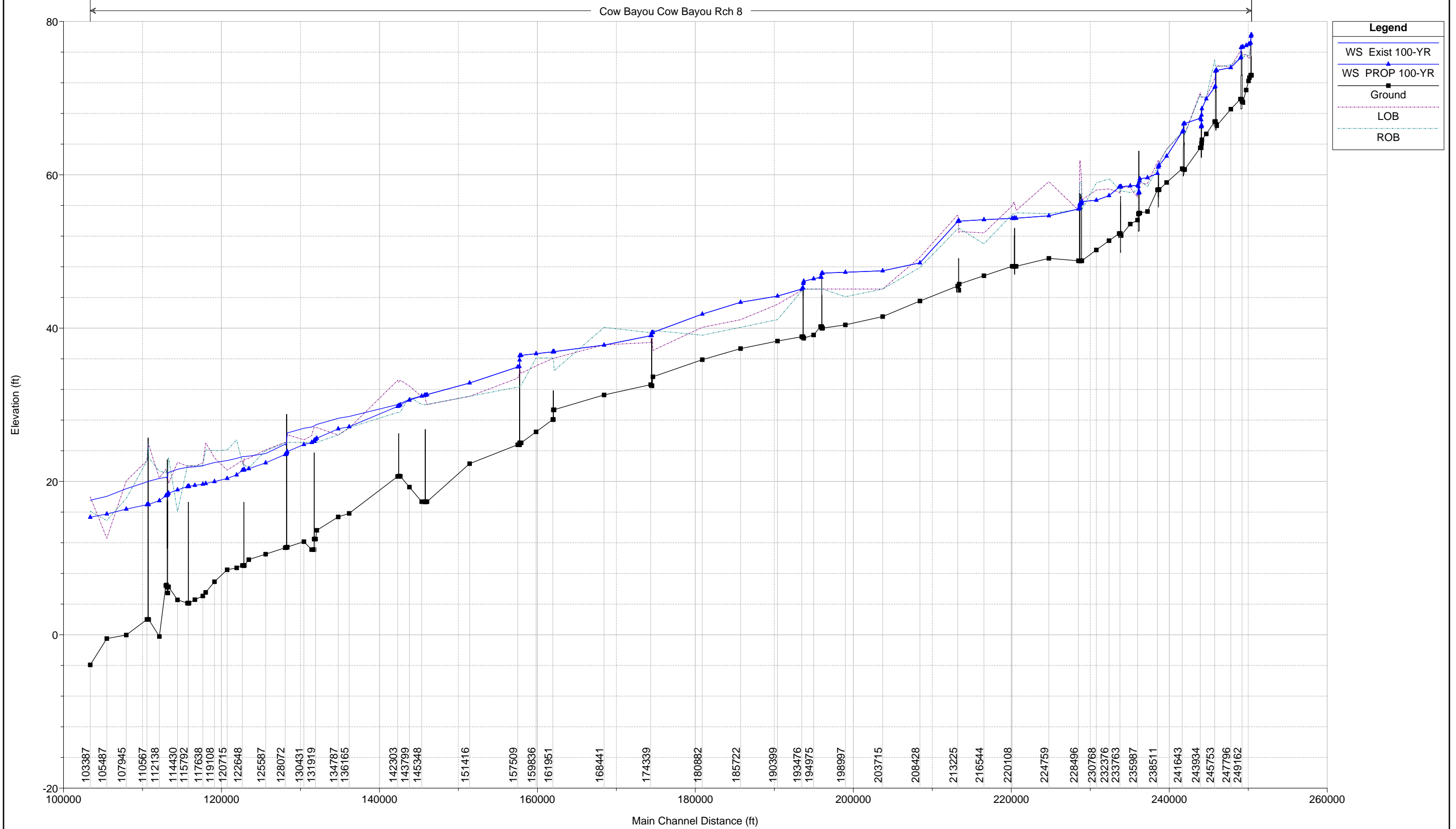


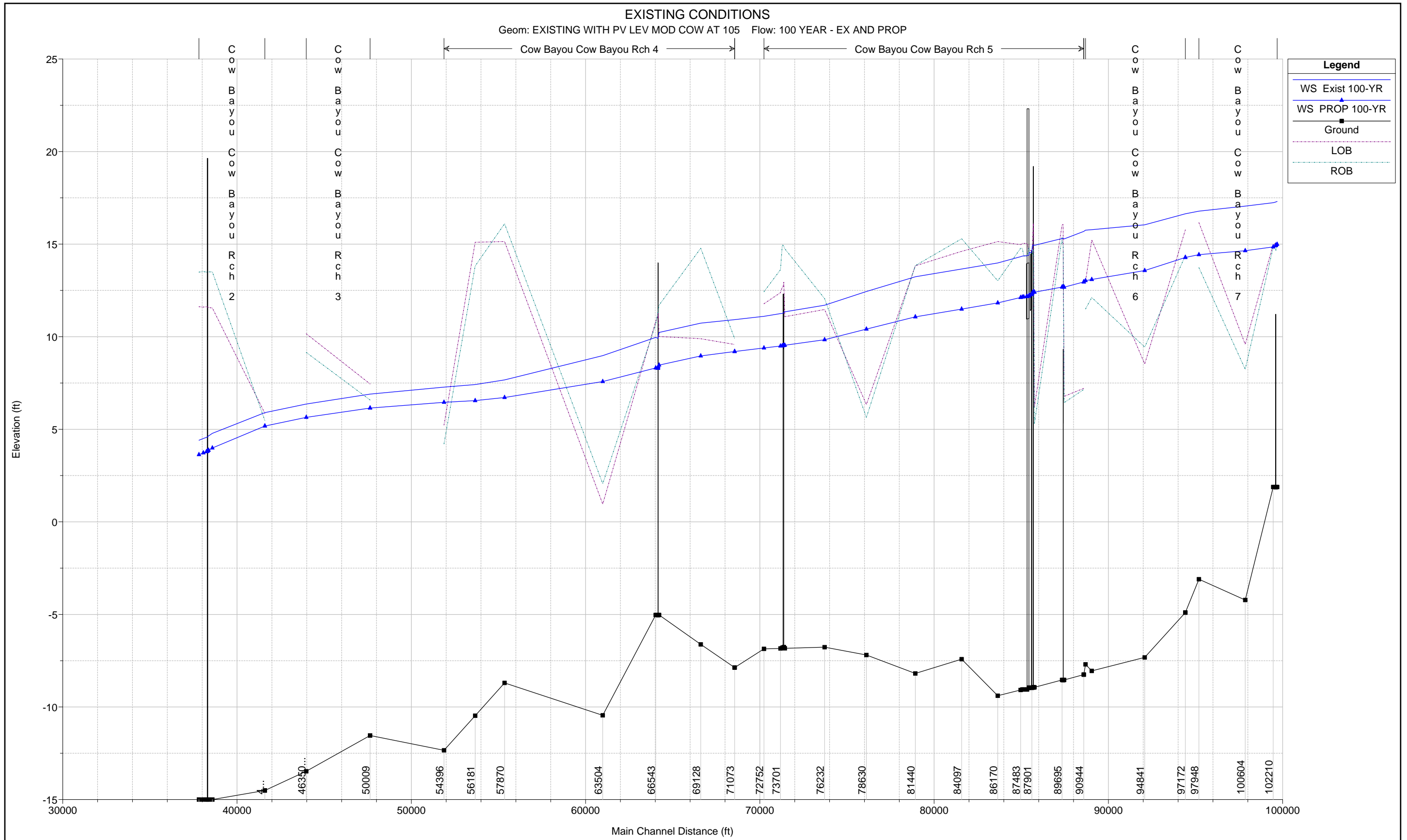


### EXISTING CONDITIONS

Geom: EXISTING WITH PV LEV MOD COW AT 105 Flow: 100 YEAR - EX AND PROP

Cow Bayou Cow Bayou Rch 8

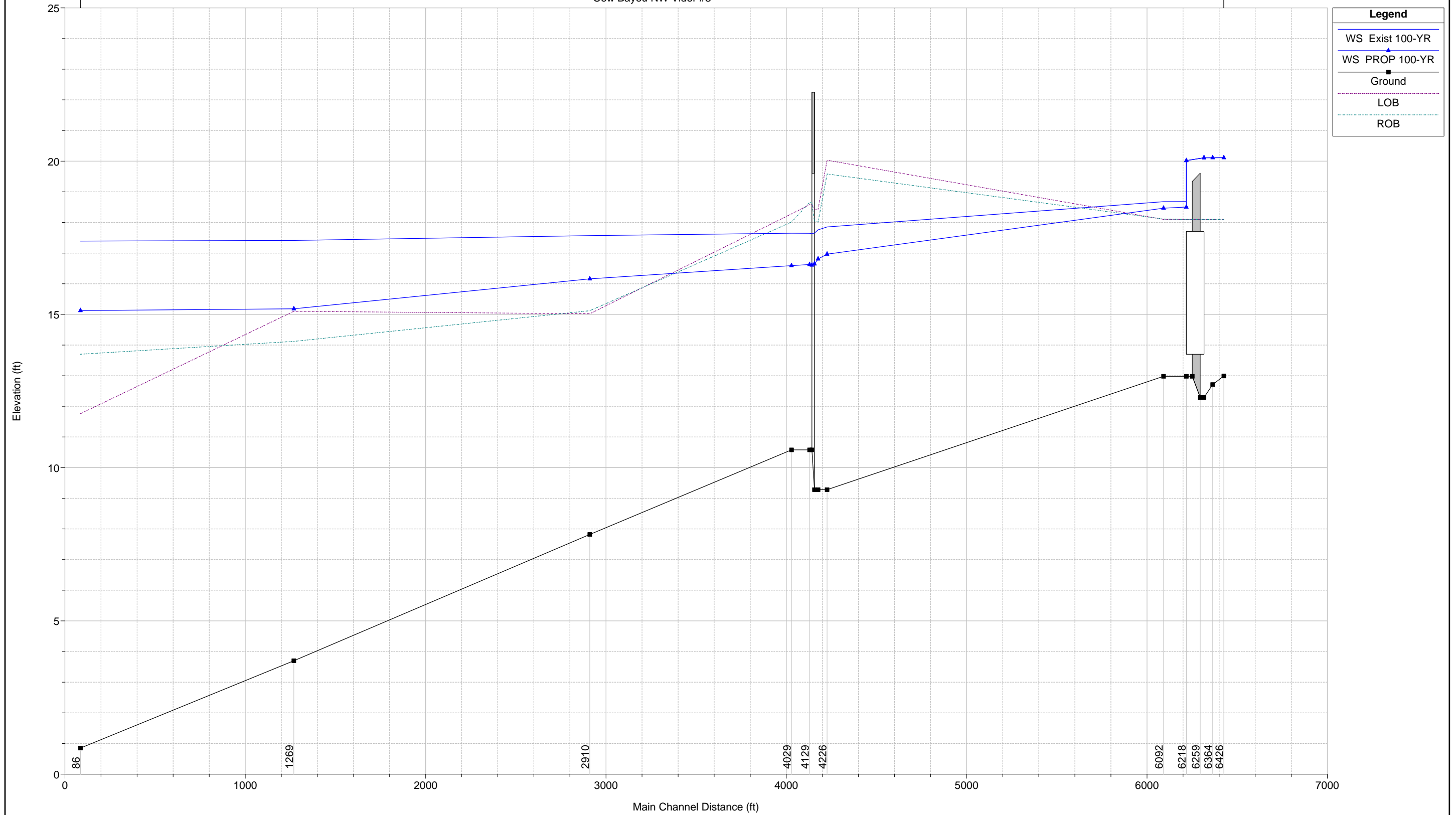




### EXISTING CONDITIONS

Geom: EXISTING WITH PV LEV MOD COW AT 105 Flow: 100 YEAR - EX AND PROP

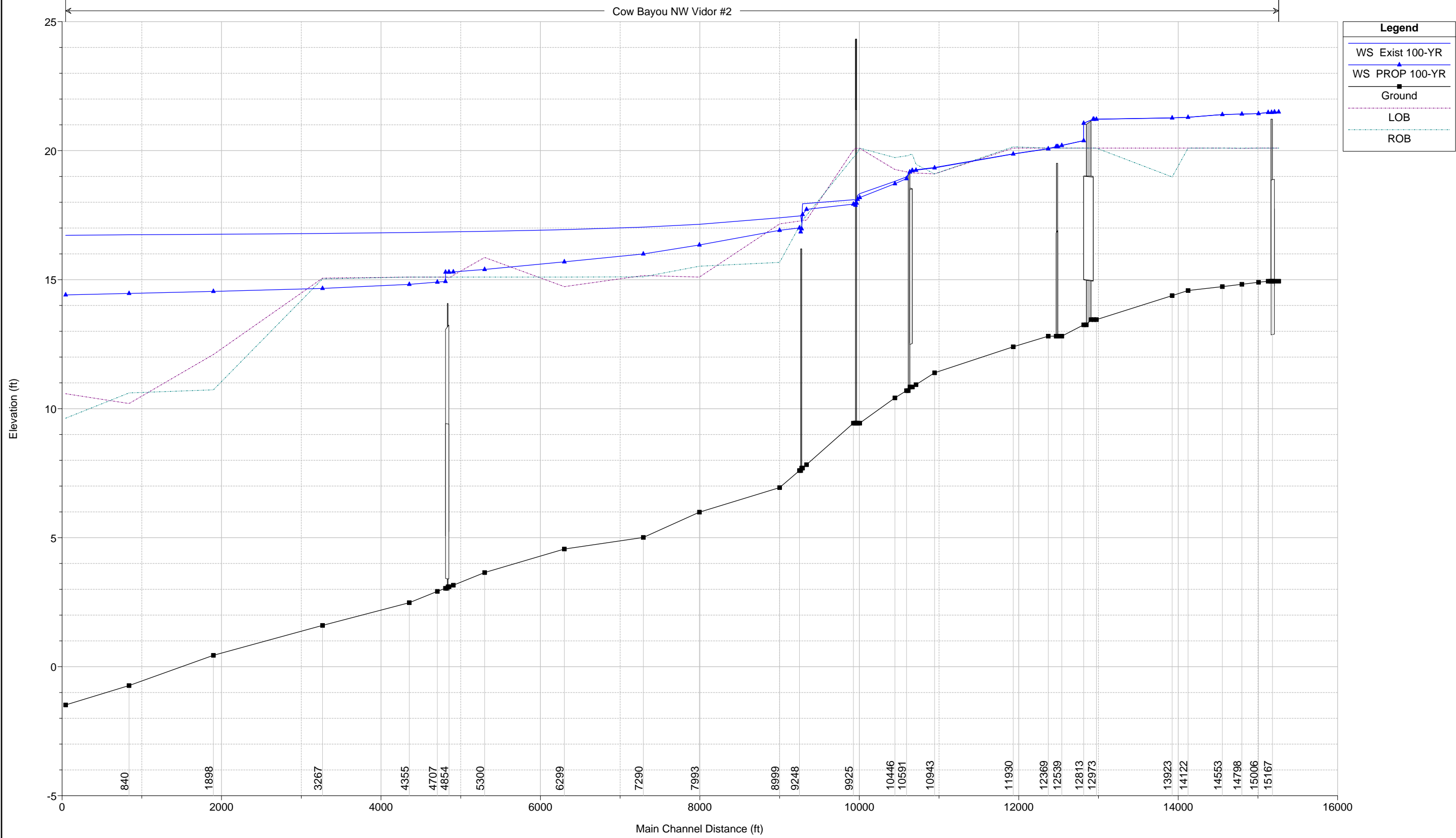
Cow Bayou NW Vidor #3



EXISTING CONDITIONS

Geom: EXISTING WITH PV LEV MOD COW AT 105 Flow: 100 YEAR - EX AND PROP

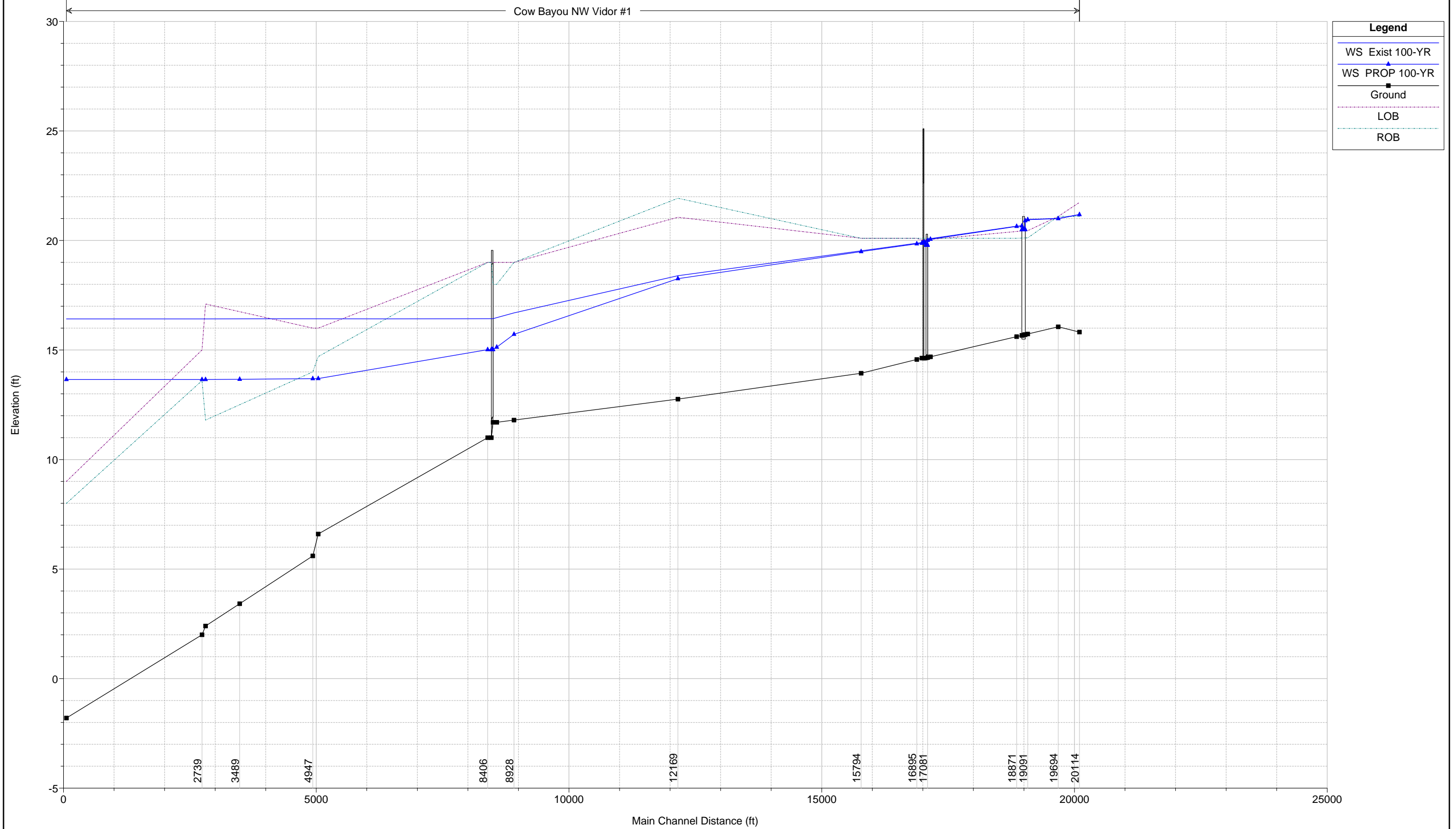
Cow Bayou NW Vidor #2



### EXISTING CONDITIONS

Geom: EXISTING WITH PV LEV MOD COW AT 105 Flow: 100 YEAR - EX AND PROP

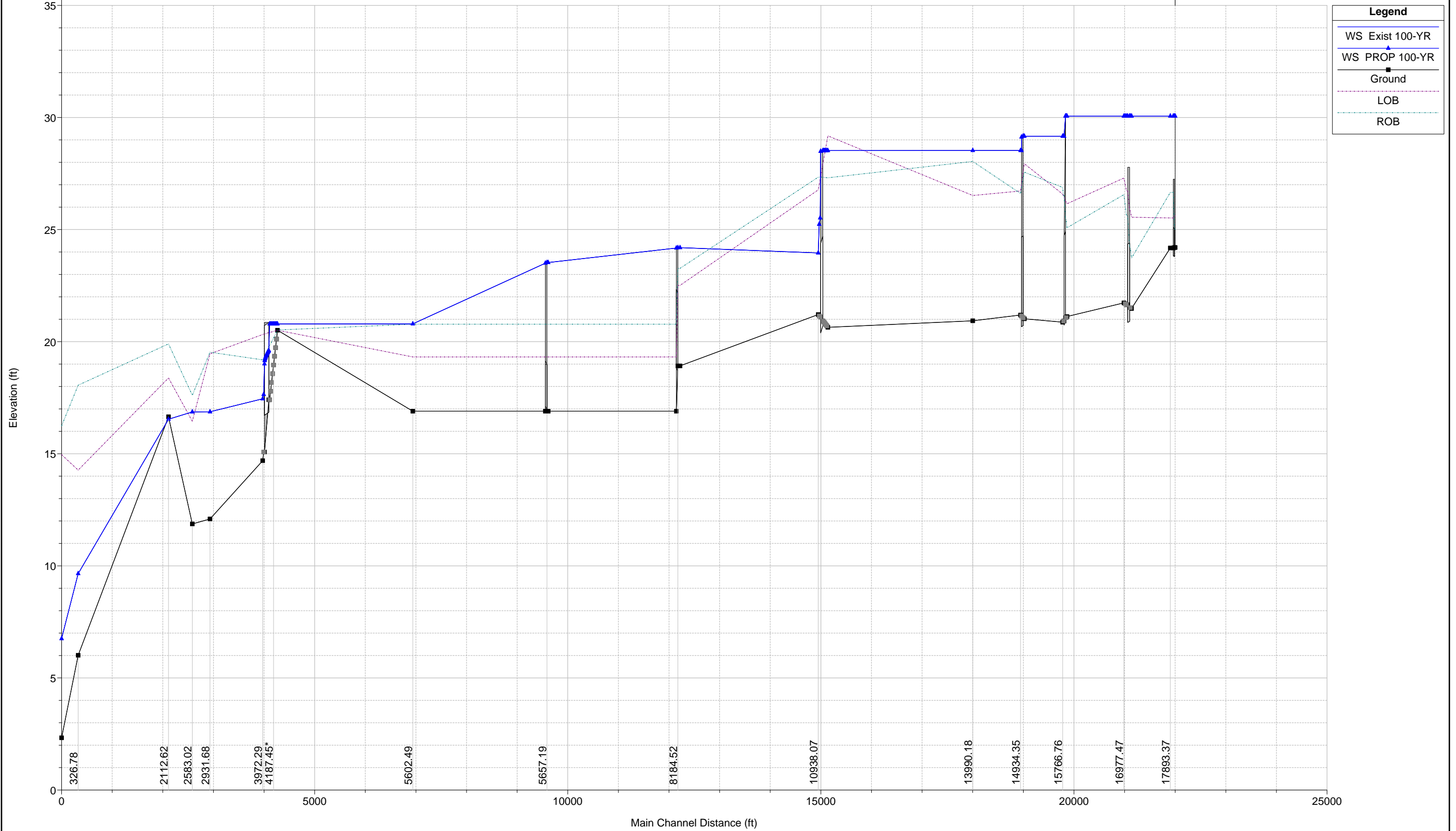
Cow Bayou NW Vidor #1





EXISTING CONDITIONS REV IRONGATE Plan: EXISTING W PV LEV MOD COW AT 105 5/22/2015

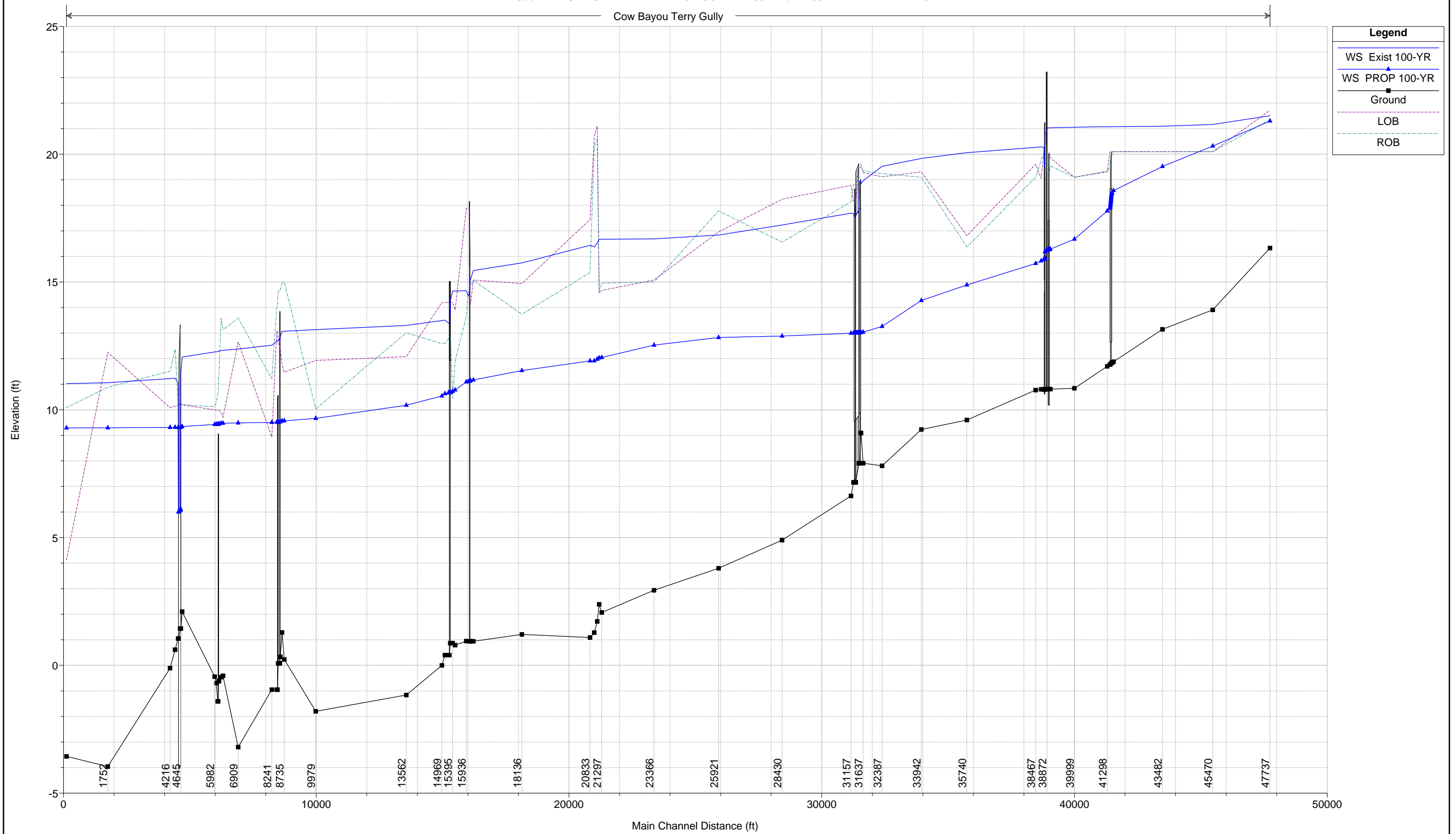
IRON GATE DITCH CL IRON GATE DIT



### EXISTING CONDITIONS

Geom: EXISTING WITH PV LEV MOD COW AT 105 Flow: 100 YEAR - EX AND PROP

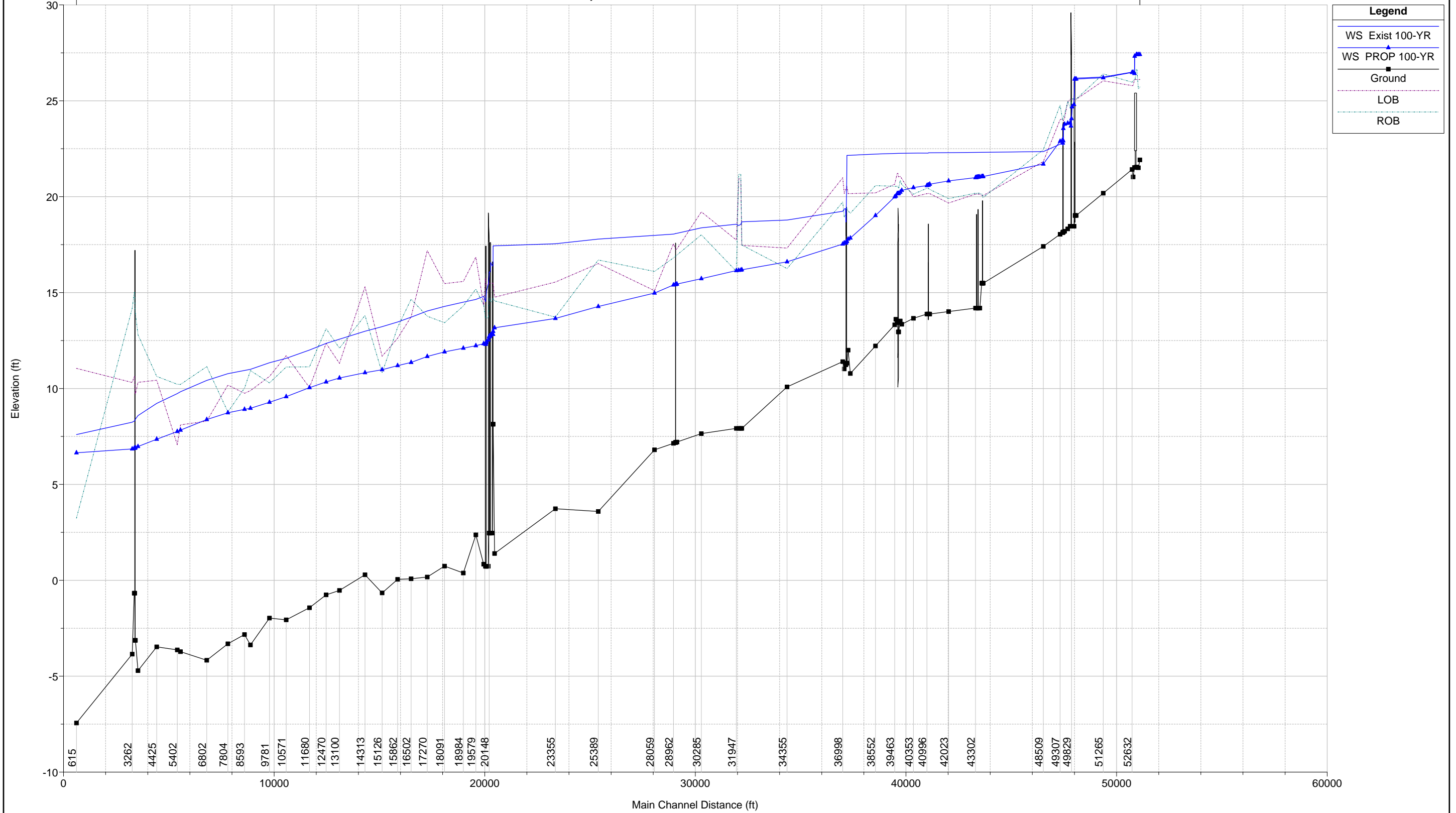
Cow Bayou Terry Gully



### EXISTING CONDITIONS

Geom: EXISTING WITH PV LEV MOD COW AT 105 Flow: 100 YEAR - EX AND PROP

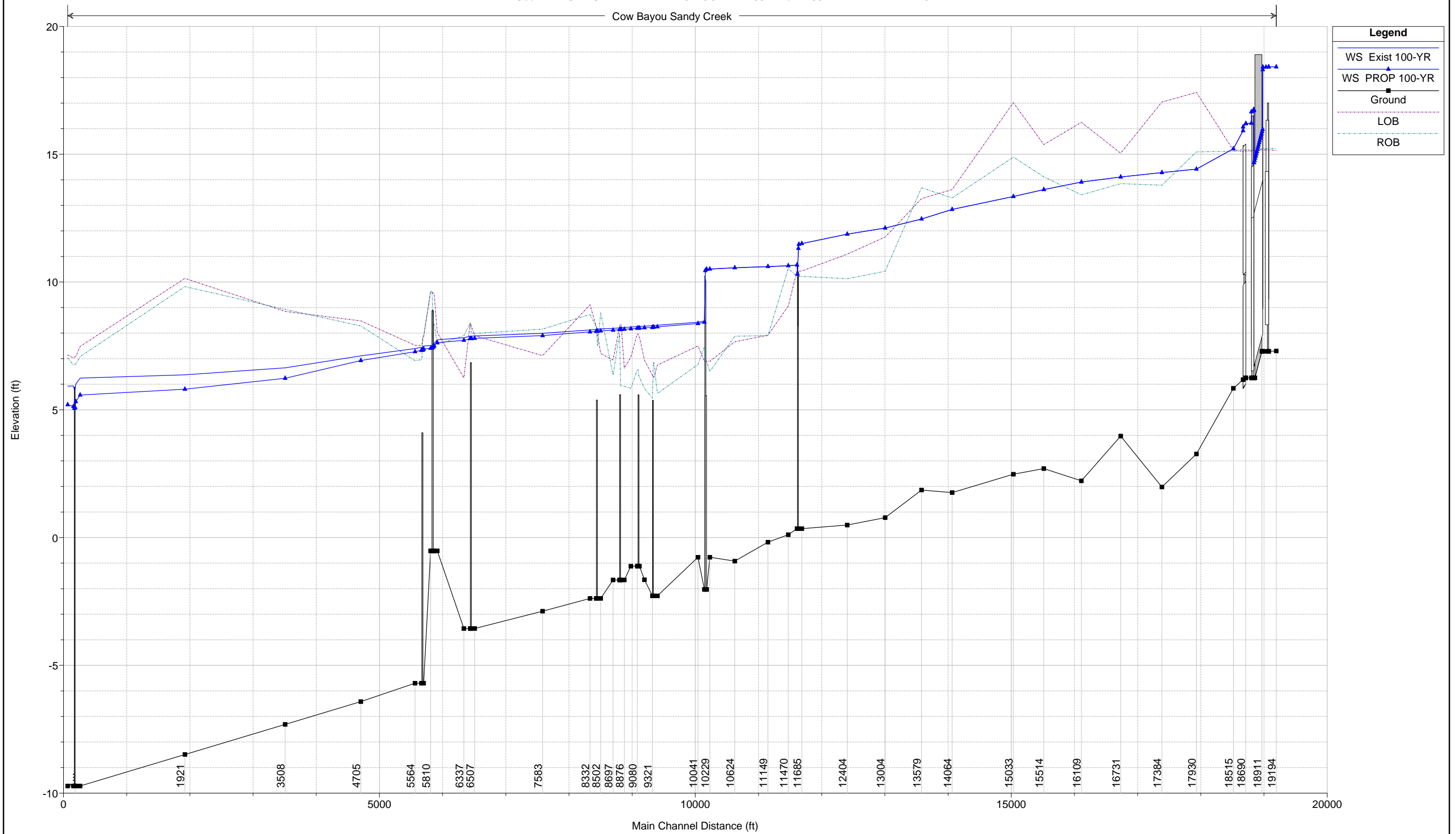
Cow Bayou Cole Creek



### EXISTING CONDITIONS

Geom: EXISTING WITH PV LEV MOD COW AT 105 Flow: 100 YEAR - EX AND PROP

Cow Bayou Sandy Creek



# APPENDIX C

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)	
23	Alignment - 23	000	Exist 100yr	870.10	10.75	18.32	18.32	18.50	0.006450	5.55	439.98	847.12	0.58
	Alignment - 23	000	Prop 100yr	870.10	10.75	18.32	18.32	18.50	0.006450	5.55	439.98	847.12	0.58
23	Alignment - 23	50.0000*	Exist 100yr	870.10	11.11	18.62		18.67	0.001806	3.19	710.38	890.82	0.32
23	Alignment - 23	50.0000*	Prop 100yr	870.10	11.11	18.62		18.67	0.001806	3.19	710.38	890.82	0.32
23	Alignment - 23	99.9999*	Exist 100yr	870.10	11.47	18.71		18.75	0.001311	2.80	790.06	890.82	0.28
23	Alignment - 23	99.9999*	Prop 100yr	870.10	11.47	18.71		18.75	0.001311	2.80	790.06	890.82	0.28
23	Alignment - 23	150.*	Exist 100yr	870.10	11.83	18.78		18.81	0.001055	2.58	847.81	890.82	0.25
23	Alignment - 23	150.*	Prop 100yr	870.10	11.83	18.78		18.81	0.001055	2.58	847.81	890.82	0.25
23	Alignment - 23	200.*	Exist 100yr	870.10	12.19	18.83		18.86	0.000893	2.44	894.22	890.82	0.24
23	Alignment - 23	200.*	Prop 100yr	870.10	12.19	18.83		18.86	0.000893	2.44	894.22	890.82	0.24
23	Alignment - 23	250.*	Exist 100yr	870.10	12.55	18.88		18.90	0.000780	2.33	933.46	890.82	0.23
23	Alignment - 23	250.*	Prop 100yr	870.10	12.55	18.88		18.90	0.000780	2.33	933.46	890.82	0.23
23	Alignment - 23	300.*	Exist 100yr	870.10	12.90	18.91		18.94	0.000695	2.25	967.70	890.82	0.22
23	Alignment - 23	300.*	Prop 100yr	870.10	12.90	18.91		18.94	0.000695	2.25	967.70	890.82	0.22
23	Alignment - 23	310		Culvert									
23	Alignment - 23	350.*	Exist 100yr	870.10	13.26	20.58	18.30	20.59	0.000035	0.67	2454.49	890.82	0.05
23	Alignment - 23	350.*	Prop 100yr	870.10	13.26	20.58	18.30	20.59	0.000035	0.67	2454.49	890.82	0.05
23	Alignment - 23	400.*	Exist 100yr	870.10	13.62	20.59		20.59	0.000035	0.68	2455.65	890.82	0.05
23	Alignment - 23	400.*	Prop 100yr	870.10	13.62	20.59		20.59	0.000035	0.68	2455.65	890.82	0.05
23	Alignment - 23	450.*	Exist 100yr	870.10	13.98	20.59		20.59	0.000035	0.69	2456.81	890.82	0.05
23	Alignment - 23	450.*	Prop 100yr	870.10	13.98	20.59		20.59	0.000035	0.69	2456.81	890.82	0.05
23	Alignment - 23	500	Exist 100yr	870.10	14.34	20.59		20.59	0.000035	0.69	2457.97	890.82	0.06
23	Alignment - 23	500	Prop 100yr	870.10	14.34	20.59		20.59	0.000035	0.69	2457.97	890.82	0.06
23	Alignment - 23	550.*	Exist 100yr	870.10	14.50	20.59		20.59	0.000030	0.64	2667.22	978.06	0.05
23	Alignment - 23	550.*	Prop 100yr	870.10	14.50	20.59		20.59	0.000030	0.64	2667.22	978.06	0.05
23	Alignment - 23	600.*	Exist 100yr	870.10	14.66	20.59		20.59	0.000027	0.59	2866.41	1065.31	0.05
23	Alignment - 23	600.*	Prop 100yr	870.10	14.66	20.59		20.59	0.000027	0.59	2866.41	1065.31	0.05
23	Alignment - 23	650.*	Exist 100yr	870.10	14.82	20.59		20.60	0.000024	0.55	3059.96	1152.56	0.05
23	Alignment - 23	650.*	Prop 100yr	870.10	14.82	20.59		20.60	0.000024	0.55	3059.96	1152.56	0.05
23	Alignment - 23	700.*	Exist 100yr	870.10	14.98	20.60		20.60	0.000022	0.52	3244.46	1239.80	0.04
23	Alignment - 23	700.*	Prop 100yr	870.10	14.98	20.60		20.60	0.000022	0.52	3244.46	1239.80	0.04
23	Alignment - 23	750.*	Exist 100yr	870.10	15.14	20.60		20.60	0.000020	0.49	3420.44	1327.04	0.04
23	Alignment - 23	750.*	Prop 100yr	870.10	15.14	20.60		20.60	0.000020	0.49	3420.44	1327.04	0.04
23	Alignment - 23	781		Culvert									
23	Alignment - 23	850.*	Exist 100yr	870.10	15.45	20.60	18.49	20.61	0.000017	0.44	3759.70	1501.53	0.04
23	Alignment - 23	850.*	Prop 100yr	870.10	15.45	20.60	18.49	20.61	0.000017	0.44	3759.70	1501.53	0.04
23	Alignment - 23	900.*	Exist 100yr	870.10	15.61	20.61		20.61	0.000017	0.42	3912.78	1588.78	0.04
23	Alignment - 23	900.*	Prop 100yr	870.10	15.61	20.61		20.61	0.000017	0.42	3912.78	1588.78	0.04
23	Alignment - 23	950.*	Exist 100yr	870.10	15.77	20.61		20.61	0.000016	0.41	4060.99	1676.03	0.04
23	Alignment - 23	950.*	Prop 100yr	870.10	15.77	20.61		20.61	0.000016	0.41	4060.99	1676.03	0.04
23	Alignment - 23	1000	Exist 100yr	870.10	15.93	20.61		20.61	0.000015	0.39	4195.52	1763.27	0.04
23	Alignment - 23	1000	Prop 100yr	870.10	15.93	20.61		20.61	0.000015	0.39	4195.52	1763.27	0.04
23	Alignment - 23	1500	Exist 100yr	870.10	16.17	20.62		20.62	0.000019	0.41	4106.85	2002.56	0.04
23	Alignment - 23	1500	Prop 100yr	870.10	16.17	20.62		20.62	0.000019	0.41	4106.85	2002.56	0.04
23	Alignment - 23	2000	Exist 100yr	870.10	16.52	20.63		20.63	0.000019	0.39	4540.16	2526.99	0.04
23	Alignment - 23	2000	Prop 100yr	870.10	16.52	20.63		20.63	0.000019	0.39	4540.16	2526.99	0.04
23	Alignment - 23	2500	Exist 100yr	870.10	16.99	20.64		20.64	0.000065	0.67	3285.62	2949.74	0.07
23	Alignment - 23	2500	Prop 100yr	870.10	16.99	20.64		20.64	0.000065	0.67	3285.62	2949.74	0.07
23	Alignment - 23	3000	Exist 100yr	870.10	17.60	20.68		20.68	0.000108	0.77	3012.99	3589.52	0.09
23	Alignment - 23	3000	Prop 100yr	870.10	17.60	20.68		20.68	0.000108	0.77	3012.99	3589.52	0.09
23	Alignment - 23	3500	Exist 100yr	870.10	18.17	20.77		20.77	0.000339	1.18	2119.70	3433.39	0.15
23	Alignment - 23	3500	Prop 100yr	870.10	18.17	20.77		20.77	0.000339	1.18	2119.70	3433.39	0.15
23	Alignment - 23	4000	Exist 100yr	870.10	18.84	20.99		20.99	0.000544	1.35	1264.47	1327.14	0.19
23	Alignment - 23	4000	Prop 100yr	870.10	18.84	20.99		20.99	0.000544	1.35	1264.47	1327.14	0.19
24-A	Alignment - 24-A	500	Exist 100yr	145.70	18.46	20.53	20.53	20.74	0.005706	3.93	65.45	254.74	0.59
24-A	Alignment - 24-A	500	Prop 100yr	145.70	18.46	20.53	20.53	20.74	0.005706	3.93	65.45	254.74	0.59
24-A	Alignment - 24-A	546		Culvert									
24-A	Alignment - 24-A	600.*	Exist 100yr	145.70	18.72	22.05	20.76	22.05	0.000007	0.21	1925.02	2127.27	0.02
24-A	Alignment - 24-A	600.*	Prop 100yr	145.70	18.72	22.05	20.76	22.05	0.000007	0.21	1925.02	2127.27	0.02

HEC-RAS Plan: Plan 05 (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
24-A	Alignment - 24-A	650.*	Exist 100yr	145.70	18.85	22.05		22.05	0.000008	0.22	1834.13	2105.69	0.02
24-A	Alignment - 24-A	650.*	Prop 100yr	145.70	18.85	22.05		22.05	0.000008	0.22	1834.13	2105.69	0.02
24-A	Alignment - 24-A	700.*	Exist 100yr	145.70	18.98	22.05		22.05	0.000009	0.23	1744.25	2081.11	0.03
24-A	Alignment - 24-A	700.*	Prop 100yr	145.70	18.98	22.05		22.05	0.000009	0.23	1744.25	2081.11	0.03
24-A	Alignment - 24-A	750.*	Exist 100yr	145.70	19.11	22.06		22.06	0.000010	0.24	1659.84	2058.14	0.03
24-A	Alignment - 24-A	750.*	Prop 100yr	145.70	19.11	22.06		22.06	0.000010	0.24	1659.84	2058.14	0.03
24-A	Alignment - 24-A	801		Culvert									
24-A	Alignment - 24-A	850.*	Exist 100yr	145.70	19.37	22.10	20.74	22.10	0.000012	0.24	1573.61	2022.05	0.03
24-A	Alignment - 24-A	850.*	Prop 100yr	145.70	19.37	22.10	20.74	22.10	0.000012	0.24	1573.61	2022.05	0.03
24-A	Alignment - 24-A	900.*	Exist 100yr	145.70	19.50	22.10		22.10	0.000013	0.24	1495.42	1979.72	0.03
24-A	Alignment - 24-A	900.*	Prop 100yr	145.70	19.50	22.10		22.10	0.000013	0.24	1495.42	1979.72	0.03
24-A	Alignment - 24-A	950.*	Exist 100yr	145.70	19.63	22.10		22.10	0.000015	0.25	1421.77	1928.96	0.03
24-A	Alignment - 24-A	950.*	Prop 100yr	145.70	19.63	22.10		22.10	0.000015	0.25	1421.77	1928.96	0.03
24-A	Alignment - 24-A	1000	Exist 100yr	145.70	19.76	22.10		22.10	0.000017	0.25	1354.69	1882.73	0.03
24-A	Alignment - 24-A	1000	Prop 100yr	145.70	19.76	22.10		22.10	0.000017	0.25	1354.69	1882.73	0.03
24-A	Alignment - 24-A	1050.*	Exist 100yr	145.70	19.76	22.10		22.10	0.000018	0.26	1308.59	1820.73	0.03
24-A	Alignment - 24-A	1050.*	Prop 100yr	145.70	19.76	22.10		22.10	0.000018	0.26	1308.59	1820.73	0.03
24-A	Alignment - 24-A	1100.*	Exist 100yr	145.70	19.76	22.10		22.10	0.000020	0.27	1257.49	1757.46	0.04
24-A	Alignment - 24-A	1100.*	Prop 100yr	145.70	19.76	22.10		22.10	0.000020	0.27	1257.49	1757.46	0.04
24-A	Alignment - 24-A	1150.*	Exist 100yr	145.70	19.76	22.10		22.10	0.000022	0.29	1214.29	1704.10	0.04
24-A	Alignment - 24-A	1150.*	Prop 100yr	145.70	19.76	22.10		22.10	0.000022	0.29	1214.29	1704.10	0.04
24-A	Alignment - 24-A	1200.*	Exist 100yr	145.70	19.76	22.10		22.10	0.000024	0.30	1172.11	1648.75	0.04
24-A	Alignment - 24-A	1200.*	Prop 100yr	145.70	19.76	22.10		22.10	0.000024	0.30	1172.11	1648.75	0.04
24-A	Alignment - 24-A	1250.*	Exist 100yr	145.70	19.76	22.10		22.10	0.000026	0.32	1130.27	1601.24	0.04
24-A	Alignment - 24-A	1250.*	Prop 100yr	145.70	19.76	22.10		22.10	0.000026	0.32	1130.27	1601.24	0.04
24-A	Alignment - 24-A	1300.*	Exist 100yr	145.70	19.76	22.11		22.11	0.000028	0.33	1090.18	1550.10	0.04
24-A	Alignment - 24-A	1300.*	Prop 100yr	145.70	19.76	22.11		22.11	0.000028	0.33	1090.18	1550.10	0.04
24-A	Alignment - 24-A	1315		Culvert									
24-A	Alignment - 24-A	1350.*	Exist 100yr	145.70	19.76	22.12	21.35	22.12	0.000028	0.34	1078.08	1516.85	0.04
24-A	Alignment - 24-A	1350.*	Prop 100yr	145.70	19.76	22.12	21.35	22.12	0.000028	0.34	1078.08	1516.85	0.04
24-A	Alignment - 24-A	1400.*	Exist 100yr	145.70	19.76	22.12		22.12	0.000031	0.36	1038.16	1469.55	0.05
24-A	Alignment - 24-A	1400.*	Prop 100yr	145.70	19.76	22.12		22.12	0.000031	0.36	1038.16	1469.55	0.05
24-A	Alignment - 24-A	1450.*	Exist 100yr	145.70	19.76	22.13		22.13	0.000034	0.37	1002.60	1429.72	0.05
24-A	Alignment - 24-A	1450.*	Prop 100yr	145.70	19.76	22.13		22.13	0.000034	0.37	1002.60	1429.72	0.05
24-A	Alignment - 24-A	1500	Exist 100yr	145.70	19.76	22.13		22.13	0.000037	0.39	968.04	1386.34	0.05
24-A	Alignment - 24-A	1500	Prop 100yr	145.70	19.76	22.13		22.13	0.000037	0.39	968.04	1386.34	0.05
24-A	Alignment - 24-A	2000	Exist 100yr	145.70	20.62	22.17		22.19	0.001629	1.81	251.85	927.20	0.30
24-A	Alignment - 24-A	2000	Prop 100yr	145.70	20.62	22.17		22.19	0.001629	1.81	251.85	927.20	0.30
ADAMS BAYOU	Alignment - ADAM	82100.*	Exist 100yr	166.20	15.98	22.49		22.49	0.000011	0.34	1742.62	2511.15	0.03
ADAMS BAYOU	Alignment - ADAM	82100.*	Prop 100yr	166.20	15.98	22.47		22.47	0.000011	0.35	1713.06	2504.80	0.03
ADAMS BAYOU	Alignment - ADAM	82150.*	Exist 100yr	166.20	16.01	22.49		22.49	0.000013	0.37	1626.76	2498.81	0.03
ADAMS BAYOU	Alignment - ADAM	82150.*	Prop 100yr	166.20	16.01	22.47		22.47	0.000014	0.38	1597.39	2492.28	0.03
ADAMS BAYOU	Alignment - ADAM	82200.*	Exist 100yr	166.20	16.04	22.49		22.49	0.000015	0.40	1513.90	2479.66	0.04
ADAMS BAYOU	Alignment - ADAM	82200.*	Prop 100yr	166.20	16.04	22.47		22.48	0.000016	0.41	1484.82	2472.89	0.04
ADAMS BAYOU	Alignment - ADAM	82250.*	Exist 100yr	166.20	16.08	22.49		22.49	0.000019	0.44	1403.93	2464.84	0.04
ADAMS BAYOU	Alignment - ADAM	82250.*	Prop 100yr	166.20	16.08	22.48		22.48	0.000019	0.44	1375.18	2445.38	0.04
ADAMS BAYOU	Alignment - ADAM	82300.*	Exist 100yr	166.20	16.11	22.49		22.49	0.000021	0.46	1298.49	2316.72	0.04
ADAMS BAYOU	Alignment - ADAM	82300.*	Prop 100yr	166.20	16.11	22.48		22.48	0.000022	0.47	1271.54	2288.87	0.04
ADAMS BAYOU	Alignment - ADAM	82350.*	Exist 100yr	166.20	16.14	22.49		22.49	0.000024	0.50	1201.43	2186.04	0.04
ADAMS BAYOU	Alignment - ADAM	82350.*	Prop 100yr	166.20	16.14	22.48		22.48	0.000025	0.50	1176.11	2156.57	0.05
ADAMS BAYOU	Alignment - ADAM	82400.*	Exist 100yr	166.20	16.17	22.49		22.49	0.000028	0.53	1106.96	2074.53	0.05
ADAMS BAYOU	Alignment - ADAM	82400.*	Prop 100yr	166.20	16.17	22.48		22.48	0.000029	0.54	1082.95	2054.54	0.05
ADAMS BAYOU	Alignment - ADAM	82450.*	Exist 100yr	166.20	16.20	22.49		22.49	0.000032	0.57	1021.19	1992.90	0.05
ADAMS BAYOU	Alignment - ADAM	82450.*	Prop 100yr	166.20	16.20	22.48		22.48	0.000033	0.58	998.23	1972.78	0.05
ADAMS BAYOU	Alignment - ADAM	82500.*	Exist 100yr	166.20	16.23	22.49		22.50	0.000037	0.61	941.57	1910.45	0.05
ADAMS BAYOU	Alignment - ADAM	82500.*	Prop 100yr	166.20	16.23	22.48		22.48	0.000039	0.62	919.68	1889.62	0.06
ADAMS BAYOU	Alignment - ADAM	82550.*	Exist 100yr	166.20	16.26	22.49		22.50	0.000043	0.66	864.03	1828.23	0.06
ADAMS BAYOU	Alignment - ADAM	82550.*	Prop 100yr	166.20	16.26	22.48		22.49	0.000045	0.67	843.20	1807.26	0.06
ADAMS BAYOU	Alignment - ADAM	82600.*	Exist 100yr	166.20	16.29	22.50		22.50	0.000049	0.70	794.23	1752.82	0.06
ADAMS BAYOU	Alignment - ADAM	82600.*	Prop 100yr	166.20	16.29	22.48		22.49	0.000052	0.72	774.39	1731.91	0.06

HEC-RAS Plan: Plan 05 (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
ADAMS BAYOU	Alignment - ADAM	82650.*	Exist 100yr	166.20	16.32	22.50		22.50	0.000057	0.75	724.60	1659.05	0.07
ADAMS BAYOU	Alignment - ADAM	82650.*	Prop 100yr	166.20	16.32	22.49		22.49	0.000059	0.76	706.01	1634.35	0.07
ADAMS BAYOU	Alignment - ADAM	82700.*	Exist 100yr	166.20	16.35	22.50		22.51	0.000065	0.80	662.55	1566.79	0.07
ADAMS BAYOU	Alignment - ADAM	82700.*	Prop 100yr	166.20	16.35	22.49		22.50	0.000068	0.81	645.14	1541.85	0.07
ADAMS BAYOU	Alignment - ADAM	82750.*	Exist 100yr	166.20	16.39	22.50		22.51	0.000073	0.84	605.82	1462.89	0.08
ADAMS BAYOU	Alignment - ADAM	82750.*	Prop 100yr	166.20	16.39	22.49		22.50	0.000076	0.86	589.75	1437.19	0.08
ADAMS BAYOU	Alignment - ADAM	82800.*	Exist 100yr	166.20	16.42	22.51		22.51	0.000082	0.89	554.47	1347.91	0.08
ADAMS BAYOU	Alignment - ADAM	82800.*	Prop 100yr	166.20	16.42	22.49		22.50	0.000085	0.90	539.85	1321.68	0.08
ADAMS BAYOU	Alignment - ADAM	82843											
				Culvert									
ADAMS BAYOU	Alignment - ADAM	82900.*	Exist 100yr	166.20	16.48	22.57	18.63	22.58	0.000082	0.89	545.84	1271.63	0.08
ADAMS BAYOU	Alignment - ADAM	82900.*	Prop 100yr	166.20	16.48	22.56	18.63	22.57	0.000086	0.91	531.81	1244.84	0.08
ADAMS BAYOU	Alignment - ADAM	82950.*	Exist 100yr	166.20	16.51	22.58		22.59	0.000091	0.94	504.70	1158.22	0.08
ADAMS BAYOU	Alignment - ADAM	82950.*	Prop 100yr	166.20	16.51	22.57		22.58	0.000095	0.95	492.06	1135.44	0.09
ADAMS BAYOU	Alignment - ADAM	83000	Exist 100yr	166.20	16.54	22.58		22.59	0.000099	0.98	472.24	1062.25	0.09
ADAMS BAYOU	Alignment - ADAM	83000	Prop 100yr	166.20	16.54	22.57		22.58	0.000102	1.00	460.75	1048.85	0.09
ADAMS BAYOU	Alignment - ADAM	84000	Exist 100yr	166.20	16.59	22.69		22.70	0.000112	1.06	469.48	1382.18	0.09
ADAMS BAYOU	Alignment - ADAM	84000	Prop 100yr	166.20	16.59	22.68		22.69	0.000115	1.07	458.99	1372.40	0.09
ADAMS BAYOU	Alignment - ADAM	84050.*	Exist 100yr	166.20	16.66	22.69		22.70	0.000121	1.09	450.66	1368.99	0.10
ADAMS BAYOU	Alignment - ADAM	84050.*	Prop 100yr	166.20	16.66	22.68		22.70	0.000124	1.10	440.45	1358.37	0.10
ADAMS BAYOU	Alignment - ADAM	84100.*	Exist 100yr	166.20	16.73	22.70		22.71	0.000128	1.12	435.55	1348.36	0.10
ADAMS BAYOU	Alignment - ADAM	84100.*	Prop 100yr	166.20	16.73	22.69		22.70	0.000132	1.13	425.71	1337.47	0.10
ADAMS BAYOU	Alignment - ADAM	84150.*	Exist 100yr	166.20	16.80	22.70		22.72	0.000137	1.15	415.49	1322.20	0.10
ADAMS BAYOU	Alignment - ADAM	84150.*	Prop 100yr	166.20	16.80	22.69		22.71	0.000141	1.17	406.06	1310.34	0.10
ADAMS BAYOU	Alignment - ADAM	84200.*	Exist 100yr	166.20	16.87	22.71		22.72	0.000144	1.18	401.14	1296.49	0.11
ADAMS BAYOU	Alignment - ADAM	84200.*	Prop 100yr	166.20	16.87	22.70		22.72	0.000148	1.19	392.12	1284.02	0.11
ADAMS BAYOU	Alignment - ADAM	84250.*	Exist 100yr	166.20	13.86	22.72		22.73	0.000128	1.07	405.85	1268.78	0.09
ADAMS BAYOU	Alignment - ADAM	84250.*	Prop 100yr	166.20	13.86	22.71		22.73	0.000131	1.08	397.43	1254.35	0.09
ADAMS BAYOU	Alignment - ADAM	84261											
				Culvert									
ADAMS BAYOU	Alignment - ADAM	84350.*	Exist 100yr	166.20	17.07	22.84	19.16	22.85	0.000111	1.04	497.99	1445.75	0.09
ADAMS BAYOU	Alignment - ADAM	84350.*	Prop 100yr	166.20	17.07	22.83	19.16	22.84	0.000113	1.05	488.04	1426.52	0.09
ADAMS BAYOU	Alignment - ADAM	84400.*	Exist 100yr	166.20	17.14	22.84		22.85	0.000115	1.06	478.98	1434.57	0.10
ADAMS BAYOU	Alignment - ADAM	84400.*	Prop 100yr	166.20	17.14	22.83		22.85	0.000118	1.07	469.37	1403.05	0.10
ADAMS BAYOU	Alignment - ADAM	84450.*	Exist 100yr	166.20	17.21	22.85		22.86	0.000119	1.07	459.06	1338.04	0.10
ADAMS BAYOU	Alignment - ADAM	84450.*	Prop 100yr	166.20	17.21	22.84		22.85	0.000121	1.08	450.36	1292.36	0.10
ADAMS BAYOU	Alignment - ADAM	84500.*	Exist 100yr	166.20	17.28	22.85		22.86	0.000119	1.06	443.77	1135.18	0.10
ADAMS BAYOU	Alignment - ADAM	84500.*	Prop 100yr	166.20	17.28	22.85		22.86	0.000122	1.08	436.40	1126.43	0.10
ADAMS BAYOU	Alignment - ADAM	84550.*	Exist 100yr	166.20	17.35	22.86		22.87	0.000120	1.06	434.85	1072.32	0.10
ADAMS BAYOU	Alignment - ADAM	84550.*	Prop 100yr	166.20	17.35	22.85		22.86	0.000123	1.07	428.08	1061.15	0.10
ADAMS BAYOU	Alignment - ADAM	84600.*	Exist 100yr	166.20	17.42	22.86		22.88	0.000121	1.06	425.59	999.82	0.10
ADAMS BAYOU	Alignment - ADAM	84600.*	Prop 100yr	166.20	17.42	22.86		22.87	0.000124	1.07	419.45	985.48	0.10
ADAMS BAYOU	Alignment - ADAM	84650.*	Exist 100yr	166.20	17.49	22.87		22.88	0.000121	1.06	420.27	912.72	0.10
ADAMS BAYOU	Alignment - ADAM	84650.*	Prop 100yr	166.20	17.49	22.86		22.88	0.000123	1.07	414.79	900.06	0.10
ADAMS BAYOU	Alignment - ADAM	84700.*	Exist 100yr	166.20	17.56	22.88		22.89	0.000120	1.05	418.79	833.70	0.10
ADAMS BAYOU	Alignment - ADAM	84700.*	Prop 100yr	166.20	17.56	22.87		22.88	0.000122	1.06	413.90	819.81	0.10
ADAMS BAYOU	Alignment - ADAM	84750.*	Exist 100yr	166.20	17.62	22.88		22.89	0.000118	1.04	419.78	756.40	0.10
ADAMS BAYOU	Alignment - ADAM	84750.*	Prop 100yr	166.20	17.62	22.88		22.89	0.000120	1.04	415.44	747.77	0.10
ADAMS BAYOU	Alignment - ADAM	84800.*	Exist 100yr	166.20	17.69	22.89		22.90	0.000117	1.02	423.76	736.63	0.10
ADAMS BAYOU	Alignment - ADAM	84800.*	Prop 100yr	166.20	17.69	22.88		22.89	0.000119	1.03	419.58	732.41	0.10
ADAMS BAYOU	Alignment - ADAM	84850.*	Exist 100yr	166.20	17.76	22.90		22.91	0.000115	1.01	426.98	720.81	0.10
ADAMS BAYOU	Alignment - ADAM	84850.*	Prop 100yr	166.20	17.76	22.89		22.90	0.000117	1.02	422.96	716.89	0.10
ADAMS BAYOU	Alignment - ADAM	84900.*	Exist 100yr	166.20	17.83	22.90		22.91	0.000114	1.00	430.30	707.99	0.09
ADAMS BAYOU	Alignment - ADAM	84900.*	Prop 100yr	166.20	17.83	22.90		22.91	0.000116	1.01	426.43	704.08	0.10
ADAMS BAYOU	Alignment - ADAM	84950.*	Exist 100yr	166.20	17.90	22.91		22.92	0.000112	0.99	435.32	696.60	0.09
ADAMS BAYOU	Alignment - ADAM	84950.*	Prop 100yr	166.20	17.90	22.90		22.91	0.000114	0.99	431.58	692.83	0.09
ADAMS BAYOU	Alignment - ADAM	85000	Exist 100yr	166.20	17.97	22.91		22.92	0.000110	0.98	438.85	682.78	0.09
ADAMS BAYOU	Alignment - ADAM	85000	Prop 100yr	166.20	17.97	22.91		22.92	0.000112	0.98	435.25	679.09	0.09
ADAMS BAYOU	Alignment - ADAM	86000	Exist 100yr	166.20	19.09	23.09		23.12	0.000400	1.60	238.02	540.62	0.17
ADAMS BAYOU	Alignment - ADAM	86000	Prop 100yr	166.20	19.09	23.09		23.12	0.000404	1.61	236.40	538.61	0.17
ADAMS BAYOU	Alignment - ADAM	87000	Exist 100yr	166.20	19.23	23.45		23.47	0.000307	1.43	238.91	421.57	0.15



HEC-RAS Plan: Plan 05 (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
ADAMS BAYOU	Alignment - ADAM	87000	Prop 100yr	166.20	19.23	23.45		23.47	0.000305	1.43	239.84	424.08	0.15
ADAMS BAYOU	Alignment - ADAM	88000	Exist 100yr	166.20	19.37	23.69		23.71	0.000189	1.21	343.27	680.86	0.12
ADAMS BAYOU	Alignment - ADAM	88000	Prop 100yr	166.20	19.37	23.69		23.71	0.000189	1.21	344.05	682.50	0.12
ADAMS BAYOU	Alignment - ADAM	89199.91	Exist 100yr	166.20	19.82	23.86		23.86	0.000093	0.77	671.55	1405.00	0.08
ADAMS BAYOU	Alignment - ADAM	89199.91	Prop 100yr	166.20	19.82	23.86		23.86	0.000093	0.77	672.49	1406.15	0.08
ADAMS BAYOU	Alignment - ADAM	90000	Exist 100yr	166.20	20.65	23.98		23.99	0.000290	1.17	433.07	1183.82	0.14
ADAMS BAYOU	Alignment - ADAM	90000	Prop 100yr	166.20	20.65	23.98		23.99	0.000290	1.17	433.52	1184.64	0.14
ADAMS BAYOU	Alignment - ADAM	91000	Exist 100yr	166.20	21.27	24.24		24.24	0.000235	0.96	609.78	1944.82	0.13
ADAMS BAYOU	Alignment - ADAM	91000	Prop 100yr	166.20	21.27	24.24		24.24	0.000235	0.96	610.01	1945.19	0.13
ADAMS BAYOU 1A	Alignment - ADAM	74000	Exist 100yr	843.80	8.67	20.57		20.60	0.000116	1.59	1347.60	2087.43	0.10
ADAMS BAYOU 1A	Alignment - ADAM	74000	Prop 100yr	82.60	8.67	19.81		19.81	0.000003	0.23	483.98	451.81	0.02
ADAMS BAYOU 1A	Alignment - ADAM	75000	Exist 100yr	843.80	9.59	20.67		20.68	0.000055	1.04	2967.71	5222.16	0.07
ADAMS BAYOU 1A	Alignment - ADAM	75000	Prop 100yr	82.60	9.59	19.82		19.82	0.000003	0.23	694.30	934.11	0.02
ADAMS BAYOU 1A	Alignment - ADAM	76000	Exist 100yr	843.80	10.50	20.74		20.78	0.000173	1.83	1498.94	3894.80	0.13
ADAMS BAYOU 1A	Alignment - ADAM	76000	Prop 100yr	82.60	10.50	19.82		19.82	0.000005	0.29	314.44	275.45	0.02
ADAMS BAYOU 1A	Alignment - ADAM	77000	Exist 100yr	843.80	11.46	20.87		20.88	0.000059	1.10	3754.60	6611.38	0.08
ADAMS BAYOU 1A	Alignment - ADAM	77000	Prop 100yr	82.60	11.46	19.83		19.83	0.000007	0.33	288.42	316.41	0.02
ADAMS BAYOU 1A	Alignment - ADAM	78000	Exist 100yr	843.80	12.36	20.91		20.91	0.000018	0.59	6583.93	7936.76	0.04
ADAMS BAYOU 1A	Alignment - ADAM	78000	Prop 100yr	82.60	12.36	19.83		19.83	0.000007	0.33	610.11	1698.90	0.03
ADAMS BAYOU 1A	Alignment - ADAM	79000	Exist 100yr	843.80	12.75	20.93		20.95	0.000144	1.50	2282.76	5766.66	0.11
ADAMS BAYOU 1A	Alignment - ADAM	79000	Prop 100yr	82.60	12.75	19.84		19.84	0.000014	0.41	235.24	340.04	0.03
ADAMS BAYOU 1A	Alignment - ADAM	80000	Exist 100yr	843.80	13.26	21.13		21.21	0.000484	2.62	810.02	1931.13	0.21
ADAMS BAYOU 1A	Alignment - ADAM	80000	Prop 100yr	82.60	13.26	19.86		19.86	0.000021	0.46	178.44	59.01	0.04
ADAMS BAYOU 1A	Alignment - ADAM	80044		Bridge									
ADAMS BAYOU 1A	Alignment - ADAM	80100.*	Exist 100yr	843.80	13.35	21.25	17.84	21.28	0.000242	1.89	1397.36	1970.08	0.15
ADAMS BAYOU 1A	Alignment - ADAM	80100.*	Prop 100yr	82.60	13.35	19.86	15.09	19.87	0.000023	0.48	170.63	44.00	0.04
ADAMS BAYOU 1A	Alignment - ADAM	80132		Bridge									
ADAMS BAYOU 1A	Alignment - ADAM	80200.*	Exist 100yr	843.80	13.44	21.37	18.02	21.40	0.000236	1.87	1428.55	2020.23	0.15
ADAMS BAYOU 1A	Alignment - ADAM	80200.*	Prop 100yr	82.60	13.44	19.87	15.21	19.87	0.000026	0.51	163.14	42.99	0.05
ADAMS BAYOU 1A	Alignment - ADAM	80250.*	Exist 100yr	843.80	13.48	21.36		21.43	0.000459	2.54	883.60	1823.70	0.20
ADAMS BAYOU 1A	Alignment - ADAM	80250.*	Prop 100yr	82.60	13.48	19.87		19.87	0.000027	0.52	159.48	42.48	0.05
ADAMS BAYOU 1A	Alignment - ADAM	80300.*	Exist 100yr	843.80	13.52	21.38		21.45	0.000483	2.59	849.90	1753.46	0.21
ADAMS BAYOU 1A	Alignment - ADAM	80300.*	Prop 100yr	82.60	13.52	19.87		19.87	0.000029	0.53	155.86	41.96	0.05
ADAMS BAYOU 1A	Alignment - ADAM	80350.*	Exist 100yr	843.80	13.57	21.40		21.48	0.000496	2.62	836.60	1697.30	0.21
ADAMS BAYOU 1A	Alignment - ADAM	80350.*	Prop 100yr	82.60	13.57	19.87		19.87	0.000031	0.54	152.35	41.46	0.05
ADAMS BAYOU 1A	Alignment - ADAM	80400.*	Exist 100yr	843.80	13.61	21.43		21.51	0.000512	2.65	821.87	1646.62	0.21
ADAMS BAYOU 1A	Alignment - ADAM	80400.*	Prop 100yr	82.60	13.61	19.87		19.88	0.000033	0.56	148.80	40.96	0.05
ADAMS BAYOU 1A	Alignment - ADAM	80450.*	Exist 100yr	843.80	13.66	21.45		21.53	0.000533	2.69	797.55	1579.30	0.22
ADAMS BAYOU 1A	Alignment - ADAM	80450.*	Prop 100yr	82.60	13.66	19.87		19.88	0.000035	0.57	145.36	40.44	0.05
ADAMS BAYOU 1A	Alignment - ADAM	80500.*	Exist 100yr	843.80	13.70	21.48		21.56	0.000544	2.71	791.65	1546.11	0.22
ADAMS BAYOU 1A	Alignment - ADAM	80500.*	Prop 100yr	82.60	13.70	19.87		19.88	0.000037	0.58	141.98	39.93	0.05
ADAMS BAYOU 1A	Alignment - ADAM	80550.*	Exist 100yr	843.80	13.74	21.51		21.59	0.000555	2.72	787.51	1518.18	0.22
ADAMS BAYOU 1A	Alignment - ADAM	80550.*	Prop 100yr	82.60	13.74	19.88		19.88	0.000039	0.60	138.68	39.44	0.06
ADAMS BAYOU 1A	Alignment - ADAM	80600.*	Exist 100yr	843.80	13.79	21.54		21.62	0.000568	2.75	778.37	1482.74	0.22
ADAMS BAYOU 1A	Alignment - ADAM	80600.*	Prop 100yr	82.60	13.79	19.88		19.88	0.000042	0.61	135.35	38.93	0.06
ADAMS BAYOU 1A	Alignment - ADAM	80650.*	Exist 100yr	843.80	13.83	21.57		21.65	0.000583	2.77	767.82	1453.05	0.23
ADAMS BAYOU 1A	Alignment - ADAM	80650.*	Prop 100yr	82.60	13.83	19.88		19.89	0.000045	0.62	132.24	38.42	0.06
ADAMS BAYOU 1A	Alignment - ADAM	80700.*	Exist 100yr	843.80	13.88	21.60		21.68	0.000592	2.78	765.22	1424.76	0.23
ADAMS BAYOU 1A	Alignment - ADAM	80700.*	Prop 100yr	82.60	13.88	19.88		19.89	0.000048	0.64	129.03	37.88	0.06
ADAMS BAYOU 1A	Alignment - ADAM	80750.*	Exist 100yr	843.80	13.92	21.63		21.71	0.000597	2.78	769.33	1414.95	0.23
ADAMS BAYOU 1A	Alignment - ADAM	80750.*	Prop 100yr	82.60	13.92	19.88		19.89	0.000051	0.66	125.94	37.37	0.06
ADAMS BAYOU 1A	Alignment - ADAM	80800.*	Exist 100yr	843.80	13.96	21.66		21.74	0.000610	2.80	764.16	1404.64	0.23
ADAMS BAYOU 1A	Alignment - ADAM	80800.*	Prop 100yr	82.60	13.96	19.89		19.89	0.000054	0.67	122.91	36.85	0.06
ADAMS BAYOU 1B	Alignment - ADAM	80850.*	Exist 100yr	1023.60	14.01	21.67		21.80	0.000960	3.49	729.82	1330.69	0.29
ADAMS BAYOU 1B	Alignment - ADAM	80850.*	Prop 100yr	1023.60	14.01	19.43	19.43	20.94	0.013272	9.88	103.57	34.30	1.00
ADAMS BAYOU 1B	Alignment - ADAM	80900.*	Exist 100yr	1023.60	14.05	21.72		21.84	0.000924	3.43	761.59	1366.00	0.28
ADAMS BAYOU 1B	Alignment - ADAM	80900.*	Prop 100yr	1023.60	14.05	20.76	19.49	21.38	0.004311	6.49	203.23	199.26	0.59
ADAMS BAYOU 1B	Alignment - ADAM	80950.*	Exist 100yr	1023.60	14.10	21.77		21.89	0.000895	3.37	785.23	1379.56	0.28
ADAMS BAYOU 1B	Alignment - ADAM	80950.*	Prop 100yr	1023.60	14.10	21.20	19.56	21.57	0.002633	5.28	291.99	346.39	0.47

HEC-RAS Plan: Plan 05 (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)	
ADAMS BAYOU 1B	Alignment - ADAM	81000	Exist 100yr	1023.60	14.14	21.82		21.93	0.000869	3.32	811.61	1405.45	0.27
ADAMS BAYOU 1B	Alignment - ADAM	81000	Prop 100yr	1023.60	14.14	21.41	19.63	21.69	0.002040	4.77	382.44	670.09	0.41
ADAMS BAYOU 1B	Alignment - ADAM	82000	Exist 100yr	1023.60	15.92	22.44		22.46	0.000350	1.92	1854.60	2515.04	0.17
ADAMS BAYOU 1B	Alignment - ADAM	82000	Prop 100yr	1023.60	15.92	22.43		22.44	0.000368	1.97	1818.54	2507.71	0.17
ADAMS BAYOU 1B	Alignment - ADAM	82050.*	Exist 100yr	1023.60	15.95	22.46		22.48	0.000387	2.02	1784.28	2512.84	0.18
ADAMS BAYOU 1B	Alignment - ADAM	82050.*	Prop 100yr	1023.60	15.95	22.44		22.46	0.000407	2.07	1750.54	2505.79	0.18
ADAMS BAYOU 1C	Alignment - ADAM	63000	Exist 100yr	1790.60	3.19	17.33		17.48	0.000351	3.14	845.26	972.34	0.19
ADAMS BAYOU 1C	Alignment - ADAM	63000	Prop 100yr	1395.70	3.19	15.91		16.06	0.000394	3.05	457.57	59.71	0.19
ADAMS BAYOU 1C	Alignment - ADAM	64000	Exist 100yr	1790.60	3.75	17.61		17.63	0.000072	1.36	4274.74	3958.54	0.08
ADAMS BAYOU 1C	Alignment - ADAM	64000	Prop 100yr	1395.70	3.75	16.32		16.42	0.000324	2.74	1082.95	1815.41	0.18
ADAMS BAYOU 1C	Alignment - ADAM	65000	Exist 100yr	1790.60	3.99	17.66		17.81	0.000396	3.24	1177.17	2209.63	0.20
ADAMS BAYOU 1C	Alignment - ADAM	65000	Prop 100yr	1395.70	3.99	16.66		16.82	0.000449	3.22	434.11	58.62	0.21
ADAMS BAYOU 1C	Alignment - ADAM	66000	Exist 100yr	1790.60	4.20	17.97		17.99	0.000092	1.52	3659.13	3418.44	0.09
ADAMS BAYOU 1C	Alignment - ADAM	66000	Prop 100yr	1395.70	4.20	17.07		17.11	0.000196	2.09	1728.81	1480.55	0.14
ADAMS BAYOU 1C	Alignment - ADAM	67000	Exist 100yr	1790.60	4.43	18.07		18.09	0.000125	1.69	3630.85	3627.02	0.11
ADAMS BAYOU 1C	Alignment - ADAM	67000	Prop 100yr	1395.70	4.43	17.29	11.36	17.43	0.000458	3.10	1035.71	3224.54	0.21
ADAMS BAYOU 1C	Alignment - ADAM	68000	Exist 100yr	1790.60	4.80	18.21		18.25	0.000191	2.17	2809.68	3160.44	0.14
ADAMS BAYOU 1C	Alignment - ADAM	68000	Prop 100yr	1395.70	4.80	17.71		17.78	0.000272	2.52	1528.57	1947.78	0.16
ADAMS BAYOU 1C	Alignment - ADAM	69000	Exist 100yr	1668.80	5.70	18.36		18.37	0.000077	1.28	4372.07	3519.13	0.08
ADAMS BAYOU 1C	Alignment - ADAM	69000	Prop 100yr	1206.30	5.70	17.94		17.95	0.000107	1.48	2914.52	3404.35	0.10
ADAMS BAYOU 1C	Alignment - ADAM	69050.*	Exist 100yr	1668.80	5.71	18.37		18.38	0.000082	1.31	4271.66	3469.96	0.09
ADAMS BAYOU 1C	Alignment - ADAM	69050.*	Prop 100yr	1206.30	5.71	17.94		17.96	0.000114	1.53	2826.39	3392.47	0.10
ADAMS BAYOU 1C	Alignment - ADAM	69100.*	Exist 100yr	1668.80	5.72	18.37		18.38	0.000087	1.35	4157.46	3418.65	0.09
ADAMS BAYOU 1C	Alignment - ADAM	69100.*	Prop 100yr	1206.30	5.72	17.95		17.97	0.000123	1.58	2723.02	3380.61	0.11
ADAMS BAYOU 1C	Alignment - ADAM	69150.*	Exist 100yr	1668.80	5.73	18.38		18.39	0.000091	1.40	4062.51	3369.52	0.09
ADAMS BAYOU 1C	Alignment - ADAM	69150.*	Prop 100yr	1206.30	5.73	17.95		17.97	0.000131	1.63	2639.33	3368.74	0.11
ADAMS BAYOU 1C	Alignment - ADAM	69200.*	Exist 100yr	1668.80	5.74	18.38		18.39	0.000097	1.44	3968.52	3357.64	0.10
ADAMS BAYOU 1C	Alignment - ADAM	69200.*	Prop 100yr	1206.30	5.74	17.96		17.98	0.000140	1.68	2555.50	3356.87	0.11
ADAMS BAYOU 1C	Alignment - ADAM	69250.*	Exist 100yr	1668.80	5.76	18.38		18.40	0.000102	1.47	3875.52	3345.77	0.10
ADAMS BAYOU 1C	Alignment - ADAM	69250.*	Prop 100yr	1206.30	5.76	17.96		17.99	0.000149	1.73	2472.92	3345.02	0.12
ADAMS BAYOU 1C	Alignment - ADAM	69300.*	Exist 100yr	1668.80	5.77	18.39		18.40	0.000109	1.51	3778.07	3333.89	0.10
ADAMS BAYOU 1C	Alignment - ADAM	69300.*	Prop 100yr	1206.30	5.77	17.97		18.00	0.000160	1.78	2385.92	3333.15	0.12
ADAMS BAYOU 1C	Alignment - ADAM	69350.*	Exist 100yr	1668.80	5.78	18.39		18.41	0.000116	1.55	3683.75	3322.02	0.10
ADAMS BAYOU 1C	Alignment - ADAM	69350.*	Prop 100yr	1206.30	5.78	17.98		18.01	0.000172	1.83	2302.53	3321.28	0.13
ADAMS BAYOU 1C	Alignment - ADAM	69400.*	Exist 100yr	1668.80	5.79	18.40		18.41	0.000123	1.59	3595.01	3310.15	0.11
ADAMS BAYOU 1C	Alignment - ADAM	69400.*	Prop 100yr	1206.30	5.79	17.99		18.02	0.000183	1.88	2225.33	3309.43	0.13
ADAMS BAYOU 1C	Alignment - ADAM	69450.*	Exist 100yr	1668.80	5.80	18.40		18.42	0.000131	1.64	3505.29	3298.29	0.11
ADAMS BAYOU 1C	Alignment - ADAM	69450.*	Prop 100yr	1206.30	5.80	17.99		18.03	0.000196	1.94	2147.46	3297.59	0.13
ADAMS BAYOU 1C	Alignment - ADAM	69500.*	Exist 100yr	1668.80	5.81	18.41		18.43	0.000139	1.68	3414.76	3286.42	0.11
ADAMS BAYOU 1C	Alignment - ADAM	69500.*	Prop 100yr	1206.30	5.81	18.00		18.04	0.000209	1.99	2069.13	3285.72	0.14
ADAMS BAYOU 1C	Alignment - ADAM	69550.*	Exist 100yr	1668.80	5.82	18.42		18.44	0.000148	1.72	3327.91	3274.54	0.12
ADAMS BAYOU 1C	Alignment - ADAM	69550.*	Prop 100yr	1206.30	5.82	18.01		18.05	0.000223	2.05	1995.11	3273.86	0.14
ADAMS BAYOU 1C	Alignment - ADAM	69600.*	Exist 100yr	1668.80	5.83	18.42		18.44	0.000157	1.76	3245.50	3262.69	0.12
ADAMS BAYOU 1C	Alignment - ADAM	69600.*	Prop 100yr	1206.30	5.83	18.02		18.06	0.000227	2.08	1938.94	3135.45	0.14
ADAMS BAYOU 1C	Alignment - ADAM	69650.*	Exist 100yr	1668.80	5.84	18.43		18.45	0.000168	1.81	3158.15	3250.83	0.12
ADAMS BAYOU 1C	Alignment - ADAM	69650.*	Prop 100yr	1206.30	5.84	18.03		18.07	0.000229	2.11	1891.84	3039.91	0.14
ADAMS BAYOU 1C	Alignment - ADAM	69700.*	Exist 100yr	1668.80	5.85	18.44		18.46	0.000174	1.85	3079.96	3178.76	0.13
ADAMS BAYOU 1C	Alignment - ADAM	69700.*	Prop 100yr	1206.30	5.85	18.04		18.09	0.000233	2.13	1860.26	2978.77	0.14
ADAMS BAYOU 1C	Alignment - ADAM	69750.*	Exist 100yr	1668.80	5.86	18.45		18.47	0.000174	1.88	3026.64	3077.29	0.13
ADAMS BAYOU 1C	Alignment - ADAM	69750.*	Prop 100yr	1206.30	5.86	18.05		18.10	0.000234	2.14	1843.75	2932.68	0.14
ADAMS BAYOU 1C	Alignment - ADAM	69800.*	Exist 100yr	1668.80	5.88	18.45		18.48	0.000178	1.90	2973.15	3012.81	0.13
ADAMS BAYOU 1C	Alignment - ADAM	69800.*	Prop 100yr	1206.30	5.88	18.06		18.11	0.000237	2.15	1821.81	2894.77	0.15
ADAMS BAYOU 1C	Alignment - ADAM	69850.*	Exist 100yr	1668.80	5.89	18.46		18.49	0.000181	1.92	2930.30	2957.12	0.13
ADAMS BAYOU 1C	Alignment - ADAM	69850.*	Prop 100yr	1206.30	5.89	18.08		18.12	0.000241	2.16	1802.87	2870.59	0.15
ADAMS BAYOU 1C	Alignment - ADAM	69900.*	Exist 100yr	1668.80	5.90	18.47		18.50	0.000185	1.93	2892.45	2916.81	0.13
ADAMS BAYOU 1C	Alignment - ADAM	69900.*	Prop 100yr	1206.30	5.90	18.09		18.14	0.000241	2.16	1796.72	2848.43	0.15
ADAMS BAYOU 1C	Alignment - ADAM	69905	Bridge										
ADAMS BAYOU 1C	Alignment - ADAM	69950.*	Exist 100yr	1668.80	5.91	18.61	13.52	18.63	0.000143	1.71	3221.21	2909.71	0.11
ADAMS BAYOU 1C	Alignment - ADAM	69950.*	Prop 100yr	1206.30	5.91	18.19	12.59	18.22	0.000199	1.97	2013.94	2837.48	0.13
ADAMS BAYOU 1C	Alignment - ADAM	70000	Exist 100yr	1668.80	5.92	18.61		18.63	0.000147	1.73	3179.34	2874.68	0.11

HEC-RAS Plan: Plan 05 (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
ADAMS BAYOU 1C	Alignment - ADAM	70000	Prop 100yr	1206.30	5.92	18.20		18.23	0.000202	1.98	1992.47	2816.92	0.13
ADAMS BAYOU 1C	Alignment - ADAM	71000	Exist 100yr	1668.80	6.42	18.72		19.02	0.000981	4.45	375.36	54.25	0.30
ADAMS BAYOU 1C	Alignment - ADAM	71000	Prop 100yr	1206.30	6.42	18.42		18.59	0.000586	3.36	359.35	53.35	0.23
ADAMS BAYOU 1C	Alignment - ADAM	72000	Exist 100yr	1668.80	6.91	19.62	14.26	19.86	0.000708	3.96	620.81	1083.31	0.26
ADAMS BAYOU 1C	Alignment - ADAM	72000	Prop 100yr	1206.30	6.91	18.99		19.15	0.000530	3.24	372.07	54.22	0.22
ADAMS BAYOU 1C	Alignment - ADAM	73000	Exist 100yr	1668.80	7.42	20.27		20.36	0.000361	2.89	1753.22	3177.41	0.18
ADAMS BAYOU 1C	Alignment - ADAM	73000	Prop 100yr	1206.30	7.42	19.50		19.65	0.000471	3.15	448.65	601.70	0.21
ADAMS BAYOU 1D	Alignment - ADAM	60000	Exist 100yr	1990.10	-1.44	17.13		17.13	0.000017	0.80	6507.48	2001.76	0.04
ADAMS BAYOU 1D	Alignment - ADAM	60000	Prop 100yr	1990.10	-1.44	14.09		14.18	0.000302	2.84	1552.26	862.26	0.17
ADAMS BAYOU 1D	Alignment - ADAM	61000	Exist 100yr	1990.10	0.57	17.15		17.15	0.000022	0.87	6984.11	3080.90	0.05
ADAMS BAYOU 1D	Alignment - ADAM	61000	Prop 100yr	1990.10	0.57	14.43	8.03	14.68	0.000744	4.15	844.52	1320.26	0.26
ADAMS BAYOU 1D	Alignment - ADAM	62000	Exist 100yr	1990.10	1.91	17.16		17.22	0.000171	2.25	2204.74	1648.80	0.13
ADAMS BAYOU 1D	Alignment - ADAM	62000	Prop 100yr	1990.10	1.91	15.17		15.46	0.000800	4.37	455.43	58.48	0.28
ADAMS BAYOU 1E	Alignment - ADAM	41000	Exist 100yr	5437.70	-6.43	10.06		10.07	0.000069	1.44	7235.93	1719.33	0.09
ADAMS BAYOU 1E	Alignment - ADAM	41000	Prop 100yr	2402.50	-6.43	8.56		8.56	0.000044	1.02	4657.56	1719.33	0.07
ADAMS BAYOU 1E	Alignment - ADAM	42000	Exist 100yr	5437.70	-6.06	10.12		10.13	0.000045	1.13	9147.04	2462.93	0.07
ADAMS BAYOU 1E	Alignment - ADAM	42000	Prop 100yr	2402.50	-6.06	8.60		8.60	0.000028	0.78	5857.69	1864.17	0.05
ADAMS BAYOU 1E	Alignment - ADAM	43000	Exist 100yr	5437.70	-5.68	10.18		10.19	0.000086	1.58	7099.10	2040.57	0.10
ADAMS BAYOU 1E	Alignment - ADAM	43000	Prop 100yr	2402.50	-5.68	8.63		8.64	0.000067	1.21	4261.80	1650.84	0.08
ADAMS BAYOU 1E	Alignment - ADAM	44000	Exist 100yr	5437.70	-5.36	10.29		10.35	0.000301	2.86	4532.82	2037.66	0.18
ADAMS BAYOU 1E	Alignment - ADAM	44000	Prop 100yr	2402.50	-5.36	8.72		8.79	0.000350	2.68	1844.31	1242.28	0.18
ADAMS BAYOU 1E	Alignment - ADAM	45000	Exist 100yr	5437.70	-4.99	10.62		10.70	0.000375	3.27	4129.81	2226.70	0.20
ADAMS BAYOU 1E	Alignment - ADAM	45000	Prop 100yr	2402.50	-4.99	9.08		9.18	0.000407	2.98	1550.88	1061.01	0.20
ADAMS BAYOU 1E	Alignment - ADAM	46000	Exist 100yr	5437.70	-4.53	11.02		11.15	0.000527	3.92	3512.13	1993.68	0.24
ADAMS BAYOU 1E	Alignment - ADAM	46000	Prop 100yr	2402.50	-4.53	9.49		9.63	0.000474	3.26	1292.05	876.79	0.22
ADAMS BAYOU 1E	Alignment - ADAM	46050.*	Exist 100yr	5437.70	-4.51	11.04		11.18	0.000530	3.93	3502.03	1992.82	0.24
ADAMS BAYOU 1E	Alignment - ADAM	46050.*	Prop 100yr	2402.50	-4.51	9.52		9.65	0.000475	3.27	1283.93	871.96	0.22
ADAMS BAYOU 1E	Alignment - ADAM	46100.*	Exist 100yr	5437.70	-4.49	11.07		11.21	0.000532	3.95	3493.79	1995.48	0.24
ADAMS BAYOU 1E	Alignment - ADAM	46100.*	Prop 100yr	2402.50	-4.49	9.54		9.68	0.000476	3.28	1277.62	871.93	0.22
ADAMS BAYOU 1E	Alignment - ADAM	46150.*	Exist 100yr	5437.70	-4.46	11.10		11.23	0.000533	3.96	3485.66	1991.05	0.24
ADAMS BAYOU 1E	Alignment - ADAM	46150.*	Prop 100yr	2402.50	-4.46	9.56		9.70	0.000476	3.28	1272.07	868.80	0.22
ADAMS BAYOU 1E	Alignment - ADAM	46200.*	Exist 100yr	5437.70	-4.44	11.12		11.26	0.000536	3.98	3473.47	1989.85	0.24
ADAMS BAYOU 1E	Alignment - ADAM	46200.*	Prop 100yr	2402.50	-4.44	9.58		9.73	0.000477	3.29	1263.38	865.18	0.22
ADAMS BAYOU 1E	Alignment - ADAM	46250.*	Exist 100yr	5437.70	-4.42	11.15		11.29	0.000539	4.00	3461.44	1986.38	0.24
ADAMS BAYOU 1E	Alignment - ADAM	46250.*	Prop 100yr	2402.50	-4.42	9.61		9.75	0.000479	3.30	1255.97	863.31	0.22
ADAMS BAYOU 1E	Alignment - ADAM	46300.*	Exist 100yr	5437.70	-4.39	11.17		11.32	0.000541	4.01	3448.61	1981.15	0.24
ADAMS BAYOU 1E	Alignment - ADAM	46300.*	Prop 100yr	2402.50	-4.39	9.63		9.77	0.000480	3.31	1249.02	861.68	0.22
ADAMS BAYOU 1E	Alignment - ADAM	46350.*	Exist 100yr	5437.70	-4.37	11.20		11.34	0.000543	4.02	3438.60	1976.30	0.24
ADAMS BAYOU 1E	Alignment - ADAM	46350.*	Prop 100yr	2402.50	-4.37	9.65		9.80	0.000480	3.32	1243.99	858.85	0.22
ADAMS BAYOU 1E	Alignment - ADAM	46400.*	Exist 100yr	5437.70	-4.35	11.23		11.37	0.000546	4.04	3422.35	1968.64	0.24
ADAMS BAYOU 1E	Alignment - ADAM	46400.*	Prop 100yr	2402.50	-4.35	9.68		9.82	0.000482	3.33	1234.51	854.28	0.22
ADAMS BAYOU 1E	Alignment - ADAM	46450.*	Exist 100yr	5437.70	-4.33	11.25		11.40	0.000549	4.06	3407.11	1961.70	0.24
ADAMS BAYOU 1E	Alignment - ADAM	46450.*	Prop 100yr	2402.50	-4.33	9.70		9.85	0.000483	3.34	1226.28	849.12	0.22
ADAMS BAYOU 1E	Alignment - ADAM	46500.*	Exist 100yr	5437.70	-4.31	11.28		11.43	0.000552	4.08	3392.73	1954.54	0.24
ADAMS BAYOU 1E	Alignment - ADAM	46500.*	Prop 100yr	2402.50	-4.31	9.72		9.87	0.000484	3.35	1218.74	845.55	0.22
ADAMS BAYOU 1E	Alignment - ADAM	46550.*	Exist 100yr	5437.70	-4.28	11.31		11.45	0.000553	4.09	3381.95	1945.21	0.24
ADAMS BAYOU 1E	Alignment - ADAM	46550.*	Prop 100yr	2402.50	-4.28	9.75		9.90	0.000485	3.36	1212.86	842.12	0.22
ADAMS BAYOU 1E	Alignment - ADAM	46600.*	Exist 100yr	5437.70	-4.26	11.33		11.48	0.000555	4.10	3367.72	1936.28	0.24
ADAMS BAYOU 1E	Alignment - ADAM	46600.*	Prop 100yr	2402.50	-4.26	9.77		9.92	0.000487	3.37	1204.98	840.47	0.22
ADAMS BAYOU 1E	Alignment - ADAM	46650.*	Exist 100yr	5437.70	-4.24	11.36		11.51	0.000558	4.12	3354.09	1927.46	0.24
ADAMS BAYOU 1E	Alignment - ADAM	46650.*	Prop 100yr	2402.50	-4.24	9.79		9.95	0.000487	3.38	1198.69	836.47	0.22
ADAMS BAYOU 1E	Alignment - ADAM	46675	Bridge										
ADAMS BAYOU 1E	Alignment - ADAM	46700.*	Exist 100yr	5437.70	-4.22	11.61	7.01	11.73	0.000446	3.75	3793.08	2082.17	0.22
ADAMS BAYOU 1E	Alignment - ADAM	46700.*	Prop 100yr	2402.50	-4.22	9.88	3.74	10.02	0.000465	3.32	1239.72	870.27	0.22
ADAMS BAYOU 1E	Alignment - ADAM	46750.*	Exist 100yr	5437.70	-4.19	11.63		11.76	0.000452	3.78	3762.97	2069.95	0.22
ADAMS BAYOU 1E	Alignment - ADAM	46750.*	Prop 100yr	2402.50	-4.19	9.90		10.04	0.000467	3.33	1230.94	864.45	0.22
ADAMS BAYOU 1E	Alignment - ADAM	46800.*	Exist 100yr	5437.70	-4.17	11.65		11.78	0.000456	3.80	3736.89	2055.64	0.22
ADAMS BAYOU 1E	Alignment - ADAM	46800.*	Prop 100yr	2402.50	-4.17	9.92		10.07	0.000467	3.34	1224.44	860.42	0.22
ADAMS BAYOU 1E	Alignment - ADAM	46850.*	Exist 100yr	5437.70	-4.15	11.68		11.80	0.000461	3.82	3708.96	2043.93	0.22
ADAMS BAYOU 1E	Alignment - ADAM	46850.*	Prop 100yr	2402.50	-4.15	9.94		10.09	0.000469	3.35	1216.09	853.16	0.22

HEC-RAS Plan: Plan 05 (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
ADAMS BAYOU 1E	Alignment - ADAM	46900.*	Exist 100yr	5437.70	-4.12	11.70		11.83	0.000465	3.84	3685.34	2033.65	0.22
ADAMS BAYOU 1E	Alignment - ADAM	46900.*	Prop 100yr	2402.50	-4.12	9.97		10.12	0.000470	3.35	1209.53	849.67	0.22
ADAMS BAYOU 1E	Alignment - ADAM	46950.*	Exist 100yr	5437.70	-4.10	11.72		11.85	0.000470	3.86	3655.20	2018.30	0.23
ADAMS BAYOU 1E	Alignment - ADAM	46950.*	Prop 100yr	2402.50	-4.10	9.99		10.14	0.000472	3.36	1200.31	842.31	0.22
ADAMS BAYOU 1E	Alignment - ADAM	47000	Exist 100yr	5437.70	-4.08	11.74		11.87	0.000474	3.88	3631.45	2004.41	0.23
ADAMS BAYOU 1E	Alignment - ADAM	47000	Prop 100yr	2402.50	-4.08	10.01		10.16	0.000473	3.37	1193.79	837.62	0.22
ADAMS BAYOU 1E	Alignment - ADAM	48000	Exist 100yr	5437.70	-3.55	12.24		12.40	0.000559	4.20	3308.54	1926.76	0.25
ADAMS BAYOU 1E	Alignment - ADAM	48000	Prop 100yr	2402.50	-3.55	10.50		10.68	0.000541	3.59	1010.89	723.08	0.23
ADAMS BAYOU 1E	Alignment - ADAM	49000	Exist 100yr	5104.30	-3.17	12.77		12.88	0.000413	3.62	3807.24	2295.60	0.21
ADAMS BAYOU 1E	Alignment - ADAM	49000	Prop 100yr	2054.90	-3.17	11.01		11.14	0.000374	2.99	1048.03	837.74	0.19
ADAMS BAYOU 1E	Alignment - ADAM	50000	Exist 100yr	5104.30	-2.73	13.18		13.33	0.000460	4.01	3481.65	2155.74	0.22
ADAMS BAYOU 1E	Alignment - ADAM	50000	Prop 100yr	2054.90	-2.73	11.37		11.52	0.000380	3.18	891.25	762.38	0.20
ADAMS BAYOU 1E	Alignment - ADAM	51000	Exist 100yr	5104.30	-2.35	13.64		13.76	0.000408	3.74	3545.59	2010.63	0.21
ADAMS BAYOU 1E	Alignment - ADAM	51000	Prop 100yr	2054.90	-2.35	11.76		11.91	0.000402	3.22	784.77	511.67	0.20
ADAMS BAYOU 1E	Alignment - ADAM	52000	Exist 100yr	5104.30	-1.84	14.06		14.23	0.000508	4.22	3418.64	2494.63	0.24
ADAMS BAYOU 1E	Alignment - ADAM	52000	Prop 100yr	2054.90	-1.84	12.16		12.33	0.000414	3.31	694.28	426.29	0.21
ADAMS BAYOU 1E	Alignment - ADAM	53000	Exist 100yr	5104.30	-1.40	14.56		14.72	0.000472	4.10	3599.68	2619.57	0.23
ADAMS BAYOU 1E	Alignment - ADAM	53000	Prop 100yr	2054.90	-1.40	12.57		12.74	0.000416	3.32	658.22	363.29	0.21
ADAMS BAYOU 1E	Alignment - ADAM	54000	Exist 100yr	5104.30	-1.12	15.02		15.17	0.000426	4.00	3687.93	2515.57	0.22
ADAMS BAYOU 1E	Alignment - ADAM	54000	Prop 100yr	2054.90	-1.12	12.97		13.14	0.000380	3.28	690.68	425.79	0.20
ADAMS BAYOU 1E	Alignment - ADAM	55000	Exist 100yr	5007.70	-0.76	15.44		15.53	0.000305	3.36	4972.85	3779.39	0.18
ADAMS BAYOU 1E	Alignment - ADAM	55000	Prop 100yr	1851.00	-0.76	13.35		13.49	0.000310	2.92	697.46	432.13	0.18
ADAMS BAYOU 1E	Alignment - ADAM	56000	Exist 100yr	5007.70	-0.75	15.76		15.93	0.000469	4.08	3489.97	2704.07	0.22
ADAMS BAYOU 1E	Alignment - ADAM	56000	Prop 100yr	1851.00	-0.75	13.67		13.80	0.000317	2.95	657.48	257.42	0.18
ADAMS BAYOU 1E	Alignment - ADAM	57000	Exist 100yr	4785.50	-0.77	16.21		16.53	0.000684	5.03	1527.03	480.81	0.27
ADAMS BAYOU 1E	Alignment - ADAM	57000	Prop 100yr	1253.50	-0.77	13.97		14.03	0.000151	2.05	614.07	135.18	0.12
ADAMS BAYOU 1E	Alignment - ADAM	58000	Exist 100yr	4080.20	-0.80	16.90		17.03	0.000327	3.47	3419.38	2894.69	0.18
ADAMS BAYOU 1E	Alignment - ADAM	58000	Prop 100yr	202.30	-0.80	14.09		14.09	0.000004	0.35	573.47	64.91	0.02
ADAMS BAYOU 1E	Alignment - ADAM	59000	Exist 100yr	4080.20	-2.34	17.10		17.11	0.000030	1.12	11322.67	4355.63	0.05
ADAMS BAYOU 1E	Alignment - ADAM	59000	Prop 100yr	202.30	-2.34	14.10		14.10	0.000001	0.20	2589.34	1528.25	0.01
ADAMS BAYOU 1F	Alignment - ADAM	37350.*	Exist 100yr	6269.80	-9.24	9.70		9.75	0.000147	2.37	4671.25	868.41	0.13
ADAMS BAYOU 1F	Alignment - ADAM	37350.*	Prop 100yr	2857.20	-9.24	8.39		8.41	0.000067	1.47	3528.70	868.41	0.09
ADAMS BAYOU 1F	Alignment - ADAM	37400.*	Exist 100yr	6269.80	-9.15	9.71		9.76	0.000142	2.33	4743.05	864.45	0.13
ADAMS BAYOU 1F	Alignment - ADAM	37400.*	Prop 100yr	2857.20	-9.15	8.39		8.41	0.000064	1.44	3601.30	864.45	0.08
ADAMS BAYOU 1F	Alignment - ADAM	37450.*	Exist 100yr	6269.80	-9.05	9.72		9.76	0.000137	2.29	4806.50	860.48	0.12
ADAMS BAYOU 1F	Alignment - ADAM	37450.*	Prop 100yr	2857.20	-9.05	8.40		8.41	0.000062	1.41	3665.85	860.48	0.08
ADAMS BAYOU 1F	Alignment - ADAM	37500.*	Exist 100yr	6269.80	-8.96	9.73		9.77	0.000133	2.26	4858.19	856.52	0.12
ADAMS BAYOU 1F	Alignment - ADAM	37500.*	Prop 100yr	2857.20	-8.96	8.40		8.42	0.000060	1.38	3718.93	856.52	0.08
ADAMS BAYOU 1F	Alignment - ADAM	37550.*	Exist 100yr	6269.80	-8.87	9.74		9.78	0.000129	2.23	4897.74	852.55	0.12
ADAMS BAYOU 1F	Alignment - ADAM	37550.*	Prop 100yr	2857.20	-8.87	8.40		8.42	0.000058	1.36	3760.16	852.55	0.08
ADAMS BAYOU 1F	Alignment - ADAM	37600.*	Exist 100yr	6269.80	-8.77	9.75		9.78	0.000127	2.21	4929.36	848.58	0.12
ADAMS BAYOU 1F	Alignment - ADAM	37600.*	Prop 100yr	2857.20	-8.77	8.41		8.42	0.000056	1.34	3793.64	848.58	0.08
ADAMS BAYOU 1F	Alignment - ADAM	37650.*	Exist 100yr	6269.80	-8.68	9.75		9.79	0.000125	2.19	4947.94	844.62	0.12
ADAMS BAYOU 1F	Alignment - ADAM	37650.*	Prop 100yr	2857.20	-8.68	8.41		8.43	0.000055	1.33	3814.29	844.62	0.08
ADAMS BAYOU 1F	Alignment - ADAM	37700.*	Exist 100yr	6269.80	-8.59	9.76		9.80	0.000124	2.18	4957.26	840.65	0.12
ADAMS BAYOU 1F	Alignment - ADAM	37700.*	Prop 100yr	2857.20	-8.59	8.41		8.43	0.000055	1.32	3825.85	840.65	0.08
ADAMS BAYOU 1F	Alignment - ADAM	37750.*	Exist 100yr	6269.80	-8.49	9.77		9.80	0.000123	2.17	4958.30	836.69	0.12
ADAMS BAYOU 1F	Alignment - ADAM	37750.*	Prop 100yr	2857.20	-8.49	8.42		8.43	0.000054	1.31	3829.24	836.69	0.08
ADAMS BAYOU 1F	Alignment - ADAM	37800.*	Exist 100yr	6269.80	-8.40	9.77		9.81	0.000123	2.17	4946.96	832.72	0.12
ADAMS BAYOU 1F	Alignment - ADAM	37800.*	Prop 100yr	2857.20	-8.40	8.42		8.43	0.000054	1.31	3820.43	832.72	0.08
ADAMS BAYOU 1F	Alignment - ADAM	37850.*	Exist 100yr	6269.80	-8.31	9.78		9.82	0.000123	2.17	4926.48	828.76	0.12
ADAMS BAYOU 1F	Alignment - ADAM	37850.*	Prop 100yr	2857.20	-8.31	8.42		8.44	0.000054	1.31	3802.53	828.76	0.08
ADAMS BAYOU 1F	Alignment - ADAM	37900.*	Exist 100yr	6269.80	-8.22	9.78		9.82	0.000125	2.18	4891.23	824.79	0.12
ADAMS BAYOU 1F	Alignment - ADAM	37900.*	Prop 100yr	2857.20	-8.22	8.42		8.44	0.000055	1.32	3769.98	824.79	0.08
ADAMS BAYOU 1F	Alignment - ADAM	37950.*	Exist 100yr	6269.80	-8.12	9.79		9.83	0.000127	2.20	4849.77	820.83	0.12
ADAMS BAYOU 1F	Alignment - ADAM	37950.*	Prop 100yr	2857.20	-8.12	8.43		8.44	0.000055	1.32	3731.22	820.83	0.08
ADAMS BAYOU 1F	Alignment - ADAM	38000	Exist 100yr	6269.80	-8.03	9.80		9.83	0.000129	2.21	4798.98	816.86	0.12
ADAMS BAYOU 1F	Alignment - ADAM	38000	Prop 100yr	2857.20	-8.03	8.43		8.44	0.000057	1.33	3683.20	816.86	0.08
ADAMS BAYOU 1F	Alignment - ADAM	39000	Exist 100yr	6269.80	-7.80	9.92		9.94	0.000077	1.60	6924.43	1322.52	0.09
ADAMS BAYOU 1F	Alignment - ADAM	39000	Prop 100yr	2857.20	-7.80	8.48		8.49	0.000040	1.03	5028.69	1322.52	0.06

HEC-RAS Plan: Plan 05 (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
ADAMS BAYOU 1F	Alignment - ADAM	40000	Exist 100yr	6269.80	-6.99	9.99		10.01	0.000062	1.40	7631.16	1347.07	0.08
ADAMS BAYOU 1F	Alignment - ADAM	40000	Prop 100yr	2857.20	-6.99	8.52		8.53	0.000032	0.89	5651.51	1347.07	0.06
ADAMS BAYOU 1G	Alignment - ADAM	37000	Exist 100yr	7693.40	-9.89	9.46		9.60	0.000376	3.71	3718.99	896.17	0.20
ADAMS BAYOU 1G	Alignment - ADAM	37000	Prop 100yr	4263.30	-9.89	8.21		8.30	0.000265	2.85	2597.27	896.17	0.17
ADAMS BAYOU 1G	Alignment - ADAM	37050.*	Exist 100yr	7693.40	-9.80	9.49		9.62	0.000342	3.55	3886.23	892.20	0.20
ADAMS BAYOU 1G	Alignment - ADAM	37050.*	Prop 100yr	4263.30	-9.80	8.23		8.32	0.000241	2.73	2761.42	892.20	0.16
ADAMS BAYOU 1G	Alignment - ADAM	37100.*	Exist 100yr	7693.40	-9.70	9.52		9.63	0.000315	3.42	4038.43	888.24	0.19
ADAMS BAYOU 1G	Alignment - ADAM	37100.*	Prop 100yr	4263.30	-9.70	8.26		8.33	0.000220	2.62	2911.67	888.24	0.15
ADAMS BAYOU 1G	Alignment - ADAM	37150.*	Exist 100yr	7693.40	-9.61	9.55		9.65	0.000292	3.30	4177.61	884.27	0.18
ADAMS BAYOU 1G	Alignment - ADAM	37150.*	Prop 100yr	4263.30	-9.61	8.27		8.34	0.000202	2.52	3049.74	884.27	0.15
ADAMS BAYOU 1G	Alignment - ADAM	37200.*	Exist 100yr	7693.40	-9.52	9.57		9.66	0.000273	3.20	4302.79	880.31	0.18
ADAMS BAYOU 1G	Alignment - ADAM	37200.*	Prop 100yr	4263.30	-9.52	8.29		8.35	0.000188	2.43	3174.45	880.31	0.14
ADAMS BAYOU 1G	Alignment - ADAM	37224		Bridge									
ADAMS BAYOU 1G	Alignment - ADAM	37300.*	Exist 100yr	7693.40	-9.33	9.66	3.65	9.74	0.000236	3.00	4560.41	872.38	0.16
ADAMS BAYOU 1G	Alignment - ADAM	37300.*	Prop 100yr	4263.30	-9.33	8.35	0.60	8.40	0.000161	2.26	3417.00	872.38	0.13
ADAMS BAYOU 1GA	Alignment - ADAM	31000	Exist 100yr	8126.50	-8.40	8.31		8.36	0.000204	2.65	7775.84	3168.95	0.15
ADAMS BAYOU 1GA	Alignment - ADAM	31000	Prop 100yr	5040.00	-8.40	7.25		7.31	0.000209	2.48	4748.77	2455.71	0.15
ADAMS BAYOU 1GA	Alignment - ADAM	32000	Exist 100yr	8126.50	-8.67	8.49		8.52	0.000113	1.98	10809.91	3939.33	0.11
ADAMS BAYOU 1GA	Alignment - ADAM	32000	Prop 100yr	5040.00	-8.67	7.44		7.47	0.000117	1.88	7018.18	3274.45	0.11
ADAMS BAYOU 1GA	Alignment - ADAM	33000	Exist 100yr	8126.50	-8.84	8.62		8.71	0.000285	3.18	5418.16	1796.58	0.18
ADAMS BAYOU 1GA	Alignment - ADAM	33000	Prop 100yr	5040.00	-8.84	7.57		7.64	0.000235	2.67	3719.38	1448.26	0.16
ADAMS BAYOU 1GA	Alignment - ADAM	34000	Exist 100yr	7723.30	-9.02	8.85		8.87	0.000093	1.83	11827.71	4555.87	0.10
ADAMS BAYOU 1GA	Alignment - ADAM	34000	Prop 100yr	4334.10	-9.02	7.77		7.78	0.000082	1.58	7445.64	3548.68	0.09
ADAMS BAYOU 1GA	Alignment - ADAM	35000	Exist 100yr	7723.30	-9.31	8.95		8.97	0.000109	1.99	11178.58	4550.29	0.11
ADAMS BAYOU 1GA	Alignment - ADAM	35000	Prop 100yr	4334.10	-9.31	7.85		7.88	0.000103	1.79	6737.11	3505.45	0.11
ADAMS BAYOU 1GA	Alignment - ADAM	36000	Exist 100yr	7723.30	-9.58	9.04		9.20	0.000418	3.85	3184.61	605.30	0.22
ADAMS BAYOU 1GA	Alignment - ADAM	36000	Prop 100yr	4334.10	-9.58	7.96		8.05	0.000242	2.71	2530.35	605.30	0.16
ADAMS BAYOU 1H	Alignment - ADAM	23000	Exist 100yr	7654.40	-11.02	7.50		7.50	0.000006	0.56	42789.41	11934.73	0.03
ADAMS BAYOU 1H	Alignment - ADAM	23000	Prop 100yr	4633.20	-11.02	6.62		6.62	0.000005	0.48	32447.84	11274.60	0.02
ADAMS BAYOU 1H	Alignment - ADAM	24000	Exist 100yr	7654.40	-11.29	7.51		7.51	0.000011	0.78	34290.87	11899.60	0.04
ADAMS BAYOU 1H	Alignment - ADAM	24000	Prop 100yr	4633.20	-11.29	6.63		6.63	0.000010	0.71	24209.25	10850.61	0.04
ADAMS BAYOU 1H	Alignment - ADAM	24050.*	Exist 100yr	7654.40	-11.29	7.51		7.51	0.000011	0.79	34082.37	11979.45	0.04
ADAMS BAYOU 1H	Alignment - ADAM	24050.*	Prop 100yr	4633.20	-11.29	6.63		6.63	0.000010	0.72	23944.86	10904.90	0.04
ADAMS BAYOU 1H	Alignment - ADAM	24100.*	Exist 100yr	7654.40	-11.29	7.51		7.51	0.000011	0.80	33845.79	12059.30	0.04
ADAMS BAYOU 1H	Alignment - ADAM	24100.*	Prop 100yr	4633.20	-11.29	6.63		6.63	0.000011	0.73	23654.42	10951.52	0.04
ADAMS BAYOU 1H	Alignment - ADAM	24150.*	Exist 100yr	7654.40	-11.29	7.51		7.51	0.000012	0.81	33598.11	12139.15	0.04
ADAMS BAYOU 1H	Alignment - ADAM	24150.*	Prop 100yr	4633.20	-11.29	6.63		6.63	0.000011	0.75	23353.72	10996.69	0.04
ADAMS BAYOU 1H	Alignment - ADAM	24200.*	Exist 100yr	7654.40	-11.29	7.51		7.51	0.000012	0.82	33338.17	12219.01	0.04
ADAMS BAYOU 1H	Alignment - ADAM	24200.*	Prop 100yr	4633.20	-11.29	6.63		6.63	0.000011	0.76	23041.65	11040.28	0.04
ADAMS BAYOU 1H	Alignment - ADAM	24250.*	Exist 100yr	7654.40	-11.29	7.51		7.51	0.000013	0.83	33031.82	12298.86	0.04
ADAMS BAYOU 1H	Alignment - ADAM	24250.*	Prop 100yr	4633.20	-11.29	6.63		6.63	0.000012	0.78	22684.45	11082.20	0.04
ADAMS BAYOU 1H	Alignment - ADAM	24252		Bridge									
ADAMS BAYOU 1H	Alignment - ADAM	24300.*	Exist 100yr	7654.40	-11.29	7.51	-1.96	7.51	0.000013	0.85	32724.46	12378.71	0.04
ADAMS BAYOU 1H	Alignment - ADAM	24300.*	Prop 100yr	4633.20	-11.29	6.63	-3.83	6.63	0.000013	0.80	22322.40	11137.28	0.04
ADAMS BAYOU 1H	Alignment - ADAM	24350.*	Exist 100yr	7654.40	-11.29	7.51		7.51	0.000014	0.86	32361.78	12458.56	0.04
ADAMS BAYOU 1H	Alignment - ADAM	24350.*	Prop 100yr	4633.20	-11.29	6.63		6.63	0.000013	0.82	21916.47	11175.54	0.04
ADAMS BAYOU 1H	Alignment - ADAM	24400.*	Exist 100yr	7654.40	-11.29	7.51		7.52	0.000014	0.88	32008.29	12538.41	0.04
ADAMS BAYOU 1H	Alignment - ADAM	24400.*	Prop 100yr	4633.20	-11.29	6.63		6.63	0.000014	0.83	21520.69	11150.47	0.04
ADAMS BAYOU 1H	Alignment - ADAM	24450.*	Exist 100yr	7654.40	-11.29	7.51		7.52	0.000015	0.90	31618.01	12618.26	0.04
ADAMS BAYOU 1H	Alignment - ADAM	24450.*	Prop 100yr	4633.20	-11.29	6.63		6.64	0.000015	0.85	21111.11	11105.38	0.04
ADAMS BAYOU 1H	Alignment - ADAM	24500.*	Exist 100yr	7654.40	-11.29	7.51		7.52	0.000015	0.92	31227.97	12698.12	0.04
ADAMS BAYOU 1H	Alignment - ADAM	24500.*	Prop 100yr	4633.20	-11.29	6.63		6.64	0.000015	0.87	20717.71	11062.86	0.04
ADAMS BAYOU 1H	Alignment - ADAM	24550.*	Exist 100yr	7654.40	-11.29	7.51		7.52	0.000016	0.93	30793.74	12749.58	0.05
ADAMS BAYOU 1H	Alignment - ADAM	24550.*	Prop 100yr	4633.20	-11.29	6.63		6.64	0.000016	0.89	20310.24	11009.27	0.04
ADAMS BAYOU 1H	Alignment - ADAM	24600.*	Exist 100yr	7654.40	-11.29	7.52		7.52	0.000017	0.95	30376.50	12738.39	0.05
ADAMS BAYOU 1H	Alignment - ADAM	24600.*	Prop 100yr	4633.20	-11.29	6.63		6.64	0.000017	0.91	19922.71	10960.56	0.05
ADAMS BAYOU 1H	Alignment - ADAM	24650.*	Exist 100yr	7654.40	-11.29	7.52		7.52	0.000017	0.97	29943.46	12719.53	0.05
ADAMS BAYOU 1H	Alignment - ADAM	24650.*	Prop 100yr	4633.20	-11.29	6.63		6.64	0.000017	0.93	19522.46	10909.43	0.05
ADAMS BAYOU 1H	Alignment - ADAM	24700.*	Exist 100yr	7654.40	-11.29	7.52		7.52	0.000018	0.99	29521.31	12705.03	0.05

HEC-RAS Plan: Plan 05 (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)	
ADAMS BAYOU 1H	Alignment - ADAM	24700.*	Prop 100yr	4633.20	-11.29	6.64		6.64	0.000018	0.95	19123.18	10872.23	0.05
ADAMS BAYOU 1H	Alignment - ADAM	24750.*	Exist 100yr	7654.40	-11.29	7.52		7.52	0.000019	1.00	29082.21	12678.01	0.05
ADAMS BAYOU 1H	Alignment - ADAM	24750.*	Prop 100yr	4633.20	-11.29	6.64		6.64	0.000019	0.97	18717.20	10822.65	0.05
ADAMS BAYOU 1H	Alignment - ADAM	24800.*	Exist 100yr	7654.40	-11.29	7.52		7.52	0.000019	1.02	28651.24	12658.14	0.05
ADAMS BAYOU 1H	Alignment - ADAM	24800.*	Prop 100yr	4633.20	-11.29	6.64		6.64	0.000020	0.99	18325.37	10773.35	0.05
ADAMS BAYOU 1H	Alignment - ADAM	24850.*	Exist 100yr	7654.40	-11.29	7.52		7.52	0.000020	1.04	28233.29	12639.56	0.05
ADAMS BAYOU 1H	Alignment - ADAM	24850.*	Prop 100yr	4633.20	-11.29	6.64		6.64	0.000021	1.02	17941.43	10725.47	0.05
ADAMS BAYOU 1H	Alignment - ADAM	24900.*	Exist 100yr	7654.40	-11.29	7.52		7.52	0.000021	1.06	27807.68	12637.20	0.05
ADAMS BAYOU 1H	Alignment - ADAM	24900.*	Prop 100yr	4633.20	-11.29	6.64		6.64	0.000022	1.04	17544.40	10676.95	0.05
ADAMS BAYOU 1H	Alignment - ADAM	24950.*	Exist 100yr	7654.40	-11.29	7.52		7.53	0.000022	1.08	27378.53	12608.94	0.05
ADAMS BAYOU 1H	Alignment - ADAM	24950.*	Prop 100yr	4633.20	-11.29	6.64		6.65	0.000023	1.06	17147.38	10634.68	0.05
ADAMS BAYOU 1H	Alignment - ADAM	25000	Exist 100yr	7654.40	-11.29	7.52		7.53	0.000023	1.10	26941.17	12588.24	0.05
ADAMS BAYOU 1H	Alignment - ADAM	25000	Prop 100yr	4633.20	-11.29	6.64		6.65	0.000024	1.09	16748.90	10575.96	0.06
ADAMS BAYOU 1H	Alignment - ADAM	26000	Exist 100yr	7654.40	-10.97	7.54		7.58	0.000090	2.23	7639.28	1851.32	0.11
ADAMS BAYOU 1H	Alignment - ADAM	26000	Prop 100yr	4633.20	-10.97	6.66		6.69	0.000057	1.70	6018.35	1851.32	0.08
ADAMS BAYOU 1H	Alignment - ADAM	27000	Exist 100yr	7654.40	-10.45	7.63		7.67	0.000095	2.26	7869.65	2175.64	0.11
ADAMS BAYOU 1H	Alignment - ADAM	27000	Prop 100yr	4633.20	-10.45	6.72		6.75	0.000060	1.71	6072.63	1810.08	0.09
ADAMS BAYOU 1H	Alignment - ADAM	28000	Exist 100yr	7654.40	-9.89	7.73		7.75	0.000074	1.96	10267.42	2887.07	0.10
ADAMS BAYOU 1H	Alignment - ADAM	28000	Prop 100yr	4633.20	-9.89	6.79		6.81	0.000055	1.62	7638.86	2676.47	0.08
ADAMS BAYOU 1H	Alignment - ADAM	28050.*	Exist 100yr	7654.40	-10.10	7.73		7.76	0.000075	1.97	10133.63	2834.49	0.10
ADAMS BAYOU 1H	Alignment - ADAM	28050.*	Prop 100yr	4633.20	-10.10	6.79		6.81	0.000056	1.63	7551.73	2624.58	0.08
ADAMS BAYOU 1H	Alignment - ADAM	28100.*	Exist 100yr	7654.40	-10.30	7.74		7.76	0.000076	1.99	9998.89	2781.76	0.10
ADAMS BAYOU 1H	Alignment - ADAM	28100.*	Prop 100yr	4633.20	-10.30	6.79		6.81	0.000057	1.64	7463.65	2573.58	0.08
ADAMS BAYOU 1H	Alignment - ADAM	28150.*	Exist 100yr	7654.40	-10.51	7.74		7.77	0.000078	2.01	9856.83	2726.93	0.10
ADAMS BAYOU 1H	Alignment - ADAM	28150.*	Prop 100yr	4633.20	-10.51	6.79		6.81	0.000058	1.65	7369.51	2523.35	0.08
ADAMS BAYOU 1H	Alignment - ADAM	28200.*	Exist 100yr	7654.40	-10.71	7.75		7.77	0.000079	2.03	9710.69	2670.58	0.10
ADAMS BAYOU 1H	Alignment - ADAM	28200.*	Prop 100yr	4633.20	-10.71	6.80		6.82	0.000059	1.66	7272.97	2471.50	0.08
ADAMS BAYOU 1H	Alignment - ADAM	28250.*	Exist 100yr	7654.40	-10.91	7.75		7.78	0.000081	2.05	9560.44	2612.63	0.10
ADAMS BAYOU 1H	Alignment - ADAM	28250.*	Prop 100yr	4633.20	-10.91	6.80		6.82	0.000060	1.68	7173.86	2417.03	0.08
ADAMS BAYOU 1H	Alignment - ADAM	28300.*	Exist 100yr	7654.40	-11.12	7.75		7.78	0.000083	2.08	9401.99	2552.96	0.10
ADAMS BAYOU 1H	Alignment - ADAM	28300.*	Prop 100yr	4633.20	-11.12	6.80		6.82	0.000061	1.69	7068.18	2360.98	0.09
ADAMS BAYOU 1H	Alignment - ADAM	28350.*	Exist 100yr	7654.40	-11.32	7.76		7.78	0.000085	2.10	9239.78	2498.29	0.10
ADAMS BAYOU 1H	Alignment - ADAM	28350.*	Prop 100yr	4633.20	-11.32	6.81		6.83	0.000062	1.71	6958.68	2304.25	0.09
ADAMS BAYOU 1H	Alignment - ADAM	28400.*	Exist 100yr	7654.40	-11.53	7.76		7.79	0.000088	2.13	9071.46	2445.51	0.10
ADAMS BAYOU 1H	Alignment - ADAM	28400.*	Prop 100yr	4633.20	-11.53	6.81		6.83	0.000063	1.73	6844.03	2245.05	0.09
ADAMS BAYOU 1H	Alignment - ADAM	28450.*	Exist 100yr	7654.40	-11.73	7.76		7.79	0.000090	2.16	8904.40	2393.48	0.11
ADAMS BAYOU 1H	Alignment - ADAM	28450.*	Prop 100yr	4633.20	-11.73	6.81		6.83	0.000065	1.74	6729.02	2184.37	0.09
ADAMS BAYOU 1H	Alignment - ADAM	28500.*	Exist 100yr	7654.40	-11.94	7.77		7.80	0.000093	2.20	8728.27	2343.37	0.11
ADAMS BAYOU 1H	Alignment - ADAM	28500.*	Prop 100yr	4633.20	-11.94	6.81		6.84	0.000066	1.76	6602.65	2120.97	0.09
ADAMS BAYOU 1H	Alignment - ADAM	28550.*	Exist 100yr	7654.40	-12.15	7.77		7.80	0.000097	2.24	8546.28	2292.40	0.11
ADAMS BAYOU 1H	Alignment - ADAM	28550.*	Prop 100yr	4633.20	-12.15	6.82		6.84	0.000068	1.79	6467.18	2063.03	0.09
ADAMS BAYOU 1H	Alignment - ADAM	28600.*	Exist 100yr	7654.40	-12.35	7.77		7.81	0.000100	2.27	8365.13	2246.48	0.11
ADAMS BAYOU 1H	Alignment - ADAM	28600.*	Prop 100yr	4633.20	-12.35	6.82		6.84	0.000071	1.81	6331.33	2012.57	0.09
ADAMS BAYOU 1H	Alignment - ADAM	28650.*	Exist 100yr	7654.40	-12.56	7.78		7.81	0.000104	2.31	8178.17	2168.30	0.11
ADAMS BAYOU 1H	Alignment - ADAM	28650.*	Prop 100yr	4633.20	-12.56	6.82		6.85	0.000073	1.84	6188.21	1963.02	0.09
ADAMS BAYOU 1H	Alignment - ADAM	28700.*	Exist 100yr	7654.40	-12.76	7.78		7.82	0.000106	2.33	7967.65	2042.39	0.11
ADAMS BAYOU 1H	Alignment - ADAM	28700.*	Prop 100yr	4633.20	-12.76	6.83		6.85	0.000076	1.88	6041.18	1916.33	0.10
ADAMS BAYOU 1H	Alignment - ADAM	28750.*	Exist 100yr	7654.40	-12.97	7.79		7.83	0.000109	2.36	7731.03	1916.48	0.12
ADAMS BAYOU 1H	Alignment - ADAM	28750.*	Prop 100yr	4633.20	-12.97	6.83		6.86	0.000079	1.91	5894.84	1871.94	0.10
ADAMS BAYOU 1H	Alignment - ADAM	28759		Bridge									
ADAMS BAYOU 1H	Alignment - ADAM	28850.*	Exist 100yr	7654.40	-13.38	7.82	0.63	7.86	0.000117	2.44	7213.19	1664.67	0.12
ADAMS BAYOU 1H	Alignment - ADAM	28850.*	Prop 100yr	4633.20	-13.38	6.87	-1.64	6.90	0.000082	1.94	5623.60	1664.67	0.10
ADAMS BAYOU 1H	Alignment - ADAM	28867		Bridge									
ADAMS BAYOU 1H	Alignment - ADAM	29000	Exist 100yr	7654.40	-13.99	7.87	1.13	7.92	0.000139	2.65	6193.26	1286.95	0.13
ADAMS BAYOU 1H	Alignment - ADAM	29000	Prop 100yr	4633.20	-13.99	6.90	-1.55	6.93	0.000093	2.06	4943.92	1286.95	0.10
ADAMS BAYOU 1H	Alignment - ADAM	29038		Bridge									
ADAMS BAYOU 1H	Alignment - ADAM	29100.*	Exist 100yr	7654.40	-13.45	7.91	0.91	7.96	0.000138	2.61	6291.32	1352.69	0.13
ADAMS BAYOU 1H	Alignment - ADAM	29100.*	Prop 100yr	4633.20	-13.45	6.93	-1.46	6.96	0.000094	2.05	4966.67	1352.69	0.11
ADAMS BAYOU 1H	Alignment - ADAM	29150.*	Exist 100yr	8404.40	-13.18	7.91		7.97	0.000168	2.87	6302.20	1385.57	0.14

HEC-RAS Plan: Plan 05 (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
ADAMS BAYOU 1H	Alignment - ADAM	29150.*	Prop 100yr	5318.40	-13.18	6.92		6.97	0.000127	2.36	4941.25	1385.57	0.12
ADAMS BAYOU 1H	Alignment - ADAM	29200.*	Exist 100yr	8404.40	-12.92	7.91		7.98	0.000169	2.86	6317.19	1418.44	0.14
ADAMS BAYOU 1H	Alignment - ADAM	29200.*	Prop 100yr	5318.40	-12.92	6.93		6.98	0.000129	2.37	4920.54	1418.44	0.12
ADAMS BAYOU 1H	Alignment - ADAM	29250.*	Exist 100yr	8404.40	-12.65	7.92		7.99	0.000171	2.86	6325.53	1451.31	0.14
ADAMS BAYOU 1H	Alignment - ADAM	29250.*	Prop 100yr	5318.40	-12.65	6.94		6.98	0.000132	2.38	4893.09	1451.31	0.12
ADAMS BAYOU 1H	Alignment - ADAM	29300.*	Exist 100yr	8404.40	-12.38	7.93		7.99	0.000174	2.86	6324.47	1484.18	0.14
ADAMS BAYOU 1H	Alignment - ADAM	29300.*	Prop 100yr	5318.40	-12.38	6.94		6.99	0.000136	2.39	4856.17	1484.18	0.13
ADAMS BAYOU 1H	Alignment - ADAM	29350.*	Exist 100yr	8404.40	-12.11	7.94		8.00	0.000177	2.86	6317.53	1517.06	0.15
ADAMS BAYOU 1H	Alignment - ADAM	29350.*	Prop 100yr	5318.40	-12.11	6.95		7.00	0.000140	2.40	4813.26	1517.06	0.13
ADAMS BAYOU 1H	Alignment - ADAM	29400.*	Exist 100yr	8404.40	-11.84	7.95		8.01	0.000180	2.87	6302.22	1549.93	0.15
ADAMS BAYOU 1H	Alignment - ADAM	29400.*	Prop 100yr	5318.40	-11.84	6.95		7.01	0.000144	2.41	4762.22	1542.79	0.13
ADAMS BAYOU 1H	Alignment - ADAM	29450.*	Exist 100yr	8404.40	-11.57	7.96		8.02	0.000184	2.87	6279.99	1582.80	0.15
ADAMS BAYOU 1H	Alignment - ADAM	29450.*	Prop 100yr	5318.40	-11.57	6.96		7.01	0.000147	2.42	4708.45	1542.80	0.13
ADAMS BAYOU 1H	Alignment - ADAM	29500.*	Exist 100yr	8404.40	-11.31	7.96		8.03	0.000189	2.88	6248.12	1615.68	0.15
ADAMS BAYOU 1H	Alignment - ADAM	29500.*	Prop 100yr	5318.40	-11.31	6.97		7.02	0.000150	2.42	4654.47	1515.86	0.13
ADAMS BAYOU 1H	Alignment - ADAM	29550.*	Exist 100yr	8404.40	-11.04	7.97		8.04	0.000193	2.89	6212.15	1648.55	0.15
ADAMS BAYOU 1H	Alignment - ADAM	29550.*	Prop 100yr	5318.40	-11.04	6.98		7.03	0.000153	2.42	4606.21	1501.98	0.13
ADAMS BAYOU 1H	Alignment - ADAM	29600.*	Exist 100yr	8404.40	-10.77	7.98		8.05	0.000199	2.90	6167.22	1681.42	0.15
ADAMS BAYOU 1H	Alignment - ADAM	29600.*	Prop 100yr	5318.40	-10.77	6.98		7.04	0.000156	2.42	4557.48	1488.75	0.13
ADAMS BAYOU 1H	Alignment - ADAM	29650.*	Exist 100yr	8404.40	-10.50	7.99		8.06	0.000205	2.92	6112.79	1712.89	0.16
ADAMS BAYOU 1H	Alignment - ADAM	29650.*	Prop 100yr	5318.40	-10.50	6.99		7.04	0.000160	2.42	4506.96	1477.92	0.14
ADAMS BAYOU 1H	Alignment - ADAM	29700.*	Exist 100yr	8404.40	-10.23	8.00		8.07	0.000210	2.92	6057.33	1719.35	0.16
ADAMS BAYOU 1H	Alignment - ADAM	29700.*	Prop 100yr	5318.40	-10.23	7.00		7.05	0.000164	2.42	4459.35	1467.99	0.14
ADAMS BAYOU 1H	Alignment - ADAM	29750.*	Exist 100yr	8404.40	-9.96	8.01		8.08	0.000215	2.93	6000.82	1722.14	0.16
ADAMS BAYOU 1H	Alignment - ADAM	29750.*	Prop 100yr	5318.40	-9.96	7.01		7.06	0.000168	2.42	4412.60	1460.89	0.14
ADAMS BAYOU 1H	Alignment - ADAM	29800.*	Exist 100yr	8404.40	-9.69	8.02		8.09	0.000218	2.92	5944.92	1687.80	0.16
ADAMS BAYOU 1H	Alignment - ADAM	29800.*	Prop 100yr	5318.40	-9.69	7.01		7.07	0.000173	2.43	4363.74	1455.74	0.14
ADAMS BAYOU 1H	Alignment - ADAM	29850.*	Exist 100yr	8404.40	-9.43	8.03		8.11	0.000223	2.92	5893.72	1676.95	0.16
ADAMS BAYOU 1H	Alignment - ADAM	29850.*	Prop 100yr	5318.40	-9.43	7.02		7.08	0.000178	2.43	4316.05	1451.38	0.14
ADAMS BAYOU 1H	Alignment - ADAM	29900.*	Exist 100yr	8404.40	-9.16	8.04		8.12	0.000228	2.91	5838.94	1667.79	0.16
ADAMS BAYOU 1H	Alignment - ADAM	29900.*	Prop 100yr	5318.40	-9.16	7.03		7.09	0.000184	2.44	4265.75	1443.11	0.14
ADAMS BAYOU 1H	Alignment - ADAM	29950.*	Exist 100yr	8404.40	-8.89	8.06		8.13	0.000233	2.91	5789.18	1659.67	0.16
ADAMS BAYOU 1H	Alignment - ADAM	29950.*	Prop 100yr	5318.40	-8.89	7.04		7.10	0.000189	2.44	4220.08	1432.86	0.14
ADAMS BAYOU 1H	Alignment - ADAM	30000	Exist 100yr	8404.40	-8.62	8.07		8.14	0.000239	2.91	5737.47	1651.92	0.16
ADAMS BAYOU 1H	Alignment - ADAM	30000	Prop 100yr	5318.40	-8.62	7.05		7.11	0.000195	2.45	4173.47	1421.56	0.15
ADAMS BAYOU 1I	Alignment - ADAM	21000	Exist 100yr	7821.30	-9.91	6.82		6.89	0.000161	2.81	5056.37	959.21	0.14
ADAMS BAYOU 1I	Alignment - ADAM	21000	Prop 100yr	4813.60	-9.91	6.29		6.32	0.000080	1.93	4544.53	959.21	0.10
ADAMS BAYOU 1I	Alignment - ADAM	22000	Exist 100yr	7821.30	-10.60	7.40		7.48	0.000146	2.81	4739.83	791.21	0.14
ADAMS BAYOU 1I	Alignment - ADAM	22000	Prop 100yr	4813.60	-10.60	6.56		6.61	0.000081	2.00	4079.98	791.21	0.10
ADAMS BAYOU 1J	Alignment - ADAM	12000	Exist 100yr	8938.10	-12.66	5.70		5.94	0.000592	4.68	3810.34	1469.80	0.26
ADAMS BAYOU 1J	Alignment - ADAM	12000	Prop 100yr	6047.00	-12.66	5.58		5.70	0.000291	3.26	3650.12	1421.11	0.18
ADAMS BAYOU 1J	Alignment - ADAM	12050.*	Exist 100yr	8938.10	-12.64	5.74		5.97	0.000575	4.65	3997.42	1698.19	0.26
ADAMS BAYOU 1J	Alignment - ADAM	12050.*	Prop 100yr	6047.00	-12.64	5.60		5.72	0.000284	3.24	3779.98	1564.19	0.18
ADAMS BAYOU 1J	Alignment - ADAM	12100.*	Exist 100yr	8938.10	-12.62	5.80		6.01	0.000526	4.49	4377.03	2802.79	0.25
ADAMS BAYOU 1J	Alignment - ADAM	12100.*	Prop 100yr	6047.00	-12.62	5.63		5.74	0.000273	3.20	3944.15	2206.67	0.18
ADAMS BAYOU 1J	Alignment - ADAM	12150.*	Exist 100yr	8938.10	-12.60	5.86		6.05	0.000475	4.30	4885.90	3378.96	0.24
ADAMS BAYOU 1J	Alignment - ADAM	12150.*	Prop 100yr	6047.00	-12.60	5.65		5.76	0.000256	3.12	4255.12	2778.01	0.17
ADAMS BAYOU 1J	Alignment - ADAM	12200.*	Exist 100yr	8938.10	-12.58	5.91		6.08	0.000432	4.14	5464.75	3965.42	0.23
ADAMS BAYOU 1J	Alignment - ADAM	12200.*	Prop 100yr	6047.00	-12.58	5.68		5.77	0.000238	3.03	4634.50	3263.14	0.17
ADAMS BAYOU 1J	Alignment - ADAM	12250.*	Exist 100yr	8938.10	-12.56	5.94		6.10	0.000425	4.13	6104.04	4388.98	0.22
ADAMS BAYOU 1J	Alignment - ADAM	12250.*	Prop 100yr	6047.00	-12.56	5.70		5.79	0.000223	2.95	5093.63	3790.31	0.16
ADAMS BAYOU 1J	Alignment - ADAM	12300.*	Exist 100yr	8938.10	-12.54	6.01		6.13	0.000341	3.73	6877.37	4198.81	0.20
ADAMS BAYOU 1J	Alignment - ADAM	12300.*	Prop 100yr	6047.00	-12.54	5.72		5.80	0.000222	2.95	5647.57	4198.81	0.16
ADAMS BAYOU 1J	Alignment - ADAM	12350.*	Exist 100yr	8938.10	-12.52	6.06		6.16	0.000286	3.44	7459.99	4008.64	0.18
ADAMS BAYOU 1J	Alignment - ADAM	12350.*	Prop 100yr	6047.00	-12.52	5.75		5.82	0.000188	2.73	6216.79	4008.64	0.15
ADAMS BAYOU 1J	Alignment - ADAM	12400.*	Exist 100yr	8938.10	-12.50	6.10		6.18	0.000247	3.22	7905.43	3818.47	0.17
ADAMS BAYOU 1J	Alignment - ADAM	12400.*	Prop 100yr	6047.00	-12.50	5.77		5.83	0.000162	2.56	6676.35	3818.47	0.14
ADAMS BAYOU 1J	Alignment - ADAM	12450.*	Exist 100yr	8938.10	-12.48	6.13		6.19	0.000220	3.05	8236.34	3628.30	0.16
ADAMS BAYOU 1J	Alignment - ADAM	12450.*	Prop 100yr	6047.00	-12.48	5.79		5.84	0.000143	2.42	7037.33	3628.30	0.13
ADAMS BAYOU 1J	Alignment - ADAM	12500.*	Exist 100yr	8938.10	-12.47	6.15		6.21	0.000199	2.92	8474.69	3438.14	0.15

HEC-RAS Plan: Plan 05 (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
ADAMS BAYOU 1J	Alignment - ADAM	12500.*	Prop 100yr	6047.00	-12.47	5.81		5.85	0.000129	2.30	7311.54	3438.14	0.12
ADAMS BAYOU 1J	Alignment - ADAM	12550.*	Exist 100yr	8938.10	-12.45	6.17		6.23	0.000184	2.82	8617.29	3247.97	0.15
ADAMS BAYOU 1J	Alignment - ADAM	12550.*	Prop 100yr	6047.00	-12.45	5.83		5.86	0.000118	2.22	7497.83	3247.97	0.12
ADAMS BAYOU 1J	Alignment - ADAM	12600.*	Exist 100yr	8938.10	-12.43	6.19		6.24	0.000173	2.75	8680.23	3057.80	0.14
ADAMS BAYOU 1J	Alignment - ADAM	12600.*	Prop 100yr	6047.00	-12.43	5.84		5.87	0.000110	2.15	7608.89	3057.80	0.11
ADAMS BAYOU 1J	Alignment - ADAM	12606		Bridge									
ADAMS BAYOU 1J	Alignment - ADAM	12650.*	Exist 100yr	8938.10	-12.41	6.22	0.26	6.27	0.000164	2.69	8705.01	2867.63	0.14
ADAMS BAYOU 1J	Alignment - ADAM	12650.*	Prop 100yr	6047.00	-12.41	5.86	-1.56	5.89	0.000104	2.09	7672.13	2867.63	0.11
ADAMS BAYOU 1J	Alignment - ADAM	12700.*	Exist 100yr	8938.10	-12.39	6.23		6.28	0.000160	2.66	8601.79	2677.46	0.14
ADAMS BAYOU 1J	Alignment - ADAM	12700.*	Prop 100yr	6047.00	-12.39	5.87		5.90	0.000100	2.06	7624.50	2677.46	0.11
ADAMS BAYOU 1J	Alignment - ADAM	12750.*	Exist 100yr	8938.10	-12.37	6.25		6.29	0.000159	2.66	8420.46	2487.29	0.14
ADAMS BAYOU 1J	Alignment - ADAM	12750.*	Prop 100yr	6047.00	-12.37	5.88		5.91	0.000099	2.06	7501.48	2487.29	0.11
ADAMS BAYOU 1J	Alignment - ADAM	12800.*	Exist 100yr	8938.10	-12.35	6.26		6.31	0.000160	2.69	8161.51	2297.12	0.14
ADAMS BAYOU 1J	Alignment - ADAM	12800.*	Prop 100yr	6047.00	-12.35	5.88		5.91	0.000099	2.06	7302.79	2297.12	0.11
ADAMS BAYOU 1J	Alignment - ADAM	12850.*	Exist 100yr	8938.10	-12.33	6.27		6.32	0.000165	2.74	7830.18	2106.95	0.14
ADAMS BAYOU 1J	Alignment - ADAM	12850.*	Prop 100yr	6047.00	-12.33	5.89		5.92	0.000101	2.09	7033.71	2106.95	0.11
ADAMS BAYOU 1J	Alignment - ADAM	12900.*	Exist 100yr	8938.10	-12.31	6.28		6.33	0.000174	2.82	7424.89	1916.78	0.14
ADAMS BAYOU 1J	Alignment - ADAM	12900.*	Prop 100yr	6047.00	-12.31	5.90		5.93	0.000106	2.15	6692.60	1916.78	0.11
ADAMS BAYOU 1J	Alignment - ADAM	12950.*	Exist 100yr	8938.10	-12.29	6.29		6.35	0.000188	2.94	6944.17	1726.61	0.15
ADAMS BAYOU 1J	Alignment - ADAM	12950.*	Prop 100yr	6047.00	-12.29	5.90		5.94	0.000113	2.23	6278.31	1726.61	0.12
ADAMS BAYOU 1J	Alignment - ADAM	13000	Exist 100yr	8938.10	-12.27	6.30		6.37	0.000209	3.10	6388.69	1536.44	0.16
ADAMS BAYOU 1J	Alignment - ADAM	13000	Prop 100yr	6047.00	-12.27	5.91		5.95	0.000125	2.34	5791.27	1536.44	0.12
ADAMS BAYOU 1J	Alignment - ADAM	13050.*	Exist 100yr	8938.10	-12.25	6.32		6.38	0.000179	2.87	7145.01	1760.72	0.15
ADAMS BAYOU 1J	Alignment - ADAM	13050.*	Prop 100yr	6047.00	-12.25	5.92		5.96	0.000108	2.19	6442.02	1760.72	0.11
ADAMS BAYOU 1J	Alignment - ADAM	13100.*	Exist 100yr	8938.10	-12.23	6.34		6.39	0.000156	2.69	7867.31	1985.00	0.14
ADAMS BAYOU 1J	Alignment - ADAM	13100.*	Prop 100yr	6047.00	-12.23	5.93		5.96	0.000096	2.06	7058.87	1985.00	0.11
ADAMS BAYOU 1J	Alignment - ADAM	13150.*	Exist 100yr	8938.10	-12.21	6.36		6.40	0.000139	2.54	8551.53	2209.27	0.13
ADAMS BAYOU 1J	Alignment - ADAM	13150.*	Prop 100yr	6047.00	-12.21	5.94		5.97	0.000087	1.96	7637.84	2209.27	0.10
ADAMS BAYOU 1J	Alignment - ADAM	13200.*	Exist 100yr	8938.10	-12.20	6.37		6.40	0.000126	2.42	9200.84	2433.55	0.12
ADAMS BAYOU 1J	Alignment - ADAM	13200.*	Prop 100yr	6047.00	-12.20	5.95		5.97	0.000080	1.88	8182.50	2433.55	0.10
ADAMS BAYOU 1J	Alignment - ADAM	13250.*	Exist 100yr	8938.10	-12.18	6.38		6.41	0.000116	2.32	9813.77	2657.83	0.12
ADAMS BAYOU 1J	Alignment - ADAM	13250.*	Prop 100yr	6047.00	-12.18	5.96		5.98	0.000075	1.81	8690.44	2657.83	0.09
ADAMS BAYOU 1J	Alignment - ADAM	13300.*	Exist 100yr	8938.10	-12.16	6.39		6.42	0.000108	2.23	10393.45	2882.11	0.11
ADAMS BAYOU 1J	Alignment - ADAM	13300.*	Prop 100yr	6047.00	-12.16	5.96		5.98	0.000070	1.76	9165.06	2882.11	0.09
ADAMS BAYOU 1J	Alignment - ADAM	13350.*	Exist 100yr	8938.10	-12.14	6.40		6.42	0.000101	2.17	10931.70	3106.39	0.11
ADAMS BAYOU 1J	Alignment - ADAM	13350.*	Prop 100yr	6047.00	-12.14	5.97		5.98	0.000067	1.72	9598.09	3106.39	0.09
ADAMS BAYOU 1J	Alignment - ADAM	13400.*	Exist 100yr	8938.10	-12.12	6.40		6.43	0.000096	2.11	11441.18	3330.66	0.11
ADAMS BAYOU 1J	Alignment - ADAM	13400.*	Prop 100yr	6047.00	-12.12	5.97		5.99	0.000064	1.68	10002.13	3330.66	0.09
ADAMS BAYOU 1J	Alignment - ADAM	13450.*	Exist 100yr	8938.10	-12.10	6.41		6.43	0.000092	2.06	11914.61	3554.94	0.11
ADAMS BAYOU 1J	Alignment - ADAM	13450.*	Prop 100yr	6047.00	-12.10	5.97		5.99	0.000062	1.66	10369.93	3554.94	0.09
ADAMS BAYOU 1J	Alignment - ADAM	13500.*	Exist 100yr	8938.10	-12.09	6.42		6.44	0.000088	2.03	12351.19	3779.22	0.10
ADAMS BAYOU 1J	Alignment - ADAM	13500.*	Prop 100yr	6047.00	-12.09	5.98		5.99	0.000061	1.64	10700.79	3779.22	0.09
ADAMS BAYOU 1J	Alignment - ADAM	13550.*	Exist 100yr	8938.10	-12.07	6.42		6.44	0.000086	2.00	12753.06	4003.50	0.10
ADAMS BAYOU 1J	Alignment - ADAM	13550.*	Prop 100yr	6047.00	-12.07	5.98		6.00	0.000060	1.62	10996.53	4003.50	0.08
ADAMS BAYOU 1J	Alignment - ADAM	13600.*	Exist 100yr	8938.10	-12.05	6.43		6.45	0.000084	1.98	13120.13	4227.78	0.10
ADAMS BAYOU 1J	Alignment - ADAM	13600.*	Prop 100yr	6047.00	-12.05	5.99		6.00	0.000059	1.62	11257.56	4227.78	0.08
ADAMS BAYOU 1J	Alignment - ADAM	13650.*	Exist 100yr	8938.10	-12.03	6.43		6.45	0.000083	1.96	13448.11	4452.05	0.10
ADAMS BAYOU 1J	Alignment - ADAM	13650.*	Prop 100yr	6047.00	-12.03	5.99		6.00	0.000059	1.61	11479.24	4452.05	0.08
ADAMS BAYOU 1J	Alignment - ADAM	13700.*	Exist 100yr	8938.10	-12.01	6.44		6.45	0.000082	1.95	13750.97	4676.33	0.10
ADAMS BAYOU 1J	Alignment - ADAM	13700.*	Prop 100yr	6047.00	-12.01	5.99		6.01	0.000059	1.61	11675.48	4676.33	0.08
ADAMS BAYOU 1J	Alignment - ADAM	13750.*	Exist 100yr	8938.10	-11.99	6.44		6.46	0.000081	1.94	14012.66	4900.61	0.10
ADAMS BAYOU 1J	Alignment - ADAM	13750.*	Prop 100yr	6047.00	-11.99	5.99		6.01	0.000059	1.62	11830.40	4900.61	0.08
ADAMS BAYOU 1J	Alignment - ADAM	13800.*	Exist 100yr	8938.10	-11.97	6.44		6.46	0.000081	1.94	14239.20	5124.89	0.10
ADAMS BAYOU 1J	Alignment - ADAM	13800.*	Prop 100yr	6047.00	-11.97	6.00		6.01	0.000060	1.63	11950.09	5124.89	0.08
ADAMS BAYOU 1J	Alignment - ADAM	13801		Bridge									
ADAMS BAYOU 1J	Alignment - ADAM	13900.*	Exist 100yr	8938.10	-11.94	6.48	0.75	6.49	0.000080	1.93	14715.32	5573.44	0.10
ADAMS BAYOU 1J	Alignment - ADAM	13900.*	Prop 100yr	6047.00	-11.94	6.02	-1.09	6.04	0.000061	1.65	12186.38	5573.44	0.09
ADAMS BAYOU 1J	Alignment - ADAM	13950.*	Exist 100yr	8938.10	-11.92	6.48		6.50	0.000081	1.95	14842.32	5797.72	0.10
ADAMS BAYOU 1J	Alignment - ADAM	13950.*	Prop 100yr	6047.00	-11.92	6.02		6.04	0.000063	1.67	12204.93	5797.72	0.09



HEC-RAS Plan: Plan 05 (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
ADAMS BAYOU 1J	Alignment - ADAM	14000	Exist 100yr	8938.10	-11.90	6.48		6.50	0.000083	1.96	14938.27	6022.00	0.10
ADAMS BAYOU 1J	Alignment - ADAM	14000	Prop 100yr	6047.00	-11.90	6.03		6.04	0.000065	1.70	12192.05	6022.00	0.09
ADAMS BAYOU 1J	Alignment - ADAM	15000	Exist 100yr	8964.10	-11.65	6.56		6.57	0.000051	1.52	18621.50	6675.62	0.08
ADAMS BAYOU 1J	Alignment - ADAM	15000	Prop 100yr	6077.60	-11.65	6.09		6.09	0.000037	1.25	15581.21	6196.45	0.07
ADAMS BAYOU 1J	Alignment - ADAM	16000	Exist 100yr	8964.10	-11.36	6.60		6.61	0.000032	1.19	25220.30	9663.57	0.06
ADAMS BAYOU 1J	Alignment - ADAM	16000	Prop 100yr	6077.60	-11.36	6.12		6.12	0.000025	1.02	20695.99	9038.81	0.05
ADAMS BAYOU 1J	Alignment - ADAM	17000	Exist 100yr	8964.10	-11.07	6.64		6.65	0.000061	1.68	17648.85	6858.00	0.09
ADAMS BAYOU 1J	Alignment - ADAM	17000	Prop 100yr	6077.60	-11.07	6.15		6.16	0.000047	1.43	14383.86	6396.16	0.08
ADAMS BAYOU 1J	Alignment - ADAM	18000	Exist 100yr	8620.80	-10.50	6.69		6.70	0.000033	1.22	24675.62	10019.69	0.06
ADAMS BAYOU 1J	Alignment - ADAM	18000	Prop 100yr	5724.00	-10.50	6.19		6.19	0.000026	1.07	19730.94	9628.28	0.06
ADAMS BAYOU 1J	Alignment - ADAM	19000	Exist 100yr	8620.80	-10.17	6.73		6.74	0.000045	1.46	19702.98	7623.35	0.07
ADAMS BAYOU 1J	Alignment - ADAM	19000	Prop 100yr	5724.00	-10.17	6.22		6.22	0.000034	1.24	15884.06	7203.59	0.06
ADAMS BAYOU 1J	Alignment - ADAM	20000	Exist 100yr	8620.80	-9.77	6.77		6.79	0.000058	1.72	15765.56	5595.34	0.09
ADAMS BAYOU 1J	Alignment - ADAM	20000	Prop 100yr	5724.00	-9.77	6.25		6.26	0.000040	1.38	12973.70	5090.02	0.07
ADAMS BAYOU 1K	Alignment - ADAM	5000	Exist 100yr	8949.00	-15.46	3.54		3.80	0.000349	4.37	4651.24	4458.52	0.21
ADAMS BAYOU 1K	Alignment - ADAM	5000	Prop 100yr	8949.00	-15.46	2.42		2.88	0.000608	5.45	1900.09	1039.91	0.27
ADAMS BAYOU 1K	Alignment - ADAM	6000	Exist 100yr	8949.00	-15.01	3.94		4.11	0.000267	3.80	6472.52	5033.27	0.18
ADAMS BAYOU 1K	Alignment - ADAM	6000	Prop 100yr	8949.00	-15.01	3.08		3.44	0.000497	4.96	3161.38	2702.39	0.25
ADAMS BAYOU 1K	Alignment - ADAM	7000	Exist 100yr	8949.00	-14.20	4.23		4.35	0.000211	3.41	7652.12	4506.55	0.16
ADAMS BAYOU 1K	Alignment - ADAM	7000	Prop 100yr	8949.00	-14.20	3.63		3.87	0.000372	4.40	5084.26	4111.22	0.21
ADAMS BAYOU 1K	Alignment - ADAM	8000	Exist 100yr	8949.00	-13.54	4.45		4.56	0.000227	3.44	7839.50	4848.16	0.17
ADAMS BAYOU 1K	Alignment - ADAM	8000	Prop 100yr	8949.00	-13.54	4.04		4.24	0.000348	4.17	5904.59	4562.99	0.21
ADAMS BAYOU 1K	Alignment - ADAM	9000	Exist 100yr	8949.00	-13.44	4.68		4.78	0.000210	3.33	8591.83	5136.15	0.16
ADAMS BAYOU 1K	Alignment - ADAM	9000	Prop 100yr	8949.00	-13.44	4.41		4.55	0.000283	3.81	7209.93	4916.62	0.19
ADAMS BAYOU 1K	Alignment - ADAM	10000	Exist 100yr	8949.00	-13.22	4.90		5.08	0.000369	4.26	4927.93	2038.13	0.21
ADAMS BAYOU 1K	Alignment - ADAM	10000	Prop 100yr	8949.00	-13.22	4.70		4.92	0.000426	4.53	4534.19	1989.55	0.23
ADAMS BAYOU 1K	Alignment - ADAM	10050.*	Exist 100yr	8949.00	-13.21	4.92		5.10	0.000365	4.24	4972.67	2047.53	0.21
ADAMS BAYOU 1K	Alignment - ADAM	10050.*	Prop 100yr	8949.00	-13.21	4.72		4.94	0.000421	4.50	4584.90	2000.03	0.23
ADAMS BAYOU 1K	Alignment - ADAM	10100.*	Exist 100yr	8949.00	-13.20	4.94		5.12	0.000361	4.21	5016.42	2058.64	0.21
ADAMS BAYOU 1K	Alignment - ADAM	10100.*	Prop 100yr	8949.00	-13.20	4.75		4.96	0.000416	4.48	4634.13	2011.99	0.22
ADAMS BAYOU 1K	Alignment - ADAM	10150.*	Exist 100yr	8949.00	-13.19	4.96		5.14	0.000358	4.19	5059.12	2067.26	0.21
ADAMS BAYOU 1K	Alignment - ADAM	10150.*	Prop 100yr	8949.00	-13.19	4.77		4.98	0.000411	4.45	4682.72	2021.45	0.22
ADAMS BAYOU 1K	Alignment - ADAM	10162	Bridge										
ADAMS BAYOU 1K	Alignment - ADAM	10200.*	Exist 100yr	8949.00	-13.18	5.05	-2.05	5.22	0.000336	4.08	5252.94	2096.52	0.20
ADAMS BAYOU 1K	Alignment - ADAM	10200.*	Prop 100yr	8949.00	-13.18	4.89	-2.05	5.08	0.000380	4.30	4907.97	2055.11	0.22
ADAMS BAYOU 1K	Alignment - ADAM	10250.*	Exist 100yr	8949.00	-13.17	5.07		5.24	0.000333	4.06	5292.07	2106.46	0.20
ADAMS BAYOU 1K	Alignment - ADAM	10250.*	Prop 100yr	8949.00	-13.17	4.91		5.10	0.000376	4.28	4952.52	2066.15	0.21
ADAMS BAYOU 1K	Alignment - ADAM	10300.*	Exist 100yr	8949.00	-13.16	5.09		5.25	0.000331	4.04	5324.20	2115.73	0.20
ADAMS BAYOU 1K	Alignment - ADAM	10300.*	Prop 100yr	8949.00	-13.16	4.93		5.12	0.000373	4.26	4988.94	2075.73	0.21
ADAMS BAYOU 1K	Alignment - ADAM	10350.*	Exist 100yr	8949.00	-13.15	5.11		5.27	0.000329	4.03	5356.72	2125.06	0.20
ADAMS BAYOU 1K	Alignment - ADAM	10350.*	Prop 100yr	8949.00	-13.15	4.95		5.13	0.000370	4.24	5025.53	2085.97	0.21
ADAMS BAYOU 1K	Alignment - ADAM	10400.*	Exist 100yr	8949.00	-13.14	5.13		5.29	0.000327	4.02	5386.58	2135.54	0.20
ADAMS BAYOU 1K	Alignment - ADAM	10400.*	Prop 100yr	8949.00	-13.14	4.97		5.15	0.000368	4.23	5059.19	2097.02	0.21
ADAMS BAYOU 1K	Alignment - ADAM	10450.*	Exist 100yr	8949.00	-13.13	5.15		5.30	0.000326	4.01	5413.33	2143.49	0.20
ADAMS BAYOU 1K	Alignment - ADAM	10450.*	Prop 100yr	8949.00	-13.13	4.99		5.17	0.000366	4.21	5090.05	2105.54	0.21
ADAMS BAYOU 1K	Alignment - ADAM	10500.*	Exist 100yr	8949.00	-13.11	5.16		5.32	0.000325	4.00	5440.32	2154.01	0.20
ADAMS BAYOU 1K	Alignment - ADAM	10500.*	Prop 100yr	8949.00	-13.11	5.01		5.19	0.000364	4.20	5120.09	2116.56	0.21
ADAMS BAYOU 1K	Alignment - ADAM	10550.*	Exist 100yr	8949.00	-13.10	5.18		5.33	0.000324	3.99	5463.41	2161.89	0.20
ADAMS BAYOU 1K	Alignment - ADAM	10550.*	Prop 100yr	8949.00	-13.10	5.03		5.21	0.000362	4.19	5147.11	2124.98	0.21
ADAMS BAYOU 1K	Alignment - ADAM	10600.*	Exist 100yr	8949.00	-13.09	5.20		5.35	0.000323	3.98	5487.23	2170.80	0.20
ADAMS BAYOU 1K	Alignment - ADAM	10600.*	Prop 100yr	8949.00	-13.09	5.05		5.23	0.000361	4.18	5174.57	2134.68	0.21
ADAMS BAYOU 1K	Alignment - ADAM	10650.*	Exist 100yr	8949.00	-13.08	5.22		5.37	0.000322	3.98	5506.71	2181.05	0.20
ADAMS BAYOU 1K	Alignment - ADAM	10650.*	Prop 100yr	8949.00	-13.08	5.07		5.24	0.000360	4.17	5197.37	2145.43	0.21
ADAMS BAYOU 1K	Alignment - ADAM	10700.*	Exist 100yr	8949.00	-13.07	5.23		5.38	0.000322	3.97	5525.31	2188.82	0.20
ADAMS BAYOU 1K	Alignment - ADAM	10700.*	Prop 100yr	8949.00	-13.07	5.09		5.26	0.000359	4.16	5219.66	2153.71	0.21
ADAMS BAYOU 1K	Alignment - ADAM	10750.*	Exist 100yr	8949.00	-13.06	5.25		5.40	0.000322	3.97	5542.10	2199.04	0.20
ADAMS BAYOU 1K	Alignment - ADAM	10750.*	Prop 100yr	8949.00	-13.06	5.11		5.28	0.000358	4.16	5239.65	2164.41	0.21
ADAMS BAYOU 1K	Alignment - ADAM	10800.*	Exist 100yr	8949.00	-13.05	5.27		5.42	0.000322	3.97	5555.36	2207.63	0.20
ADAMS BAYOU 1K	Alignment - ADAM	10800.*	Prop 100yr	8949.00	-13.05	5.13		5.30	0.000358	4.15	5256.23	2173.70	0.21
ADAMS BAYOU 1K	Alignment - ADAM	10850.*	Exist 100yr	8949.00	-13.04	5.28		5.43	0.000323	3.97	5567.10	2216.89	0.20

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)	
ADAMS BAYOU 1K	Alignment - ADAM	10850.*	Prop 100yr	8949.00	-13.04	5.15		5.32	0.000358	4.15	5271.21	2183.21	0.21
ADAMS BAYOU 1K	Alignment - ADAM	10900.*	Exist 100yr	8949.00	-13.03	5.30		5.45	0.000323	3.97	5579.41	2225.43	0.20
ADAMS BAYOU 1K	Alignment - ADAM	10900.*	Prop 100yr	8949.00	-13.03	5.17		5.33	0.000358	4.15	5286.77	2192.41	0.21
ADAMS BAYOU 1K	Alignment - ADAM	10950.*	Exist 100yr	8949.00	-13.02	5.32		5.46	0.000324	3.97	5588.25	2234.74	0.20
ADAMS BAYOU 1K	Alignment - ADAM	10950.*	Prop 100yr	8949.00	-13.02	5.19		5.35	0.000359	4.15	5298.73	2201.96	0.21
ADAMS BAYOU 1K	Alignment - ADAM	11000	Exist 100yr	8949.00	-13.01	5.33		5.48	0.000325	3.98	5594.35	2243.14	0.20
ADAMS BAYOU 1K	Alignment - ADAM	11000	Prop 100yr	8949.00	-13.01	5.20		5.37	0.000360	4.16	5307.89	2211.00	0.21
ADAMS BAYOU 1L	Alignment - ADAM	2000	Exist 100yr	8948.90	-16.31	2.53		2.93	0.000502	5.09	1921.52	706.90	0.25
ADAMS BAYOU 1L	Alignment - ADAM	2000	Prop 100yr	6081.10	-16.31	2.08		2.28	0.000258	3.60	1714.34	303.58	0.18
ADAMS BAYOU 1L	Alignment - ADAM	3000	Exist 100yr	8948.90	-15.91	3.04		3.40	0.000438	4.91	2493.76	1418.59	0.23
ADAMS BAYOU 1L	Alignment - ADAM	3000	Prop 100yr	6081.10	-15.91	2.34		2.54	0.000256	3.63	1793.68	587.60	0.18
ADAMS BAYOU 1L	Alignment - ADAM	4000	Exist 100yr	8936.90	-15.66	3.54		3.79	0.000340	4.32	4209.37	3029.67	0.21
ADAMS BAYOU 1L	Alignment - ADAM	4000	Prop 100yr	6046.90	-15.66	2.61		2.80	0.000251	3.54	2151.82	1372.86	0.17
ADAMS BAYOU 1M	Alignment - ADAM	500	Exist 100yr	9389.20	-16.84	1.60	-6.75	2.08	0.000622	5.56	1688.84	131.75	0.27
ADAMS BAYOU 1M	Alignment - ADAM	500	Prop 100yr	6693.00	-16.84	1.60	-8.10	1.84	0.000316	3.96	1688.84	131.75	0.20
ADAMS BAYOU 1M	Alignment - ADAM	1000	Exist 100yr	9389.20	-16.84	1.93		2.38	0.000577	5.42	1737.37	202.03	0.26
ADAMS BAYOU 1M	Alignment - ADAM	1000	Prop 100yr	6693.00	-16.84	1.76		2.00	0.000304	3.91	1710.17	132.09	0.19
ADAMS BAYOU 2	Alignment - ADAM	9500	Exist 100yr	278.90	12.67	20.49		20.52	0.000219	1.49	225.56	78.95	0.13
ADAMS BAYOU 2	Alignment - ADAM	9500	Prop 100yr	278.90	12.67	20.49		20.52	0.000219	1.49	225.57	78.96	0.13
ADAMS BAYOU 2	Alignment - ADAM	10000	Exist 100yr	278.90	13.41	20.61		20.64	0.000238	1.46	334.40	501.15	0.14
ADAMS BAYOU 2	Alignment - ADAM	10000	Prop 100yr	278.90	13.41	20.61		20.64	0.000238	1.46	334.42	501.15	0.14
ADAMS BAYOU 2	Alignment - ADAM	10500	Exist 100yr	278.90	13.94	20.75		20.79	0.000363	1.76	281.83	729.10	0.17
ADAMS BAYOU 2	Alignment - ADAM	10500	Prop 100yr	278.90	13.94	20.75		20.79	0.000363	1.76	281.85	729.10	0.17
ADAMS BAYOU 2	Alignment - ADAM	11000	Exist 100yr	278.90	14.58	20.95		21.00	0.000497	1.96	215.37	825.47	0.20
ADAMS BAYOU 2	Alignment - ADAM	11000	Prop 100yr	278.90	14.58	20.95		21.00	0.000497	1.96	215.38	825.57	0.20
ADAMS BAYOU 2	Alignment - ADAM	11500	Exist 100yr	278.90	15.08	21.18		21.21	0.000340	1.57	425.87	1133.17	0.16
ADAMS BAYOU 2	Alignment - ADAM	11500	Prop 100yr	278.90	15.08	21.18		21.21	0.000340	1.57	425.88	1133.17	0.16
ADAMS BAYOU 2	Alignment - ADAM	12000	Exist 100yr	278.90	15.69	21.35		21.37	0.000283	1.35	543.61	1165.39	0.15
ADAMS BAYOU 2	Alignment - ADAM	12000	Prop 100yr	278.90	15.69	21.35		21.37	0.000283	1.35	543.61	1165.39	0.15
ADAMS BAYOU 2	Alignment - ADAM	12500	Exist 100yr	278.90	16.16	21.52		21.55	0.000483	1.72	328.50	853.10	0.19
ADAMS BAYOU 2	Alignment - ADAM	12500	Prop 100yr	278.90	16.16	21.52		21.55	0.000483	1.72	328.50	853.11	0.19
ADAMS BAYOU 2	Alignment - ADAM	13000	Exist 100yr	278.90	16.44	21.73		21.75	0.000332	1.46	439.03	911.60	0.16
ADAMS BAYOU 2	Alignment - ADAM	13000	Prop 100yr	278.90	16.44	21.73		21.75	0.000332	1.46	439.03	911.60	0.16
ADAMS BAYOU 2	Alignment - ADAM	13500	Exist 100yr	278.90	16.66	21.90		21.92	0.000329	1.45	383.79	581.78	0.16
ADAMS BAYOU 2	Alignment - ADAM	13500	Prop 100yr	278.90	16.66	21.90		21.92	0.000329	1.45	383.79	581.78	0.16
ADAMS BAYOU 2	Alignment - ADAM	14000	Exist 100yr	278.90	16.94	22.03		22.04	0.000188	1.08	674.19	1179.84	0.12
ADAMS BAYOU 2	Alignment - ADAM	14000	Prop 100yr	278.90	16.94	22.03		22.04	0.000188	1.08	674.19	1179.84	0.12
ADAMS BAYOU 2	Alignment - ADAM	14500	Exist 100yr	278.90	17.32	22.14		22.15	0.000273	1.27	529.48	897.59	0.14
ADAMS BAYOU 2	Alignment - ADAM	14500	Prop 100yr	278.90	17.32	22.14		22.15	0.000273	1.27	529.48	897.59	0.14
ADAMS BAYOU 2	Alignment - ADAM	15000	Exist 100yr	278.90	17.56	22.27		22.28	0.000236	1.15	576.24	939.33	0.13
ADAMS BAYOU 2	Alignment - ADAM	15000	Prop 100yr	278.90	17.56	22.27		22.28	0.000236	1.15	576.24	939.33	0.13
ADAMS BAYOU 2	Alignment - ADAM	15500	Exist 100yr	278.90	17.96	22.40		22.41	0.000282	1.22	526.15	799.17	0.14
ADAMS BAYOU 2	Alignment - ADAM	15500	Prop 100yr	278.90	17.96	22.40		22.41	0.000282	1.22	526.15	799.17	0.14
ADAMS BAYOU 2	Alignment - ADAM	16000	Exist 100yr	278.90	18.19	22.55		22.56	0.000329	1.32	534.73	883.49	0.15
ADAMS BAYOU 2	Alignment - ADAM	16000	Prop 100yr	278.90	18.19	22.55		22.56	0.000329	1.32	534.73	883.49	0.15
ADAMS BAYOU 2A	Alignment - ADAM	1500	Exist 100yr	1145.70	3.08	17.55		17.65	0.000284	2.57	610.94	619.33	0.16
ADAMS BAYOU 2A	Alignment - ADAM	1500	Prop 100yr	1145.70	3.08	16.24		16.39	0.000482	3.19	369.68	71.56	0.21
ADAMS BAYOU 2A	Alignment - ADAM	2000	Exist 100yr	1145.70	3.81	17.71		17.76	0.000187	2.07	1492.71	2545.28	0.13
ADAMS BAYOU 2A	Alignment - ADAM	2000	Prop 100yr	1145.70	3.81	16.49		16.65	0.000556	3.32	387.44	90.28	0.22
ADAMS BAYOU 2A	Alignment - ADAM	2500	Exist 100yr	1145.70	4.20	17.81		17.87	0.000225	2.18	1497.92	2387.86	0.14
ADAMS BAYOU 2A	Alignment - ADAM	2500	Prop 100yr	1145.70	4.20	16.77		16.95	0.000628	3.47	354.72	83.02	0.24
ADAMS BAYOU 2A	Alignment - ADAM	3000	Exist 100yr	1145.70	4.67	17.93		17.98	0.000208	2.09	1316.80	1060.20	0.14
ADAMS BAYOU 2A	Alignment - ADAM	3000	Prop 100yr	1145.70	4.67	17.10		17.27	0.000641	3.44	499.06	816.27	0.24
ADAMS BAYOU 2A	Alignment - ADAM	3500	Exist 100yr	1145.70	4.89	18.04		18.08	0.000221	2.15	1111.89	648.72	0.14
ADAMS BAYOU 2A	Alignment - ADAM	3500	Prop 100yr	1145.70	4.89	17.44		17.54	0.000442	2.88	735.67	568.08	0.20
ADAMS BAYOU 2A	Alignment - ADAM	4000	Exist 100yr	1145.70	5.45	18.15		18.17	0.000119	1.52	1815.51	990.56	0.10
ADAMS BAYOU 2A	Alignment - ADAM	4000	Prop 100yr	1145.70	5.45	17.67		17.71	0.000240	2.07	1346.90	962.40	0.14
ADAMS BAYOU 2A	Alignment - ADAM	4050.*	Exist 100yr	1145.70	5.76	18.15		18.17	0.000131	1.56	1857.30	1129.14	0.11
ADAMS BAYOU 2A	Alignment - ADAM	4050.*	Prop 100yr	1145.70	5.76	17.68		17.72	0.000281	2.20	1332.41	1086.73	0.16
ADAMS BAYOU 2A	Alignment - ADAM	4100.*	Exist 100yr	1145.70	6.08	18.16		18.18	0.000150	1.63	1850.14	1253.97	0.11

HEC-RAS Plan: Plan 05 (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
ADAMS BAYOU 2A	Alignment - ADAM	4100.*	Prop 100yr	1145.70	6.08	17.69		17.74	0.000350	2.41	1269.92	1213.08	0.17
ADAMS BAYOU 2A	Alignment - ADAM	4150.*	Exist 100yr	1145.70	6.39	18.17		18.19	0.000182	1.77	1793.66	1379.06	0.13
ADAMS BAYOU 2A	Alignment - ADAM	4150.*	Prop 100yr	1145.70	6.39	17.70		17.77	0.000467	2.72	1155.35	1341.45	0.20
ADAMS BAYOU 2B	Alignment - ADAM	4200.*	Exist 100yr	651.80	6.71	18.19		18.20	0.000073	1.10	1712.69	1507.43	0.08
ADAMS BAYOU 2B	Alignment - ADAM	4200.*	Prop 100yr	651.80	6.71	17.76		17.79	0.000189	1.70	1074.55	1475.74	0.13
ADAMS BAYOU 2B	Alignment - ADAM	4214		Culvert									
ADAMS BAYOU 2B	Alignment - ADAM	4250.*	Exist 100yr	651.80	7.03	18.61	12.61	18.61	0.000041	0.84	2243.30	1664.61	0.06
ADAMS BAYOU 2B	Alignment - ADAM	4250.*	Prop 100yr	651.80	7.03	18.18	12.61	18.19	0.000103	1.28	1534.05	1635.22	0.09
ADAMS BAYOU 2B	Alignment - ADAM	4300.*	Exist 100yr	651.80	7.34	18.61		18.62	0.000054	0.94	2092.34	1792.60	0.07
ADAMS BAYOU 2B	Alignment - ADAM	4300.*	Prop 100yr	651.80	7.34	18.18		18.20	0.000151	1.51	1327.33	1765.79	0.11
ADAMS BAYOU 2B	Alignment - ADAM	4350.*	Exist 100yr	651.80	7.66	18.61		18.62	0.000076	1.09	1888.18	1922.26	0.08
ADAMS BAYOU 2B	Alignment - ADAM	4350.*	Prop 100yr	651.80	7.66	18.18		18.21	0.000219	1.78	1089.66	1660.50	0.14
ADAMS BAYOU 2B	Alignment - ADAM	4400.*	Exist 100yr	651.80	7.97	18.61		18.63	0.000114	1.30	1635.09	2053.30	0.10
ADAMS BAYOU 2B	Alignment - ADAM	4400.*	Prop 100yr	651.80	7.97	18.18		18.23	0.000326	2.12	862.89	1559.02	0.16
ADAMS BAYOU 2B	Alignment - ADAM	4450.*	Exist 100yr	651.80	8.29	18.62		18.63	0.000165	1.53	1364.74	1900.21	0.12
ADAMS BAYOU 2B	Alignment - ADAM	4450.*	Prop 100yr	651.80	8.29	18.18		18.26	0.000497	2.55	636.92	1465.49	0.20
ADAMS BAYOU 2B	Alignment - ADAM	4500	Exist 100yr	651.80	8.60	18.62		18.65	0.000250	1.84	1104.80	1809.32	0.14
ADAMS BAYOU 2B	Alignment - ADAM	4500	Prop 100yr	651.80	8.60	18.18		18.30	0.000750	3.04	410.12	1375.93	0.24
ADAMS BAYOU 2B	Alignment - ADAM	5000	Exist 100yr	651.80	8.97	18.75		18.77	0.000240	1.72	1058.13	1861.84	0.14
ADAMS BAYOU 2B	Alignment - ADAM	5000	Prop 100yr	651.80	8.97	18.53		18.57	0.000387	2.13	713.86	1371.67	0.18
ADAMS BAYOU 2B	Alignment - ADAM	5500	Exist 100yr	651.80	10.22	18.90		18.95	0.000531	2.35	965.65	2405.88	0.20
ADAMS BAYOU 2B	Alignment - ADAM	5500	Prop 100yr	651.80	10.22	18.77		18.88	0.000936	3.07	660.62	2296.27	0.27
ADAMS BAYOU 2B	Alignment - ADAM	6000	Exist 100yr	651.80	10.48	19.18		19.25	0.000652	2.64	803.20	2366.41	0.23
ADAMS BAYOU 2B	Alignment - ADAM	6000	Prop 100yr	651.80	10.48	19.19		19.26	0.000633	2.60	843.41	2447.75	0.22
ADAMS BAYOU 2B	Alignment - ADAM	6500	Exist 100yr	651.80	10.70	19.47		19.52	0.000446	2.33	1072.26	3073.83	0.19
ADAMS BAYOU 2B	Alignment - ADAM	6500	Prop 100yr	651.80	10.70	19.47		19.52	0.000432	2.30	1093.74	3091.97	0.19
ADAMS BAYOU 2B	Alignment - ADAM	7000	Exist 100yr	651.80	11.06	19.69		19.74	0.000441	2.26	1064.80	2867.69	0.19
ADAMS BAYOU 2B	Alignment - ADAM	7000	Prop 100yr	651.80	11.06	19.69		19.74	0.000439	2.26	1067.83	2873.31	0.19
ADAMS BAYOU 2B	Alignment - ADAM	7500	Exist 100yr	651.80	11.84	19.95		20.06	0.000867	3.02	575.40	1465.91	0.26
ADAMS BAYOU 2B	Alignment - ADAM	7500	Prop 100yr	651.80	11.84	19.95		20.06	0.000867	3.02	575.88	1466.85	0.26
ADAMS BAYOU 2B	Alignment - ADAM	8000	Exist 100yr	651.80	11.99	20.28		20.30	0.000297	1.87	1146.05	1967.58	0.16
ADAMS BAYOU 2B	Alignment - ADAM	8000	Prop 100yr	651.80	11.99	20.28		20.30	0.000296	1.87	1146.18	1967.72	0.16
ADAMS BAYOU 2B	Alignment - ADAM	8500	Exist 100yr	651.80	12.10	20.41		20.42	0.000192	1.50	1376.15	1896.00	0.13
ADAMS BAYOU 2B	Alignment - ADAM	8500	Prop 100yr	651.80	12.10	20.41		20.42	0.000192	1.50	1376.24	1896.04	0.13
ADAMS BAYOU 2B	Alignment - ADAM	9000	Exist 100yr	651.80	12.22	20.47		20.47	0.000061	0.86	2023.16	1645.79	0.07
ADAMS BAYOU 2B	Alignment - ADAM	9000	Prop 100yr	651.80	12.22	20.47		20.47	0.000061	0.86	2023.23	1645.82	0.07
ADAMS BAYOU 2C	Alignment - ADAM	500	Exist 100yr	1731.80	1.72	17.17		17.22	0.000136	2.22	1696.13	723.68	0.12
ADAMS BAYOU 2C	Alignment - ADAM	500	Prop 100yr	1731.80	1.72	15.31		15.48	0.000448	3.55	791.45	354.86	0.21
ADAMS BAYOU 2C	Alignment - ADAM	550.*	Exist 100yr	1731.80	1.76	17.17		17.22	0.000147	2.28	1623.86	687.66	0.12
ADAMS BAYOU 2C	Alignment - ADAM	550.*	Prop 100yr	1731.80	1.76	15.32		15.51	0.000508	3.73	721.11	338.45	0.22
ADAMS BAYOU 2C	Alignment - ADAM	600.*	Exist 100yr	1731.80	1.81	17.18		17.23	0.000160	2.34	1542.25	647.98	0.13
ADAMS BAYOU 2C	Alignment - ADAM	600.*	Prop 100yr	1731.80	1.81	15.33		15.54	0.000573	3.90	650.33	313.42	0.23
ADAMS BAYOU 2C	Alignment - ADAM	650.*	Exist 100yr	1731.80	1.85	17.18		17.24	0.000182	2.47	1449.40	665.42	0.14
ADAMS BAYOU 2C	Alignment - ADAM	650.*	Prop 100yr	1731.80	1.85	15.35		15.58	0.000641	4.06	583.98	281.57	0.25
ADAMS BAYOU 2C	Alignment - ADAM	700.*	Exist 100yr	1731.80	1.90	17.18		17.26	0.000211	2.62	1343.00	679.31	0.15
ADAMS BAYOU 2C	Alignment - ADAM	700.*	Prop 100yr	1731.80	1.90	15.36		15.62	0.000708	4.20	525.25	235.40	0.26
ADAMS BAYOU 2C	Alignment - ADAM	750.*	Exist 100yr	1731.80	1.94	17.18		17.27	0.000244	2.77	1226.58	682.75	0.16
ADAMS BAYOU 2C	Alignment - ADAM	750.*	Prop 100yr	1731.80	1.94	15.39		15.66	0.000772	4.31	477.89	193.87	0.27
ADAMS BAYOU 2C	Alignment - ADAM	800.*	Exist 100yr	1731.80	1.98	17.18		17.29	0.000283	2.94	1099.66	668.03	0.17
ADAMS BAYOU 2C	Alignment - ADAM	800.*	Prop 100yr	1731.80	1.98	15.42		15.71	0.000817	4.38	444.27	137.23	0.27
ADAMS BAYOU 2C	Alignment - ADAM	809		Bridge									
ADAMS BAYOU 2C	Alignment - ADAM	850.*	Exist 100yr	1731.80	2.03	17.27	9.85	17.39	0.000308	3.04	1022.29	666.66	0.17
ADAMS BAYOU 2C	Alignment - ADAM	850.*	Prop 100yr	1731.80	2.03	15.65	9.85	15.93	0.000776	4.29	447.81	110.67	0.27
ADAMS BAYOU 2C	Alignment - ADAM	900.*	Exist 100yr	1731.80	2.07	17.27		17.41	0.000355	3.21	885.75	603.15	0.18
ADAMS BAYOU 2C	Alignment - ADAM	900.*	Prop 100yr	1731.80	2.07	15.69		15.97	0.000799	4.32	439.26	81.38	0.27
ADAMS BAYOU 2C	Alignment - ADAM	950.*	Exist 100yr	1731.80	2.12	17.28		17.44	0.000402	3.36	759.00	508.47	0.20
ADAMS BAYOU 2C	Alignment - ADAM	950.*	Prop 100yr	1731.80	2.12	15.72		16.01	0.000817	4.34	433.82	77.88	0.27
ADAMS BAYOU 2C	Alignment - ADAM	1000	Exist 100yr	1731.80	2.16	17.29		17.46	0.000443	3.48	652.47	399.44	0.20
ADAMS BAYOU 2C	Alignment - ADAM	1000	Prop 100yr	1731.80	2.16	15.76		16.05	0.000835	4.36	429.38	75.00	0.27

HEC-RAS Plan: Plan 05 (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
LAT 10	Alignment - LAT	500	Exist 100yr	422.30	0.66	17.11		17.11	0.000000	0.15	6648.52	1272.86	0.01
LAT 10	Alignment - LAT	500	Prop 100yr	422.30	0.66	14.10		14.10	0.000002	0.29	3306.82	878.79	0.02
LAT 10	Alignment - LAT	1000	Exist 100yr	422.30	2.01	17.11		17.11	0.000001	0.17	5857.39	1233.99	0.01
LAT 10	Alignment - LAT	1000	Prop 100yr	422.30	2.01	14.10		14.10	0.000005	0.40	2621.22	859.43	0.02
LAT 10	Alignment - LAT	1500	Exist 100yr	422.30	2.90	17.11		17.11	0.000001	0.16	6472.32	1448.23	0.01
LAT 10	Alignment - LAT	1500	Prop 100yr	422.30	2.90	14.10		14.10	0.000005	0.39	2745.27	978.72	0.02
LAT 10	Alignment - LAT	2000	Exist 100yr	422.30	4.39	17.11		17.11	0.000001	0.16	6732.73	1875.53	0.01
LAT 10	Alignment - LAT	2000	Prop 100yr	422.30	4.39	14.10		14.10	0.000014	0.58	2000.40	1052.08	0.04
LAT 10	Alignment - LAT	2500	Exist 100yr	422.30	5.48	17.11		17.11	0.000001	0.17	6535.05	2187.27	0.01
LAT 10	Alignment - LAT	2500	Prop 100yr	422.30	5.48	14.11		14.12	0.000035	0.81	1462.81	1026.23	0.06
LAT 10	Alignment - LAT	3000	Exist 100yr	422.30	6.32	17.11		17.11	0.000002	0.22	5187.76	1904.19	0.01
LAT 10	Alignment - LAT	3000	Prop 100yr	422.30	6.32	14.13		14.15	0.000114	1.34	842.03	817.65	0.10
LAT 10	Alignment - LAT	3500	Exist 100yr	422.30	6.90	17.11		17.11	0.000003	0.27	4401.31	1969.16	0.02
LAT 10	Alignment - LAT	3500	Prop 100yr	422.30	6.90	14.20		14.24	0.000264	1.86	521.47	626.20	0.15
LAT 10	Alignment - LAT	4000	Exist 100yr	422.30	7.78	17.11		17.12	0.000004	0.29	4223.52	2175.04	0.02
LAT 10	Alignment - LAT	4000	Prop 100yr	422.30	7.78	14.35		14.47	0.000742	2.86	247.02	472.65	0.24
LAT 10	Alignment - LAT	4500	Exist 100yr	422.30	8.26	17.12		17.12	0.000007	0.36	3301.37	1830.95	0.03
LAT 10	Alignment - LAT	4500	Prop 100yr	422.30	8.26	14.74		14.88	0.000873	3.02	205.23	388.83	0.26
LAT 10	Alignment - LAT	5000	Exist 100yr	422.30	9.05	17.12		17.12	0.000030	0.70	1961.68	1773.65	0.05
LAT 10	Alignment - LAT	5000	Prop 100yr	422.30	9.05	15.23		15.41	0.001252	3.45	125.31	93.98	0.31
LAT 10	Alignment - LAT	5500	Exist 100yr	422.30	9.40	17.14		17.14	0.000046	0.84	1736.91	1936.53	0.06
LAT 10	Alignment - LAT	5500	Prop 100yr	422.30	9.40	15.80		15.95	0.000934	3.14	186.86	379.98	0.27
LAT 10	Alignment - LAT	6000	Exist 100yr	422.30	10.41	17.14		17.22	0.000519	2.55	350.77	657.31	0.21
LAT 10	Alignment - LAT	6000	Prop 100yr	422.30	10.41	16.33		16.54	0.001411	3.71	114.26	31.06	0.33
LAT 10	Alignment - LAT	6500	Exist 100yr	422.30	11.27	17.45		17.63	0.001223	3.41	146.62	275.34	0.31
LAT 10	Alignment - LAT	6500	Prop 100yr	422.30	11.27	17.08		17.30	0.001642	3.83	110.40	30.57	0.35
LAT 10	Alignment - LAT	6550.*	Exist 100yr	422.30	11.38	17.51	14.86	17.69	0.001242	3.43	158.24	321.09	0.31
LAT 10	Alignment - LAT	6550.*	Prop 100yr	422.30	11.38	17.16		17.39	0.001702	3.88	108.88	30.36	0.36
LAT 10	Alignment - LAT	6600.*	Exist 100yr	422.30	11.50	17.58	14.98	17.76	0.001241	3.43	173.88	374.48	0.31
LAT 10	Alignment - LAT	6600.*	Prop 100yr	422.30	11.50	17.24		17.48	0.001749	3.93	107.52	30.62	0.37
LAT 10	Alignment - LAT	6650.*	Exist 100yr	422.30	11.61	17.65		17.82	0.001228	3.41	192.17	419.23	0.31
LAT 10	Alignment - LAT	6650.*	Prop 100yr	422.30	11.61	17.32		17.57	0.001790	3.98	109.08	101.60	0.37
LAT 10	Alignment - LAT	6700.*	Exist 100yr	422.30	11.73	17.72		17.88	0.001189	3.36	214.90	456.72	0.30
LAT 10	Alignment - LAT	6700.*	Prop 100yr	422.30	11.73	17.41	15.25	17.66	0.001805	4.00	117.55	178.15	0.37
LAT 10	Alignment - LAT	6750.*	Exist 100yr	422.30	11.84	17.79		17.94	0.001153	3.31	234.25	475.79	0.30
LAT 10	Alignment - LAT	6750.*	Prop 100yr	422.30	11.84	17.51	15.36	17.75	0.001775	3.98	132.93	245.90	0.37
LAT 10	Alignment - LAT	6794		Culvert									
LAT 10	Alignment - LAT	6850.*	Exist 100yr	422.30	12.07	20.49	15.62	20.49	0.000004	0.26	4016.30	1801.70	0.02
LAT 10	Alignment - LAT	6850.*	Prop 100yr	422.30	12.07	20.56	15.62	20.56	0.000003	0.25	4140.06	1801.70	0.02
LAT 10	Alignment - LAT	6858		Culvert									
LAT 10	Alignment - LAT	6900.*	Exist 100yr	422.30	12.18	21.87	15.75	21.87	0.000001	0.15	6070.35	1704.94	0.01
LAT 10	Alignment - LAT	6900.*	Prop 100yr	422.30	12.18	21.86	15.75	21.86	0.000001	0.15	6066.60	1704.94	0.01
LAT 10	Alignment - LAT	6945		Culvert									
LAT 10	Alignment - LAT	7100.*	Exist 100yr	422.30	12.41	21.87	16.05	21.87	0.000001	0.17	5308.00	1579.50	0.01
LAT 10	Alignment - LAT	7100.*	Prop 100yr	422.30	12.41	21.86	16.05	21.86	0.000001	0.17	5304.68	1579.50	0.01
LAT 10	Alignment - LAT	7150.*	Exist 100yr	422.30	12.42	21.87		21.87	0.000001	0.17	5343.95	1613.54	0.01
LAT 10	Alignment - LAT	7150.*	Prop 100yr	422.30	12.42	21.86		21.86	0.000001	0.17	5340.56	1613.54	0.01
LAT 10	Alignment - LAT	7200.*	Exist 100yr	422.30	12.42	21.87		21.87	0.000001	0.17	5375.89	1647.58	0.01
LAT 10	Alignment - LAT	7200.*	Prop 100yr	422.30	12.42	21.86		21.86	0.000001	0.17	5372.43	1647.58	0.01
LAT 10	Alignment - LAT	7250.*	Exist 100yr	422.30	12.42	21.87		21.87	0.000001	0.17	5403.99	1681.62	0.01
LAT 10	Alignment - LAT	7250.*	Prop 100yr	422.30	12.42	21.86		21.87	0.000001	0.17	5400.45	1681.62	0.01
LAT 10	Alignment - LAT	7300.*	Exist 100yr	422.30	12.42	21.87		21.87	0.000001	0.17	5427.39	1715.67	0.01
LAT 10	Alignment - LAT	7300.*	Prop 100yr	422.30	12.42	21.86		21.87	0.000001	0.17	5423.79	1715.67	0.01
LAT 10	Alignment - LAT	7350.*	Exist 100yr	422.30	12.42	21.87		21.87	0.000001	0.17	5447.65	1749.71	0.01
LAT 10	Alignment - LAT	7350.*	Prop 100yr	422.30	12.42	21.87		21.87	0.000001	0.17	5443.98	1749.71	0.01
LAT 10	Alignment - LAT	7400.*	Exist 100yr	422.30	12.43	21.87		21.87	0.000001	0.17	5463.57	1783.75	0.01
LAT 10	Alignment - LAT	7400.*	Prop 100yr	422.30	12.43	21.87		21.87	0.000001	0.17	5459.82	1783.75	0.01
LAT 10	Alignment - LAT	7450.*	Exist 100yr	422.30	12.43	21.87		21.87	0.000001	0.17	5475.44	1817.79	0.01
LAT 10	Alignment - LAT	7450.*	Prop 100yr	422.30	12.43	21.87		21.87	0.000001	0.17	5471.62	1817.79	0.01

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)	
LAT 10	Alignment - LAT	7500	Exist 100yr	422.30	12.43	21.87		21.87	0.000001	0.17	5483.63	1851.83	0.01
LAT 10	Alignment - LAT	7500	Prop 100yr	422.30	12.43	21.87		21.87	0.000001	0.18	5479.74	1851.83	0.01
LAT 10	Alignment - LAT	7550.*	Exist 100yr	422.30	12.40	21.87		21.87	0.000001	0.17	5594.22	1919.68	0.01
LAT 10	Alignment - LAT	7550.*	Prop 100yr	422.30	12.40	21.87		21.87	0.000001	0.17	5590.19	1919.68	0.01
LAT 10	Alignment - LAT	7556		Culvert									
LAT 10	Alignment - LAT	7600.*	Exist 100yr	422.30	12.38	21.87	16.23	21.87	0.000001	0.17	5707.50	1987.53	0.01
LAT 10	Alignment - LAT	7600.*	Prop 100yr	422.30	12.38	21.87	16.23	21.87	0.000001	0.17	5703.32	1987.53	0.01
LAT 10	Alignment - LAT	7650.*	Exist 100yr	422.30	12.35	21.87		21.87	0.000001	0.17	5816.04	2055.38	0.01
LAT 10	Alignment - LAT	7650.*	Prop 100yr	422.30	12.35	21.87		21.87	0.000001	0.17	5811.73	2055.38	0.01
LAT 10	Alignment - LAT	7700.*	Exist 100yr	422.30	12.33	21.87		21.87	0.000001	0.17	5924.93	2123.23	0.01
LAT 10	Alignment - LAT	7700.*	Prop 100yr	422.30	12.33	21.87		21.87	0.000001	0.17	5920.47	2123.23	0.01
LAT 10	Alignment - LAT	7750.*	Exist 100yr	422.30	12.30	21.87		21.87	0.000001	0.17	6033.37	2191.08	0.01
LAT 10	Alignment - LAT	7750.*	Prop 100yr	422.30	12.30	21.87		21.87	0.000001	0.17	6028.76	2191.08	0.01
LAT 10	Alignment - LAT	7800.*	Exist 100yr	422.30	12.27	21.87		21.87	0.000001	0.17	6133.92	2258.94	0.01
LAT 10	Alignment - LAT	7800.*	Prop 100yr	422.30	12.27	21.87		21.87	0.000001	0.17	6129.18	2258.94	0.01
LAT 10	Alignment - LAT	7850.*	Exist 100yr	422.30	12.25	21.87		21.87	0.000001	0.17	6238.95	2326.79	0.01
LAT 10	Alignment - LAT	7850.*	Prop 100yr	422.30	12.25	21.87		21.87	0.000001	0.17	6234.06	2326.79	0.01
LAT 10	Alignment - LAT	7859		Culvert									
LAT 10	Alignment - LAT	7900.*	Exist 100yr	422.30	12.22	21.87	16.16	21.87	0.000001	0.16	6347.79	2394.64	0.01
LAT 10	Alignment - LAT	7900.*	Prop 100yr	422.30	12.22	21.87	16.16	21.87	0.000001	0.16	6342.76	2394.64	0.01
LAT 10	Alignment - LAT	7950.*	Exist 100yr	422.30	12.20	21.87		21.87	0.000001	0.16	6446.02	2462.49	0.01
LAT 10	Alignment - LAT	7950.*	Prop 100yr	422.30	12.20	21.87		21.87	0.000001	0.16	6440.85	2462.49	0.01
LAT 10	Alignment - LAT	8000	Exist 100yr	422.30	12.17	21.87		21.87	0.000001	0.16	6546.91	2530.34	0.01
LAT 10	Alignment - LAT	8000	Prop 100yr	422.30	12.17	21.87		21.87	0.000001	0.16	6541.60	2530.34	0.01
LAT 10	Alignment - LAT	8050.*	Exist 100yr	422.30	12.17	21.87		21.87	0.000001	0.16	6431.54	2492.76	0.01
LAT 10	Alignment - LAT	8050.*	Prop 100yr	422.30	12.17	21.87		21.87	0.000001	0.16	6426.31	2492.76	0.01
LAT 10	Alignment - LAT	8100.*	Exist 100yr	422.30	12.18	21.87		21.87	0.000001	0.17	6316.85	2455.17	0.01
LAT 10	Alignment - LAT	8100.*	Prop 100yr	422.30	12.18	21.87		21.87	0.000001	0.17	6311.70	2455.17	0.01
LAT 10	Alignment - LAT	8128		Culvert									
LAT 10	Alignment - LAT	8200.*	Exist 100yr	422.30	12.18	21.87	16.18	21.87	0.000001	0.17	6084.64	2380.00	0.01
LAT 10	Alignment - LAT	8200.*	Prop 100yr	422.30	12.18	21.87	16.18	21.87	0.000001	0.17	6078.31	2380.00	0.01
LAT 10	Alignment - LAT	8250.*	Exist 100yr	422.30	12.18	21.87		21.87	0.000001	0.18	5966.06	2342.42	0.01
LAT 10	Alignment - LAT	8250.*	Prop 100yr	422.30	12.18	21.87		21.87	0.000001	0.18	5959.83	2342.42	0.01
LAT 10	Alignment - LAT	8300.*	Exist 100yr	422.30	12.19	21.87		21.87	0.000002	0.18	5848.92	2304.83	0.01
LAT 10	Alignment - LAT	8300.*	Prop 100yr	422.30	12.19	21.87		21.87	0.000002	0.18	5842.79	2304.83	0.01
LAT 10	Alignment - LAT	8350.*	Exist 100yr	422.30	12.19	21.87		21.87	0.000002	0.19	5732.19	2267.25	0.01
LAT 10	Alignment - LAT	8350.*	Prop 100yr	422.30	12.19	21.87		21.87	0.000002	0.19	5726.15	2267.25	0.01
LAT 10	Alignment - LAT	8400.*	Exist 100yr	422.30	12.19	21.87		21.87	0.000002	0.19	5608.09	2229.66	0.01
LAT 10	Alignment - LAT	8400.*	Prop 100yr	422.30	12.19	21.87		21.87	0.000002	0.19	5602.16	2229.66	0.01
LAT 10	Alignment - LAT	8450.*	Exist 100yr	422.30	12.20	21.87		21.87	0.000002	0.19	5485.19	2192.07	0.01
LAT 10	Alignment - LAT	8450.*	Prop 100yr	422.30	12.20	21.87		21.87	0.000002	0.19	5479.36	2192.07	0.01
LAT 10	Alignment - LAT	8500	Exist 100yr	422.30	12.20	21.87		21.87	0.000002	0.20	5366.73	2154.49	0.01
LAT 10	Alignment - LAT	8500	Prop 100yr	422.30	12.20	21.87		21.87	0.000002	0.20	5361.00	2154.49	0.01
LAT 10	Alignment - LAT	9000	Exist 100yr	422.30	12.34	21.87		21.87	0.000002	0.21	5013.26	2080.82	0.01
LAT 10	Alignment - LAT	9000	Prop 100yr	422.30	12.34	21.87		21.87	0.000002	0.21	5007.73	2080.82	0.01
LAT 10	Alignment - LAT	9500	Exist 100yr	422.30	12.52	21.87		21.87	0.000004	0.27	3907.67	1674.51	0.02
LAT 10	Alignment - LAT	9500	Prop 100yr	422.30	12.52	21.87		21.87	0.000004	0.27	3903.23	1674.51	0.02
LAT 11A	Alignment - LAT	000	Exist 100yr	541.90	15.20	20.46		20.48	0.000322	1.68	1004.38	1937.95	0.16
LAT 11A	Alignment - LAT	000	Prop 100yr	541.90	15.20	20.46		20.48	0.000322	1.68	1004.46	1938.49	0.16
LAT 11A	Alignment - LAT	150.*	Exist 100yr	541.90	15.22	20.51		20.52	0.000272	1.55	1105.03	2167.99	0.15
LAT 11A	Alignment - LAT	150.*	Prop 100yr	541.90	15.22	20.51		20.52	0.000272	1.55	1105.11	2167.99	0.15
LAT 11A	Alignment - LAT	200.*	Exist 100yr	541.90	15.22	20.52		20.53	0.000257	1.51	1135.51	2167.99	0.14
LAT 11A	Alignment - LAT	200.*	Prop 100yr	541.90	15.22	20.52		20.53	0.000257	1.51	1135.58	2167.99	0.14
LAT 11A	Alignment - LAT	250.*	Exist 100yr	541.90	15.23	20.54		20.55	0.000245	1.48	1164.24	2167.99	0.14
LAT 11A	Alignment - LAT	250.*	Prop 100yr	541.90	15.23	20.54		20.55	0.000245	1.48	1164.30	2167.99	0.14
LAT 11A	Alignment - LAT	300.*	Exist 100yr	541.90	15.23	20.55		20.56	0.000233	1.45	1191.49	2167.99	0.14
LAT 11A	Alignment - LAT	300.*	Prop 100yr	541.90	15.23	20.55		20.56	0.000233	1.45	1191.55	2167.99	0.14
LAT 11A	Alignment - LAT	350.*	Exist 100yr	541.90	15.23	20.56		20.57	0.000223	1.42	1217.40	2167.99	0.13
LAT 11A	Alignment - LAT	350.*	Prop 100yr	541.90	15.23	20.56		20.57	0.000223	1.42	1217.45	2167.99	0.13

HEC-RAS Plan: Plan 05 (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
LAT 11A	Alignment - LAT	400.*	Exist 100yr	541.90	15.24	20.57		20.58	0.000213	1.39	1242.10	2167.99	0.13
LAT 11A	Alignment - LAT	400.*	Prop 100yr	541.90	15.24	20.57		20.58	0.000213	1.39	1242.15	2167.99	0.13
LAT 11A	Alignment - LAT	447		Culvert									
LAT 11A	Alignment - LAT	500	Exist 100yr	541.90	15.25	24.61	19.89	24.61	0.000000	0.10	10001.42	2167.99	0.01
LAT 11A	Alignment - LAT	500	Prop 100yr	541.90	15.25	24.61	19.89	24.61	0.000000	0.10	10000.50	2167.99	0.01
LAT 11A	Alignment - LAT	1000	Exist 100yr	541.90	15.76	24.61		24.61	0.000000	0.10	10514.64	2366.02	0.01
LAT 11A	Alignment - LAT	1000	Prop 100yr	541.90	15.76	24.61		24.61	0.000000	0.10	10513.63	2366.02	0.01
LAT 11A	Alignment - LAT	1050.*	Exist 100yr	541.90	15.79	24.61		24.61	0.000000	0.10	10514.50	2385.92	0.01
LAT 11A	Alignment - LAT	1050.*	Prop 100yr	541.90	15.79	24.61		24.61	0.000000	0.10	10513.49	2385.92	0.01
LAT 11A	Alignment - LAT	1100.*	Exist 100yr	541.90	15.82	24.61		24.61	0.000000	0.10	10510.29	2405.82	0.01
LAT 11A	Alignment - LAT	1100.*	Prop 100yr	541.90	15.82	24.61		24.61	0.000000	0.10	10509.26	2405.82	0.01
LAT 11A	Alignment - LAT	1101		Culvert									
LAT 11A	Alignment - LAT	1150.*	Exist 100yr	541.90	15.84	24.61	19.91	24.61	0.000000	0.10	10509.79	2425.73	0.01
LAT 11A	Alignment - LAT	1150.*	Prop 100yr	541.90	15.84	24.61	19.91	24.61	0.000000	0.10	10508.76	2425.73	0.01
LAT 11A	Alignment - LAT	1200.*	Exist 100yr	541.90	15.87	24.61		24.61	0.000000	0.10	10504.26	2445.63	0.01
LAT 11A	Alignment - LAT	1200.*	Prop 100yr	541.90	15.87	24.61		24.61	0.000000	0.10	10503.22	2445.63	0.01
LAT 11A	Alignment - LAT	1250.*	Exist 100yr	541.90	15.90	24.61		24.61	0.000000	0.10	10495.81	2465.53	0.01
LAT 11A	Alignment - LAT	1250.*	Prop 100yr	541.90	15.90	24.61		24.61	0.000000	0.10	10494.75	2465.53	0.01
LAT 11A	Alignment - LAT	1300.*	Exist 100yr	541.90	15.93	24.61		24.61	0.000000	0.10	10487.64	2485.43	0.01
LAT 11A	Alignment - LAT	1300.*	Prop 100yr	541.90	15.93	24.61		24.61	0.000000	0.10	10486.58	2485.43	0.01
LAT 11A	Alignment - LAT	1350.*	Exist 100yr	541.90	15.96	24.61		24.61	0.000000	0.10	10475.29	2505.33	0.01
LAT 11A	Alignment - LAT	1350.*	Prop 100yr	541.90	15.96	24.61		24.61	0.000000	0.10	10474.22	2505.33	0.01
LAT 11A	Alignment - LAT	1373		Culvert									
LAT 11A	Alignment - LAT	1400.*	Exist 100yr	541.90	15.98	24.62	20.19	24.62	0.000000	0.10	10476.60	2525.24	0.01
LAT 11A	Alignment - LAT	1400.*	Prop 100yr	541.90	15.98	24.62	20.19	24.62	0.000000	0.10	10475.68	2525.24	0.01
LAT 11A	Alignment - LAT	1450.*	Exist 100yr	541.90	16.01	24.62		24.62	0.000000	0.10	10463.30	2545.14	0.01
LAT 11A	Alignment - LAT	1450.*	Prop 100yr	541.90	16.01	24.62		24.62	0.000000	0.10	10462.37	2545.14	0.01
LAT 11A	Alignment - LAT	1500	Exist 100yr	541.90	16.04	24.62		24.62	0.000000	0.10	10448.78	2565.04	0.01
LAT 11A	Alignment - LAT	1500	Prop 100yr	541.90	16.04	24.62		24.62	0.000000	0.10	10447.85	2565.04	0.01
LAT 11A	Alignment - LAT	1550.*	Exist 100yr	541.90	16.07	24.62		24.62	0.000000	0.10	10501.91	2558.59	0.01
LAT 11A	Alignment - LAT	1550.*	Prop 100yr	541.90	16.07	24.62		24.62	0.000000	0.10	10500.99	2558.59	0.01
LAT 11A	Alignment - LAT	1570		Culvert									
LAT 11A	Alignment - LAT	1600.*	Exist 100yr	541.90	16.11	24.62	20.27	24.62	0.000000	0.09	10560.83	2552.14	0.01
LAT 11A	Alignment - LAT	1600.*	Prop 100yr	541.90	16.11	24.62	20.27	24.62	0.000000	0.09	10559.90	2552.14	0.01
LAT 11A	Alignment - LAT	1650.*	Exist 100yr	541.90	16.14	24.62		24.62	0.000000	0.09	10607.41	2545.69	0.01
LAT 11A	Alignment - LAT	1650.*	Prop 100yr	541.90	16.14	24.62		24.62	0.000000	0.09	10606.49	2545.69	0.01
LAT 11A	Alignment - LAT	1700.*	Exist 100yr	541.90	16.18	24.62		24.62	0.000000	0.09	10662.36	2539.24	0.01
LAT 11A	Alignment - LAT	1700.*	Prop 100yr	541.90	16.18	24.62		24.62	0.000000	0.09	10661.44	2539.24	0.01
LAT 11A	Alignment - LAT	1750.*	Exist 100yr	541.90	16.21	24.62		24.62	0.000000	0.09	10709.83	2532.79	0.01
LAT 11A	Alignment - LAT	1750.*	Prop 100yr	541.90	16.21	24.62		24.62	0.000000	0.09	10708.91	2532.79	0.01
LAT 11A	Alignment - LAT	1800.*	Exist 100yr	541.90	16.24	24.62		24.62	0.000000	0.09	10752.74	2526.33	0.01
LAT 11A	Alignment - LAT	1800.*	Prop 100yr	541.90	16.24	24.62		24.62	0.000000	0.09	10751.82	2526.33	0.01
LAT 11A	Alignment - LAT	1850.*	Exist 100yr	541.90	16.28	24.62		24.62	0.000000	0.09	10804.26	2519.88	0.01
LAT 11A	Alignment - LAT	1850.*	Prop 100yr	541.90	16.28	24.62		24.62	0.000000	0.09	10803.35	2519.88	0.01
LAT 11A	Alignment - LAT	1900.*	Exist 100yr	541.90	16.31	24.62		24.62	0.000000	0.09	10846.84	2513.43	0.01
LAT 11A	Alignment - LAT	1900.*	Prop 100yr	541.90	16.31	24.62		24.62	0.000000	0.09	10845.93	2513.43	0.01
LAT 11A	Alignment - LAT	1950.*	Exist 100yr	541.90	16.35	24.62		24.62	0.000000	0.09	10889.49	2506.98	0.01
LAT 11A	Alignment - LAT	1950.*	Prop 100yr	541.90	16.35	24.62		24.62	0.000000	0.09	10888.58	2506.98	0.01
LAT 11A	Alignment - LAT	2000	Exist 100yr	541.90	16.38	24.62		24.62	0.000000	0.09	10931.44	2500.53	0.01
LAT 11A	Alignment - LAT	2000	Prop 100yr	541.90	16.38	24.62		24.62	0.000000	0.09	10930.54	2500.53	0.01
LAT 11A	Alignment - LAT	2500	Exist 100yr	541.90	17.02	24.62		24.62	0.000000	0.08	12037.25	2702.94	0.01
LAT 11A	Alignment - LAT	2500	Prop 100yr	541.90	17.02	24.62		24.62	0.000000	0.08	12036.27	2702.94	0.01
LAT 11A	Alignment - LAT	3000	Exist 100yr	541.90	17.35	24.62		24.62	0.000000	0.07	14003.21	3111.76	0.00
LAT 11A	Alignment - LAT	3000	Prop 100yr	541.90	17.35	24.62		24.62	0.000000	0.07	14002.09	3111.76	0.00
LAT 11A	Alignment - LAT	3500	Exist 100yr	541.90	17.73	24.62		24.62	0.000000	0.05	18561.00	4169.45	0.00
LAT 11A	Alignment - LAT	3500	Prop 100yr	541.90	17.73	24.62		24.62	0.000000	0.05	18559.49	4169.45	0.00
LAT 11A	Alignment - LAT	3550.*	Exist 100yr	541.90	17.80	24.62		24.62	0.000000	0.05	18147.98	4078.44	0.00
LAT 11A	Alignment - LAT	3550.*	Prop 100yr	541.90	17.80	24.62		24.62	0.000000	0.05	18146.50	4078.44	0.00
LAT 11A	Alignment - LAT	3600.*	Exist 100yr	541.90	17.87	24.62		24.62	0.000000	0.05	17727.92	3987.44	0.00

HEC-RAS Plan: Plan 05 (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
LAT 11A	Alignment - LAT	3600.*	Prop 100yr	541.90	17.87	24.62		24.62	0.000000	0.05	17726.48	3987.44	0.00
LAT 11A	Alignment - LAT	3650.*	Exist 100yr	541.90	17.94	24.62		24.62	0.000000	0.05	17310.16	3896.45	0.00
LAT 11A	Alignment - LAT	3650.*	Prop 100yr	541.90	17.94	24.62		24.62	0.000000	0.05	17308.75	3896.45	0.00
LAT 11A	Alignment - LAT	3700.*	Exist 100yr	541.90	18.01	24.62		24.62	0.000000	0.05	16890.88	3805.44	0.00
LAT 11A	Alignment - LAT	3700.*	Prop 100yr	541.90	18.01	24.62		24.62	0.000000	0.05	16889.50	3805.44	0.00
LAT 11A	Alignment - LAT	3750.*	Exist 100yr	541.90	18.08	24.62		24.62	0.000000	0.05	16476.18	3714.44	0.00
LAT 11A	Alignment - LAT	3750.*	Prop 100yr	541.90	18.08	24.62		24.62	0.000000	0.05	16474.84	3714.44	0.00
LAT 11A	Alignment - LAT	3800.*	Exist 100yr	541.90	18.15	24.62		24.62	0.000000	0.05	16059.62	3623.43	0.00
LAT 11A	Alignment - LAT	3800.*	Prop 100yr	541.90	18.15	24.62		24.62	0.000000	0.05	16058.31	3623.43	0.00
LAT 11A	Alignment - LAT	3804		Culvert									
LAT 11A	Alignment - LAT	3850.*	Exist 100yr	541.90	18.22	24.62	20.26	24.62	0.000000	0.06	15647.69	3532.43	0.00
LAT 11A	Alignment - LAT	3850.*	Prop 100yr	541.90	18.22	24.62	20.26	24.62	0.000000	0.06	15646.40	3532.43	0.00
LAT 11A	Alignment - LAT	3900.*	Exist 100yr	541.90	18.29	24.62		24.62	0.000000	0.06	15230.61	3441.43	0.00
LAT 11A	Alignment - LAT	3900.*	Prop 100yr	541.90	18.29	24.62		24.62	0.000000	0.06	15229.35	3441.43	0.00
LAT 11A	Alignment - LAT	3950.*	Exist 100yr	541.90	18.36	24.62		24.62	0.000000	0.06	14813.63	3350.43	0.00
LAT 11A	Alignment - LAT	3950.*	Prop 100yr	541.90	18.36	24.62		24.62	0.000000	0.06	14812.41	3350.43	0.00
LAT 11A	Alignment - LAT	4000	Exist 100yr	541.90	18.43	24.62		24.62	0.000000	0.06	14398.58	3259.42	0.00
LAT 11A	Alignment - LAT	4000	Prop 100yr	541.90	18.43	24.62		24.62	0.000000	0.06	14397.39	3259.42	0.00
LAT 11A	Alignment - LAT	4500	Exist 100yr	541.90	18.92	24.62		24.62	0.000000	0.06	14674.61	3218.48	0.00
LAT 11A	Alignment - LAT	4500	Prop 100yr	541.90	18.92	24.62		24.62	0.000000	0.06	14673.44	3218.48	0.00
LAT 11D-2	Alignment - LAT	500	Exist 100yr	416.10	8.16	17.48		17.48	0.000002	0.19	5448.83	2019.50	0.01
LAT 11D-2	Alignment - LAT	500	Prop 100yr	416.10	8.16	16.08		16.08	0.000014	0.50	2620.34	2019.50	0.04
LAT 11D-2	Alignment - LAT	1000	Exist 100yr	416.10	8.56	17.48		17.48	0.000002	0.22	4903.04	2054.27	0.01
LAT 11D-2	Alignment - LAT	1000	Prop 100yr	416.10	8.56	16.09		16.09	0.000023	0.60	2116.32	1744.38	0.05
LAT 11D-2	Alignment - LAT	1500	Exist 100yr	416.10	8.92	17.48		17.48	0.000007	0.37	3276.81	1960.38	0.03
LAT 11D-2	Alignment - LAT	1500	Prop 100yr	416.10	8.92	16.10		16.11	0.000078	1.04	1142.20	1135.07	0.08
LAT 11D-2	Alignment - LAT	2000	Exist 100yr	416.10	9.22	17.49		17.49	0.000010	0.42	2987.71	2046.50	0.03
LAT 11D-2	Alignment - LAT	2000	Prop 100yr	416.10	9.22	16.15		16.16	0.000148	1.36	881.92	1110.71	0.11
LAT 11D-2	Alignment - LAT	2500	Exist 100yr	416.10	9.58	17.49		17.49	0.000019	0.55	2549.49	2319.25	0.04
LAT 11D-2	Alignment - LAT	2500	Prop 100yr	416.10	9.58	16.24		16.29	0.000414	2.13	504.21	936.76	0.18
LAT 11D-2	Alignment - LAT	3000	Exist 100yr	416.10	9.82	17.50		17.51	0.000039	0.76	1850.71	1929.38	0.06
LAT 11D-2	Alignment - LAT	3000	Prop 100yr	416.10	9.82	16.46		16.53	0.000519	2.37	418.41	825.31	0.21
LAT 11D-2	Alignment - LAT	3500	Exist 100yr	416.10	10.16	17.53		17.53	0.000068	0.97	1515.73	1929.12	0.08
LAT 11D-2	Alignment - LAT	3500	Prop 100yr	416.10	10.16	16.73		16.81	0.000607	2.58	383.02	899.40	0.22
LAT 11D-2	Alignment - LAT	4000	Exist 100yr	416.10	10.50	17.57		17.58	0.000152	1.42	998.00	1571.32	0.11
LAT 11D-2	Alignment - LAT	4000	Prop 100yr	416.10	10.50	17.03		17.12	0.000630	2.67	353.67	821.21	0.23
LAT 11D-2	Alignment - LAT	4500	Exist 100yr	416.10	10.94	17.66		17.70	0.000339	2.04	598.38	1168.36	0.17
LAT 11D-2	Alignment - LAT	4500	Prop 100yr	416.10	10.94	17.35		17.46	0.000715	2.82	308.63	742.32	0.24
LAT 11D-2	Alignment - LAT	5000	Exist 100yr	416.10	11.60	17.86		17.96	0.000742	2.67	322.24	823.54	0.24
LAT 11D-2	Alignment - LAT	5000	Prop 100yr	416.10	11.60	17.75		17.88	0.000945	2.96	240.50	635.82	0.27
LAT 11D-2	Alignment - LAT	5500	Exist 100yr	290.00	12.49	18.22		18.30	0.000610	2.31	169.32	452.59	0.22
LAT 11D-2	Alignment - LAT	5500	Prop 100yr	290.00	12.49	18.19		18.28	0.000635	2.34	157.98	400.43	0.22
LAT 11D-2	Alignment - LAT	5550.*	Exist 100yr	290.00	12.54	18.25		18.33	0.000618	2.32	165.34	431.71	0.22
LAT 11D-2	Alignment - LAT	5550.*	Prop 100yr	290.00	12.54	18.23		18.31	0.000642	2.35	155.12	381.47	0.22
LAT 11D-2	Alignment - LAT	5600.*	Exist 100yr	290.00	12.60	18.28		18.36	0.000625	2.32	161.10	405.99	0.22
LAT 11D-2	Alignment - LAT	5600.*	Prop 100yr	290.00	12.60	18.26		18.34	0.000648	2.35	151.92	361.54	0.23
LAT 11D-2	Alignment - LAT	5650.*	Exist 100yr	290.00	12.65	18.31		18.40	0.000635	2.33	157.33	391.53	0.22
LAT 11D-2	Alignment - LAT	5650.*	Prop 100yr	290.00	12.65	18.29		18.38	0.000656	2.36	148.94	347.25	0.23
LAT 11D-2	Alignment - LAT	5750.*	Exist 100yr	290.00	12.76	18.38		18.46	0.000649	2.34	151.48	360.77	0.23
LAT 11D-2	Alignment - LAT	5750.*	Prop 100yr	290.00	12.76	18.36		18.44	0.000668	2.37	144.51	321.17	0.23
LAT 11D-2	Alignment - LAT	5800.*	Exist 100yr	290.00	12.81	18.41		18.49	0.000656	2.35	149.39	338.47	0.23
LAT 11D-2	Alignment - LAT	5800.*	Prop 100yr	290.00	12.81	18.39		18.48	0.000673	2.37	143.17	302.11	0.23
LAT 11D-2	Alignment - LAT	5850.*	Exist 100yr	290.00	12.86	18.44		18.53	0.000661	2.35	147.44	333.18	0.23
LAT 11D-2	Alignment - LAT	5850.*	Prop 100yr	290.00	12.86	18.42		18.51	0.000678	2.37	141.64	295.10	0.23
LAT 11D-2	Alignment - LAT	6000	Exist 100yr	290.00	13.02	18.54		18.63	0.000680	2.36	141.65	291.60	0.23
LAT 11D-2	Alignment - LAT	6000	Prop 100yr	290.00	13.02	18.53		18.61	0.000694	2.38	137.28	259.61	0.23
LAT 11D-2	Alignment - LAT	6500	Exist 100yr	290.00	13.53	18.89	16.28	18.98	0.000729	2.45	130.75	419.36	0.24
LAT 11D-2	Alignment - LAT	6500	Prop 100yr	290.00	13.53	18.88		18.97	0.000738	2.46	127.02	358.11	0.24
LAT 11D-2	Alignment - LAT	7000	Exist 100yr	290.00	13.04	19.22		19.28	0.000482	2.08	267.15	760.66	0.20
LAT 11D-2	Alignment - LAT	7000	Prop 100yr	290.00	13.04	19.21		19.27	0.000489	2.09	262.73	754.68	0.20

HEC-RAS Plan: Plan 05 (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
LAT 11D-2	Alignment - LAT	7500	Exist 100yr	290.00	13.13	19.43		19.45	0.000251	1.44	532.45	1113.08	0.14
LAT 11D-2	Alignment - LAT	7500	Prop 100yr	290.00	13.13	19.43		19.45	0.000254	1.45	528.98	1107.72	0.14
LAT 11D-2	Alignment - LAT	8000	Exist 100yr	290.00	13.58	19.57		19.67	0.000698	2.58	184.98	445.29	0.23
LAT 11D-2	Alignment - LAT	8000	Prop 100yr	290.00	13.58	19.57		19.67	0.000700	2.58	184.18	443.33	0.23
LAT 11D-2	Alignment - LAT	8500	Exist 100yr	290.00	14.24	19.93		19.99	0.000602	2.26	256.24	410.28	0.21
LAT 11D-2	Alignment - LAT	8500	Prop 100yr	290.00	14.24	19.93		19.99	0.000603	2.26	255.91	410.05	0.21
LAT 11D-2	Alignment - LAT	8550.*	Exist 100yr	290.00	14.20	19.94		20.04	0.000860	2.69	162.44	328.20	0.26
LAT 11D-2	Alignment - LAT	8550.*	Prop 100yr	290.00	14.20	19.94		20.04	0.000861	2.69	162.19	327.96	0.26
LAT 11D-2	Alignment - LAT	8600.*	Exist 100yr	290.00	14.16	19.97		20.10	0.000964	2.84	107.63	106.51	0.27
LAT 11D-2	Alignment - LAT	8600.*	Prop 100yr	290.00	14.16	19.97		20.09	0.000964	2.84	107.56	105.48	0.27
LAT 11D-2	Alignment - LAT	8650.*	Exist 100yr	290.00	14.13	20.02		20.14	0.000949	2.82	104.78	53.98	0.27
LAT 11D-2	Alignment - LAT	8650.*	Prop 100yr	290.00	14.13	20.02		20.14	0.000949	2.82	104.75	53.94	0.27
LAT 11D-2	Alignment - LAT	8700.*	Exist 100yr	290.00	14.09	20.07		20.19	0.000930	2.80	103.82	38.73	0.27
LAT 11D-2	Alignment - LAT	8700.*	Prop 100yr	290.00	14.09	20.07		20.19	0.000930	2.80	103.80	38.60	0.27
LAT 11D-2	Alignment - LAT	8750.*	Exist 100yr	311.00	14.05	20.11		20.24	0.001055	2.98	104.40	30.43	0.28
LAT 11D-2	Alignment - LAT	8750.*	Prop 100yr	311.00	14.05	20.11		20.24	0.001056	2.98	104.38	30.42	0.28
LAT 11D-2	Alignment - LAT	8800.*	Exist 100yr	311.00	14.01	20.18		20.29	0.000787	2.66	117.03	30.79	0.24
LAT 11D-2	Alignment - LAT	8800.*	Prop 100yr	311.00	14.01	20.18		20.29	0.000787	2.66	117.01	30.79	0.24
LAT 11D-2	Alignment - LAT	8801		Culvert									
LAT 11D-2	Alignment - LAT	8850.*	Exist 100yr	311.00	13.97	20.95	16.84	20.98	0.000247	1.60	441.95	745.12	0.14
LAT 11D-2	Alignment - LAT	8850.*	Prop 100yr	311.00	13.97	20.95	16.84	20.98	0.000248	1.60	441.52	744.90	0.14
LAT 11D-2	Alignment - LAT	8900.*	Exist 100yr	311.00	13.94	20.98		20.99	0.000157	1.23	651.70	813.18	0.11
LAT 11D-2	Alignment - LAT	8900.*	Prop 100yr	311.00	13.94	20.98		20.99	0.000158	1.23	651.27	813.01	0.11
LAT 11D-2	Alignment - LAT	8950.*	Exist 100yr	311.00	13.90	20.99		21.00	0.000081	0.88	895.91	893.59	0.08
LAT 11D-2	Alignment - LAT	8950.*	Prop 100yr	311.00	13.90	20.99		21.00	0.000081	0.88	895.46	893.01	0.08
LAT 11D-2	Alignment - LAT	9000	Exist 100yr	311.00	13.86	21.00		21.00	0.000044	0.65	1166.76	941.47	0.06
LAT 11D-2	Alignment - LAT	9000	Prop 100yr	311.00	13.86	21.00		21.00	0.000044	0.65	1166.29	941.25	0.06
LAT 11D-2	Alignment - LAT	9050.*	Exist 100yr	311.00	13.93	21.00		21.01	0.000039	0.61	1357.75	1292.46	0.06
LAT 11D-2	Alignment - LAT	9050.*	Prop 100yr	311.00	13.93	21.00		21.00	0.000039	0.61	1357.10	1292.19	0.06
LAT 11D-2	Alignment - LAT	9100.*	Exist 100yr	311.00	13.99	21.01		21.01	0.000036	0.59	1544.83	1688.24	0.05
LAT 11D-2	Alignment - LAT	9100.*	Prop 100yr	311.00	13.99	21.01		21.01	0.000036	0.59	1543.99	1687.89	0.05
LAT 11D-2	Alignment - LAT	9150.*	Exist 100yr	311.00	14.06	21.01		21.01	0.000032	0.56	1729.99	2050.62	0.05
LAT 11D-2	Alignment - LAT	9150.*	Prop 100yr	311.00	14.06	21.01		21.01	0.000032	0.56	1728.97	2050.39	0.05
LAT 11D-2	Alignment - LAT	9200.*	Exist 100yr	311.00	14.13	21.01		21.01	0.000029	0.54	1910.14	2427.87	0.05
LAT 11D-2	Alignment - LAT	9200.*	Prop 100yr	311.00	14.13	21.01		21.01	0.000029	0.54	1908.94	2427.59	0.05
LAT 11D-2	Alignment - LAT	9250.*	Exist 100yr	311.00	14.19	21.01		21.01	0.000025	0.51	2094.91	2717.36	0.04
LAT 11D-2	Alignment - LAT	9250.*	Prop 100yr	311.00	14.19	21.01		21.01	0.000025	0.51	2093.58	2716.69	0.05
LAT 11D-2	Alignment - LAT	9300.*	Exist 100yr	311.00	14.26	21.01		21.01	0.000014	0.38	2478.05	2585.89	0.03
LAT 11D-2	Alignment - LAT	9300.*	Prop 100yr	311.00	14.26	21.01		21.01	0.000014	0.38	2476.80	2585.44	0.03
LAT 11D-2	Alignment - LAT	9350.*	Exist 100yr	311.00	14.33	21.01		21.01	0.000008	0.30	3011.25	2719.99	0.03
LAT 11D-2	Alignment - LAT	9350.*	Prop 100yr	311.00	14.33	21.01		21.01	0.000008	0.30	3009.92	2719.26	0.03
LAT 11D-2	Alignment - LAT	9400.*	Exist 100yr	311.00	14.40	21.01		21.01	0.000005	0.23	3641.84	2967.12	0.02
LAT 11D-2	Alignment - LAT	9400.*	Prop 100yr	311.00	14.40	21.01		21.01	0.000005	0.23	3640.40	2966.22	0.02
LAT 11D-2	Alignment - LAT	9423		Bridge									
LAT 11D-2	Alignment - LAT	9450.*	Exist 100yr	311.00	14.46	21.02	17.80	21.02	0.000003	0.18	4392.21	3386.26	0.02
LAT 11D-2	Alignment - LAT	9450.*	Prop 100yr	311.00	14.46	21.02	17.80	21.02	0.000003	0.18	4390.62	3384.91	0.02
LAT 11D-2	Alignment - LAT	9500	Exist 100yr	311.00	14.53	21.02		21.02	0.000002	0.15	5243.24	3720.78	0.01
LAT 11D-2	Alignment - LAT	9500	Prop 100yr	311.00	14.53	21.02		21.02	0.000002	0.15	5241.48	3720.52	0.01
LAT 11D-2	Alignment - LAT	9548.35*	Exist 100yr	311.00	14.65	21.02		21.02	0.000003	0.17	4729.52	3614.47	0.01
LAT 11D-2	Alignment - LAT	9548.35*	Prop 100yr	311.00	14.65	21.02		21.02	0.000003	0.17	4727.82	3614.18	0.01
LAT 11D-2	Alignment - LAT	9596.71*	Exist 100yr	311.00	14.78	21.02		21.02	0.000004	0.21	4265.63	3538.44	0.02
LAT 11D-2	Alignment - LAT	9596.71*	Prop 100yr	311.00	14.78	21.02		21.02	0.000004	0.21	4263.96	3538.11	0.02
LAT 11D-2	Alignment - LAT	9645.06*	Exist 100yr	311.00	14.90	21.02		21.02	0.000005	0.24	3870.44	3504.82	0.02
LAT 11D-2	Alignment - LAT	9645.06*	Prop 100yr	311.00	14.90	21.02		21.02	0.000005	0.24	3868.78	3504.61	0.02
LAT 11D-2	Alignment - LAT	9693.42*	Exist 100yr	311.00	15.03	21.02		21.02	0.000007	0.29	3582.83	3603.47	0.02
LAT 11D-2	Alignment - LAT	9693.42*	Prop 100yr	311.00	15.03	21.02		21.02	0.000007	0.29	3581.13	3602.92	0.02
LAT 11D-2	Alignment - LAT	9741.77*	Exist 100yr	311.00	15.15	21.02		21.02	0.000008	0.29	3467.72	3480.97	0.03
LAT 11D-2	Alignment - LAT	9741.77*	Prop 100yr	311.00	15.15	21.02		21.02	0.000008	0.29	3466.09	3480.97	0.03
LAT 11D-2	Alignment - LAT	9790.13*	Exist 100yr	311.00	15.28	21.02		21.02	0.000008	0.29	3295.14	3132.71	0.03



HEC-RAS Plan: Plan 05 (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)	
LAT 11D-2	Alignment - LAT	9790.13*	Prop 100yr	311.00	15.28	21.02		21.02	0.000008	0.30	3293.67	3132.71	0.03
LAT 11D-2	Alignment - LAT	9801											
LAT 11D-2	Alignment - LAT	9886.84*	Exist 100yr	311.00	15.53	21.32	17.56	21.32	0.000005	0.25	3429.84	2436.18	0.02
LAT 11D-2	Alignment - LAT	9886.84*	Prop 100yr	311.00	15.53	21.32	17.56	21.32	0.000005	0.25	3428.70	2436.18	0.02
LAT 11D-2	Alignment - LAT	9935.19*	Exist 100yr	311.00	15.65	21.32		21.32	0.000008	0.31	2756.33	2077.72	0.03
LAT 11D-2	Alignment - LAT	9935.19*	Prop 100yr	311.00	15.65	21.32		21.32	0.000008	0.31	2755.36	2077.72	0.03
LAT 11D-2	Alignment - LAT	9983.55	Exist 100yr	311.00	15.78	21.32		21.32	0.000047	0.67	1382.02	1335.46	0.06
LAT 11D-2	Alignment - LAT	9983.55	Prop 100yr	311.00	15.78	21.32		21.32	0.000047	0.67	1381.40	1335.45	0.06
LAT 11D-2	Alignment - LAT	10500	Exist 100yr	311.00	16.07	21.34		21.34	0.000017	0.38	2205.96	2206.76	0.03
LAT 11D-2	Alignment - LAT	10500	Prop 100yr	311.00	16.07	21.34		21.34	0.000017	0.38	2204.97	2206.00	0.03
LAT 11D-2	Alignment - LAT	11000	Exist 100yr	311.00	16.43	21.34		21.34	0.000005	0.20	4302.29	3836.94	0.02
LAT 11D-2	Alignment - LAT	11000	Prop 100yr	311.00	16.43	21.34		21.34	0.000005	0.20	4300.59	3836.66	0.02
LAT 11D-2	Alignment - LAT	11500	Exist 100yr	311.00	16.86	21.34		21.34	0.000004	0.19	4296.73	3279.07	0.02
LAT 11D-2	Alignment - LAT	11500	Prop 100yr	311.00	16.86	21.34		21.34	0.000004	0.19	4295.28	3278.78	0.02
LAT 11D-2	Alignment - LAT	12000	Exist 100yr	311.00	16.94	21.35		21.35	0.000008	0.24	3550.14	3600.82	0.02
LAT 11D-2	Alignment - LAT	12000	Prop 100yr	311.00	16.94	21.35		21.35	0.000008	0.24	3548.57	3600.75	0.02
LAT 11D-2	Alignment - LAT	12050.*	Exist 100yr	311.00	16.96	21.35		21.35	0.000012	0.29	3112.48	3543.10	0.03
LAT 11D-2	Alignment - LAT	12050.*	Prop 100yr	311.00	16.96	21.35		21.35	0.000012	0.30	3110.93	3543.04	0.03
LAT 11D-2	Alignment - LAT	12100.*	Exist 100yr	311.00	16.98	21.35		21.35	0.000018	0.36	2705.56	3342.57	0.04
LAT 11D-2	Alignment - LAT	12100.*	Prop 100yr	311.00	16.98	21.35		21.35	0.000018	0.36	2704.11	3342.02	0.04
LAT 11D-2	Alignment - LAT	12150.*	Exist 100yr	311.00	17.00	21.35		21.35	0.000023	0.41	2372.84	2974.57	0.04
LAT 11D-2	Alignment - LAT	12150.*	Prop 100yr	311.00	17.00	21.35		21.35	0.000023	0.41	2371.55	2974.17	0.04
LAT 11D-2	Alignment - LAT	12200.*	Exist 100yr	311.00	17.02	21.35		21.35	0.000031	0.47	2102.13	2742.63	0.05
LAT 11D-2	Alignment - LAT	12200.*	Prop 100yr	311.00	17.02	21.35		21.35	0.000031	0.47	2100.94	2742.19	0.05
LAT 11D-2	Alignment - LAT	12250.*	Exist 100yr	311.00	17.04	21.35		21.35	0.000040	0.54	1879.12	2546.79	0.06
LAT 11D-2	Alignment - LAT	12250.*	Prop 100yr	311.00	17.04	21.35		21.35	0.000040	0.54	1878.03	2546.42	0.06
LAT 11D-2	Alignment - LAT	12300.*	Exist 100yr	311.00	17.06	21.35		21.35	0.000051	0.61	1690.41	2388.18	0.06
LAT 11D-2	Alignment - LAT	12300.*	Prop 100yr	311.00	17.06	21.35		21.35	0.000052	0.61	1689.39	2387.83	0.06
LAT 11D-2	Alignment - LAT	12350.*	Exist 100yr	311.00	17.08	21.36		21.36	0.000065	0.68	1530.89	2249.92	0.07
LAT 11D-2	Alignment - LAT	12350.*	Prop 100yr	311.00	17.08	21.36		21.36	0.000065	0.68	1529.93	2249.60	0.07
LAT 11D-2	Alignment - LAT	12400.*	Exist 100yr	311.00	17.10	21.36		21.36	0.000079	0.75	1401.45	2123.21	0.08
LAT 11D-2	Alignment - LAT	12400.*	Prop 100yr	311.00	17.10	21.36		21.36	0.000079	0.76	1400.55	2122.90	0.08
LAT 11D-2	Alignment - LAT	12450.*	Exist 100yr	311.00	17.12	21.36		21.37	0.000096	0.83	1288.37	2014.62	0.08
LAT 11D-2	Alignment - LAT	12450.*	Prop 100yr	311.00	17.12	21.36		21.37	0.000096	0.83	1287.54	2014.35	0.08
LAT 11D-2	Alignment - LAT	12466											
LAT 11D-2	Alignment - LAT	12550.*	Exist 100yr	311.00	17.17	22.70	20.85	22.70	0.000003	0.19	4257.45	2773.69	0.02
LAT 11D-2	Alignment - LAT	12550.*	Prop 100yr	311.00	17.17	22.70	20.85	22.70	0.000003	0.19	4266.07	2775.98	0.02
LAT 11D-2	Alignment - LAT	12600.*	Exist 100yr	311.00	17.20	22.70		22.70	0.000003	0.19	4191.38	2740.29	0.02
LAT 11D-2	Alignment - LAT	12600.*	Prop 100yr	311.00	17.20	22.70		22.70	0.000003	0.19	4199.90	2742.65	0.02
LAT 11D-2	Alignment - LAT	12650.*	Exist 100yr	311.00	17.24	22.70		22.70	0.000003	0.20	4125.98	2710.49	0.02
LAT 11D-2	Alignment - LAT	12650.*	Prop 100yr	311.00	17.24	22.70		22.70	0.000003	0.20	4134.41	2712.79	0.02
LAT 11D-2	Alignment - LAT	12700.*	Exist 100yr	311.00	17.27	22.70		22.70	0.000003	0.20	4064.44	2682.62	0.02
LAT 11D-2	Alignment - LAT	12700.*	Prop 100yr	311.00	17.27	22.70		22.70	0.000003	0.20	4072.78	2684.92	0.02
LAT 11D-2	Alignment - LAT	12750.*	Exist 100yr	311.00	17.30	22.70		22.70	0.000004	0.20	4005.55	2652.35	0.02
LAT 11D-2	Alignment - LAT	12750.*	Prop 100yr	311.00	17.30	22.70		22.70	0.000004	0.20	4013.79	2654.59	0.02
LAT 11D-2	Alignment - LAT	12800.*	Exist 100yr	311.00	17.33	22.70		22.70	0.000004	0.21	3934.99	2624.33	0.02
LAT 11D-2	Alignment - LAT	12800.*	Prop 100yr	311.00	17.33	22.70		22.70	0.000004	0.21	3943.14	2626.58	0.02
LAT 11D-2	Alignment - LAT	12850.*	Exist 100yr	311.00	17.36	22.70		22.70	0.000004	0.21	3877.01	2593.65	0.02
LAT 11D-2	Alignment - LAT	12850.*	Prop 100yr	311.00	17.36	22.70		22.70	0.000004	0.21	3885.06	2595.84	0.02
LAT 11D-2	Alignment - LAT	12900.*	Exist 100yr	311.00	17.40	22.70		22.70	0.000004	0.22	3816.91	2561.13	0.02
LAT 11D-2	Alignment - LAT	12900.*	Prop 100yr	311.00	17.40	22.70		22.70	0.000004	0.22	3824.86	2563.38	0.02
LAT 11D-2	Alignment - LAT	12950.*	Exist 100yr	311.00	17.43	22.70		22.70	0.000004	0.22	3750.67	2530.29	0.02
LAT 11D-2	Alignment - LAT	12950.*	Prop 100yr	311.00	17.43	22.70		22.70	0.000004	0.22	3758.52	2532.48	0.02
LAT 11D-2	Alignment - LAT	13000	Exist 100yr	311.00	17.46	22.70		22.70	0.000004	0.23	3694.31	2502.18	0.02
LAT 11D-2	Alignment - LAT	13000	Prop 100yr	311.00	17.46	22.70		22.70	0.000004	0.23	3702.07	2504.38	0.02
LAT 11D-2	Alignment - LAT	13500	Exist 100yr	311.00	17.82	22.70		22.70	0.000009	0.30	3381.28	3515.35	0.03
LAT 11D-2	Alignment - LAT	13500	Prop 100yr	311.00	17.82	22.71		22.71	0.000009	0.30	3392.11	3515.35	0.03
LAT 11D-2	Alignment - LAT	13550.*	Exist 100yr	311.00	17.88	22.71		22.71	0.000010	0.33	3164.26	3411.99	0.03
LAT 11D-2	Alignment - LAT	13550.*	Prop 100yr	311.00	17.88	22.71		22.71	0.000010	0.33	3174.77	3419.19	0.03

HEC-RAS Plan: Plan 05 (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
LAT 11D-2	Alignment - LAT	13600.*	Exist 100yr	311.00	17.94	22.71		22.71	0.000011	0.34	2970.13	3170.92	0.03
LAT 11D-2	Alignment - LAT	13600.*	Prop 100yr	311.00	17.94	22.71		22.71	0.000011	0.34	2979.89	3178.41	0.03
LAT 11D-2	Alignment - LAT	13650.*	Exist 100yr	311.00	18.00	22.71		22.71	0.000012	0.35	2800.77	2762.67	0.03
LAT 11D-2	Alignment - LAT	13650.*	Prop 100yr	311.00	18.00	22.71		22.71	0.000012	0.35	2809.27	2773.50	0.03
LAT 11D-2	Alignment - LAT	13700.*	Exist 100yr	311.00	18.06	22.71		22.71	0.000013	0.36	2663.64	2549.28	0.03
LAT 11D-2	Alignment - LAT	13700.*	Prop 100yr	311.00	18.06	22.71		22.71	0.000013	0.36	2671.46	2554.30	0.03
LAT 11D-2	Alignment - LAT	13750.*	Exist 100yr	311.00	18.12	22.71		22.71	0.000014	0.37	2541.54	2413.98	0.03
LAT 11D-2	Alignment - LAT	13750.*	Prop 100yr	311.00	18.12	22.71		22.71	0.000014	0.37	2548.94	2416.93	0.03
LAT 11D-2	Alignment - LAT	13800.*	Exist 100yr	311.00	18.18	22.71		22.71	0.000015	0.38	2425.71	2325.82	0.04
LAT 11D-2	Alignment - LAT	13800.*	Prop 100yr	311.00	18.18	22.71		22.71	0.000015	0.38	2432.82	2328.89	0.04
LAT 11D-2	Alignment - LAT	13850.*	Exist 100yr	311.00	18.24	22.71		22.71	0.000017	0.40	2314.53	2254.58	0.04
LAT 11D-2	Alignment - LAT	13850.*	Prop 100yr	311.00	18.24	22.71		22.71	0.000017	0.40	2321.41	2257.05	0.04
LAT 11D-2	Alignment - LAT	13898		Culvert									
LAT 11D-2	Alignment - LAT	13950.*	Exist 100yr	311.00	18.36	22.71	21.02	22.71	0.000021	0.44	2112.97	2133.42	0.04
LAT 11D-2	Alignment - LAT	13950.*	Prop 100yr	311.00	18.36	22.71	21.02	22.71	0.000022	0.44	2111.51	2132.82	0.04
LAT 11D-2	Alignment - LAT	14000	Exist 100yr	311.00	18.42	22.72		22.72	0.000024	0.46	2012.87	2069.29	0.04
LAT 11D-2	Alignment - LAT	14000	Prop 100yr	311.00	18.42	22.71		22.72	0.000024	0.46	2011.45	2068.76	0.04
LAT 11D-2	Alignment - LAT	14500	Exist 100yr	311.00	18.31	22.73		22.73	0.000023	0.47	2032.15	1991.01	0.04
LAT 11D-2	Alignment - LAT	14500	Prop 100yr	311.00	18.31	22.73		22.73	0.000023	0.47	2030.82	1990.25	0.04
LAT 11D-2	Alignment - LAT	14550.*	Exist 100yr	311.00	18.35	22.74		22.74	0.000023	0.46	2050.17	2038.21	0.04
LAT 11D-2	Alignment - LAT	14550.*	Prop 100yr	311.00	18.35	22.74		22.74	0.000023	0.46	2048.85	2037.59	0.04
LAT 11D-2	Alignment - LAT	14600.*	Exist 100yr	311.00	18.39	22.75		22.75	0.000023	0.46	2067.81	2119.49	0.04
LAT 11D-2	Alignment - LAT	14600.*	Prop 100yr	311.00	18.39	22.75		22.75	0.000023	0.46	2066.47	2118.80	0.04
LAT 11D-2	Alignment - LAT	14650.*	Exist 100yr	311.00	18.43	22.76		22.76	0.000025	0.47	2099.13	2587.73	0.04
LAT 11D-2	Alignment - LAT	14650.*	Prop 100yr	311.00	18.43	22.76		22.76	0.000025	0.47	2097.52	2577.27	0.04
LAT 11D-2	Alignment - LAT	14659		Culvert									
LAT 11D-2	Alignment - LAT	14700.*	Exist 100yr	311.00	18.47	22.76	21.33	22.76	0.000027	0.48	2162.34	2770.44	0.05
LAT 11D-2	Alignment - LAT	14700.*	Prop 100yr	311.00	18.47	22.76	21.33	22.76	0.000027	0.48	2160.61	2770.22	0.05
LAT 11D-2	Alignment - LAT	14750.*	Exist 100yr	311.00	18.51	22.77		22.77	0.000025	0.46	2191.40	2634.49	0.04
LAT 11D-2	Alignment - LAT	14750.*	Prop 100yr	311.00	18.51	22.77		22.77	0.000025	0.46	2189.83	2634.25	0.04
LAT 11D-2	Alignment - LAT	14800.*	Exist 100yr	311.00	18.54	22.79		22.79	0.000025	0.45	2170.96	2490.08	0.04
LAT 11D-2	Alignment - LAT	14800.*	Prop 100yr	311.00	18.54	22.79		22.79	0.000025	0.45	2169.53	2489.82	0.04
LAT 11D-2	Alignment - LAT	14850.*	Exist 100yr	311.00	18.58	22.80		22.80	0.000026	0.44	2107.58	2339.79	0.04
LAT 11D-2	Alignment - LAT	14850.*	Prop 100yr	311.00	18.58	22.80		22.80	0.000026	0.44	2106.28	2339.50	0.04
LAT 11D-2	Alignment - LAT	14900.*	Exist 100yr	311.00	18.62	22.81		22.81	0.000028	0.45	2005.05	2188.99	0.05
LAT 11D-2	Alignment - LAT	14900.*	Prop 100yr	311.00	18.62	22.81		22.81	0.000028	0.45	2003.89	2188.68	0.05
LAT 11D-2	Alignment - LAT	14950.*	Exist 100yr	311.00	18.66	22.83		22.83	0.000031	0.47	1880.56	2026.53	0.05
LAT 11D-2	Alignment - LAT	14950.*	Prop 100yr	311.00	18.66	22.82		22.83	0.000031	0.47	1879.53	2026.21	0.05
LAT 11D-2	Alignment - LAT	15000	Exist 100yr	311.00	18.70	22.84		22.84	0.000038	0.51	1689.91	1858.92	0.05
LAT 11D-2	Alignment - LAT	15000	Prop 100yr	311.00	18.70	22.84		22.84	0.000038	0.51	1689.01	1858.57	0.05
LAT 11D-2	Alignment - LAT	15500	Exist 100yr	311.00	19.08	23.08		23.14	0.001207	2.56	461.71	1907.16	0.29
LAT 11D-2	Alignment - LAT	15500	Prop 100yr	311.00	19.08	23.08		23.14	0.001208	2.56	461.36	1905.80	0.29
LAT 11D-2	Alignment - LAT	16000	Exist 100yr	311.00	19.59	23.45		23.46	0.000199	1.02	848.30	1255.19	0.12
LAT 11D-2	Alignment - LAT	16000	Prop 100yr	311.00	19.59	23.45		23.46	0.000199	1.02	848.27	1255.17	0.12
LAT 12	Alignment - LAT	2500	Exist 100yr	279.40	13.65	20.38		20.38	0.000027	0.66	1005.86	671.35	0.05
LAT 12	Alignment - LAT	2500	Prop 100yr	279.40	13.65	19.68		19.69	0.000078	1.02	595.15	505.59	0.08
LAT 12	Alignment - LAT	3000	Exist 100yr	279.40	13.95	20.39		20.39	0.000023	0.59	1382.34	1317.15	0.05
LAT 12	Alignment - LAT	3000	Prop 100yr	279.40	13.95	19.72		19.73	0.000094	1.08	657.97	846.26	0.09
LAT 12	Alignment - LAT	3500	Exist 100yr	279.40	14.39	20.40		20.41	0.000028	0.60	1537.17	1945.57	0.05
LAT 12	Alignment - LAT	3500	Prop 100yr	279.40	14.39	19.78		19.80	0.000191	1.42	512.21	1223.55	0.12
LAT 12	Alignment - LAT	4000	Exist 100yr	279.40	14.26	20.41		20.45	0.000256	1.67	416.38	940.04	0.15
LAT 12	Alignment - LAT	4000	Prop 100yr	279.40	14.26	19.89		19.99	0.000686	2.50	119.43	186.65	0.23
LAT 12	Alignment - LAT	4500	Exist 100yr	279.40	14.64	20.56		20.62	0.000432	2.01	227.16	440.76	0.19
LAT 12	Alignment - LAT	4500	Prop 100yr	279.40	14.64	20.24		20.33	0.000675	2.40	128.43	176.23	0.23
LAT 12	Alignment - LAT	5000	Exist 100yr	279.40	15.08	20.76		20.79	0.000286	1.71	406.44	917.30	0.15
LAT 12	Alignment - LAT	5000	Prop 100yr	279.40	15.08	20.55		20.61	0.000475	2.12	243.73	628.50	0.20
LAT 12	Alignment - LAT	5500	Exist 100yr	279.40	15.56	20.92		20.95	0.000365	1.80	390.85	804.50	0.17
LAT 12	Alignment - LAT	5500	Prop 100yr	279.40	15.56	20.80		20.86	0.000498	2.06	307.73	643.84	0.20
LAT 12	Alignment - LAT	5550.*	Exist 100yr	279.40	15.69	20.94		20.97	0.000311	1.65	431.57	881.91	0.16
LAT 12	Alignment - LAT	5550.*	Prop 100yr	279.40	15.69	20.84		20.88	0.000415	1.86	346.68	738.21	0.18

HEC-RAS Plan: Plan 05 (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
LAT 12	Alignment - LAT	5600.*	Exist 100yr	279.40	15.82	20.96		20.99	0.000270	1.51	476.57	953.19	0.15
LAT 12	Alignment - LAT	5600.*	Prop 100yr	279.40	15.82	20.87		20.90	0.000357	1.70	390.40	821.43	0.17
LAT 12	Alignment - LAT	5650.*	Exist 100yr	279.40	15.95	20.98		21.00	0.000244	1.40	519.42	1016.61	0.14
LAT 12	Alignment - LAT	5650.*	Prop 100yr	279.40	15.95	20.89		20.92	0.000321	1.57	432.24	900.51	0.16
LAT 12	Alignment - LAT	5700.*	Exist 100yr	279.40	16.08	21.00		21.01	0.000227	1.31	559.42	1080.04	0.13
LAT 12	Alignment - LAT	5700.*	Prop 100yr	279.40	16.08	20.91		20.93	0.000296	1.47	471.70	961.54	0.15
LAT 12	Alignment - LAT	5750.*	Exist 100yr	279.40	16.20	21.01		21.02	0.000213	1.22	601.58	1143.12	0.13
LAT 12	Alignment - LAT	5750.*	Prop 100yr	279.40	16.20	20.93		20.95	0.000276	1.37	513.57	1023.40	0.14
LAT 12	Alignment - LAT	5800.*	Exist 100yr	279.40	16.33	21.02		21.03	0.000203	1.15	642.70	1202.55	0.12
LAT 12	Alignment - LAT	5800.*	Prop 100yr	279.40	16.33	20.95		20.96	0.000263	1.28	553.87	1090.86	0.14
LAT 12	Alignment - LAT	5850.*	Exist 100yr	279.40	16.46	21.03		21.04	0.000194	1.07	685.80	1259.90	0.12
LAT 12	Alignment - LAT	5850.*	Prop 100yr	279.40	16.46	20.96		20.97	0.000251	1.20	596.86	1154.11	0.14
LAT 12	Alignment - LAT	5900.*	Exist 100yr	279.40	16.59	21.05		21.05	0.000186	1.00	730.98	1316.11	0.12
LAT 12	Alignment - LAT	5900.*	Prop 100yr	279.40	16.59	20.98		20.99	0.000240	1.11	642.12	1216.60	0.13
LAT 12	Alignment - LAT	5950.*	Exist 100yr	279.40	16.72	21.06		21.06	0.000182	0.94	771.23	1378.09	0.11
LAT 12	Alignment - LAT	5950.*	Prop 100yr	279.40	16.72	20.99		21.00	0.000235	1.04	682.20	1281.86	0.13
LAT 12	Alignment - LAT	5999		Culvert									
LAT 12	Alignment - LAT	6060	Exist 100yr	279.40	17.12	21.30	19.81	21.31	0.000078	0.64	1144.84	1690.18	0.07
LAT 12	Alignment - LAT	6060	Prop 100yr	279.40	17.12	21.24	19.81	21.24	0.000096	0.70	1042.50	1613.48	0.08
LAT 12	Alignment - LAT	6083		Culvert									
LAT 12	Alignment - LAT	6150.*	Exist 100yr	279.40	17.55	21.64	19.95	21.64	0.000029	0.44	1805.72	2215.91	0.05
LAT 12	Alignment - LAT	6150.*	Prop 100yr	279.40	17.55	21.59	19.95	21.59	0.000034	0.47	1683.07	2136.74	0.05
LAT 12	Alignment - LAT	6200.*	Exist 100yr	279.40	17.60	21.64		21.65	0.000029	0.44	1838.15	2286.79	0.05
LAT 12	Alignment - LAT	6200.*	Prop 100yr	279.40	17.60	21.59		21.59	0.000034	0.47	1712.73	2208.66	0.05
LAT 12	Alignment - LAT	6250.*	Exist 100yr	279.40	17.65	21.65		21.65	0.000028	0.44	1892.29	2376.27	0.05
LAT 12	Alignment - LAT	6250.*	Prop 100yr	279.40	17.65	21.59		21.59	0.000033	0.47	1763.53	2288.39	0.05
LAT 12	Alignment - LAT	6300.*	Exist 100yr	279.40	17.70	21.65		21.65	0.000025	0.41	1935.37	2251.04	0.04
LAT 12	Alignment - LAT	6300.*	Prop 100yr	279.40	17.70	21.60		21.60	0.000030	0.45	1813.73	2193.72	0.05
LAT 12	Alignment - LAT	6350.*	Exist 100yr	279.40	17.75	21.65		21.65	0.000024	0.41	1932.41	2190.44	0.04
LAT 12	Alignment - LAT	6350.*	Prop 100yr	279.40	17.75	21.60		21.60	0.000028	0.44	1815.61	2114.68	0.05
LAT 12	Alignment - LAT	6400.*	Exist 100yr	279.40	17.79	21.66		21.66	0.000026	0.42	1910.11	2312.37	0.04
LAT 12	Alignment - LAT	6400.*	Prop 100yr	279.40	17.79	21.60		21.60	0.000030	0.45	1788.65	2200.69	0.05
LAT 12	Alignment - LAT	6450.*	Exist 100yr	279.40	17.84	21.66		21.66	0.000025	0.41	1942.92	2334.66	0.04
LAT 12	Alignment - LAT	6450.*	Prop 100yr	279.40	17.84	21.60		21.61	0.000031	0.45	1818.40	2334.66	0.05
LAT 12	Alignment - LAT	6500	Exist 100yr	279.40	17.89	21.66		21.66	0.000024	0.40	1922.82	2094.00	0.04
LAT 12	Alignment - LAT	6500	Prop 100yr	279.40	17.89	21.61		21.61	0.000029	0.43	1812.29	2094.00	0.05
LAT 12	Alignment - LAT	7000	Exist 100yr	279.40	17.72	21.67		21.67	0.000013	0.28	2342.68	2057.37	0.03
LAT 12	Alignment - LAT	7000	Prop 100yr	279.40	17.72	21.62		21.62	0.000015	0.30	2237.29	2057.37	0.03
LAT 12	Alignment - LAT	7500	Exist 100yr	279.40	17.45	21.68		21.68	0.000023	0.39	2081.43	2719.96	0.04
LAT 12	Alignment - LAT	7500	Prop 100yr	279.40	17.45	21.63		21.63	0.000028	0.42	1946.79	2689.24	0.04
LAT 12	Alignment - LAT	7550.*	Exist 100yr	279.40	17.49	21.68		21.68	0.000026	0.41	1986.53	2780.99	0.04
LAT 12	Alignment - LAT	7550.*	Prop 100yr	279.40	17.49	21.63		21.63	0.000031	0.45	1853.56	2615.38	0.05
LAT 12	Alignment - LAT	7600.*	Exist 100yr	279.40	17.54	21.68		21.68	0.000029	0.43	1911.41	2640.98	0.04
LAT 12	Alignment - LAT	7600.*	Prop 100yr	279.40	17.54	21.63		21.63	0.000034	0.46	1783.91	2532.43	0.05
LAT 12	Alignment - LAT	7650.*	Exist 100yr	279.40	17.58	21.68		21.68	0.000031	0.45	1853.62	2408.52	0.05
LAT 12	Alignment - LAT	7650.*	Prop 100yr	279.40	17.58	21.63		21.63	0.000037	0.48	1737.86	2318.27	0.05
LAT 12	Alignment - LAT	7700.*	Exist 100yr	279.40	17.62	21.68		21.68	0.000034	0.46	1822.18	2440.39	0.05
LAT 12	Alignment - LAT	7700.*	Prop 100yr	279.40	17.62	21.63		21.64	0.000040	0.50	1704.87	2373.60	0.05
LAT 12	Alignment - LAT	7750.*	Exist 100yr	279.40	17.67	21.69		21.69	0.000037	0.48	1795.58	2510.19	0.05
LAT 12	Alignment - LAT	7750.*	Prop 100yr	279.40	17.67	21.64		21.64	0.000044	0.52	1675.84	2436.84	0.06
LAT 12	Alignment - LAT	7800.*	Exist 100yr	279.40	17.71	21.69		21.69	0.000040	0.49	1772.00	2581.63	0.05
LAT 12	Alignment - LAT	7800.*	Prop 100yr	279.40	17.71	21.64		21.64	0.000048	0.54	1649.32	2509.95	0.06
LAT 12	Alignment - LAT	7850.*	Exist 100yr	279.40	17.75	21.69		21.69	0.000041	0.49	1750.92	2565.07	0.05
LAT 12	Alignment - LAT	7850.*	Prop 100yr	279.40	17.75	21.64		21.64	0.000050	0.54	1630.26	2511.68	0.06
LAT 12	Alignment - LAT	7900.*	Exist 100yr	279.40	17.79	21.69		21.69	0.000042	0.50	1728.61	2525.14	0.05
LAT 12	Alignment - LAT	7900.*	Prop 100yr	279.40	17.79	21.64		21.64	0.000052	0.55	1610.72	2482.92	0.06
LAT 12	Alignment - LAT	7950.*	Exist 100yr	279.40	17.84	21.69		21.69	0.000042	0.49	1716.88	2493.33	0.05
LAT 12	Alignment - LAT	7950.*	Prop 100yr	279.40	17.84	21.65		21.65	0.000052	0.54	1601.78	2447.54	0.06
LAT 12	Alignment - LAT	7951		Culvert									

HEC-RAS Plan: Plan 05 (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
LAT 12	Alignment - LAT	8000	Exist 100yr	279.40	17.88	22.97	20.99	22.97	0.000001	0.12	5521.54	3856.85	0.01
LAT 12	Alignment - LAT	8000	Prop 100yr	279.40	17.88	22.93	20.99	22.93	0.000001	0.12	5361.84	3801.74	0.01
LAT 12	Alignment - LAT	8050.*	Exist 100yr	279.40	18.05	22.97		22.97	0.000002	0.13	5226.57	3722.84	0.01
LAT 12	Alignment - LAT	8050.*	Prop 100yr	279.40	18.05	22.93		22.93	0.000002	0.13	5073.10	3635.83	0.01
LAT 12	Alignment - LAT	8100.*	Exist 100yr	279.40	18.21	22.97		22.97	0.000002	0.13	4961.37	3527.55	0.01
LAT 12	Alignment - LAT	8100.*	Prop 100yr	279.40	18.21	22.93		22.93	0.000002	0.14	4815.86	3450.35	0.01
LAT 12	Alignment - LAT	8103		Culvert									
LAT 12	Alignment - LAT	8150.*	Exist 100yr	279.40	18.38	22.97	21.32	22.97	0.000002	0.15	4719.81	3394.34	0.01
LAT 12	Alignment - LAT	8150.*	Prop 100yr	279.40	18.38	22.94	21.32	22.94	0.000002	0.15	4590.95	3359.11	0.01
LAT 12	Alignment - LAT	8200.*	Exist 100yr	279.40	18.55	22.97		22.97	0.000003	0.16	4481.01	3376.14	0.01
LAT 12	Alignment - LAT	8200.*	Prop 100yr	279.40	18.55	22.94		22.94	0.000003	0.16	4353.01	3334.76	0.02
LAT 12	Alignment - LAT	8250.*	Exist 100yr	279.40	18.72	22.97		22.98	0.000003	0.17	4244.83	3377.08	0.02
LAT 12	Alignment - LAT	8250.*	Prop 100yr	279.40	18.72	22.94		22.94	0.000004	0.18	4116.48	3355.26	0.02
LAT 12	Alignment - LAT	8300.*	Exist 100yr	279.40	18.88	22.98		22.98	0.000004	0.19	3999.98	3416.68	0.02
LAT 12	Alignment - LAT	8300.*	Prop 100yr	279.40	18.88	22.94		22.94	0.000005	0.20	3870.09	3398.89	0.02
LAT 12	Alignment - LAT	8350.*	Exist 100yr	279.40	19.05	22.98		22.98	0.000005	0.21	3745.93	3458.18	0.02
LAT 12	Alignment - LAT	8350.*	Prop 100yr	279.40	19.05	22.94		22.94	0.000006	0.22	3614.56	3438.57	0.02
LAT 12	Alignment - LAT	8400.*	Exist 100yr	279.40	19.22	22.98		22.98	0.000007	0.24	3477.82	3497.31	0.02
LAT 12	Alignment - LAT	8400.*	Prop 100yr	279.40	19.22	22.94		22.94	0.000008	0.25	3345.07	3478.19	0.02
LAT 12	Alignment - LAT	8450.*	Exist 100yr	279.40	19.38	22.98		22.98	0.000009	0.27	3208.21	3540.32	0.03
LAT 12	Alignment - LAT	8450.*	Prop 100yr	279.40	19.38	22.94		22.94	0.000010	0.28	3074.02	3518.40	0.03
LAT 12	Alignment - LAT	8500	Exist 100yr	279.40	19.55	22.98		22.98	0.000013	0.31	2927.54	3573.03	0.03
LAT 12	Alignment - LAT	8500	Prop 100yr	279.40	19.55	22.94		22.94	0.000015	0.33	2792.44	3548.09	0.03
LAT 12	Alignment - LAT	9000	Exist 100yr	279.40	19.76	22.99		22.99	0.000202	1.14	828.10	1366.30	0.12
LAT 12	Alignment - LAT	9000	Prop 100yr	279.40	19.76	22.95		22.96	0.000232	1.21	779.91	1316.08	0.13
LAT 12	Alignment - LAT	9500	Exist 100yr	279.40	20.05	23.16		23.18	0.000782	1.88	477.12	1097.65	0.23
LAT 12	Alignment - LAT	9500	Prop 100yr	279.40	20.05	23.14		23.16	0.000842	1.94	461.44	1078.02	0.24
LAT 12	Alignment - LAT	9550.*	Exist 100yr	279.40	20.01	23.20		23.21	0.000736	1.86	481.89	1090.06	0.22
LAT 12	Alignment - LAT	9550.*	Prop 100yr	279.40	20.01	23.18		23.20	0.000779	1.91	469.33	1074.61	0.23
LAT 12	Alignment - LAT	9578		Culvert									
LAT 12	Alignment - LAT	9650.*	Exist 100yr	279.40	19.94	23.43	22.80	23.43	0.000341	1.39	669.95	1334.84	0.16
LAT 12	Alignment - LAT	9650.*	Prop 100yr	279.40	19.94	23.41	22.80	23.42	0.000362	1.43	650.77	1305.90	0.16
LAT 12	Alignment - LAT	9700.*	Exist 100yr	279.40	19.90	23.44		23.45	0.000357	1.44	642.43	1267.51	0.16
LAT 12	Alignment - LAT	9700.*	Prop 100yr	279.40	19.90	23.43		23.44	0.000367	1.46	625.67	1202.69	0.16
LAT 12	Alignment - LAT	9750.*	Exist 100yr	279.40	19.86	23.46		23.47	0.000363	1.48	618.74	1177.61	0.16
LAT 12	Alignment - LAT	9750.*	Prop 100yr	279.40	19.86	23.45		23.46	0.000381	1.51	603.61	1154.20	0.17
LAT 12	Alignment - LAT	9800.*	Exist 100yr	279.40	19.83	23.48		23.49	0.000379	1.53	595.11	1125.16	0.17
LAT 12	Alignment - LAT	9800.*	Prop 100yr	279.40	19.83	23.47		23.48	0.000398	1.56	581.61	1109.31	0.17
LAT 12	Alignment - LAT	9850.*	Exist 100yr	279.40	19.79	23.50		23.51	0.000391	1.57	573.82	1071.60	0.17
LAT 12	Alignment - LAT	9850.*	Prop 100yr	279.40	19.79	23.49		23.50	0.000409	1.60	561.95	1056.21	0.17
LAT 12	Alignment - LAT	9900.*	Exist 100yr	279.40	19.75	23.52		23.53	0.000395	1.60	554.12	990.09	0.17
LAT 12	Alignment - LAT	9900.*	Prop 100yr	279.40	19.75	23.51		23.52	0.000407	1.62	544.05	967.44	0.17
LAT 12	Alignment - LAT	9950.*	Exist 100yr	279.40	19.72	23.54		23.55	0.000390	1.61	536.68	888.35	0.17
LAT 12	Alignment - LAT	9950.*	Prop 100yr	279.40	19.72	23.53		23.54	0.000397	1.62	528.22	860.80	0.17
LAT 12	Alignment - LAT	10000	Exist 100yr	279.40	19.68	23.55		23.57	0.000369	1.58	523.85	772.11	0.17
LAT 12	Alignment - LAT	10000	Prop 100yr	279.40	19.68	23.55		23.56	0.000378	1.60	516.69	760.64	0.17
LAT 12A	Alignment - LAT	500	Exist 100yr	467.20	10.35	20.38		20.38	0.000002	0.26	3782.29	989.98	0.02
LAT 12A	Alignment - LAT	500	Prop 100yr	467.20	10.35	19.67		19.68	0.000004	0.33	3094.34	948.74	0.02
LAT 12A	Alignment - LAT	1000	Exist 100yr	467.20	11.02	20.38		20.38	0.000002	0.24	4725.19	1563.17	0.02
LAT 12A	Alignment - LAT	1000	Prop 100yr	467.20	11.02	19.68		19.68	0.000005	0.32	3647.40	1496.60	0.02
LAT 12A	Alignment - LAT	1500	Exist 100yr	467.20	11.97	20.38		20.38	0.000004	0.29	3780.19	1432.73	0.02
LAT 12A	Alignment - LAT	1500	Prop 100yr	467.20	11.97	19.68		19.68	0.000009	0.41	2810.61	1319.15	0.03
LAT 12A	Alignment - LAT	2000	Exist 100yr	467.20	12.91	20.38		20.38	0.000036	0.79	1514.79	956.11	0.06
LAT 12A	Alignment - LAT	2000	Prop 100yr	467.20	12.91	19.68		19.69	0.000102	1.22	919.14	727.10	0.10
LAT 12A	Alignment - LAT	2050.*	Exist 100yr	467.20	13.02	20.38		20.39	0.000046	0.88	1362.07	921.48	0.07
LAT 12A	Alignment - LAT	2050.*	Prop 100yr	467.20	13.02	19.69		19.70	0.000127	1.34	816.02	670.27	0.11
LAT 12A	Alignment - LAT	2100.*	Exist 100yr	467.20	13.13	20.38		20.39	0.000055	0.95	1225.97	825.38	0.07
LAT 12A	Alignment - LAT	2100.*	Prop 100yr	467.20	13.13	19.69		19.71	0.000155	1.47	726.57	615.52	0.12
LAT 12A	Alignment - LAT	2150.*	Exist 100yr	467.20	13.24	20.39		20.39	0.000066	1.04	1106.96	764.21	0.08

HEC-RAS Plan: Plan 05 (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
LAT 12A	Alignment - LAT	2150.*	Prop 100yr	467.20	13.24	19.69		19.72	0.000188	1.59	648.70	562.39	0.13
LAT 12A	Alignment - LAT	2200.*	Exist 100yr	467.20	13.35	20.39		20.40	0.000080	1.12	1000.44	705.59	0.09
LAT 12A	Alignment - LAT	2200.*	Prop 100yr	467.20	13.35	19.70		19.73	0.000224	1.72	582.49	516.89	0.14
LAT 12A	Alignment - LAT	2250.*	Exist 100yr	467.20	13.47	20.39		20.40	0.000095	1.21	908.45	650.79	0.09
LAT 12A	Alignment - LAT	2250.*	Prop 100yr	467.20	13.47	19.71		19.75	0.000265	1.84	526.40	477.83	0.15
LAT 12A	Alignment - LAT	2300.*	Exist 100yr	467.20	13.58	20.39		20.41	0.000111	1.29	826.68	596.38	0.10
LAT 12A	Alignment - LAT	2300.*	Prop 100yr	467.20	13.58	19.72		19.76	0.000310	1.96	477.63	441.74	0.16
LAT 12A	Alignment - LAT	2350.*	Exist 100yr	467.20	13.69	20.40		20.42	0.000130	1.38	756.46	549.59	0.11
LAT 12A	Alignment - LAT	2350.*	Prop 100yr	467.20	13.69	19.73		19.78	0.000358	2.08	436.44	408.89	0.18
LAT 12A	Alignment - LAT	2400.*	Exist 100yr	467.20	13.80	20.40		20.42	0.000151	1.46	695.10	513.33	0.12
LAT 12A	Alignment - LAT	2400.*	Prop 100yr	467.20	13.80	19.75		19.80	0.000409	2.19	401.24	380.56	0.19
LAT 12A	Alignment - LAT	2450.*	Exist 100yr	467.20	13.91	20.41		20.43	0.000173	1.55	641.45	478.06	0.13
LAT 12A	Alignment - LAT	2450.*	Prop 100yr	467.20	13.91	19.76		19.83	0.000462	2.29	372.20	356.76	0.20
LAT 12A	Alignment - LAT	2465		Culvert									
LAT 12A	Alignment - LAT	2500	Exist 100yr	467.20	14.02	20.87	17.15	20.88	0.000105	1.26	812.81	527.78	0.10
LAT 12A	Alignment - LAT	2500	Prop 100yr	467.20	14.02	20.49	17.15	20.51	0.000179	1.56	626.39	459.94	0.13
LAT 12A	Alignment - LAT	2550.*	Exist 100yr	467.20	14.25	20.87		20.89	0.000137	1.41	738.15	515.29	0.11
LAT 12A	Alignment - LAT	2550.*	Prop 100yr	467.20	14.25	20.49		20.53	0.000240	1.76	558.06	443.61	0.15
LAT 12A	Alignment - LAT	2600.*	Exist 100yr	467.20	14.47	20.87		20.90	0.000183	1.58	665.87	503.06	0.13
LAT 12A	Alignment - LAT	2600.*	Prop 100yr	467.20	14.47	20.50		20.54	0.000329	2.01	492.26	427.09	0.17
LAT 12A	Alignment - LAT	2650.*	Exist 100yr	467.20	14.70	20.88		20.91	0.000247	1.79	595.49	490.61	0.15
LAT 12A	Alignment - LAT	2650.*	Prop 100yr	467.20	14.70	20.51		20.57	0.000459	2.30	429.37	408.23	0.20
LAT 12A	Alignment - LAT	2706		Bridge									
LAT 12A	Alignment - LAT	2800.*	Exist 100yr	467.20	15.37	20.93	19.09	21.00	0.000694	2.73	403.05	455.85	0.24
LAT 12A	Alignment - LAT	2800.*	Prop 100yr	467.20	15.37	20.58	19.09	20.73	0.001390	3.63	264.41	346.20	0.33
LAT 12A	Alignment - LAT	2850.*	Exist 100yr	467.20	15.60	20.95		21.05	0.001042	3.23	342.40	442.36	0.29
LAT 12A	Alignment - LAT	2850.*	Prop 100yr	467.20	15.60	20.62		20.83	0.002084	4.30	217.82	318.24	0.40
LAT 12A	Alignment - LAT	2894		Culvert									
LAT 12A	Alignment - LAT	3050.*	Exist 100yr	467.20	16.32	22.44	20.76	22.45	0.000094	1.09	1114.08	728.29	0.09
LAT 12A	Alignment - LAT	3050.*	Prop 100yr	467.20	16.32	22.40	20.76	22.40	0.000102	1.13	1080.06	722.61	0.09
LAT 12A	Alignment - LAT	3100.*	Exist 100yr	467.20	16.36	22.45		22.45	0.000076	0.98	1273.86	860.43	0.08
LAT 12A	Alignment - LAT	3100.*	Prop 100yr	467.20	16.36	22.40		22.41	0.000083	1.01	1234.23	849.61	0.08
LAT 12A	Alignment - LAT	3150.*	Exist 100yr	467.20	16.41	22.45		22.46	0.000061	0.88	1464.95	1023.40	0.07
LAT 12A	Alignment - LAT	3150.*	Prop 100yr	467.20	16.41	22.41		22.41	0.000068	0.92	1417.84	1023.40	0.07
LAT 12A	Alignment - LAT	3200.*	Exist 100yr	467.20	16.46	22.46		22.46	0.000046	0.76	1675.43	1139.91	0.06
LAT 12A	Alignment - LAT	3200.*	Prop 100yr	467.20	16.46	22.41		22.41	0.000051	0.80	1623.40	1139.91	0.07
LAT 12A	Alignment - LAT	3250.*	Exist 100yr	467.20	16.51	22.46		22.46	0.000035	0.66	1909.16	1256.42	0.05
LAT 12A	Alignment - LAT	3250.*	Prop 100yr	467.20	16.51	22.41		22.42	0.000038	0.69	1852.16	1256.42	0.06
LAT 12A	Alignment - LAT	3300.*	Exist 100yr	467.20	16.55	22.46		22.46	0.000026	0.57	2163.89	1372.93	0.05
LAT 12A	Alignment - LAT	3300.*	Prop 100yr	467.20	16.55	22.42		22.42	0.000028	0.59	2101.87	1372.93	0.05
LAT 12A	Alignment - LAT	3328		Bridge									
LAT 12A	Alignment - LAT	3350.*	Exist 100yr	467.20	16.60	22.47	20.47	22.47	0.000020	0.50	2435.95	1489.44	0.04
LAT 12A	Alignment - LAT	3350.*	Prop 100yr	467.20	16.60	22.42	20.47	22.42	0.000021	0.51	2369.51	1489.44	0.04
LAT 12A	Alignment - LAT	3400.*	Exist 100yr	467.20	16.65	22.47		22.47	0.000015	0.43	2733.86	1605.94	0.04
LAT 12A	Alignment - LAT	3400.*	Prop 100yr	467.20	16.65	22.42		22.42	0.000016	0.45	2662.39	1605.94	0.04
LAT 12A	Alignment - LAT	3450.*	Exist 100yr	467.20	16.69	22.47		22.47	0.000011	0.38	3041.60	1722.45	0.03
LAT 12A	Alignment - LAT	3450.*	Prop 100yr	467.20	16.69	22.42		22.42	0.000012	0.39	2965.05	1722.45	0.03
LAT 12A	Alignment - LAT	3500	Exist 100yr	467.20	16.74	22.47		22.47	0.000009	0.33	3376.39	1838.96	0.03
LAT 12A	Alignment - LAT	3500	Prop 100yr	467.20	16.74	22.42		22.42	0.000009	0.34	3294.76	1838.96	0.03
LAT 12A	Alignment - LAT	3550.*	Exist 100yr	467.20	16.75	22.47		22.47	0.000009	0.33	3416.85	1902.48	0.03
LAT 12A	Alignment - LAT	3550.*	Prop 100yr	467.20	16.75	22.42		22.42	0.000009	0.34	3332.47	1902.48	0.03
LAT 12A	Alignment - LAT	3600.*	Exist 100yr	467.20	16.76	22.47		22.47	0.000009	0.32	3452.19	1966.00	0.03
LAT 12A	Alignment - LAT	3600.*	Prop 100yr	467.20	16.76	22.42		22.42	0.000009	0.34	3365.06	1966.00	0.03
LAT 12A	Alignment - LAT	3650.*	Exist 100yr	467.20	16.78	22.47		22.47	0.000009	0.32	3475.53	2029.52	0.03
LAT 12A	Alignment - LAT	3650.*	Prop 100yr	467.20	16.78	22.43		22.43	0.000009	0.34	3385.65	2029.52	0.03
LAT 12A	Alignment - LAT	3700.*	Exist 100yr	467.20	16.79	22.47		22.47	0.000009	0.32	3493.49	2093.04	0.03
LAT 12A	Alignment - LAT	3700.*	Prop 100yr	467.20	16.79	22.43		22.43	0.000009	0.34	3400.87	2093.04	0.03
LAT 12A	Alignment - LAT	3750.*	Exist 100yr	467.20	16.80	22.47		22.47	0.000009	0.32	3498.48	2156.56	0.03
LAT 12A	Alignment - LAT	3750.*	Prop 100yr	467.20	16.80	22.43		22.43	0.000009	0.34	3403.13	2156.56	0.03

HEC-RAS Plan: Plan 05 (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
LAT 12A	Alignment - LAT	3793		Bridge									
LAT 12A	Alignment - LAT	3850.*	Exist 100yr	467.20	16.82	22.47	20.29	22.47	0.000009	0.33	3492.98	2283.60	0.03
LAT 12A	Alignment - LAT	3850.*	Prop 100yr	467.20	16.82	22.43	20.29	22.43	0.000010	0.34	3392.23	2283.60	0.03
LAT 12A	Alignment - LAT	3900.*	Exist 100yr	467.20	16.84	22.47		22.47	0.000009	0.33	3476.97	2347.12	0.03
LAT 12A	Alignment - LAT	3900.*	Prop 100yr	467.20	16.84	22.43		22.43	0.000010	0.34	3373.51	2347.12	0.03
LAT 12A	Alignment - LAT	3950.*	Exist 100yr	467.20	16.85	22.47		22.47	0.000009	0.33	3452.46	2410.64	0.03
LAT 12A	Alignment - LAT	3950.*	Prop 100yr	467.20	16.85	22.43		22.43	0.000010	0.34	3346.30	2410.64	0.03
LAT 12A	Alignment - LAT	4000	Exist 100yr	467.20	16.86	22.47		22.47	0.000010	0.34	3417.43	2474.16	0.03
LAT 12A	Alignment - LAT	4000	Prop 100yr	467.20	16.86	22.43		22.43	0.000011	0.35	3308.58	2474.16	0.03
LAT 12A	Alignment - LAT	4050.*	Exist 100yr	467.20	16.89	22.47		22.47	0.000011	0.35	3292.66	2464.06	0.03
LAT 12A	Alignment - LAT	4050.*	Prop 100yr	467.20	16.89	22.43		22.43	0.000012	0.37	3184.36	2464.06	0.03
LAT 12A	Alignment - LAT	4100.*	Exist 100yr	467.20	16.92	22.47		22.47	0.000012	0.37	3167.86	2453.95	0.03
LAT 12A	Alignment - LAT	4100.*	Prop 100yr	467.20	16.92	22.43		22.43	0.000013	0.39	3060.13	2453.95	0.03
LAT 12A	Alignment - LAT	4150.*	Exist 100yr	467.20	16.95	22.47		22.47	0.000014	0.39	3044.21	2443.85	0.03
LAT 12A	Alignment - LAT	4150.*	Prop 100yr	467.20	16.95	22.43		22.43	0.000015	0.41	2937.07	2443.85	0.04
LAT 12A	Alignment - LAT	4166		Culvert									
LAT 12A	Alignment - LAT	4250.*	Exist 100yr	467.20	17.01	23.40	20.33	23.40	0.000003	0.21	5048.16	2423.64	0.02
LAT 12A	Alignment - LAT	4250.*	Prop 100yr	467.20	17.01	23.37	20.33	23.37	0.000003	0.22	4977.64	2423.64	0.02
LAT 12A	Alignment - LAT	4300.*	Exist 100yr	467.20	17.05	23.40		23.40	0.000003	0.22	4918.64	2413.54	0.02
LAT 12A	Alignment - LAT	4300.*	Prop 100yr	467.20	17.05	23.37		23.37	0.000004	0.23	4848.43	2413.54	0.02
LAT 12A	Alignment - LAT	4311		Culvert									
LAT 12A	Alignment - LAT	4400.*	Exist 100yr	467.20	17.11	23.40	20.34	23.40	0.000004	0.24	4669.92	2393.33	0.02
LAT 12A	Alignment - LAT	4400.*	Prop 100yr	467.20	17.11	23.38	20.34	23.38	0.000004	0.24	4606.11	2393.33	0.02
LAT 12A	Alignment - LAT	4450.*	Exist 100yr	467.20	17.14	23.40		23.40	0.000004	0.25	4545.91	2383.22	0.02
LAT 12A	Alignment - LAT	4450.*	Prop 100yr	467.20	17.14	23.38		23.38	0.000004	0.25	4482.39	2383.22	0.02
LAT 12A	Alignment - LAT	4500	Exist 100yr	467.20	17.17	23.40		23.40	0.000005	0.26	4423.45	2373.12	0.02
LAT 12A	Alignment - LAT	4500	Prop 100yr	467.20	17.17	23.38		23.38	0.000005	0.26	4360.22	2373.12	0.02
LAT 12A	Alignment - LAT	4550.*	Exist 100yr	467.20	17.20	23.40		23.40	0.000005	0.26	4381.29	2393.50	0.02
LAT 12A	Alignment - LAT	4550.*	Prop 100yr	467.20	17.20	23.38		23.38	0.000005	0.26	4317.54	2393.50	0.02
LAT 12A	Alignment - LAT	4600.*	Exist 100yr	467.20	17.22	23.40		23.40	0.000005	0.26	4335.38	2413.87	0.02
LAT 12A	Alignment - LAT	4600.*	Prop 100yr	467.20	17.22	23.38		23.38	0.000005	0.27	4271.13	2413.87	0.02
LAT 12A	Alignment - LAT	4650.*	Exist 100yr	467.20	17.25	23.40		23.40	0.000005	0.27	4287.47	2434.25	0.02
LAT 12A	Alignment - LAT	4650.*	Prop 100yr	467.20	17.25	23.38		23.38	0.000005	0.27	4222.69	2434.25	0.02
LAT 12A	Alignment - LAT	4700.*	Exist 100yr	467.20	17.28	23.40		23.40	0.000005	0.27	4242.38	2454.62	0.02
LAT 12A	Alignment - LAT	4700.*	Prop 100yr	467.20	17.28	23.38		23.38	0.000006	0.28	4177.08	2454.62	0.02
LAT 12A	Alignment - LAT	4750.*	Exist 100yr	467.20	17.31	23.40		23.40	0.000006	0.27	4187.12	2475.00	0.02
LAT 12A	Alignment - LAT	4750.*	Prop 100yr	467.20	17.31	23.38		23.38	0.000006	0.28	4121.31	2475.00	0.02
LAT 12A	Alignment - LAT	4800.*	Exist 100yr	467.20	17.33	23.40		23.40	0.000006	0.28	4133.26	2495.38	0.02
LAT 12A	Alignment - LAT	4800.*	Prop 100yr	467.20	17.33	23.38		23.38	0.000006	0.28	4066.95	2495.38	0.02
LAT 12A	Alignment - LAT	4850.*	Exist 100yr	467.20	17.36	23.40		23.41	0.000006	0.28	4076.42	2515.75	0.02
LAT 12A	Alignment - LAT	4850.*	Prop 100yr	467.20	17.36	23.38		23.38	0.000006	0.29	4009.61	2515.75	0.02
LAT 12A	Alignment - LAT	4900.*	Exist 100yr	467.20	17.39	23.41		23.41	0.000006	0.29	4018.60	2536.13	0.02
LAT 12A	Alignment - LAT	4900.*	Prop 100yr	467.20	17.39	23.38		23.38	0.000006	0.29	3951.27	2536.13	0.02
LAT 12A	Alignment - LAT	4950.*	Exist 100yr	467.20	17.41	23.41		23.41	0.000006	0.29	3955.56	2556.50	0.02
LAT 12A	Alignment - LAT	4950.*	Prop 100yr	467.20	17.41	23.38		23.38	0.000007	0.30	3887.74	2556.50	0.02
LAT 12A	Alignment - LAT	4967		Bridge									
LAT 12A	Alignment - LAT	5000	Exist 100yr	467.20	17.44	23.41	20.37	23.41	0.000007	0.30	3893.74	2576.88	0.02
LAT 12A	Alignment - LAT	5000	Prop 100yr	467.20	17.44	23.38	20.37	23.38	0.000007	0.30	3825.68	2576.88	0.03
LAT 12A	Alignment - LAT	5050.*	Exist 100yr	467.20	17.48	23.41		23.41	0.000008	0.32	3634.16	2597.71	0.03
LAT 12A	Alignment - LAT	5050.*	Prop 100yr	467.20	17.48	23.38		23.38	0.000008	0.33	3565.58	2597.71	0.03
LAT 12A	Alignment - LAT	5100.*	Exist 100yr	467.20	17.51	23.41		23.41	0.000009	0.35	3371.07	2618.54	0.03
LAT 12A	Alignment - LAT	5100.*	Prop 100yr	467.20	17.51	23.38		23.38	0.000010	0.35	3302.00	2618.54	0.03
LAT 12A	Alignment - LAT	5150.*	Exist 100yr	467.20	17.55	23.41		23.41	0.000011	0.37	3100.79	2639.36	0.03
LAT 12A	Alignment - LAT	5150.*	Prop 100yr	467.20	17.55	23.38		23.38	0.000011	0.38	3031.22	2639.36	0.03
LAT 12A	Alignment - LAT	5200.*	Exist 100yr	467.20	17.58	23.41		23.41	0.000012	0.39	2842.14	2439.06	0.03
LAT 12A	Alignment - LAT	5200.*	Prop 100yr	467.20	17.58	23.38		23.38	0.000013	0.40	2778.46	2398.45	0.03
LAT 12A	Alignment - LAT	5218		Culvert									
LAT 12A	Alignment - LAT	5300.*	Exist 100yr	467.20	17.65	23.41	20.38	23.41	0.000014	0.42	2508.39	1955.64	0.04

HEC-RAS Plan: Plan 05 (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
LAT 12A	Alignment - LAT	5300.*	Prop 100yr	467.20	17.65	23.39	20.38	23.39	0.000015	0.43	2460.03	1929.31	0.04
LAT 12A	Alignment - LAT	5350.*	Exist 100yr	467.20	17.69	23.41		23.41	0.000015	0.43	2394.09	1786.00	0.04
LAT 12A	Alignment - LAT	5350.*	Prop 100yr	467.20	17.69	23.39		23.39	0.000016	0.44	2350.08	1754.12	0.04
LAT 12A	Alignment - LAT	5400.*	Exist 100yr	467.20	17.72	23.41		23.41	0.000016	0.44	2300.70	1639.23	0.04
LAT 12A	Alignment - LAT	5400.*	Prop 100yr	467.20	17.72	23.39		23.39	0.000016	0.45	2260.32	1612.61	0.04
LAT 12A	Alignment - LAT	5450.*	Exist 100yr	467.20	17.76	23.41		23.41	0.000017	0.45	2221.46	1542.97	0.04
LAT 12A	Alignment - LAT	5450.*	Prop 100yr	467.20	17.76	23.39		23.39	0.000017	0.46	2183.45	1521.75	0.04
LAT 12A	Alignment - LAT	5500	Exist 100yr	467.20	17.79	23.41		23.42	0.000018	0.46	2150.50	1467.78	0.04
LAT 12A	Alignment - LAT	5500	Prop 100yr	467.20	17.79	23.39		23.39	0.000018	0.46	2114.39	1447.57	0.04
LAT 12A	Alignment - LAT	5550.*	Exist 100yr	467.20	17.79	23.42		23.42	0.000018	0.47	2116.49	1431.74	0.04
LAT 12A	Alignment - LAT	5550.*	Prop 100yr	467.20	17.79	23.39		23.39	0.000019	0.48	2081.34	1410.75	0.04
LAT 12A	Alignment - LAT	5600.*	Exist 100yr	467.20	17.78	23.42		23.42	0.000019	0.48	2089.17	1400.16	0.04
LAT 12A	Alignment - LAT	5600.*	Prop 100yr	467.20	17.78	23.39		23.39	0.000020	0.49	2054.84	1379.21	0.04
LAT 12A	Alignment - LAT	5650.*	Exist 100yr	467.20	17.78	23.42		23.42	0.000020	0.50	2057.78	1360.75	0.04
LAT 12A	Alignment - LAT	5650.*	Prop 100yr	467.20	17.78	23.39		23.39	0.000020	0.50	2024.48	1339.21	0.04
LAT 12A	Alignment - LAT	5700.*	Exist 100yr	467.20	17.78	23.42		23.42	0.000020	0.51	2031.77	1328.31	0.04
LAT 12A	Alignment - LAT	5700.*	Prop 100yr	467.20	17.78	23.39		23.39	0.000021	0.52	1999.32	1306.74	0.04
LAT 12A	Alignment - LAT	5750.*	Exist 100yr	467.20	17.78	23.42		23.42	0.000021	0.52	2004.64	1287.28	0.04
LAT 12A	Alignment - LAT	5750.*	Prop 100yr	467.20	17.78	23.39		23.40	0.000022	0.53	1973.24	1265.74	0.04
LAT 12A	Alignment - LAT	5800.*	Exist 100yr	467.20	17.77	23.42		23.42	0.000022	0.53	1980.10	1252.79	0.04
LAT 12A	Alignment - LAT	5800.*	Prop 100yr	467.20	17.77	23.40		23.40	0.000022	0.54	1949.62	1230.60	0.05
LAT 12A	Alignment - LAT	5850.*	Exist 100yr	467.20	17.77	23.42		23.42	0.000022	0.55	1951.83	1207.17	0.05
LAT 12A	Alignment - LAT	5850.*	Prop 100yr	467.20	17.77	23.40		23.40	0.000023	0.56	1922.52	1184.29	0.05
LAT 12A	Alignment - LAT	5893		Culvert									
LAT 12A	Alignment - LAT	5950.*	Exist 100yr	467.20	17.76	24.42	20.33	24.42	0.000006	0.33	3504.16	2078.38	0.02
LAT 12A	Alignment - LAT	5950.*	Prop 100yr	467.20	17.76	24.42	20.33	24.42	0.000006	0.33	3514.68	2083.21	0.02
LAT 12A	Alignment - LAT	6000	Exist 100yr	467.20	17.76	24.42		24.42	0.000006	0.34	3449.33	2056.41	0.02
LAT 12A	Alignment - LAT	6000	Prop 100yr	467.20	17.76	24.42		24.42	0.000006	0.34	3459.73	2061.37	0.02
LAT 12A	Alignment - LAT	6500	Exist 100yr	467.20	17.88	24.42		24.42	0.000018	0.55	2399.55	1443.57	0.04
LAT 12A	Alignment - LAT	6500	Prop 100yr	467.20	17.88	24.43		24.43	0.000018	0.55	2406.81	1445.89	0.04
LAT 12A	Alignment - LAT	6527		Culvert									
LAT 12A	Alignment - LAT	6620.*	Exist 100yr	467.20	17.88	24.43	21.68	24.43	0.000018	0.55	2402.22	1444.43	0.04
LAT 12A	Alignment - LAT	6620.*	Prop 100yr	467.20	17.88	24.43	21.68	24.43	0.000018	0.55	2407.84	1446.22	0.04
LAT 12A	Alignment - LAT	6660.*	Exist 100yr	467.20	17.88	24.43		24.43	0.000018	0.55	2403.54	1444.85	0.04
LAT 12A	Alignment - LAT	6660.*	Prop 100yr	467.20	17.88	24.43		24.43	0.000018	0.54	2409.15	1446.86	0.04
LAT 12A	Alignment - LAT	6700.*	Exist 100yr	467.20	17.88	24.43		24.43	0.000018	0.55	2404.86	1445.27	0.04
LAT 12A	Alignment - LAT	6700.*	Prop 100yr	467.20	17.88	24.43		24.43	0.000018	0.54	2410.47	1447.70	0.04
LAT 12A	Alignment - LAT	6740.*	Exist 100yr	467.20	17.88	24.43		24.43	0.000018	0.55	2406.17	1445.69	0.04
LAT 12A	Alignment - LAT	6740.*	Prop 100yr	467.20	17.88	24.43		24.43	0.000018	0.54	2411.78	1448.54	0.04
LAT 12A	Alignment - LAT	6780.*	Exist 100yr	467.20	17.88	24.43		24.43	0.000018	0.55	2407.49	1446.10	0.04
LAT 12A	Alignment - LAT	6780.*	Prop 100yr	467.20	17.88	24.43		24.43	0.000018	0.54	2413.09	1449.38	0.04
LAT 12A	Alignment - LAT	6820.*	Exist 100yr	467.20	17.88	24.43		24.43	0.000018	0.55	2408.80	1446.63	0.04
LAT 12A	Alignment - LAT	6820.*	Prop 100yr	467.20	17.88	24.43		24.44	0.000018	0.54	2414.40	1450.22	0.04
LAT 12A	Alignment - LAT	6860.*	Exist 100yr	467.20	17.88	24.43		24.43	0.000018	0.54	2410.11	1447.48	0.04
LAT 12A	Alignment - LAT	6860.*	Prop 100yr	467.20	17.88	24.44		24.44	0.000018	0.54	2415.71	1451.05	0.04
LAT 12A	Alignment - LAT	6900	Exist 100yr	467.20	17.88	24.43		24.43	0.000018	0.54	2411.43	1448.32	0.04
LAT 12A	Alignment - LAT	6900	Prop 100yr	467.20	17.88	24.44		24.44	0.000018	0.54	2417.02	1451.89	0.04
LAT 12B	Alignment - LAT	500	Exist 100yr	210.80	12.22	20.37		20.37	0.000001	0.18	2463.19	843.81	0.01
LAT 12B	Alignment - LAT	500	Prop 100yr	210.80	12.22	19.67		19.67	0.000002	0.22	1918.16	685.77	0.02
LAT 12B	Alignment - LAT	1000	Exist 100yr	210.80	12.49	20.37		20.37	0.000002	0.22	2446.96	1095.42	0.01
LAT 12B	Alignment - LAT	1000	Prop 100yr	210.80	12.49	19.67		19.67	0.000005	0.31	1736.30	911.35	0.02
LAT 12B	Alignment - LAT	1500	Exist 100yr	210.80	12.85	20.38		20.38	0.000002	0.20	2679.88	1221.73	0.01
LAT 12B	Alignment - LAT	1500	Prop 100yr	210.80	12.85	19.67		19.67	0.000005	0.29	1867.31	1087.67	0.02
LAT 12B	Alignment - LAT	2000	Exist 100yr	210.80	13.24	20.38		20.38	0.000003	0.23	2597.23	1544.89	0.02
LAT 12B	Alignment - LAT	2000	Prop 100yr	210.80	13.24	19.67		19.68	0.000010	0.39	1575.42	1303.37	0.03
LAT 14	Alignment - LAT	400	Exist 100yr	352.50	13.88	21.75		21.75	0.000039	0.80	1300.24	1172.28	0.06
LAT 14	Alignment - LAT	400	Prop 100yr	72.60	13.88	19.89		19.89	0.000036	0.59	137.85	153.62	0.05
LAT 14	Alignment - LAT	800	Exist 100yr	352.50	13.98	21.76		21.77	0.000042	0.83	1217.70	1055.35	0.06
LAT 14	Alignment - LAT	800	Prop 100yr	72.60	13.98	19.90		19.91	0.000039	0.60	127.11	114.75	0.06

HEC-RAS Plan: Plan 05 (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
LAT 14	Alignment - LAT	1200	Exist 100yr	352.50	14.09	21.78		21.79	0.000049	0.87	1129.71	1012.97	0.07
LAT 14	Alignment - LAT	1200	Prop 100yr	72.60	14.09	19.92		19.93	0.000045	0.62	119.57	68.98	0.06
LAT 14	Alignment - LAT	1600	Exist 100yr	352.50	14.18	21.80		21.81	0.000054	0.94	1074.35	980.61	0.07
LAT 14	Alignment - LAT	1600	Prop 100yr	72.60	14.18	19.94		19.94	0.000044	0.64	117.43	53.70	0.06
LAT 14	Alignment - LAT	2000	Exist 100yr	352.50	14.29	21.82		21.83	0.000074	1.02	850.11	738.97	0.08
LAT 14	Alignment - LAT	2000	Prop 100yr	72.60	14.29	19.96		19.96	0.000051	0.65	114.01	56.96	0.06
LAT 14	Alignment - LAT	2400	Exist 100yr	352.50	15.32	21.86		21.87	0.000117	1.15	978.10	1459.31	0.10
LAT 14	Alignment - LAT	2400	Prop 100yr	72.60	15.32	19.98		19.99	0.000129	0.92	79.30	28.67	0.10
LAT 14	Alignment - LAT	2800	Exist 100yr	352.50	15.85	21.91		21.96	0.000370	1.95	526.86	1402.47	0.17
LAT 14	Alignment - LAT	2800	Prop 100yr	72.60	15.85	20.04		20.06	0.000174	1.03	70.45	27.00	0.11
LAT 14	Alignment - LAT	3200	Exist 100yr	352.50	15.76	22.06		22.16	0.000617	2.58	202.25	327.18	0.22
LAT 14	Alignment - LAT	3200	Prop 100yr	72.60	15.76	20.11		20.13	0.000181	1.05	69.29	26.19	0.11
LAT 14	Alignment - LAT	3600	Exist 100yr	352.50	15.99	22.30		22.39	0.000548	2.54	216.50	375.93	0.21
LAT 14	Alignment - LAT	3600	Prop 100yr	72.60	15.99	20.18		20.20	0.000180	1.05	68.93	25.55	0.11
LAT 14	Alignment - LAT	3647		Culvert									
LAT 14	Alignment - LAT	3750.*	Exist 100yr	352.50	16.01	23.84	19.21	23.84	0.000013	0.48	2756.51	2713.99	0.03
LAT 14	Alignment - LAT	3750.*	Prop 100yr	72.60	16.01	20.33	17.61	20.35	0.000168	1.02	70.98	26.21	0.11
LAT 14	Alignment - LAT	3800.*	Exist 100yr	352.50	16.01	23.84		23.84	0.000012	0.46	2801.68	2597.00	0.03
LAT 14	Alignment - LAT	3800.*	Prop 100yr	72.60	16.01	20.34		20.35	0.000170	1.03	70.65	26.27	0.11
LAT 14	Alignment - LAT	3850.*	Exist 100yr	352.50	16.02	23.84		23.84	0.000011	0.45	2842.68	2590.00	0.03
LAT 14	Alignment - LAT	3850.*	Prop 100yr	72.60	16.02	20.35		20.36	0.000168	1.02	70.94	26.31	0.11
LAT 14	Alignment - LAT	3900.*	Exist 100yr	352.50	16.03	23.84		23.84	0.000011	0.45	2858.25	2545.55	0.03
LAT 14	Alignment - LAT	3900.*	Prop 100yr	72.60	16.03	20.36		20.37	0.000164	1.02	71.29	26.37	0.11
LAT 14	Alignment - LAT	3950.*	Exist 100yr	352.50	16.03	23.84		23.84	0.000011	0.45	2855.03	2552.62	0.03
LAT 14	Alignment - LAT	3950.*	Prop 100yr	72.60	16.03	20.36		20.38	0.000160	1.01	71.60	26.39	0.11
LAT 14	Alignment - LAT	4000	Exist 100yr	352.50	16.04	23.84		23.84	0.000011	0.46	2829.62	2561.41	0.03
LAT 14	Alignment - LAT	4000	Prop 100yr	72.60	16.04	20.37		20.39	0.000156	1.01	71.94	26.43	0.11
LAT 14	Alignment - LAT	4400	Exist 100yr	352.50	16.13	23.85		23.85	0.000011	0.45	2958.45	2812.62	0.03
LAT 14	Alignment - LAT	4400	Prop 100yr	72.60	16.13	20.44		20.46	0.000183	1.09	66.77	24.48	0.11
LAT 14	Alignment - LAT	4800	Exist 100yr	352.50	16.25	23.85		23.85	0.000007	0.35	3839.00	3681.78	0.03
LAT 14	Alignment - LAT	4800	Prop 100yr	72.60	16.25	20.52		20.54	0.000237	1.22	59.73	22.21	0.13
LAT 14	Alignment - LAT	5200	Exist 100yr	352.50	16.42	23.85		23.85	0.000005	0.27	4354.99	3657.88	0.02
LAT 14	Alignment - LAT	5200	Prop 100yr	76.90	16.42	20.63		20.66	0.000343	1.41	54.61	20.76	0.15
LAT 14	Alignment - LAT	5600	Exist 100yr	352.50	16.63	23.86		23.86	0.000006	0.30	4057.51	3418.64	0.02
LAT 14	Alignment - LAT	5600	Prop 100yr	76.90	16.63	20.76		20.79	0.000349	1.43	53.95	21.44	0.16
LAT 14	Alignment - LAT	6000	Exist 100yr	352.50	16.97	23.86		23.86	0.000005	0.27	4196.16	3304.55	0.02
LAT 14	Alignment - LAT	6000	Prop 100yr	76.90	16.97	20.91		20.94	0.000360	1.35	57.05	24.98	0.16
LAT 14	Alignment - LAT	6400	Exist 100yr	352.50	17.47	23.86		23.86	0.000007	0.32	3585.24	2922.17	0.03
LAT 14	Alignment - LAT	6400	Prop 100yr	76.90	17.47	21.05		21.07	0.000310	1.21	63.92	32.70	0.15
LAT 14	Alignment - LAT	6800	Exist 100yr	352.50	17.80	23.86		23.86	0.000009	0.33	3255.39	2816.00	0.03
LAT 14	Alignment - LAT	6800	Prop 100yr	76.90	17.80	21.19		21.21	0.000392	1.27	60.48	31.63	0.16
LAT 14	Alignment - LAT	7200	Exist 100yr	352.50	17.72	23.87		23.87	0.000029	0.58	2192.18	2706.57	0.05
LAT 14	Alignment - LAT	7200	Prop 100yr	76.90	17.72	21.35		21.39	0.000470	1.56	49.19	20.51	0.18
LAT 14	Alignment - LAT	7600	Exist 100yr	352.50	17.97	23.89		23.90	0.000167	1.31	1009.01	1869.65	0.11
LAT 14	Alignment - LAT	7600	Prop 100yr	76.90	17.97	21.54		21.58	0.000521	1.64	46.81	19.37	0.19
LAT 14	Alignment - LAT	8000	Exist 100yr	352.50	18.11	23.96		23.97	0.000214	1.42	924.38	1875.92	0.13
LAT 14	Alignment - LAT	8000	Prop 100yr	76.90	18.11	21.75		21.79	0.000496	1.62	47.46	19.25	0.18
LAT 14	Alignment - LAT	8400	Exist 100yr	352.50	18.27	24.06		24.08	0.000319	1.77	745.39	1708.79	0.16
LAT 14	Alignment - LAT	8400	Prop 100yr	76.90	18.27	21.94		21.98	0.000482	1.61	47.91	19.25	0.18
LAT 14	Alignment - LAT	8800	Exist 100yr	352.50	18.46	24.19		24.21	0.000358	1.81	754.98	1968.18	0.16
LAT 14	Alignment - LAT	8800	Prop 100yr	76.90	18.46	22.14		22.18	0.000479	1.60	48.06	19.31	0.18
LAT 14	Alignment - LAT	9200	Exist 100yr	352.50	18.66	24.32		24.34	0.000269	1.64	897.09	2219.38	0.14
LAT 14	Alignment - LAT	9200	Prop 100yr	76.90	18.66	22.33		22.37	0.000480	1.60	48.11	19.44	0.18
LAT 14	Alignment - LAT	9600	Exist 100yr	352.50	18.82	24.36		24.36	0.000017	0.39	3574.96	5731.32	0.04
LAT 14	Alignment - LAT	9600	Prop 100yr	76.90	18.82	22.52		22.55	0.000459	1.57	48.99	19.72	0.18
LAT 14	Alignment - LAT	10000	Exist 100yr	352.50	18.99	24.63		24.63	0.000147	1.20	1010.46	1579.29	0.11
LAT 14	Alignment - LAT	10000	Prop 100yr	76.90	18.99	22.70		22.74	0.000448	1.55	49.57	20.00	0.17
LAT 14	Alignment - LAT	10400	Exist 100yr	352.50	19.21	25.06		25.07	0.000031	0.57	3640.30	10527.71	0.05
LAT 14	Alignment - LAT	10400	Prop 100yr	76.90	19.21	22.88		22.92	0.000456	1.55	49.46	20.22	0.18
LAT 14	Alignment - LAT	10800	Exist 100yr	352.50	19.48	25.08		25.08	0.000022	0.46	2830.21	3916.31	0.04



HEC-RAS Plan: Plan 05 (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)	
LAT 14	Alignment - LAT	10800	Prop 100yr	76.90	19.48	23.07		23.11	0.000494	1.59	48.24	20.27	0.18
LAT 14	Alignment - LAT	11200	Exist 100yr	352.50	19.68	25.09		25.09	0.000033	0.55	2498.58	3945.29	0.05
LAT 14	Alignment - LAT	11200	Prop 100yr	76.90	19.68	23.26		23.30	0.000489	1.58	48.53	20.47	0.18
LAT 14	Alignment - LAT	11600	Exist 100yr	352.50	19.78	25.10		25.10	0.000049	0.68	2124.20	3664.37	0.06
LAT 14	Alignment - LAT	11600	Prop 100yr	76.90	19.78	23.45		23.48	0.000417	1.54	50.37	20.85	0.17
LAT 14	Alignment - LAT	12000	Exist 100yr	352.50	19.92	25.12		25.13	0.000069	0.80	1879.50	3554.16	0.07
LAT 14	Alignment - LAT	12000	Prop 100yr	76.90	19.92	23.62		23.65	0.000427	1.50	51.10	21.05	0.17
LAT 14	Alignment - LAT	12234.88	Exist 100yr	352.50	20.07	25.14		25.17	0.000637	1.71	630.96	2123.57	0.21
LAT 14	Alignment - LAT	12234.88	Prop 100yr	76.90	20.07	23.73		23.77	0.000571	1.52	50.56	25.84	0.19
LAT 15	Alignment - LAT	400	Exist 100yr	94.20	17.18	22.48		22.48	0.000005	0.24	1242.62	1431.80	0.02
LAT 15	Alignment - LAT	400	Prop 100yr	94.20	17.18	22.47		22.47	0.000006	0.24	1225.36	1422.30	0.02
LAT 15	Alignment - LAT	800	Exist 100yr	94.20	17.21	22.48		22.48	0.000002	0.12	2244.77	2158.33	0.01
LAT 15	Alignment - LAT	800	Prop 100yr	94.20	17.21	22.47		22.47	0.000002	0.13	2218.76	2158.33	0.01
LAT 15	Alignment - LAT	1200	Exist 100yr	94.20	17.24	22.48		22.48	0.000004	0.19	1345.49	1468.81	0.02
LAT 15	Alignment - LAT	1200	Prop 100yr	94.20	17.24	22.47		22.47	0.000004	0.20	1327.91	1456.76	0.02
LAT 15	Alignment - LAT	1600	Exist 100yr	94.20	17.31	22.48		22.48	0.000007	0.25	1214.54	1619.76	0.02
LAT 15	Alignment - LAT	1600	Prop 100yr	94.20	17.31	22.47		22.47	0.000007	0.25	1195.25	1608.66	0.02
LAT 15	Alignment - LAT	2000	Exist 100yr	94.20	17.34	22.49		22.49	0.000012	0.32	980.52	1567.72	0.03
LAT 15	Alignment - LAT	2000	Prop 100yr	94.20	17.34	22.47		22.48	0.000012	0.33	962.06	1556.14	0.03
LAT 15	Alignment - LAT	2050.*	Exist 100yr	94.20	17.33	22.49		22.49	0.000014	0.35	895.43	1498.11	0.03
LAT 15	Alignment - LAT	2050.*	Prop 100yr	94.20	17.33	22.48		22.48	0.000014	0.36	877.87	1481.02	0.03
LAT 15	Alignment - LAT	2100.*	Exist 100yr	94.20	17.32	22.49		22.49	0.000016	0.37	813.73	1388.19	0.04
LAT 15	Alignment - LAT	2100.*	Prop 100yr	94.20	17.32	22.48		22.48	0.000017	0.38	797.45	1377.70	0.04
LAT 15	Alignment - LAT	2101											
LAT 15	Alignment - LAT	2200.*	Exist 100yr	94.20	17.29	22.96	18.99	22.96	0.000005	0.22	1173.89	1114.39	0.02
LAT 15	Alignment - LAT	2200.*	Prop 100yr	94.20	17.29	22.95	18.99	22.95	0.000005	0.22	1167.88	1114.37	0.02
LAT 15	Alignment - LAT	2250.*	Exist 100yr	94.20	17.28	22.96		22.96	0.000006	0.25	962.50	864.60	0.02
LAT 15	Alignment - LAT	2250.*	Prop 100yr	94.20	17.28	22.95		22.95	0.000007	0.25	957.84	864.56	0.02
LAT 15	Alignment - LAT	2300.*	Exist 100yr	94.20	17.26	22.96		22.96	0.000009	0.30	731.75	614.63	0.03
LAT 15	Alignment - LAT	2300.*	Prop 100yr	94.20	17.26	22.95		22.95	0.000010	0.30	728.44	614.57	0.03
LAT 15	Alignment - LAT	2350.*	Exist 100yr	94.20	17.25	22.96		22.96	0.000017	0.39	482.67	364.67	0.04
LAT 15	Alignment - LAT	2350.*	Prop 100yr	94.20	17.25	22.95		22.95	0.000017	0.39	480.71	364.65	0.04
LAT 15	Alignment - LAT	2400	Exist 100yr	94.20	17.24	22.96		22.96	0.000041	0.60	214.40	114.78	0.06
LAT 15	Alignment - LAT	2400	Prop 100yr	94.20	17.24	22.95		22.96	0.000041	0.60	213.78	114.76	0.06
LAT 15	Alignment - LAT	2800	Exist 100yr	94.20	17.23	22.97		22.97	0.000028	0.51	316.05	217.06	0.05
LAT 15	Alignment - LAT	2800	Prop 100yr	94.20	17.23	22.97		22.97	0.000028	0.51	314.90	217.04	0.05
LAT 15	Alignment - LAT	3200	Exist 100yr	94.20	17.19	22.98		22.98	0.000020	0.44	439.12	370.92	0.04
LAT 15	Alignment - LAT	3200	Prop 100yr	94.20	17.19	22.98		22.98	0.000021	0.44	437.20	370.90	0.04
LAT 15	Alignment - LAT	3600	Exist 100yr	94.20	17.20	22.99		22.99	0.000026	0.51	503.84	801.50	0.05
LAT 15	Alignment - LAT	3600	Prop 100yr	94.20	17.20	22.99		22.99	0.000026	0.51	499.78	797.84	0.05
LAT 15	Alignment - LAT	3650.*	Exist 100yr	94.20	17.24	22.99		22.99	0.000026	0.50	504.11	807.90	0.05
LAT 15	Alignment - LAT	3650.*	Prop 100yr	94.20	17.24	22.99		22.99	0.000026	0.50	500.03	804.23	0.05
LAT 15	Alignment - LAT	3700.*	Exist 100yr	94.20	17.28	22.99		23.00	0.000026	0.49	505.60	814.32	0.05
LAT 15	Alignment - LAT	3700.*	Prop 100yr	94.20	17.28	22.99		22.99	0.000026	0.49	501.51	810.65	0.05
LAT 15	Alignment - LAT	3750.*	Exist 100yr	94.20	17.32	23.00		23.00	0.000026	0.49	502.32	820.73	0.05
LAT 15	Alignment - LAT	3750.*	Prop 100yr	94.20	17.32	22.99		22.99	0.000027	0.49	498.21	817.06	0.05
LAT 15	Alignment - LAT	3800.*	Exist 100yr	94.20	17.36	23.00		23.00	0.000028	0.48	499.71	825.94	0.05
LAT 15	Alignment - LAT	3800.*	Prop 100yr	94.20	17.36	22.99		22.99	0.000028	0.48	495.59	821.81	0.05
LAT 15	Alignment - LAT	3850.*	Exist 100yr	94.20	17.40	23.00		23.00	0.000029	0.48	496.27	832.60	0.05
LAT 15	Alignment - LAT	3850.*	Prop 100yr	94.20	17.40	22.99		23.00	0.000030	0.48	492.14	828.46	0.05
LAT 15	Alignment - LAT	3900.*	Exist 100yr	94.20	17.44	23.00		23.00	0.000031	0.48	492.45	839.35	0.05
LAT 15	Alignment - LAT	3900.*	Prop 100yr	94.20	17.44	22.99		23.00	0.000032	0.48	488.29	835.22	0.05
LAT 15	Alignment - LAT	3934											
LAT 15	Alignment - LAT	3950.*	Exist 100yr	94.20	17.48	23.00	19.38	23.01	0.000034	0.48	489.10	848.39	0.05
LAT 15	Alignment - LAT	3950.*	Prop 100yr	94.20	17.48	23.00	19.38	23.00	0.000035	0.48	484.92	844.25	0.05
LAT 15	Alignment - LAT	4000	Exist 100yr	94.20	17.52	23.01		23.01	0.000038	0.48	483.03	859.81	0.05
LAT 15	Alignment - LAT	4000	Prop 100yr	94.20	17.52	23.00		23.00	0.000038	0.48	478.82	855.24	0.05
LAT 15	Alignment - LAT	4400	Exist 100yr	94.20	17.71	23.02		23.02	0.000045	0.53	441.65	831.42	0.06
LAT 15	Alignment - LAT	4400	Prop 100yr	94.20	17.71	23.02		23.02	0.000046	0.53	437.79	827.06	0.06

HEC-RAS Plan: Plan 05 (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
LAT 15	Alignment - LAT	4800	Exist 100yr	94.20	17.98	23.04		23.05	0.00069	0.63	342.62	729.92	0.07
LAT 15	Alignment - LAT	4800	Prop 100yr	94.20	17.98	23.04		23.04	0.00070	0.63	339.45	725.60	0.07
LAT 15	Alignment - LAT	5200	Exist 100yr	94.20	18.40	23.07		23.08	0.00097	0.77	270.46	739.43	0.08
LAT 15	Alignment - LAT	5200	Prop 100yr	94.20	18.40	23.07		23.08	0.00098	0.78	267.56	733.81	0.08
LAT 15	Alignment - LAT	5600	Exist 100yr	94.20	18.84	23.12		23.13	0.00162	0.99	136.43	333.13	0.11
LAT 15	Alignment - LAT	5600	Prop 100yr	94.20	18.84	23.11		23.13	0.00163	0.99	135.29	329.82	0.11
LAT 15	Alignment - LAT	6000	Exist 100yr	94.20	19.02	23.19		23.20	0.00202	1.09	100.08	304.53	0.12
LAT 15	Alignment - LAT	6000	Prop 100yr	94.20	19.02	23.18		23.20	0.00203	1.09	99.19	297.42	0.12
LAT 15	Alignment - LAT	6400	Exist 100yr	94.20	19.02	23.27		23.29	0.00210	1.13	83.77	45.21	0.12
LAT 15	Alignment - LAT	6400	Prop 100yr	94.20	19.02	23.26		23.28	0.00211	1.13	83.63	40.24	0.12
LAT 15	Alignment - LAT	6800	Exist 100yr	94.20	19.02	23.34		23.36	0.00174	1.11	91.63	183.37	0.11
LAT 15	Alignment - LAT	6800	Prop 100yr	94.20	19.02	23.34		23.36	0.00175	1.11	91.12	177.90	0.11
LAT 15	Alignment - LAT	7200	Exist 100yr	94.20	19.02	23.41		23.43	0.00159	1.07	115.95	380.45	0.11
LAT 15	Alignment - LAT	7200	Prop 100yr	94.20	19.02	23.41		23.43	0.00160	1.08	114.97	378.15	0.11
LAT 15	Alignment - LAT	7250.*	Exist 100yr	94.20	19.01	23.42		23.44	0.00151	1.05	127.04	363.31	0.11
LAT 15	Alignment - LAT	7250.*	Prop 100yr	94.20	19.01	23.42		23.44	0.00152	1.05	126.13	360.44	0.11
LAT 15	Alignment - LAT	7300.*	Exist 100yr	94.20	18.99	23.43		23.45	0.00143	1.03	137.06	346.72	0.10
LAT 15	Alignment - LAT	7300.*	Prop 100yr	94.20	18.99	23.43		23.44	0.00144	1.03	136.20	344.60	0.10
LAT 15	Alignment - LAT	7350.*	Exist 100yr	94.20	18.98	23.44		23.45	0.00136	1.01	143.38	329.41	0.10
LAT 15	Alignment - LAT	7350.*	Prop 100yr	94.20	18.98	23.44		23.45	0.00137	1.01	142.58	326.62	0.10
LAT 15	Alignment - LAT	7400.*	Exist 100yr	94.20	18.97	23.45		23.46	0.00131	0.99	147.88	305.90	0.10
LAT 15	Alignment - LAT	7400.*	Prop 100yr	94.20	18.97	23.44		23.46	0.00131	0.99	147.15	303.16	0.10
LAT 15	Alignment - LAT	7450.*	Exist 100yr	94.20	18.95	23.45		23.47	0.00126	0.98	150.49	293.31	0.10
LAT 15	Alignment - LAT	7450.*	Prop 100yr	94.20	18.95	23.45		23.46	0.00127	0.98	149.80	290.60	0.10
LAT 15	Alignment - LAT	7500.*	Exist 100yr	94.20	18.94	23.46		23.47	0.00123	0.97	150.73	268.83	0.10
LAT 15	Alignment - LAT	7500.*	Prop 100yr	94.20	18.94	23.46		23.47	0.00124	0.97	150.11	266.17	0.10
LAT 15	Alignment - LAT	7550.*	Exist 100yr	94.20	18.92	23.47		23.48	0.00121	0.97	148.75	255.38	0.10
LAT 15	Alignment - LAT	7550.*	Prop 100yr	94.20	18.92	23.46		23.48	0.00122	0.97	148.17	252.75	0.10
LAT 15	Alignment - LAT	7553		Culvert									
LAT 15	Alignment - LAT	7600	Exist 100yr	94.20	18.91	23.68	20.59	23.69	0.00080	0.82	208.77	375.65	0.08
LAT 15	Alignment - LAT	7600	Prop 100yr	94.20	18.91	23.68	20.59	23.69	0.00080	0.82	207.91	374.08	0.08
LAT 15	Alignment - LAT	7650.*	Exist 100yr	94.20	19.11	23.68		23.69	0.00083	0.83	208.68	378.59	0.08
LAT 15	Alignment - LAT	7650.*	Prop 100yr	94.20	19.11	23.68		23.69	0.00083	0.83	207.83	377.03	0.08
LAT 15	Alignment - LAT	7700.*	Exist 100yr	94.20	19.32	23.69		23.70	0.00086	0.84	208.70	381.65	0.08
LAT 15	Alignment - LAT	7700.*	Prop 100yr	94.20	19.32	23.69		23.69	0.00087	0.84	207.84	380.11	0.08
LAT 15	Alignment - LAT	7750.*	Exist 100yr	94.20	19.52	23.69		23.70	0.00090	0.84	208.77	385.14	0.08
LAT 15	Alignment - LAT	7750.*	Prop 100yr	94.20	19.52	23.69		23.70	0.00090	0.85	207.91	383.38	0.08
LAT 15	Alignment - LAT	7783		Culvert									
LAT 15	Alignment - LAT	7850.*	Exist 100yr	94.20	19.93	23.85	21.08	23.85	0.00068	0.74	274.02	504.87	0.07
LAT 15	Alignment - LAT	7850.*	Prop 100yr	94.20	19.93	23.84	21.08	23.85	0.00068	0.74	272.88	503.37	0.07
LAT 15	Alignment - LAT	7900	Exist 100yr	94.20	20.14	23.85		23.86	0.00070	0.75	274.22	507.49	0.07
LAT 15	Alignment - LAT	7900	Prop 100yr	94.20	20.14	23.85		23.85	0.00071	0.75	273.09	505.94	0.07
LAT 15A	Alignment - LAT	100	Exist 100yr	349.00	19.16	22.76	22.76	23.74	0.015544	7.93	43.98	22.48	1.00
LAT 15A	Alignment - LAT	100	Prop 100yr	349.00	19.16	22.76	22.76	23.74	0.015544	7.93	43.98	22.48	1.00
LAT 15A	Alignment - LAT	133		Culvert									
LAT 15A	Alignment - LAT	200.*	Exist 100yr	349.00	19.38	25.16	22.76	25.18	0.000159	1.36	707.22	697.22	0.12
LAT 15A	Alignment - LAT	200.*	Prop 100yr	349.00	19.38	25.16	22.76	25.18	0.000159	1.36	707.22	697.22	0.12
LAT 15A	Alignment - LAT	250.*	Exist 100yr	349.00	19.48	25.17		25.18	0.000157	1.35	710.27	697.22	0.12
LAT 15A	Alignment - LAT	250.*	Prop 100yr	349.00	19.48	25.17		25.18	0.000157	1.35	710.27	697.22	0.12
LAT 15A	Alignment - LAT	300	Exist 100yr	349.00	19.59	25.17		25.19	0.000155	1.35	713.28	697.22	0.12
LAT 15A	Alignment - LAT	300	Prop 100yr	349.00	19.59	25.17		25.19	0.000155	1.35	713.28	697.22	0.12
LAT 15A	Alignment - LAT	350.*	Exist 100yr	349.00	19.68	25.19		25.19	0.000096	1.05	1027.16	1105.00	0.09
LAT 15A	Alignment - LAT	350.*	Prop 100yr	349.00	19.68	25.19		25.19	0.000096	1.05	1027.16	1105.00	0.09
LAT 15A	Alignment - LAT	400.*	Exist 100yr	349.00	19.78	25.19		25.20	0.000072	0.91	1289.48	1512.78	0.08
LAT 15A	Alignment - LAT	400.*	Prop 100yr	349.00	19.78	25.19		25.20	0.000072	0.91	1289.48	1512.78	0.08
LAT 15A	Alignment - LAT	450.*	Exist 100yr	349.00	19.87	25.20		25.20	0.000062	0.83	1496.52	1920.55	0.07
LAT 15A	Alignment - LAT	450.*	Prop 100yr	349.00	19.87	25.20		25.20	0.000062	0.83	1496.52	1920.55	0.07
LAT 15A	Alignment - LAT	500.*	Exist 100yr	349.00	19.96	25.20		25.20	0.000057	0.79	1655.86	2328.33	0.07
LAT 15A	Alignment - LAT	500.*	Prop 100yr	349.00	19.96	25.20		25.20	0.000057	0.79	1655.86	2328.33	0.07

HEC-RAS Plan: Plan 05 (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)	
LAT 15A	Alignment - LAT	515		Culvert									
LAT 15A	Alignment - LAT	550.*	Exist 100yr	349.00	20.06	25.20	23.19	25.20	0.000058	0.79	1751.86	2736.11	0.07
LAT 15A	Alignment - LAT	550.*	Prop 100yr	349.00	20.06	25.20	23.19	25.20	0.000058	0.79	1751.86	2736.11	0.07
LAT 15A	Alignment - LAT	600	Exist 100yr	349.00	20.15	25.20		25.21	0.000060	0.80	1806.82	3143.89	0.07
LAT 15A	Alignment - LAT	600	Prop 100yr	349.00	20.15	25.20		25.21	0.000060	0.80	1806.82	3143.89	0.07
LAT 15A	Alignment - LAT	900	Exist 100yr	349.00	21.01	25.22		25.23	0.000074	0.76	1454.12	1856.66	0.08
LAT 15A	Alignment - LAT	900	Prop 100yr	349.00	21.01	25.22		25.23	0.000074	0.76	1454.12	1856.66	0.08
LAT 15A	Alignment - LAT	1200	Exist 100yr	349.00	21.65	25.25		25.25	0.000064	0.64	1923.56	3332.10	0.07
LAT 15A	Alignment - LAT	1200	Prop 100yr	349.00	21.65	25.25		25.25	0.000064	0.64	1923.56	3332.10	0.07
LAT 15A	Alignment - LAT	1500	Exist 100yr	349.00	22.20	25.27		25.27	0.000081	0.64	1736.05	2916.27	0.08
LAT 15A	Alignment - LAT	1500	Prop 100yr	349.00	22.20	25.27		25.27	0.000081	0.64	1736.05	2916.27	0.08
LAT 15A	Alignment - LAT	1800	Exist 100yr	349.00	22.54	25.29		25.29	0.000083	0.57	1819.53	3270.01	0.07
LAT 15A	Alignment - LAT	1800	Prop 100yr	349.00	22.54	25.29		25.29	0.000083	0.57	1819.53	3270.01	0.07
LAT 15A	Alignment - LAT	2100	Exist 100yr	349.00	22.93	25.32		25.32	0.000085	0.54	1825.72	3265.16	0.07
LAT 15A	Alignment - LAT	2100	Prop 100yr	349.00	22.93	25.32		25.32	0.000085	0.54	1825.72	3265.16	0.07
LAT 15A	Alignment - LAT	2400	Exist 100yr	349.00	23.45	25.35		25.35	0.000155	0.59	1474.13	2977.93	0.10
LAT 15A	Alignment - LAT	2400	Prop 100yr	349.00	23.45	25.35		25.35	0.000155	0.59	1474.13	2977.93	0.10
LAT 15A	Alignment - LAT	2700	Exist 100yr	349.00	23.95	25.41		25.41	0.000219	0.56	1315.36	2862.83	0.11
LAT 15A	Alignment - LAT	2700	Prop 100yr	349.00	23.95	25.41		25.41	0.000219	0.56	1315.36	2862.83	0.11
LAT 15A	Alignment - LAT	3000	Exist 100yr	349.00	24.12	25.47		25.47	0.000197	0.49	1352.35	2811.59	0.10
LAT 15A	Alignment - LAT	3000	Prop 100yr	349.00	24.12	25.47		25.47	0.000197	0.49	1352.35	2811.59	0.10
LAT 2	Alignment - LAT	500	Exist 100yr	0.10	-13.78	3.82		3.82	0.000000	0.00	26569.77	5218.67	0.00
LAT 2	Alignment - LAT	500	Prop 100yr	0.10	-13.78	2.82		2.82	0.000000	0.00	21344.60	5110.35	0.00
LAT 2	Alignment - LAT	1000	Exist 100yr	0.10	-12.72	3.82		3.82	0.000000	0.00	24128.56	4164.45	0.00
LAT 2	Alignment - LAT	1000	Prop 100yr	0.10	-12.72	2.82		2.82	0.000000	0.00	20233.93	3318.76	0.00
LAT 2	Alignment - LAT	1500	Exist 100yr	0.10	-11.06	3.82		3.82	0.000000	0.00	23506.82	5282.21	0.00
LAT 2	Alignment - LAT	1500	Prop 100yr	0.10	-11.06	2.82		2.82	0.000000	0.00	18218.82	5163.99	0.00
LAT 2	Alignment - LAT	2000	Exist 100yr	0.10	-9.35	3.82		3.82	0.000000	0.00	14382.44	3819.72	0.00
LAT 2	Alignment - LAT	2000	Prop 100yr	0.10	-9.35	2.82		2.82	0.000000	0.00	10651.21	3542.85	0.00
LAT 2	Alignment - LAT	2500	Exist 100yr	0.10	-8.00	3.82		3.82	0.000000	0.00	13673.85	4273.51	0.00
LAT 2	Alignment - LAT	2500	Prop 100yr	0.10	-8.00	2.82		2.82	0.000000	0.00	9500.00	3950.66	0.00
LAT 2	Alignment - LAT	3000	Exist 100yr	0.10	-7.02	3.82		3.82	0.000000	0.00	12075.41	4203.99	0.00
LAT 2	Alignment - LAT	3000	Prop 100yr	0.10	-7.02	2.82		2.82	0.000000	0.00	7991.93	3829.56	0.00
LAT 2	Alignment - LAT	3500	Exist 100yr	0.10	-6.28	3.82		3.82	0.000000	0.00	4606.63	2361.15	0.00
LAT 2	Alignment - LAT	3500	Prop 100yr	0.10	-6.28	2.82		2.82	0.000000	0.00	2708.75	1542.75	0.00
LAT 2	Alignment - LAT	4000	Exist 100yr	0.10	-5.52	3.82		3.82	0.000000	0.00	7746.85	3817.15	0.00
LAT 2	Alignment - LAT	4000	Prop 100yr	0.10	-5.52	2.82		2.82	0.000000	0.00	4076.71	3376.83	0.00
LAT 2	Alignment - LAT	4500	Exist 100yr	0.10	-3.86	3.82		3.82	0.000000	0.00	1543.71	1491.74	0.00
LAT 2	Alignment - LAT	4500	Prop 100yr	0.10	-3.86	2.82		2.82	0.000000	0.00	388.25	780.07	0.00
LAT 2	Alignment - LAT	5000	Exist 100yr	0.10	-2.96	3.82		3.82	0.000000	0.00	371.55	675.29	0.00
LAT 2	Alignment - LAT	5000	Prop 100yr	0.10	-2.96	2.82		2.82	0.000000	0.00	117.70	80.21	0.00
LAT 2	Alignment - LAT	5500	Exist 100yr	0.10	-2.40	3.82		3.82	0.000000	0.00	192.71	250.17	0.00
LAT 2	Alignment - LAT	5500	Prop 100yr	0.10	-2.40	2.82		2.82	0.000000	0.00	91.73	26.00	0.00
LAT 2	Alignment - LAT	5550.*	Exist 100yr	0.10	-2.27	3.82		3.82	0.000000	0.00	176.84	234.19	0.00
LAT 2	Alignment - LAT	5550.*	Prop 100yr	0.10	-2.27	2.82		2.82	0.000000	0.00	87.31	25.30	0.00
LAT 2	Alignment - LAT	5600.*	Exist 100yr	0.10	-2.15	3.82		3.82	0.000000	0.00	161.91	217.61	0.00
LAT 2	Alignment - LAT	5600.*	Prop 100yr	0.10	-2.15	2.82		2.82	0.000000	0.00	82.93	24.62	0.00
LAT 2	Alignment - LAT	5650.*	Exist 100yr	0.10	-2.02	3.82		3.82	0.000000	0.00	148.84	202.66	0.00
LAT 2	Alignment - LAT	5650.*	Prop 100yr	0.10	-2.02	2.82		2.82	0.000000	0.00	78.76	23.96	0.00
LAT 2	Alignment - LAT	5663		Culvert									
LAT 2	Alignment - LAT	5700.*	Exist 100yr	0.10	-1.89	3.82	-1.76	3.82	0.000000	0.00	136.00	186.38	0.00
LAT 2	Alignment - LAT	5700.*	Prop 100yr	0.10	-1.89	2.82	-1.76	2.82	0.000000	0.00	74.60	23.31	0.00
LAT 2	Alignment - LAT	5750.*	Exist 100yr	0.10	-1.77	3.82		3.82	0.000000	0.00	125.56	171.81	0.00
LAT 2	Alignment - LAT	5750.*	Prop 100yr	0.10	-1.77	2.82		2.82	0.000000	0.00	70.65	22.65	0.00
LAT 2	Alignment - LAT	5800.*	Exist 100yr	0.10	-1.64	3.82		3.82	0.000000	0.00	115.85	157.21	0.00
LAT 2	Alignment - LAT	5800.*	Prop 100yr	0.10	-1.64	2.82		2.82	0.000000	0.00	66.74	22.01	0.00
LAT 2	Alignment - LAT	5850.*	Exist 100yr	0.10	-1.51	3.82		3.82	0.000000	0.00	106.42	140.67	0.00
LAT 2	Alignment - LAT	5850.*	Prop 100yr	0.10	-1.51	2.82		2.82	0.000000	0.00	62.98	21.37	0.00
LAT 2	Alignment - LAT	5900.*	Exist 100yr	0.10	-1.38	3.82		3.82	0.000000	0.00	99.02	126.48	0.00
LAT 2	Alignment - LAT	5900.*	Prop 100yr	0.10	-1.38	2.82		2.82	0.000000	0.00	59.34	20.75	0.00

HEC-RAS Plan: Plan 05 (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
LAT 2	Alignment - LAT	5950.*	Exist 100yr	0.10	-1.26	3.82		3.82	0.000000	0.00	92.09	112.56	0.00
LAT 2	Alignment - LAT	5950.*	Prop 100yr	0.10	-1.26	2.82		2.82	0.000000	0.00	55.83	20.13	0.00
LAT 2	Alignment - LAT	6000	Exist 100yr	0.10	-1.13	3.82		3.82	0.000000	0.00	93.89	145.68	0.00
LAT 2	Alignment - LAT	6000	Prop 100yr	0.10	-1.13	2.82		2.82	0.000000	0.00	52.37	19.52	0.00
LAT 2	Alignment - LAT	6500	Exist 100yr	0.10	0.46	3.82		3.82	0.000000	0.00	43.66	20.22	0.00
LAT 2	Alignment - LAT	6500	Prop 100yr	0.10	0.46	2.82		2.82	0.000000	0.00	24.52	17.94	0.00
LAT 2	Alignment - LAT	7000	Exist 100yr	0.10	1.66	3.82		3.82	0.000000	0.00	21.84	18.13	0.00
LAT 2	Alignment - LAT	7000	Prop 100yr	0.10	1.66	2.82		2.82	0.000000	0.02	6.42	11.06	0.00
LAT 2	Alignment - LAT	7500	Exist 100yr	0.10	2.71	3.82		3.82	0.000000	0.02	5.98	10.80	0.00
LAT 2	Alignment - LAT	7500	Prop 100yr	0.10	2.71	2.83	2.83	2.86	0.056452	1.50	0.07	1.13	1.09
LAT 2	Alignment - LAT	8000	Exist 100yr	0.10	3.26	3.82		3.82	0.000013	0.06	1.55	5.50	0.02
LAT 2	Alignment - LAT	8000	Prop 100yr	0.10	3.26	3.55	3.37	3.55	0.000410	0.24	0.42	2.88	0.11
LAT 2	Alignment - LAT	8500	Exist 100yr	0.10	4.01	4.14	4.14	4.16	0.034258	1.24	0.08	1.26	0.86
LAT 2	Alignment - LAT	8500	Prop 100yr	0.10	4.01	4.16		4.17	0.015891	0.93	0.11	1.45	0.60
LAT 2	Alignment - LAT	9000	Exist 100yr	0.10	5.61	5.16		5.16	0.000655		1.05	23.66	0.00
LAT 2	Alignment - LAT	9000	Prop 100yr	0.10	5.61	5.16		5.16	0.000739		1.00	23.13	0.00
LAT 2	Alignment - LAT	9500	Exist 100yr	0.10	7.03	7.25	7.15	7.26	0.001674	0.40	0.25	2.23	0.21
LAT 2	Alignment - LAT	9500	Prop 100yr	0.10	7.03	7.26	7.15	7.26	0.001404	0.37	0.27	2.30	0.19
LAT 2	Alignment - LAT	10000	Exist 100yr	0.10	7.98	8.20		8.20	0.002151	0.44	0.23	2.13	0.24
LAT 2	Alignment - LAT	10000	Prop 100yr	0.10	7.98	8.19		8.19	0.002604	0.47	0.21	2.06	0.26
LAT 2	Alignment - LAT	10500	Exist 100yr	0.10	8.07	8.41		8.41	0.000179	0.17	0.58	3.40	0.07
LAT 2	Alignment - LAT	10500	Prop 100yr	0.10	8.07	8.41		8.41	0.000180	0.17	0.58	3.39	0.07
LAT 2	Alignment - LAT	11000	Exist 100yr	0.10	8.12	8.49		8.49	0.000123	0.15	0.67	3.65	0.06
LAT 2	Alignment - LAT	11000	Prop 100yr	0.10	8.12	8.48		8.49	0.000123	0.15	0.67	3.65	0.06
LAT 3	LAT 3	400	Exist 100yr	1309.20	-2.78	5.42		5.49	0.000326	2.52	1182.95	1089.54	0.18
LAT 3	LAT 3	400	Prop 100yr	1309.20	-2.78	5.29		5.38	0.000384	2.70	1053.98	993.19	0.19
LAT 3	LAT 3	450.*	Exist 100yr	1309.20	-2.70	5.43		5.50	0.000331	2.53	1180.80	1071.43	0.18
LAT 3	LAT 3	450.*	Prop 100yr	1309.20	-2.70	5.31		5.40	0.000388	2.70	1057.15	980.57	0.19
LAT 3	LAT 3	500.*	Exist 100yr	1309.20	-2.62	5.45		5.52	0.000336	2.54	1177.93	1049.15	0.18
LAT 3	LAT 3	500.*	Prop 100yr	1309.20	-2.62	5.33		5.42	0.000392	2.70	1059.82	966.05	0.19
LAT 3	LAT 3	550.*	Exist 100yr	1309.20	-2.53	5.47		5.54	0.000342	2.55	1171.85	1028.92	0.18
LAT 3	LAT 3	550.*	Prop 100yr	1309.20	-2.53	5.35		5.44	0.000398	2.71	1059.05	949.20	0.20
LAT 3	LAT 3	600.*	Exist 100yr	1309.20	-2.45	5.49		5.55	0.000348	2.56	1169.06	1014.80	0.18
LAT 3	LAT 3	600.*	Prop 100yr	1309.20	-2.45	5.38		5.46	0.000401	2.71	1061.59	936.24	0.20
LAT 3	LAT 3	650.*	Exist 100yr	1309.20	-2.37	5.50		5.57	0.000356	2.58	1163.04	1002.97	0.19
LAT 3	LAT 3	650.*	Prop 100yr	1309.20	-2.37	5.40		5.48	0.000407	2.72	1060.02	920.59	0.20
LAT 3	LAT 3	652											
LAT 3	LAT 3	700.*	Exist 100yr	1309.20	-2.28	6.48	1.87	6.50	0.000099	1.50	2396.53	1604.98	0.10
LAT 3	LAT 3	700.*	Prop 100yr	1309.20	-2.28	6.40	1.87	6.42	0.000110	1.57	2270.11	1549.31	0.11
LAT 3	LAT 3	750.*	Exist 100yr	1309.20	-2.20	6.49		6.51	0.000106	1.54	2342.64	1594.04	0.10
LAT 3	LAT 3	750.*	Prop 100yr	1309.20	-2.20	6.41		6.43	0.000116	1.60	2219.12	1522.10	0.11
LAT 3	LAT 3	800	Exist 100yr	1309.20	-2.12	6.49		6.51	0.000120	1.63	2319.75	1802.92	0.11
LAT 3	LAT 3	800	Prop 100yr	1309.20	-2.12	6.41		6.43	0.000130	1.68	2183.16	1657.86	0.11
LAT 3	LAT 3	1200	Exist 100yr	1309.20	-2.41	6.54		6.54	0.000045	1.02	4161.58	2880.32	0.07
LAT 3	LAT 3	1200	Prop 100yr	1309.20	-2.41	6.46		6.47	0.000052	1.09	3947.76	2851.60	0.07
LAT 3	LAT 3	1600	Exist 100yr	1309.20	-2.68	6.55		6.56	0.000057	1.15	3211.59	1786.60	0.08
LAT 3	LAT 3	1600	Prop 100yr	1309.20	-2.68	6.48		6.49	0.000060	1.17	3085.98	1692.41	0.08
LAT 3	LAT 3	2000	Exist 100yr	1309.20	-2.89	6.58		6.58	0.000051	1.11	3597.61	2423.80	0.07
LAT 3	LAT 3	2000	Prop 100yr	1309.20	-2.89	6.51		6.51	0.000056	1.15	3428.50	2349.55	0.08
LAT 3	LAT 3	2050.*	Exist 100yr	1309.20	-2.88	6.58		6.59	0.000064	1.24	2950.87	1710.96	0.08
LAT 3	LAT 3	2050.*	Prop 100yr	1309.20	-2.88	6.51		6.52	0.000070	1.28	2831.44	1668.66	0.08
LAT 3	LAT 3	2100.*	Exist 100yr	1309.20	-2.86	6.58		6.59	0.000072	1.30	2761.19	1617.70	0.09
LAT 3	LAT 3	2100.*	Prop 100yr	1309.20	-2.86	6.51		6.52	0.000078	1.34	2649.38	1557.52	0.09
LAT 3	LAT 3	2150.*	Exist 100yr	1309.20	-2.85	6.58		6.59	0.000079	1.35	2618.90	1422.72	0.09
LAT 3	LAT 3	2150.*	Prop 100yr	1309.20	-2.85	6.51		6.53	0.000085	1.40	2521.01	1376.02	0.09
LAT 3	LAT 3	2200.*	Exist 100yr	1309.20	-2.83	6.59		6.60	0.000085	1.40	2525.36	1383.67	0.09
LAT 3	LAT 3	2200.*	Prop 100yr	1309.20	-2.83	6.52		6.53	0.000093	1.45	2429.71	1353.79	0.10
LAT 3	LAT 3	2250.*	Exist 100yr	1309.20	-2.82	6.59		6.60	0.000093	1.45	2435.37	1361.96	0.10
LAT 3	LAT 3	2250.*	Prop 100yr	1309.20	-2.82	6.52		6.54	0.000101	1.50	2341.64	1332.55	0.10

HEC-RAS Plan: Plan 05 (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
LAT 3	LAT 3	2303		Culvert									
LAT 3	LAT 3	2400	Exist 100yr	1309.20	-2.77	6.81	2.62	6.83	0.000092	1.44	2536.19	1600.19	0.10
LAT 3	LAT 3	2400	Prop 100yr	1309.20	-2.77	6.80	2.62	6.82	0.000093	1.45	2518.55	1592.70	0.10
LAT 3	LAT 3	2800	Exist 100yr	1309.20	-1.69	6.86		6.87	0.000147	1.60	2480.07	1912.58	0.12
LAT 3	LAT 3	2800	Prop 100yr	1309.20	-1.69	6.85		6.86	0.000150	1.61	2460.29	1905.57	0.12
LAT 3	LAT 3	3200	Exist 100yr	1309.20	-0.60	6.53	5.59	7.26	0.004867	7.14	274.38	364.45	0.63
LAT 3	LAT 3	3200	Prop 100yr	1309.20	-0.60	6.51	5.59	7.26	0.005016	7.23	266.71	352.99	0.64
LAT 3	LAT 3	3600	Exist 100yr	1309.20	0.48	8.35	8.18	8.71	0.002681	5.64	535.72	763.42	0.48
LAT 3	LAT 3	3600	Prop 100yr	1309.20	0.48	8.37	8.18	8.72	0.002621	5.58	544.55	773.09	0.47
LAT 3	LAT 3	4000	Exist 100yr	1309.20	1.55	8.98		8.99	0.000266	1.51	2643.56	3603.83	0.14
LAT 3	LAT 3	4000	Prop 100yr	1309.20	1.55	8.98		8.99	0.000266	1.51	2644.12	3604.34	0.14
LAT 3	LAT 3	4050.*	Exist 100yr	1309.20	1.56	9.00		9.01	0.000314	1.64	2568.02	3746.81	0.15
LAT 3	LAT 3	4050.*	Prop 100yr	1309.20	1.56	9.00		9.01	0.000314	1.64	2568.58	3747.30	0.15
LAT 3	LAT 3	4100.*	Exist 100yr	1309.20	1.58	9.01		9.02	0.000362	1.76	2529.54	3946.70	0.17
LAT 3	LAT 3	4100.*	Prop 100yr	1309.20	1.58	9.01		9.02	0.000362	1.76	2530.10	3947.41	0.17
LAT 3	LAT 3	4145		Bridge									
LAT 3	LAT 3	4200.*	Exist 100yr	1309.20	1.61	9.07	8.49	9.08	0.000401	1.85	2625.43	4153.93	0.17
LAT 3	LAT 3	4200.*	Prop 100yr	1309.20	1.61	9.07	8.49	9.08	0.000401	1.85	2625.91	4154.06	0.17
LAT 3	LAT 3	4250.*	Exist 100yr	1309.20	1.62	9.09		9.10	0.000386	1.81	2649.51	4095.87	0.17
LAT 3	LAT 3	4250.*	Prop 100yr	1309.20	1.62	9.09		9.10	0.000386	1.81	2649.94	4095.99	0.17
LAT 3	LAT 3	4256		Culvert									
LAT 3	LAT 3	4300.*	Exist 100yr	1309.20	1.64	10.08	8.64	10.08	0.000023	0.51	7042.94	5126.65	0.04
LAT 3	LAT 3	4300.*	Prop 100yr	1309.20	1.64	10.08	8.64	10.08	0.000023	0.51	7042.48	5126.54	0.04
LAT 3	LAT 3	4350.*	Exist 100yr	1309.20	1.65	10.08		10.08	0.000024	0.52	6868.90	4945.80	0.04
LAT 3	LAT 3	4350.*	Prop 100yr	1309.20	1.65	10.08		10.08	0.000024	0.52	6868.46	4945.67	0.04
LAT 3	LAT 3	4400	Exist 100yr	1309.20	1.67	10.08		10.08	0.000025	0.53	6690.08	4776.16	0.04
LAT 3	LAT 3	4400	Prop 100yr	1309.20	1.67	10.08		10.08	0.000025	0.53	6689.65	4776.02	0.04
LAT 3	LAT 3	4450.*	Exist 100yr	1309.20	1.93	10.08		10.08	0.000037	0.65	5873.21	4655.20	0.06
LAT 3	LAT 3	4450.*	Prop 100yr	1309.20	1.93	10.08		10.08	0.000037	0.65	5872.79	4655.06	0.06
LAT 3	LAT 3	4500.*	Exist 100yr	1309.20	2.19	10.08		10.09	0.000058	0.82	5065.23	4533.74	0.07
LAT 3	LAT 3	4500.*	Prop 100yr	1309.20	2.19	10.08		10.09	0.000058	0.82	5064.83	4533.60	0.07
LAT 3	LAT 3	4550.*	Exist 100yr	1309.20	2.45	10.09		10.09	0.000093	1.04	4312.45	4393.79	0.09
LAT 3	LAT 3	4550.*	Prop 100yr	1309.20	2.45	10.09		10.09	0.000093	1.04	4312.06	4393.65	0.09
LAT 3	LAT 3	4600.*	Exist 100yr	1309.20	2.71	10.09		10.10	0.000157	1.36	3586.39	4268.01	0.12
LAT 3	LAT 3	4600.*	Prop 100yr	1309.20	2.71	10.09		10.10	0.000157	1.36	3586.02	4267.87	0.12
LAT 3	LAT 3	4650.*	Exist 100yr	1309.20	2.98	10.10		10.11	0.000272	1.80	2915.35	4141.48	0.15
LAT 3	LAT 3	4650.*	Prop 100yr	1309.20	2.98	10.10		10.11	0.000272	1.80	2915.00	4141.33	0.15
LAT 3	LAT 3	4750.*	Exist 100yr	1309.20	3.50	10.12		10.15	0.000616	2.72	1948.29	3136.36	0.23
LAT 3	LAT 3	4750.*	Prop 100yr	1309.20	3.50	10.12		10.15	0.000616	2.72	1948.05	3136.12	0.23
LAT 3	LAT 3	4789		Culvert									
LAT 3	LAT 3	4900.*	Exist 100yr	1309.20	4.28	9.94	9.94	10.21	0.003180	5.50	784.44	1739.97	0.51
LAT 3	LAT 3	4900.*	Prop 100yr	1309.20	4.28	9.94	9.94	10.21	0.003180	5.50	784.44	1739.97	0.51
LAT 3	LAT 3	4950.*	Exist 100yr	1309.20	4.54	10.22		10.34	0.001637	3.95	1167.81	2246.13	0.37
LAT 3	LAT 3	4950.*	Prop 100yr	1309.20	4.54	10.22		10.34	0.001637	3.95	1167.81	2246.13	0.37
LAT 3	LAT 3	5000.*	Exist 100yr	1309.20	4.80	10.32		10.42	0.001657	3.84	1166.77	2235.09	0.37
LAT 3	LAT 3	5000.*	Prop 100yr	1309.20	4.80	10.32		10.42	0.001657	3.84	1166.77	2235.09	0.37
LAT 3	LAT 3	5050.*	Exist 100yr	1309.20	5.06	10.41		10.51	0.001679	3.73	1166.30	2225.18	0.37
LAT 3	LAT 3	5050.*	Prop 100yr	1309.20	5.06	10.41		10.51	0.001679	3.73	1166.30	2225.18	0.37
LAT 3	LAT 3	5100.*	Exist 100yr	1309.20	5.32	10.50		10.59	0.001715	3.63	1162.33	2214.37	0.37
LAT 3	LAT 3	5100.*	Prop 100yr	1309.20	5.32	10.50		10.59	0.001715	3.63	1162.33	2214.37	0.37
LAT 3	LAT 3	5150.*	Exist 100yr	1309.20	5.58	10.60		10.68	0.001735	3.50	1165.36	2214.13	0.37
LAT 3	LAT 3	5150.*	Prop 100yr	1309.20	5.58	10.60		10.68	0.001735	3.50	1165.36	2214.13	0.37
LAT 3	LAT 3	5200	Exist 100yr	1309.20	5.84	10.70		10.77	0.001763	3.37	1164.66	2208.81	0.37
LAT 3	LAT 3	5200	Prop 100yr	1309.20	5.84	10.70		10.77	0.001763	3.37	1164.66	2208.81	0.37
LAT 4A	LAT 4A	300	Exist 100yr	714.70	1.56	10.89		11.15	0.001403	4.14	173.04	39.02	0.34
LAT 4A	LAT 4A	300	Prop 100yr	714.70	1.56	10.88		11.15	0.001406	4.15	172.92	38.88	0.34
LAT 4A	LAT 4A	550.*	Exist 100yr	714.70	0.36	11.23		11.48	0.001194	4.01	183.05	44.92	0.31
LAT 4A	LAT 4A	550.*	Prop 100yr	714.70	0.36	11.23		11.48	0.001196	4.01	182.94	44.87	0.31
LAT 4A	LAT 4A	580		Culvert									

HEC-RAS Plan: Plan 05 (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
LAT 4A	LAT 4A	800.*	Exist 100yr	714.70	0.13	12.71	7.53	12.72	0.000038	0.80	3275.30	3473.09	0.06
LAT 4A	LAT 4A	800.*	Prop 100yr	714.70	0.13	12.71	7.53	12.72	0.000038	0.81	3269.33	3472.30	0.06
LAT 4A	LAT 4A	900	Exist 100yr	714.70	0.14	12.72		12.72	0.000046	0.87	3089.90	3542.03	0.06
LAT 4A	LAT 4A	900	Prop 100yr	714.70	0.14	12.72		12.72	0.000047	0.87	3083.86	3541.26	0.06
LAT 4A	LAT 4A	1200	Exist 100yr	714.70	0.74	12.73		12.73	0.000040	0.84	3250.62	3456.10	0.06
LAT 4A	LAT 4A	1200	Prop 100yr	714.70	0.74	12.73		12.73	0.000040	0.85	3244.95	3455.40	0.06
LAT 4A	LAT 4A	1500	Exist 100yr	714.70	1.75	12.68		12.80	0.000492	2.96	572.01	1226.97	0.21
LAT 4A	LAT 4A	1500	Prop 100yr	714.70	1.75	12.68		12.80	0.000493	2.96	569.78	1223.03	0.21
LAT 4A	LAT 4A	1800	Exist 100yr	714.70	2.44	12.85		12.91	0.000285	2.32	884.03	1553.23	0.16
LAT 4A	LAT 4A	1800	Prop 100yr	714.70	2.44	12.85		12.91	0.000286	2.32	882.13	1550.75	0.16
LAT 4A	LAT 4A	2100	Exist 100yr	714.70	3.36	12.94		13.00	0.000260	2.16	979.50	1718.84	0.15
LAT 4A	LAT 4A	2100	Prop 100yr	714.70	3.36	12.94		12.99	0.000260	2.16	977.79	1716.70	0.15
LAT 4A	LAT 4A	2400	Exist 100yr	714.70	4.49	13.03		13.03	0.000062	1.07	2736.01	3659.32	0.08
LAT 4A	LAT 4A	2400	Prop 100yr	714.70	4.49	13.03		13.03	0.000063	1.07	2733.13	3658.85	0.08
LAT 4A	LAT 4A	2436		Culvert									
LAT 4A	LAT 4A	2500.*	Exist 100yr	714.70	4.60	13.02	8.84	13.03	0.000124	1.48	2011.23	3477.31	0.11
LAT 4A	LAT 4A	2500.*	Prop 100yr	714.70	4.60	13.02	8.84	13.03	0.000124	1.48	2009.27	3476.63	0.11
LAT 4A	LAT 4A	2550.*	Exist 100yr	714.70	4.66	13.02		13.04	0.000176	1.73	1687.46	3371.30	0.13
LAT 4A	LAT 4A	2550.*	Prop 100yr	714.70	4.66	13.02		13.04	0.000177	1.74	1685.55	3370.82	0.13
LAT 4A	LAT 4A	2600.*	Exist 100yr	714.70	4.72	13.03		13.06	0.000220	1.90	1407.62	2790.38	0.14
LAT 4A	LAT 4A	2600.*	Prop 100yr	714.70	4.72	13.02		13.06	0.000221	1.90	1406.12	2786.32	0.14
LAT 4A	LAT 4A	2650.*	Exist 100yr	714.70	4.77	13.05		13.07	0.000188	1.72	1429.63	2101.62	0.13
LAT 4A	LAT 4A	2650.*	Prop 100yr	714.70	4.77	13.05		13.07	0.000189	1.72	1428.55	2100.48	0.13
LAT 4A	LAT 4A	2700	Exist 100yr	714.70	4.83	13.06		13.08	0.000168	1.46	1485.77	1953.80	0.12
LAT 4A	LAT 4A	2700	Prop 100yr	714.70	4.83	13.06		13.08	0.000168	1.46	1484.82	1952.80	0.12
LAT 4A	LAT 4A	3000	Exist 100yr	714.70	5.44	13.11		13.12	0.000139	1.55	1617.97	2127.91	0.11
LAT 4A	LAT 4A	3000	Prop 100yr	714.70	5.44	13.11		13.12	0.000139	1.55	1617.05	2127.18	0.11
LAT 4A	LAT 4A	3300	Exist 100yr	714.70	6.17	13.15		13.16	0.000081	1.10	2032.45	1938.85	0.09
LAT 4A	LAT 4A	3300	Prop 100yr	714.70	6.17	13.15		13.16	0.000081	1.10	2031.70	1938.64	0.09
LAT 4A	LAT 4A	3600	Exist 100yr	714.70	6.58	13.18		13.18	0.000100	1.13	2160.43	2541.71	0.09
LAT 4A	LAT 4A	3600	Prop 100yr	714.70	6.58	13.18		13.18	0.000100	1.14	2159.51	2541.10	0.09
LAT 4A	LAT 4A	3900	Exist 100yr	714.70	6.84	13.21		13.22	0.000125	1.23	2017.35	2516.43	0.11
LAT 4A	LAT 4A	3900	Prop 100yr	714.70	6.84	13.21		13.22	0.000125	1.23	2016.51	2515.83	0.11
LAT 4A	LAT 4A	4200	Exist 100yr	714.70	7.13	13.23		13.23	0.000030	0.59	4084.18	4306.76	0.05
LAT 4A	LAT 4A	4200	Prop 100yr	714.70	7.13	13.23		13.23	0.000030	0.59	4082.83	4306.11	0.05
LAT 4A	LAT 4A	4500	Exist 100yr	714.70	7.42	13.24		13.26	0.000185	1.45	1499.24	1688.30	0.13
LAT 4A	LAT 4A	4500	Prop 100yr	714.70	7.42	13.24		13.26	0.000185	1.45	1498.73	1688.09	0.13
LAT 4A	LAT 4A	4800	Exist 100yr	714.70	7.64	13.31		13.33	0.000290	1.79	1065.72	1140.56	0.16
LAT 4A	LAT 4A	4800	Prop 100yr	714.70	7.64	13.31		13.33	0.000290	1.79	1065.42	1140.39	0.16
LAT 4A	LAT 4A	5100	Exist 100yr	714.70	7.88	13.40		13.45	0.000530	2.38	770.87	902.76	0.21
LAT 4A	LAT 4A	5100	Prop 100yr	714.70	7.88	13.40		13.45	0.000530	2.38	770.69	902.63	0.21
LAT 4A	LAT 4A	5400	Exist 100yr	714.70	7.95	13.56		13.61	0.000539	2.42	742.21	847.09	0.21
LAT 4A	LAT 4A	5400	Prop 100yr	714.70	7.95	13.56		13.61	0.000539	2.42	742.09	847.01	0.21
LAT 4B	Alignment - LAT	500	Exist 100yr	209.90	-2.87	7.49		7.49	0.000001	0.14	3663.00	1297.20	0.01
LAT 4B	Alignment - LAT	500	Prop 100yr	209.90	-2.87	6.61		6.61	0.000002	0.20	2619.68	1085.36	0.01
LAT 4B	Alignment - LAT	550.*	Exist 100yr	209.90	-2.84	7.49		7.49	0.000001	0.14	3709.07	1327.73	0.01
LAT 4B	Alignment - LAT	550.*	Prop 100yr	209.90	-2.84	6.61		6.61	0.000002	0.20	2643.39	1106.57	0.01
LAT 4B	Alignment - LAT	600.*	Exist 100yr	209.90	-2.80	7.49		7.49	0.000001	0.14	3747.23	1356.15	0.01
LAT 4B	Alignment - LAT	600.*	Prop 100yr	209.90	-2.80	6.61		6.61	0.000002	0.20	2661.48	1124.09	0.01
LAT 4B	Alignment - LAT	650.*	Exist 100yr	209.90	-2.77	7.49		7.49	0.000001	0.14	3779.19	1378.83	0.01
LAT 4B	Alignment - LAT	650.*	Prop 100yr	209.90	-2.77	6.61		6.61	0.000002	0.20	2678.22	1140.31	0.01
LAT 4B	Alignment - LAT	700.*	Exist 100yr	209.90	-2.74	7.49		7.49	0.000001	0.14	3808.18	1397.20	0.01
LAT 4B	Alignment - LAT	700.*	Prop 100yr	209.90	-2.74	6.61		6.61	0.000002	0.20	2693.50	1157.64	0.01
LAT 4B	Alignment - LAT	750.*	Exist 100yr	209.90	-2.70	7.49		7.49	0.000001	0.14	3837.13	1411.38	0.01
LAT 4B	Alignment - LAT	750.*	Prop 100yr	209.90	-2.70	6.61		6.61	0.000002	0.20	2708.88	1174.57	0.01
LAT 4B	Alignment - LAT	800.*	Exist 100yr	209.90	-2.67	7.49		7.49	0.000001	0.14	3859.73	1419.35	0.01
LAT 4B	Alignment - LAT	800.*	Prop 100yr	209.90	-2.67	6.61		6.61	0.000002	0.20	2718.88	1188.82	0.01
LAT 4B	Alignment - LAT	850.*	Exist 100yr	209.90	-2.64	7.49		7.49	0.000001	0.14	3886.07	1435.72	0.01
LAT 4B	Alignment - LAT	850.*	Prop 100yr	209.90	-2.64	6.61		6.61	0.000002	0.20	2730.31	1204.12	0.01

HEC-RAS Plan: Plan 05 (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
LAT 4B	Alignment - LAT	900.*	Exist 100yr	209.90	-2.61	7.49		7.49	0.000001	0.14	3909.54	1452.93	0.01
LAT 4B	Alignment - LAT	900.*	Prop 100yr	209.90	-2.61	6.61		6.61	0.000002	0.20	2740.29	1218.48	0.01
LAT 4B	Alignment - LAT	916		Culvert									
LAT 4B	Alignment - LAT	1000	Exist 100yr	209.90	-2.54	8.22	0.29	8.22	0.000000	0.10	5124.07	1687.45	0.01
LAT 4B	Alignment - LAT	1000	Prop 100yr	209.90	-2.54	7.35	0.29	7.35	0.000001	0.15	3751.12	1448.15	0.01
LAT 4B	Alignment - LAT	1500	Exist 100yr	209.90	-1.69	8.23		8.23	0.000001	0.13	4219.46	1705.07	0.01
LAT 4B	Alignment - LAT	1500	Prop 100yr	209.90	-1.69	7.35		7.35	0.000002	0.20	2876.91	1363.14	0.01
LAT 4B	Alignment - LAT	2000	Exist 100yr	209.90	-0.18	8.23		8.23	0.000003	0.22	2802.84	1750.53	0.02
LAT 4B	Alignment - LAT	2000	Prop 100yr	209.90	-0.18	7.35		7.35	0.000013	0.42	1489.89	1256.34	0.03
LAT 4B	Alignment - LAT	2500	Exist 100yr	209.90	0.65	8.23		8.23	0.000011	0.37	1681.47	1430.52	0.03
LAT 4B	Alignment - LAT	2500	Prop 100yr	209.90	0.65	7.36		7.37	0.000077	0.85	701.53	831.94	0.08
LAT 4M	Alignment - LAT	400	Exist 100yr	808.00	-3.90	6.79		6.79	0.000004	0.35	5838.13	1995.09	0.02
LAT 4M	Alignment - LAT	400	Prop 100yr	808.00	-3.90	6.26		6.26	0.000007	0.43	4836.00	1805.00	0.03
LAT 4M	Alignment - LAT	800	Exist 100yr	808.00	-2.45	6.79		6.79	0.000002	0.24	7272.90	1992.48	0.02
LAT 4M	Alignment - LAT	800	Prop 100yr	808.00	-2.45	6.26		6.26	0.000003	0.29	6251.19	1888.32	0.02
LAT 4M	Alignment - LAT	1200	Exist 100yr	808.00	-2.33	6.79		6.79	0.000007	0.43	4584.66	1636.37	0.03
LAT 4M	Alignment - LAT	1200	Prop 100yr	808.00	-2.33	6.27		6.27	0.000012	0.53	3766.90	1473.11	0.04
LAT 4M	Alignment - LAT	1600	Exist 100yr	808.00	-2.29	6.79		6.80	0.000022	0.73	3142.88	1638.32	0.05
LAT 4M	Alignment - LAT	1600	Prop 100yr	808.00	-2.29	6.27		6.28	0.000044	0.97	2344.94	1406.22	0.07
LAT 4M	Alignment - LAT	1650.*	Exist 100yr	808.00	-2.31	6.80		6.80	0.000025	0.77	3081.08	1722.30	0.05
LAT 4M	Alignment - LAT	1650.*	Prop 100yr	808.00	-2.31	6.27		6.28	0.000052	1.05	2243.98	1475.43	0.07
LAT 4M	Alignment - LAT	1700.*	Exist 100yr	808.00	-2.33	6.80		6.80	0.000032	0.85	2890.35	1772.40	0.06
LAT 4M	Alignment - LAT	1700.*	Prop 100yr	808.00	-2.33	6.27		6.28	0.000067	1.17	2042.13	1470.24	0.08
LAT 4M	Alignment - LAT	1711		Culvert									
LAT 4M	Alignment - LAT	1750.*	Exist 100yr	808.00	-2.34	6.80	2.03	6.81	0.000039	0.93	2651.38	1722.94	0.06
LAT 4M	Alignment - LAT	1750.*	Prop 100yr	808.00	-2.34	6.54	2.03	6.55	0.000058	1.10	2219.80	1578.32	0.08
LAT 4M	Alignment - LAT	1800.*	Exist 100yr	808.00	-2.36	6.80		6.81	0.000051	1.04	2406.78	1716.19	0.07
LAT 4M	Alignment - LAT	1800.*	Prop 100yr	808.00	-2.36	6.54		6.55	0.000077	1.25	1978.99	1557.38	0.09
LAT 4M	Alignment - LAT	1850.*	Exist 100yr	808.00	-2.38	6.80		6.81	0.000067	1.18	2167.40	1707.67	0.08
LAT 4M	Alignment - LAT	1850.*	Prop 100yr	808.00	-2.38	6.54		6.56	0.000104	1.44	1744.16	1532.70	0.10
LAT 4M	Alignment - LAT	1900.*	Exist 100yr	808.00	-2.39	6.81		6.82	0.000089	1.34	1934.07	1696.19	0.09
LAT 4M	Alignment - LAT	1900.*	Prop 100yr	808.00	-2.39	6.54		6.57	0.000143	1.65	1516.36	1501.65	0.12
LAT 4M	Alignment - LAT	1950.*	Exist 100yr	808.00	-2.41	6.81		6.82	0.000118	1.52	1715.76	1686.50	0.10
LAT 4M	Alignment - LAT	1950.*	Prop 100yr	808.00	-2.41	6.55		6.58	0.000196	1.90	1303.73	1466.09	0.13
LAT 4M	Alignment - LAT	2000	Exist 100yr	808.00	-2.43	6.81		6.83	0.000156	1.71	1524.50	1692.68	0.12
LAT 4M	Alignment - LAT	2000	Prop 100yr	808.00	-2.43	6.55		6.59	0.000266	2.17	1114.92	1438.53	0.15
LAT 4M	Alignment - LAT	2050.*	Exist 100yr	808.00	-2.43	6.81		6.85	0.000210	1.95	1304.52	1623.81	0.14
LAT 4M	Alignment - LAT	2050.*	Prop 100yr	808.00	-2.43	6.55		6.62	0.000358	2.48	918.05	1331.56	0.18
LAT 4M	Alignment - LAT	2100.*	Exist 100yr	808.00	-2.43	6.82		6.86	0.000276	2.19	1116.96	1522.47	0.16
LAT 4M	Alignment - LAT	2100.*	Prop 100yr	808.00	-2.43	6.55		6.64	0.000472	2.79	757.36	1228.16	0.20
LAT 4M	Alignment - LAT	2150.*	Exist 100yr	808.00	-2.43	6.82		6.88	0.000363	2.47	954.84	1497.55	0.18
LAT 4M	Alignment - LAT	2150.*	Prop 100yr	808.00	-2.43	6.56		6.68	0.000610	3.13	609.02	1145.73	0.23
LAT 4M	Alignment - LAT	2200.*	Exist 100yr	808.00	-2.43	6.82		6.91	0.000480	2.80	785.73	1443.32	0.20
LAT 4M	Alignment - LAT	2200.*	Prop 100yr	808.00	-2.43	6.56		6.73	0.000769	3.48	467.78	1018.52	0.26
LAT 4M	Alignment - LAT	2212		Culvert									
LAT 4M	Alignment - LAT	2300.*	Exist 100yr	808.00	-2.44	7.62	2.81	7.64	0.000112	1.41	1858.52	1842.65	0.10
LAT 4M	Alignment - LAT	2300.*	Prop 100yr	808.00	-2.44	7.41	2.81	7.43	0.000192	1.81	1460.86	1842.29	0.13
LAT 4M	Alignment - LAT	2350.*	Exist 100yr	808.00	-2.44	7.63		7.64	0.000142	1.57	1686.46	1854.28	0.11
LAT 4M	Alignment - LAT	2350.*	Prop 100yr	808.00	-2.44	7.41		7.45	0.000251	2.04	1288.24	1853.96	0.15
LAT 4M	Alignment - LAT	2400	Exist 100yr	808.00	-2.44	7.63		7.65	0.000182	1.74	1519.87	1865.98	0.12
LAT 4M	Alignment - LAT	2400	Prop 100yr	808.00	-2.44	7.42		7.47	0.000329	2.30	1120.73	1865.70	0.17
LAT 4M	Alignment - LAT	2800	Exist 100yr	808.00	-0.39	7.65		7.84	0.000810	3.53	296.71	301.72	0.26
LAT 4M	Alignment - LAT	2800	Prop 100yr	808.00	-0.39	7.51		7.72	0.000906	3.69	259.48	239.45	0.28
LAT 4M	Alignment - LAT	3200	Exist 100yr	808.00	0.68	8.00		8.18	0.000866	3.46	347.12	417.84	0.27
LAT 4M	Alignment - LAT	3200	Prop 100yr	808.00	0.68	7.91		8.10	0.000965	3.60	309.58	355.84	0.29
LAT 4M	Alignment - LAT	3600	Exist 100yr	808.00	1.04	8.34		8.54	0.000915	3.73	366.12	574.77	0.28
LAT 4M	Alignment - LAT	3600	Prop 100yr	808.00	1.04	8.28		8.49	0.000988	3.85	332.68	517.20	0.29
LAT 4M	Alignment - LAT	4000	Exist 100yr	808.00	1.09	8.73		8.82	0.000527	2.79	705.89	1059.93	0.21
LAT 4M	Alignment - LAT	4000	Prop 100yr	808.00	1.09	8.70		8.80	0.000560	2.86	673.03	1026.67	0.22

HEC-RAS Plan: Plan 05 (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
LAT 4M	Alignment - LAT	4400	Exist 100yr	808.00	1.12	8.94		9.00	0.000383	2.49	944.70	1464.71	0.19
LAT 4M	Alignment - LAT	4400	Prop 100yr	808.00	1.12	8.92		8.99	0.000398	2.54	917.15	1433.62	0.19
LAT 4M	Alignment - LAT	4800	Exist 100yr	808.00	1.18	9.10		9.14	0.000302	2.17	1055.08	1337.45	0.16
LAT 4M	Alignment - LAT	4800	Prop 100yr	808.00	1.18	9.08		9.13	0.000310	2.19	1038.20	1324.52	0.17
LAT 4M	Alignment - LAT	5200	Exist 100yr	808.00	1.68	9.20		9.36	0.000830	3.55	498.45	820.77	0.27
LAT 4M	Alignment - LAT	5200	Prop 100yr	808.00	1.68	9.19		9.36	0.000844	3.57	490.55	811.31	0.27
LAT 4M	Alignment - LAT	5250.*	Exist 100yr	808.00	1.57	9.19	6.08	9.44	0.001206	4.18	296.44	521.38	0.32
LAT 4M	Alignment - LAT	5250.*	Prop 100yr	808.00	1.57	9.18	6.08	9.44	0.001219	4.20	291.91	511.15	0.32
LAT 4M	Alignment - LAT	5300.*	Exist 100yr	808.00	1.46	9.22	6.14	9.52	0.001423	4.46	201.16	227.50	0.35
LAT 4M	Alignment - LAT	5300.*	Prop 100yr	808.00	1.46	9.21		9.52	0.001431	4.47	199.54	219.21	0.35
LAT 4M	Alignment - LAT	5350.*	Exist 100yr	808.00	1.35	9.28		9.60	0.001496	4.53	179.59	38.11	0.36
LAT 4M	Alignment - LAT	5350.*	Prop 100yr	808.00	1.35	9.28		9.60	0.001501	4.53	179.34	38.06	0.36
LAT 4M	Alignment - LAT	5400.*	Exist 100yr	808.00	1.25	9.36		9.68	0.001507	4.55	178.27	36.64	0.36
LAT 4M	Alignment - LAT	5400.*	Prop 100yr	808.00	1.25	9.35		9.67	0.001512	4.55	178.04	36.60	0.36
LAT 4M	Alignment - LAT	5450.*	Exist 100yr	808.00	1.14	9.43		9.75	0.001487	4.56	177.60	35.36	0.35
LAT 4M	Alignment - LAT	5450.*	Prop 100yr	808.00	1.14	9.42		9.75	0.001493	4.57	177.39	35.34	0.35
LAT 4M	Alignment - LAT	5453		Bridge									
LAT 4M	Alignment - LAT	5500.*	Exist 100yr	808.00	1.03	9.69	6.18	9.99	0.001339	4.41	183.84	35.25	0.33
LAT 4M	Alignment - LAT	5500.*	Prop 100yr	808.00	1.03	9.68	6.17	9.98	0.001344	4.41	183.62	35.23	0.34
LAT 4M	Alignment - LAT	5550.*	Exist 100yr	808.00	0.92	9.75		10.05	0.001334	4.40	183.82	34.58	0.33
LAT 4M	Alignment - LAT	5550.*	Prop 100yr	808.00	0.92	9.75		10.05	0.001338	4.41	183.62	34.56	0.33
LAT 4M	Alignment - LAT	5600	Exist 100yr	808.00	0.81	9.82		10.12	0.001322	4.39	184.21	33.96	0.33
LAT 4M	Alignment - LAT	5600	Prop 100yr	808.00	0.81	9.82		10.12	0.001326	4.39	184.02	33.94	0.33
LAT 4M	Alignment - LAT	6000	Exist 100yr	808.00	1.41	10.38		10.70	0.001559	4.51	191.26	181.88	0.36
LAT 4M	Alignment - LAT	6000	Prop 100yr	808.00	1.41	10.38		10.69	0.001564	4.51	190.43	177.99	0.36
LAT 4M	Alignment - LAT	6050.*	Exist 100yr	808.00	1.52	10.46	7.08	10.78	0.001542	4.50	191.96	212.05	0.35
LAT 4M	Alignment - LAT	6050.*	Prop 100yr	808.00	1.52	10.46	7.08	10.77	0.001546	4.50	191.06	207.42	0.36
LAT 4M	Alignment - LAT	6100.*	Exist 100yr	808.00	1.63	10.54	7.19	10.85	0.001522	4.49	194.53	271.70	0.35
LAT 4M	Alignment - LAT	6100.*	Prop 100yr	808.00	1.63	10.54	7.20	10.85	0.001526	4.49	193.42	266.06	0.35
LAT 4M	Alignment - LAT	6150.*	Exist 100yr	808.00	1.75	10.62	7.29	10.93	0.001498	4.47	200.91	379.19	0.35
LAT 4M	Alignment - LAT	6150.*	Prop 100yr	808.00	1.75	10.62	7.29	10.93	0.001503	4.47	199.43	370.74	0.35
LAT 4M	Alignment - LAT	6200.*	Exist 100yr	808.00	1.86	10.71	7.39	11.01	0.001452	4.42	220.45	476.69	0.35
LAT 4M	Alignment - LAT	6200.*	Prop 100yr	808.00	1.86	10.70	7.39	11.00	0.001458	4.42	218.53	472.14	0.35
LAT 4M	Alignment - LAT	6250.*	Exist 100yr	808.00	1.97	10.79	7.44	11.08	0.001391	4.34	248.43	594.39	0.34
LAT 4M	Alignment - LAT	6250.*	Prop 100yr	808.00	1.97	10.79	7.44	11.08	0.001397	4.35	246.02	590.32	0.34
LAT 4M	Alignment - LAT	6300.*	Exist 100yr	808.00	2.09	10.89	7.55	11.15	0.001297	4.22	293.25	707.69	0.33
LAT 4M	Alignment - LAT	6300.*	Prop 100yr	808.00	2.09	10.89	7.55	11.15	0.001304	4.23	290.44	700.71	0.33
LAT 4N	Alignment - LAT	6350.*	Exist 100yr	119.90	2.20	11.19		11.20	0.000018	0.51	543.74	1003.94	0.04
LAT 4N	Alignment - LAT	6350.*	Prop 100yr	119.90	2.20	11.19		11.19	0.000018	0.51	541.48	1002.10	0.04
LAT 4N	Alignment - LAT	6385		Culvert									
LAT 4N	Alignment - LAT	6500.*	Exist 100yr	119.90	2.58	11.23	4.87	11.23	0.000026	0.60	328.85	689.87	0.05
LAT 4N	Alignment - LAT	6500.*	Prop 100yr	119.90	2.58	11.23	4.87	11.23	0.000026	0.60	327.30	684.08	0.05
LAT 4N	Alignment - LAT	6550.*	Exist 100yr	119.90	2.71	11.23		11.24	0.000028	0.61	301.38	563.14	0.05
LAT 4N	Alignment - LAT	6550.*	Prop 100yr	119.90	2.71	11.23		11.23	0.000028	0.61	300.12	560.89	0.05
LAT 4N	Alignment - LAT	6600.*	Exist 100yr	119.90	2.85	11.23		11.24	0.000029	0.63	285.72	518.79	0.05
LAT 4N	Alignment - LAT	6600.*	Prop 100yr	119.90	2.85	11.23		11.24	0.000029	0.63	284.56	516.76	0.05
LAT 4N	Alignment - LAT	6650.*	Exist 100yr	119.90	2.98	11.23		11.24	0.000031	0.64	274.54	524.07	0.05
LAT 4N	Alignment - LAT	6650.*	Prop 100yr	119.90	2.98	11.23		11.24	0.000031	0.64	273.37	520.69	0.05
LAT 4N	Alignment - LAT	6700.*	Exist 100yr	119.90	3.11	11.23		11.24	0.000032	0.66	270.94	581.64	0.05
LAT 4N	Alignment - LAT	6700.*	Prop 100yr	119.90	3.11	11.23		11.24	0.000033	0.66	269.64	578.14	0.05
LAT 4N	Alignment - LAT	6750.*	Exist 100yr	119.90	3.25	11.24		11.24	0.000034	0.67	277.17	646.17	0.05
LAT 4N	Alignment - LAT	6750.*	Prop 100yr	119.90	3.25	11.23		11.24	0.000034	0.67	275.73	642.67	0.05
LAT 4N	Alignment - LAT	6800	Exist 100yr	119.90	3.38	11.24		11.24	0.000035	0.68	292.43	702.02	0.05
LAT 4N	Alignment - LAT	6800	Prop 100yr	119.90	3.38	11.24		11.24	0.000035	0.68	290.87	700.33	0.05
LAT 4N	Alignment - LAT	7200	Exist 100yr	119.90	3.71	11.25		11.26	0.000049	0.75	193.94	235.22	0.06
LAT 4N	Alignment - LAT	7200	Prop 100yr	119.90	3.71	11.25		11.26	0.000049	0.75	193.43	234.05	0.06
LAT 4N	Alignment - LAT	7600	Exist 100yr	119.90	4.07	11.27		11.28	0.000059	0.81	175.12	218.80	0.07
LAT 4N	Alignment - LAT	7600	Prop 100yr	119.90	4.07	11.27		11.28	0.000060	0.81	174.66	217.57	0.07
LAT 4N	Alignment - LAT	8000	Exist 100yr	119.90	5.18	11.30		11.32	0.000129	1.08	111.57	48.41	0.10
LAT 4N	Alignment - LAT	8000	Prop 100yr	119.90	5.18	11.30		11.32	0.000129	1.08	111.47	47.21	0.10



HEC-RAS Plan: Plan 05 (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
LAT 4N	Alignment - LAT	8400	Exist 100yr	467.10	5.54	11.43	9.49	11.74	0.002317	4.45	105.62	57.37	0.42
LAT 4N	Alignment - LAT	8400	Prop 100yr	467.10	5.54	11.43	9.49	11.74	0.002321	4.45	105.53	56.30	0.42
LAT 4N	Alignment - LAT	8800	Exist 100yr	467.10	6.04	12.25	9.94	12.40	0.001179	3.38	274.23	492.96	0.30
LAT 4N	Alignment - LAT	8800	Prop 100yr	467.10	6.04	12.25	9.94	12.40	0.001180	3.38	273.89	492.48	0.30
LAT 4N	Alignment - LAT	9200	Exist 100yr	467.10	6.57	12.71		12.79	0.000813	2.81	421.08	861.11	0.25
LAT 4N	Alignment - LAT	9200	Prop 100yr	467.10	6.57	12.71		12.79	0.000813	2.81	420.95	860.92	0.25
LAT 4N	Alignment - LAT	9600	Exist 100yr	467.10	6.81	12.98		13.01	0.000378	2.02	716.98	1174.12	0.18
LAT 4N	Alignment - LAT	9600	Prop 100yr	467.10	6.81	12.98		13.01	0.000378	2.02	716.91	1174.05	0.18
LAT 4N	Alignment - LAT	9650.*	Exist 100yr	467.10	6.97	13.00		13.03	0.000376	1.99	739.61	1206.59	0.17
LAT 4N	Alignment - LAT	9650.*	Prop 100yr	467.10	6.97	13.00		13.03	0.000376	1.99	739.54	1206.53	0.17
LAT 4N	Alignment - LAT	9700.*	Exist 100yr	467.10	7.13	13.02		13.05	0.000375	1.96	760.04	1234.99	0.17
LAT 4N	Alignment - LAT	9700.*	Prop 100yr	467.10	7.13	13.02		13.05	0.000375	1.96	759.98	1234.94	0.17
LAT 4N	Alignment - LAT	9750.*	Exist 100yr	467.10	7.29	13.04		13.07	0.000372	1.92	783.49	1263.97	0.17
LAT 4N	Alignment - LAT	9750.*	Prop 100yr	467.10	7.29	13.04		13.07	0.000372	1.92	783.43	1263.92	0.17
LAT 4N	Alignment - LAT	9800.*	Exist 100yr	467.10	7.45	13.07		13.09	0.000366	1.87	807.88	1292.56	0.17
LAT 4N	Alignment - LAT	9800.*	Prop 100yr	467.10	7.45	13.07		13.09	0.000366	1.87	807.82	1292.52	0.17
LAT 4N	Alignment - LAT	9850.*	Exist 100yr	467.10	7.62	13.09		13.11	0.000362	1.83	830.04	1317.19	0.17
LAT 4N	Alignment - LAT	9850.*	Prop 100yr	467.10	7.62	13.09		13.11	0.000362	1.83	829.98	1317.15	0.17
LAT 4N	Alignment - LAT	9900.*	Exist 100yr	467.10	7.78	13.11		13.12	0.000355	1.78	854.99	1346.00	0.17
LAT 4N	Alignment - LAT	9900.*	Prop 100yr	467.10	7.78	13.11		13.12	0.000355	1.78	854.94	1345.96	0.17
LAT 4N	Alignment - LAT	9950.*	Exist 100yr	467.10	7.94	13.13		13.14	0.000350	1.74	877.11	1368.75	0.17
LAT 4N	Alignment - LAT	9950.*	Prop 100yr	467.10	7.94	13.13		13.14	0.000350	1.74	877.06	1368.71	0.17
LAT 4N	Alignment - LAT	9958		Culvert									
LAT 4N	Alignment - LAT	10000	Exist 100yr	467.10	8.10	13.13	11.87	13.15	0.000359	1.72	883.67	1381.12	0.17
LAT 4N	Alignment - LAT	10000	Prop 100yr	467.10	8.10	13.13	11.87	13.15	0.000359	1.72	883.33	1380.88	0.17
LAT 4N	Alignment - LAT	10400	Exist 100yr	467.10	8.91	13.32		13.35	0.000677	2.20	727.52	1452.64	0.23
LAT 4N	Alignment - LAT	10400	Prop 100yr	467.10	8.91	13.32		13.35	0.000677	2.20	727.36	1452.46	0.23
LAT 4N	Alignment - LAT	10450.*	Exist 100yr	467.10	8.98	13.35		13.38	0.000688	2.24	684.60	1266.79	0.23
LAT 4N	Alignment - LAT	10450.*	Prop 100yr	467.10	8.98	13.35		13.38	0.000688	2.24	684.47	1266.65	0.23
LAT 4N	Alignment - LAT	10500.*	Exist 100yr	467.10	9.05	13.38		13.41	0.000656	2.22	665.08	1119.62	0.22
LAT 4N	Alignment - LAT	10500.*	Prop 100yr	467.10	9.05	13.38		13.41	0.000657	2.22	664.99	1119.51	0.22
LAT 4N	Alignment - LAT	10550.*	Exist 100yr	467.10	9.12	13.42		13.45	0.000636	2.20	644.62	996.65	0.22
LAT 4N	Alignment - LAT	10550.*	Prop 100yr	467.10	9.12	13.42		13.45	0.000636	2.20	644.55	996.56	0.22
LAT 4N	Alignment - LAT	10591		Culvert									
LAT 4N	Alignment - LAT	10650.*	Exist 100yr	467.10	9.25	13.42	12.90	13.45	0.000582	2.12	628.33	850.54	0.21
LAT 4N	Alignment - LAT	10650.*	Prop 100yr	467.10	9.25	13.42	12.90	13.45	0.000582	2.12	628.29	850.52	0.21
LAT 4N	Alignment - LAT	10800	Exist 100yr	467.10	9.46	13.51		13.53	0.000514	2.03	703.63	1051.06	0.20
LAT 4N	Alignment - LAT	10800	Prop 100yr	467.10	9.46	13.51		13.53	0.000514	2.03	703.60	1051.02	0.20
LAT 4S	Alignment - LAT	500	Exist 100yr	1123.20	-6.17	2.04		2.39	0.001496	4.79	234.30	41.98	0.36
LAT 4S	Alignment - LAT	500	Prop 100yr	1123.20	-6.17	1.64		2.05	0.001854	5.16	217.82	41.38	0.40
LAT 4S	Alignment - LAT	1000	Exist 100yr	1123.20	-5.56	2.76		3.26	0.001826	5.68	200.29	34.66	0.40
LAT 4S	Alignment - LAT	1000	Prop 100yr	1123.20	-5.56	2.53		3.07	0.002074	5.90	192.39	34.36	0.43
LAT 4S	Alignment - LAT	1500	Exist 100yr	1123.20	-5.14	3.68		3.87	0.000799	3.96	673.84	904.28	0.27
LAT 4S	Alignment - LAT	1500	Prop 100yr	1123.20	-5.14	3.55		3.79	0.000968	4.30	561.82	785.23	0.30
LAT 4S	Alignment - LAT	2000	Exist 100yr	1123.20	-4.57	4.07		4.12	0.000319	2.41	1207.15	985.50	0.17
LAT 4S	Alignment - LAT	2000	Prop 100yr	1123.20	-4.57	4.02		4.07	0.000347	2.50	1155.28	964.63	0.18
LAT 4S	Alignment - LAT	2500	Exist 100yr	1123.20	-4.09	4.24		4.29	0.000363	2.50	1241.76	1235.63	0.18
LAT 4S	Alignment - LAT	2500	Prop 100yr	1123.20	-4.09	4.20		4.26	0.000386	2.56	1193.63	1190.40	0.19
LAT 4S	Alignment - LAT	3000	Exist 100yr	1123.20	-3.85	4.39		4.40	0.000138	1.59	2151.04	1702.08	0.12
LAT 4S	Alignment - LAT	3000	Prop 100yr	1123.20	-3.85	4.36		4.38	0.000147	1.63	2100.15	1694.95	0.12
LAT 4S	Alignment - LAT	3500	Exist 100yr	847.10	-3.71	4.45		4.45	0.000062	1.04	2000.65	1136.36	0.08
LAT 4S	Alignment - LAT	3500	Prop 100yr	847.10	-3.71	4.42		4.43	0.000064	1.06	1970.39	1130.08	0.08
LAT 4S	Alignment - LAT	3550.*	Exist 100yr	847.10	-3.67	4.45		4.46	0.000052	0.95	2294.61	1336.11	0.07
LAT 4S	Alignment - LAT	3550.*	Prop 100yr	847.10	-3.67	4.42		4.43	0.000054	0.97	2259.24	1329.83	0.07
LAT 4S	Alignment - LAT	3600.*	Exist 100yr	847.10	-3.63	4.45		4.46	0.000046	0.90	2534.31	1534.54	0.07
LAT 4S	Alignment - LAT	3600.*	Prop 100yr	847.10	-3.63	4.43		4.43	0.000048	0.92	2493.86	1528.30	0.07
LAT 4S	Alignment - LAT	3650.*	Exist 100yr	847.10	-3.59	4.46		4.46	0.000044	0.87	2721.13	1735.28	0.06
LAT 4S	Alignment - LAT	3650.*	Prop 100yr	847.10	-3.59	4.43		4.43	0.000046	0.89	2675.57	1728.99	0.07
LAT 4S	Alignment - LAT	3700.*	Exist 100yr	847.10	-3.55	4.46		4.46	0.000044	0.87	2857.92	1934.00	0.06

HEC-RAS Plan: Plan 05 (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
LAT 4S	Alignment - LAT	3700.*	Prop 100yr	847.10	-3.55	4.43		4.44	0.000046	0.89	2807.32	1927.66	0.07
LAT 4S	Alignment - LAT	3750.*	Exist 100yr	847.10	-3.51	4.46		4.46	0.000045	0.89	2937.12	2134.88	0.07
LAT 4S	Alignment - LAT	3750.*	Prop 100yr	847.10	-3.51	4.44		4.44	0.000048	0.91	2881.46	2128.57	0.07
LAT 4S	Alignment - LAT	3800.*	Exist 100yr	847.10	-3.47	4.46		4.47	0.000045	0.88	2987.20	2189.73	0.07
LAT 4S	Alignment - LAT	3800.*	Prop 100yr	847.10	-3.47	4.44		4.44	0.000047	0.89	2930.63	2169.27	0.07
LAT 4S	Alignment - LAT	3850.*	Exist 100yr	847.10	-3.43	4.47		4.47	0.000044	0.87	3036.70	2224.22	0.06
LAT 4S	Alignment - LAT	3850.*	Prop 100yr	847.10	-3.43	4.44		4.44	0.000046	0.88	2979.48	2203.79	0.07
LAT 4S	Alignment - LAT	3888		Culvert									
LAT 4S	Alignment - LAT	3950.*	Exist 100yr	847.10	-3.35	4.96	1.31	4.96	0.000019	0.59	4340.14	2672.87	0.04
LAT 4S	Alignment - LAT	3950.*	Prop 100yr	847.10	-3.35	4.93	1.31	4.93	0.000019	0.60	4279.89	2655.08	0.04
LAT 4S	Alignment - LAT	4000	Exist 100yr	847.10	-3.31	4.96		4.96	0.000018	0.59	4401.92	2707.62	0.04
LAT 4S	Alignment - LAT	4000	Prop 100yr	847.10	-3.31	4.93		4.94	0.000019	0.60	4340.98	2689.85	0.04
LAT 4S	Alignment - LAT	4500	Exist 100yr	847.10	-3.13	4.97		4.97	0.000022	0.61	4180.74	2752.18	0.05
LAT 4S	Alignment - LAT	4500	Prop 100yr	847.10	-3.13	4.94		4.95	0.000022	0.62	4119.69	2746.44	0.05
LAT 4S	Alignment - LAT	5000	Exist 100yr	847.10	-2.92	4.98		4.98	0.000028	0.69	3780.31	2590.41	0.05
LAT 4S	Alignment - LAT	5000	Prop 100yr	847.10	-2.92	4.96		4.96	0.000029	0.70	3724.22	2575.26	0.05
LAT 4S	Alignment - LAT	5050.*	Exist 100yr	847.10	-2.90	4.98		4.98	0.000030	0.71	3693.97	2573.27	0.05
LAT 4S	Alignment - LAT	5050.*	Prop 100yr	847.10	-2.90	4.96		4.96	0.000031	0.72	3638.39	2558.14	0.05
LAT 4S	Alignment - LAT	5100.*	Exist 100yr	847.10	-2.87	4.98		4.98	0.000032	0.73	3608.96	2554.72	0.05
LAT 4S	Alignment - LAT	5100.*	Prop 100yr	847.10	-2.87	4.96		4.96	0.000033	0.74	3553.93	2539.68	0.06
LAT 4S	Alignment - LAT	5150.*	Exist 100yr	847.10	-2.85	4.98		4.98	0.000034	0.75	3531.67	2532.72	0.06
LAT 4S	Alignment - LAT	5150.*	Prop 100yr	847.10	-2.85	4.96		4.96	0.000035	0.76	3477.30	2515.05	0.06
LAT 4S	Alignment - LAT	5200.*	Exist 100yr	847.10	-2.83	4.98		4.99	0.000036	0.76	3457.39	2494.41	0.06
LAT 4S	Alignment - LAT	5200.*	Prop 100yr	847.10	-2.83	4.96		4.97	0.000037	0.77	3403.99	2477.80	0.06
LAT 4S	Alignment - LAT	5250.*	Exist 100yr	847.10	-2.81	4.99		4.99	0.000037	0.77	3394.07	2459.73	0.06
LAT 4S	Alignment - LAT	5250.*	Prop 100yr	847.10	-2.81	4.96		4.97	0.000039	0.79	3341.59	2443.85	0.06
LAT 4S	Alignment - LAT	5261		Culvert									
LAT 4S	Alignment - LAT	5350.*	Exist 100yr	847.10	-2.76	5.54	2.94	5.54	0.000016	0.54	4710.59	2818.09	0.04
LAT 4S	Alignment - LAT	5350.*	Prop 100yr	847.10	-2.76	5.52	2.94	5.52	0.000016	0.54	4650.37	2801.52	0.04
LAT 4S	Alignment - LAT	5400.*	Exist 100yr	847.10	-2.74	5.54		5.54	0.000017	0.54	4642.20	2793.88	0.04
LAT 4S	Alignment - LAT	5400.*	Prop 100yr	847.10	-2.74	5.52		5.52	0.000017	0.55	4582.56	2778.07	0.04
LAT 4S	Alignment - LAT	5450.*	Exist 100yr	847.10	-2.71	5.54		5.54	0.000017	0.55	4581.62	2776.66	0.04
LAT 4S	Alignment - LAT	5450.*	Prop 100yr	847.10	-2.71	5.52		5.52	0.000018	0.56	4522.41	2762.65	0.04
LAT 4S	Alignment - LAT	5500	Exist 100yr	847.10	-2.69	5.54		5.54	0.000018	0.56	4521.50	2761.28	0.04
LAT 4S	Alignment - LAT	5500	Prop 100yr	847.10	-2.69	5.52		5.52	0.000018	0.57	4462.71	2747.16	0.04
LAT 4S	Alignment - LAT	6000	Exist 100yr	847.10	-2.52	5.55		5.56	0.000078	1.19	2475.43	2026.39	0.09
LAT 4S	Alignment - LAT	6000	Prop 100yr	847.10	-2.52	5.53		5.54	0.000082	1.21	2433.13	2024.91	0.09
LAT 4S	Alignment - LAT	6050.*	Exist 100yr	204.00	-2.53	5.56		5.56	0.000005	0.30	2317.82	2238.78	0.02
LAT 4S	Alignment - LAT	6050.*	Prop 100yr	204.00	-2.53	5.54		5.54	0.000005	0.30	2272.27	2209.87	0.02
LAT 4S	Alignment - LAT	6100.*	Exist 100yr	204.00	-2.54	5.56		5.56	0.000005	0.30	2144.79	1627.47	0.02
LAT 4S	Alignment - LAT	6100.*	Prop 100yr	204.00	-2.54	5.54		5.54	0.000005	0.31	2112.06	1584.50	0.02
LAT 4S	Alignment - LAT	6150.*	Exist 100yr	204.00	-2.55	5.56		5.56	0.000006	0.31	2106.46	1641.22	0.02
LAT 4S	Alignment - LAT	6150.*	Prop 100yr	204.00	-2.55	5.54		5.54	0.000006	0.32	2073.01	1627.99	0.02
LAT 4S	Alignment - LAT	6178		Culvert									
LAT 4S	Alignment - LAT	6250.*	Exist 100yr	204.00	-2.58	6.38	0.69	6.38	0.000002	0.19	3538.19	2314.53	0.01
LAT 4S	Alignment - LAT	6250.*	Prop 100yr	204.00	-2.58	6.36	0.69	6.36	0.000002	0.19	3490.97	2300.09	0.01
LAT 4S	Alignment - LAT	6300.*	Exist 100yr	204.00	-2.59	6.38		6.38	0.000002	0.20	3392.33	2364.85	0.01
LAT 4S	Alignment - LAT	6300.*	Prop 100yr	204.00	-2.59	6.36		6.36	0.000002	0.20	3344.08	2350.95	0.01
LAT 4S	Alignment - LAT	6350.*	Exist 100yr	204.00	-2.60	6.38		6.38	0.000002	0.22	3197.08	2424.90	0.02
LAT 4S	Alignment - LAT	6350.*	Prop 100yr	204.00	-2.60	6.36		6.36	0.000003	0.22	3147.61	2410.84	0.02
LAT 4S	Alignment - LAT	6400		Culvert									
LAT 4S	Alignment - LAT	6600.*	Exist 100yr	204.00	-2.47	6.78	0.72	6.79	0.000004	0.26	2867.18	2792.18	0.02
LAT 4S	Alignment - LAT	6600.*	Prop 100yr	204.00	-2.47	6.76	0.72	6.76	0.000004	0.27	2810.15	2778.13	0.02
LAT 4S	Alignment - LAT	6650.*	Exist 100yr	204.00	-2.40	6.79		6.79	0.000003	0.25	2609.58	2547.61	0.02
LAT 4S	Alignment - LAT	6650.*	Prop 100yr	204.00	-2.40	6.76		6.76	0.000004	0.25	2557.91	2504.17	0.02
LAT 4S	Alignment - LAT	6700.*	Exist 100yr	204.00	-2.32	6.79		6.79	0.000004	0.26	2376.78	2352.14	0.02
LAT 4S	Alignment - LAT	6700.*	Prop 100yr	204.00	-2.32	6.76		6.77	0.000004	0.27	2329.07	2312.21	0.02
LAT 4S	Alignment - LAT	6750.*	Exist 100yr	204.00	-2.24	6.79		6.79	0.000005	0.28	2169.29	2165.40	0.02
LAT 4S	Alignment - LAT	6750.*	Prop 100yr	204.00	-2.24	6.77		6.77	0.000005	0.29	2125.45	2124.16	0.02

HEC-RAS Plan: Plan 05 (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
LAT 4S	Alignment - LAT	6800.*	Exist 100yr	204.00	-2.16	6.79		6.79	0.000006	0.30	1983.02	1976.02	0.02
LAT 4S	Alignment - LAT	6800.*	Prop 100yr	204.00	-2.16	6.77		6.77	0.000006	0.31	1943.04	1936.94	0.02
LAT 4S	Alignment - LAT	6850.*	Exist 100yr	204.00	-2.08	6.79		6.79	0.000007	0.32	1820.40	1816.13	0.02
LAT 4S	Alignment - LAT	6850.*	Prop 100yr	204.00	-2.08	6.77		6.77	0.000007	0.33	1783.66	1780.72	0.03
LAT 4S	Alignment - LAT	6900.*	Exist 100yr	204.00	-2.01	6.79		6.79	0.000008	0.35	1670.94	1613.35	0.03
LAT 4S	Alignment - LAT	6900.*	Prop 100yr	204.00	-2.01	6.77		6.77	0.000009	0.36	1638.51	1563.55	0.03
LAT 4S	Alignment - LAT	6950.*	Exist 100yr	204.00	-1.93	6.79		6.79	0.000010	0.38	1539.56	1468.67	0.03
LAT 4S	Alignment - LAT	6950.*	Prop 100yr	204.00	-1.93	6.77		6.77	0.000010	0.39	1509.97	1430.33	0.03
LAT 4S	Alignment - LAT	7000	Exist 100yr	204.00	-1.85	6.79		6.79	0.000012	0.42	1415.83	1397.24	0.03
LAT 4S	Alignment - LAT	7000	Prop 100yr	204.00	-1.85	6.77		6.77	0.000012	0.43	1387.75	1352.34	0.03
LAT 4S	Alignment - LAT	7500	Exist 100yr	204.00	-0.86	6.79		6.80	0.000036	0.70	681.64	840.78	0.06
LAT 4S	Alignment - LAT	7500	Prop 100yr	204.00	-0.86	6.77		6.78	0.000038	0.71	664.96	822.23	0.06
LAT 4S	Alignment - LAT	8000	Exist 100yr	204.00	-0.41	6.81		6.82	0.000050	0.81	478.82	452.32	0.07
LAT 4S	Alignment - LAT	8000	Prop 100yr	204.00	-0.41	6.79		6.80	0.000051	0.82	470.08	446.63	0.07
LAT 4S	Alignment - LAT	8050.*	Exist 100yr	204.00	-0.41	6.81		6.82	0.000059	0.87	423.57	414.62	0.07
LAT 4S	Alignment - LAT	8050.*	Prop 100yr	204.00	-0.41	6.80		6.80	0.000061	0.88	415.58	408.93	0.07
LAT 4S	Alignment - LAT	8100.*	Exist 100yr	204.00	-0.40	6.82		6.83	0.000069	0.93	375.97	379.98	0.08
LAT 4S	Alignment - LAT	8100.*	Prop 100yr	204.00	-0.40	6.80		6.81	0.000071	0.94	368.68	374.26	0.08
LAT 4S	Alignment - LAT	8150.*	Exist 100yr	204.00	-0.40	6.82		6.83	0.000081	0.99	331.38	342.50	0.08
LAT 4S	Alignment - LAT	8150.*	Prop 100yr	204.00	-0.40	6.80		6.81	0.000083	1.00	324.83	336.78	0.08
LAT 4S	Alignment - LAT	8200.*	Exist 100yr	204.00	-0.39	6.82		6.84	0.000093	1.05	291.58	305.14	0.09
LAT 4S	Alignment - LAT	8200.*	Prop 100yr	204.00	-0.39	6.80		6.82	0.000095	1.06	285.78	299.40	0.09
LAT 4S	Alignment - LAT	8250.*	Exist 100yr	204.00	-0.39	6.83		6.84	0.000105	1.11	258.66	270.92	0.09
LAT 4S	Alignment - LAT	8250.*	Prop 100yr	204.00	-0.39	6.81		6.82	0.000107	1.12	253.54	265.15	0.10
LAT 4S	Alignment - LAT	8296		Culvert									
LAT 4S	Alignment - LAT	8350.*	Exist 100yr	204.00	-0.38	7.00	2.38	7.02	0.000108	1.12	243.17	249.86	0.10
LAT 4S	Alignment - LAT	8350.*	Prop 100yr	204.00	-0.38	6.99	2.38	7.00	0.000111	1.13	238.37	243.91	0.10
LAT 4S	Alignment - LAT	8400.*	Exist 100yr	204.00	-0.38	7.01		7.03	0.000119	1.17	217.33	215.40	0.10
LAT 4S	Alignment - LAT	8400.*	Prop 100yr	204.00	-0.38	6.99		7.01	0.000122	1.17	213.23	208.94	0.10
LAT 4S	Alignment - LAT	8450.*	Exist 100yr	204.00	-0.37	7.01		7.04	0.000130	1.20	197.16	183.61	0.10
LAT 4S	Alignment - LAT	8450.*	Prop 100yr	204.00	-0.37	7.00		7.02	0.000132	1.21	193.69	177.07	0.10
LAT 4S	Alignment - LAT	8500	Exist 100yr	204.00	-0.37	7.02		7.04	0.000139	1.23	180.96	151.20	0.11
LAT 4S	Alignment - LAT	8500	Prop 100yr	204.00	-0.37	7.00		7.02	0.000141	1.24	178.15	143.96	0.11
LAT 4S	Alignment - LAT	9000	Exist 100yr	204.00	0.40	7.10		7.13	0.000214	1.49	137.65	35.73	0.13
LAT 4S	Alignment - LAT	9000	Prop 100yr	204.00	0.40	7.08		7.11	0.000216	1.49	137.02	35.66	0.13
LAT 4S	Alignment - LAT	9500	Exist 100yr	204.00	0.88	7.22		7.26	0.000291	1.63	124.84	34.27	0.15
LAT 4S	Alignment - LAT	9500	Prop 100yr	204.00	0.88	7.20		7.24	0.000295	1.64	124.29	34.20	0.15
LAT 4S	Alignment - LAT	10000	Exist 100yr	204.00	2.17	7.41		7.49	0.000723	2.28	89.35	29.54	0.23
LAT 4S	Alignment - LAT	10000	Prop 100yr	204.00	2.17	7.39		7.47	0.000732	2.29	88.94	29.48	0.23
LAT 4S	Alignment - LAT	10500	Exist 100yr	204.00	3.12	7.83		7.94	0.001100	2.67	76.53	27.58	0.28
LAT 4S	Alignment - LAT	10500	Prop 100yr	204.00	3.12	7.82		7.93	0.001110	2.67	76.28	27.54	0.28
LAT 4S	Alignment - LAT	11000	Exist 100yr	204.00	3.73	8.38		8.50	0.001147	2.71	75.28	27.32	0.29
LAT 4S	Alignment - LAT	11000	Prop 100yr	204.00	3.73	8.38		8.49	0.001153	2.71	75.15	27.30	0.29
LAT 4S	Alignment - LAT	11500	Exist 100yr	204.00	4.88	9.07		9.23	0.001835	3.23	63.18	25.12	0.36
LAT 4S	Alignment - LAT	11500	Prop 100yr	204.00	4.88	9.06		9.23	0.001839	3.23	63.13	25.11	0.36
LAT 4S	Alignment - LAT	12000	Exist 100yr	204.00	5.62	9.94		10.09	0.001605	3.08	66.30	25.60	0.34
LAT 4S	Alignment - LAT	12000	Prop 100yr	204.00	5.62	9.94		10.09	0.001606	3.08	66.28	25.60	0.34
LAT 4S	Alignment - LAT	12500	Exist 100yr	204.00	6.38	10.44		10.45	0.000406	1.51	531.58	1918.65	0.17
LAT 4S	Alignment - LAT	12500	Prop 100yr	204.00	6.38	10.44		10.45	0.000407	1.51	531.21	1918.32	0.17
LAT 4S	Alignment - LAT	13000	Exist 100yr	204.00	6.57	10.64		10.65	0.000402	1.50	455.78	1215.62	0.17
LAT 4S	Alignment - LAT	13000	Prop 100yr	204.00	6.57	10.64		10.65	0.000402	1.50	455.78	1215.62	0.17
LAT 4S	Alignment - LAT	13500	Exist 100yr	204.00	6.76	10.90		10.98	0.001057	2.46	196.70	615.99	0.27
LAT 4S	Alignment - LAT	13500	Prop 100yr	204.00	6.76	10.90		10.98	0.001057	2.46	196.70	615.99	0.27
LAT 4S	Alignment - LAT	14000	Exist 100yr	204.00	6.92	11.24		11.26	0.000346	1.44	394.36	755.21	0.16
LAT 4S	Alignment - LAT	14000	Prop 100yr	204.00	6.92	11.24		11.26	0.000346	1.44	394.37	755.21	0.16
LAT 4S	Alignment - LAT	14050.*	Exist 100yr	29.40	6.95	11.26		11.26	0.000011	0.26	309.33	702.77	0.03
LAT 4S	Alignment - LAT	14050.*	Prop 100yr	29.40	6.95	11.26		11.26	0.000011	0.26	309.33	702.77	0.03
LAT 4S	Alignment - LAT	14100.*	Exist 100yr	29.40	6.99	11.26		11.27	0.000018	0.33	215.71	641.97	0.04
LAT 4S	Alignment - LAT	14100.*	Prop 100yr	29.40	6.99	11.26		11.27	0.000018	0.33	215.71	641.97	0.04

HEC-RAS Plan: Plan 05 (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)	
LAT 4S	Alignment - LAT	14150.*	Exist 100yr	29.40	7.03	11.26		11.27	0.000027	0.40	133.39	574.59	0.04
LAT 4S	Alignment - LAT	14150.*	Prop 100yr	29.40	7.03	11.26		11.27	0.000027	0.40	133.39	574.59	0.04
LAT 4S	Alignment - LAT	14200.*	Exist 100yr	29.40	7.06	11.27		11.27	0.000034	0.45	72.76	275.55	0.05
LAT 4S	Alignment - LAT	14200.*	Prop 100yr	29.40	7.06	11.27		11.27	0.000034	0.45	72.77	275.55	0.05
LAT 4S	Alignment - LAT	14250.*	Exist 100yr	29.40	7.10	11.27		11.27	0.000035	0.45	65.06	25.45	0.05
LAT 4S	Alignment - LAT	14250.*	Prop 100yr	29.40	7.10	11.27		11.27	0.000035	0.45	65.06	25.45	0.05
LAT 4S	Alignment - LAT	14300.*	Exist 100yr	29.40	7.13	11.27		11.27	0.000036	0.46	64.28	25.32	0.05
LAT 4S	Alignment - LAT	14300.*	Prop 100yr	29.40	7.13	11.27		11.27	0.000036	0.46	64.28	25.32	0.05
LAT 4S	Alignment - LAT	14350.*	Exist 100yr	29.40	7.16	11.27		11.27	0.000038	0.46	63.52	25.20	0.05
LAT 4S	Alignment - LAT	14350.*	Prop 100yr	29.40	7.16	11.27		11.27	0.000038	0.46	63.52	25.20	0.05
LAT 4S	Alignment - LAT	14400.*	Exist 100yr	29.40	7.20	11.27		11.28	0.000039	0.47	62.80	25.09	0.05
LAT 4S	Alignment - LAT	14400.*	Prop 100yr	29.40	7.20	11.27		11.28	0.000039	0.47	62.80	25.09	0.05
LAT 4S	Alignment - LAT	14426											
LAT 4S	Alignment - LAT	14650.*	Exist 100yr	29.40	7.46	11.30	8.41	11.30	0.000048	0.50	58.42	24.53	0.06
LAT 4S	Alignment - LAT	14650.*	Prop 100yr	29.40	7.46	11.30	8.41	11.30	0.000048	0.50	58.42	24.53	0.06
LAT 4S	Alignment - LAT	14700.*	Exist 100yr	29.40	7.53	11.30		11.31	0.000050	0.51	57.35	24.41	0.06
LAT 4S	Alignment - LAT	14700.*	Prop 100yr	29.40	7.53	11.30		11.31	0.000050	0.51	57.35	24.41	0.06
LAT 4S	Alignment - LAT	14750.*	Exist 100yr	29.40	7.59	11.31		11.31	0.000053	0.52	56.20	24.26	0.06
LAT 4S	Alignment - LAT	14750.*	Prop 100yr	29.40	7.59	11.31		11.31	0.000053	0.52	56.20	24.26	0.06
LAT 4S	Alignment - LAT	14800.*	Exist 100yr	29.40	7.65	11.31		11.31	0.000056	0.53	55.13	24.13	0.06
LAT 4S	Alignment - LAT	14800.*	Prop 100yr	29.40	7.65	11.31		11.31	0.000056	0.53	55.13	24.13	0.06
LAT 4S	Alignment - LAT	14850.*	Exist 100yr	29.40	7.72	11.31		11.32	0.000060	0.54	54.04	23.99	0.06
LAT 4S	Alignment - LAT	14850.*	Prop 100yr	29.40	7.72	11.31		11.32	0.000060	0.54	54.04	23.99	0.06
LAT 4S	Alignment - LAT	14900.*	Exist 100yr	29.40	7.78	11.31		11.32	0.000063	0.56	52.96	23.87	0.07
LAT 4S	Alignment - LAT	14900.*	Prop 100yr	29.40	7.78	11.31		11.32	0.000063	0.56	52.96	23.87	0.07
LAT 4S	Alignment - LAT	14950.*	Exist 100yr	29.40	7.85	11.32		11.32	0.000067	0.57	51.89	23.73	0.07
LAT 4S	Alignment - LAT	14950.*	Prop 100yr	29.40	7.85	11.32		11.32	0.000067	0.57	51.89	23.73	0.07
LAT 4S	Alignment - LAT	15000	Exist 100yr	29.40	7.91	11.32		11.33	0.000071	0.58	50.82	23.60	0.07
LAT 4S	Alignment - LAT	15000	Prop 100yr	29.40	7.91	11.32		11.33	0.000071	0.58	50.82	23.60	0.07
LAT 4S	Alignment - LAT	15500	Exist 100yr	29.40	8.05	11.36		11.36	0.000073	0.59	50.06	23.13	0.07
LAT 4S	Alignment - LAT	15500	Prop 100yr	29.40	8.05	11.36		11.36	0.000073	0.59	50.06	23.13	0.07
LAT 4S	Alignment - LAT	16000	Exist 100yr	29.40	8.08	11.39		11.40	0.000070	0.58	50.82	23.39	0.07
LAT 4S	Alignment - LAT	16000	Prop 100yr	29.40	8.08	11.39		11.40	0.000070	0.58	50.82	23.39	0.07
LAT 4S	Alignment - LAT	16500	Exist 100yr	29.40	8.07	11.42		11.43	0.000046	0.54	72.77	227.13	0.06
LAT 4S	Alignment - LAT	16500	Prop 100yr	29.40	8.07	11.42		11.43	0.000046	0.54	72.77	227.13	0.06
LAT 4S	Alignment - LAT	17000	Exist 100yr	29.40	8.02	11.47		11.47	0.000007	0.20	569.76	1893.53	0.02
LAT 4S	Alignment - LAT	17000	Prop 100yr	29.40	8.02	11.47		11.47	0.000007	0.20	569.77	1893.53	0.02
LAT 4S	Alignment - LAT	17500	Exist 100yr	29.40	8.17	11.49		11.49	0.000002	0.10	740.74	852.85	0.01
LAT 4S	Alignment - LAT	17500	Prop 100yr	29.40	8.17	11.49		11.49	0.000002	0.10	740.74	852.85	0.01
LAT 4S	Alignment - LAT	17550.*	Exist 100yr	29.40	8.22	11.49		11.49	0.000002	0.11	702.89	841.07	0.01
LAT 4S	Alignment - LAT	17550.*	Prop 100yr	29.40	8.22	11.49		11.49	0.000002	0.11	702.89	841.07	0.01
LAT 4S	Alignment - LAT	17600.*	Exist 100yr	29.40	8.26	11.49		11.49	0.000002	0.12	665.18	829.09	0.01
LAT 4S	Alignment - LAT	17600.*	Prop 100yr	29.40	8.26	11.49		11.49	0.000002	0.12	665.18	829.09	0.01
LAT 4S	Alignment - LAT	17650.*	Exist 100yr	29.40	8.31	11.49		11.49	0.000002	0.12	628.03	816.66	0.01
LAT 4S	Alignment - LAT	17650.*	Prop 100yr	29.40	8.31	11.49		11.49	0.000002	0.12	628.03	816.66	0.01
LAT 4S	Alignment - LAT	17700.*	Exist 100yr	29.40	8.35	11.49		11.49	0.000003	0.13	592.61	803.96	0.01
LAT 4S	Alignment - LAT	17700.*	Prop 100yr	29.40	8.35	11.49		11.49	0.000003	0.13	592.61	803.96	0.01
LAT 4S	Alignment - LAT	17750.*	Exist 100yr	29.40	8.40	11.49		11.49	0.000003	0.14	557.71	742.40	0.02
LAT 4S	Alignment - LAT	17750.*	Prop 100yr	29.40	8.40	11.49		11.49	0.000003	0.14	557.71	742.40	0.02
LAT 4S	Alignment - LAT	17800.*	Exist 100yr	29.40	8.44	11.49		11.49	0.000003	0.14	535.56	664.69	0.02
LAT 4S	Alignment - LAT	17800.*	Prop 100yr	29.40	8.44	11.49		11.49	0.000003	0.14	535.57	664.69	0.02
LAT 4S	Alignment - LAT	17850.*	Exist 100yr	29.40	8.48	11.49		11.49	0.000004	0.14	515.28	652.43	0.02
LAT 4S	Alignment - LAT	17850.*	Prop 100yr	29.40	8.48	11.49		11.49	0.000004	0.14	515.28	652.43	0.02
LAT 4S	Alignment - LAT	17892											
LAT 4S	Alignment - LAT	18000	Exist 100yr	29.40	8.62	11.55	9.18	11.55	0.000004	0.15	497.53	618.77	0.02
LAT 4S	Alignment - LAT	18000	Prop 100yr	29.40	8.62	11.55	9.18	11.55	0.000004	0.15	497.53	618.77	0.02
LAT 4S	Alignment - LAT	18050.*	Exist 100yr	29.40	8.67	11.55		11.55	0.000005	0.16	457.13	613.54	0.02
LAT 4S	Alignment - LAT	18050.*	Prop 100yr	29.40	8.67	11.55		11.55	0.000005	0.16	457.13	613.54	0.02
LAT 4S	Alignment - LAT	18100.*	Exist 100yr	29.40	8.73	11.55		11.55	0.000006	0.17	417.43	607.75	0.02
LAT 4S	Alignment - LAT	18100.*	Prop 100yr	29.40	8.73	11.55		11.55	0.000006	0.17	417.43	607.75	0.02

HEC-RAS Plan: Plan 05 (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
LAT 4S	Alignment - LAT	18150.*	Exist 100yr	29.40	8.78	11.55		11.55	0.000007	0.19	375.99	600.88	0.02
LAT 4S	Alignment - LAT	18150.*	Prop 100yr	29.40	8.78	11.55		11.55	0.000007	0.19	375.99	600.88	0.02
LAT 4S	Alignment - LAT	18200.*	Exist 100yr	29.40	8.83	11.56		11.56	0.000010	0.21	336.15	592.74	0.03
LAT 4S	Alignment - LAT	18200.*	Prop 100yr	29.40	8.83	11.56		11.56	0.000010	0.21	336.15	592.74	0.03
LAT 4S	Alignment - LAT	18250.*	Exist 100yr	29.40	8.89	11.56		11.56	0.000012	0.23	302.27	541.44	0.03
LAT 4S	Alignment - LAT	18250.*	Prop 100yr	29.40	8.89	11.56		11.56	0.000012	0.23	302.27	541.44	0.03
LAT 4S	Alignment - LAT	18300.*	Exist 100yr	29.40	8.94	11.56		11.56	0.000015	0.25	270.98	531.57	0.03
LAT 4S	Alignment - LAT	18300.*	Prop 100yr	29.40	8.94	11.56		11.56	0.000015	0.25	270.98	531.57	0.03
LAT 4S	Alignment - LAT	18350.*	Exist 100yr	29.40	8.99	11.56		11.56	0.000020	0.27	241.04	522.22	0.04
LAT 4S	Alignment - LAT	18350.*	Prop 100yr	29.40	8.99	11.56		11.56	0.000020	0.27	241.04	522.22	0.04
LAT 4S	Alignment - LAT	18373		Culvert									
LAT 4S	Alignment - LAT	18450.*	Exist 100yr	29.40	9.10	11.64	9.94	11.64	0.000024	0.29	220.63	505.27	0.04
LAT 4S	Alignment - LAT	18450.*	Prop 100yr	29.40	9.10	11.64	9.94	11.64	0.000024	0.29	220.63	505.27	0.04
LAT 4S	Alignment - LAT	18500	Exist 100yr	29.40	9.15	11.64		11.64	0.000031	0.31	194.48	496.56	0.04
LAT 4S	Alignment - LAT	18500	Prop 100yr	29.40	9.15	11.64		11.64	0.000031	0.31	194.48	496.56	0.04
LAT 4S	Alignment - LAT	18915		Culvert									
LAT 4S	Alignment - LAT	19000	Exist 100yr	29.40	9.42	12.11	10.37	12.11	0.000000	0.03	2169.75	3535.22	0.00
LAT 4S	Alignment - LAT	19000	Prop 100yr	29.40	9.42	12.11	10.37	12.11	0.000000	0.03	2169.75	3535.22	0.00
LAT 4S	Alignment - LAT	19500	Exist 100yr	141.30	9.45	12.12		12.12	0.000049	0.37	1114.38	2725.43	0.06
LAT 4S	Alignment - LAT	19500	Prop 100yr	141.30	9.45	12.12		12.12	0.000049	0.37	1114.38	2725.43	0.06
LAT 4S	Alignment - LAT	20000	Exist 100yr	141.30	9.49	12.16		12.16	0.000155	0.66	691.32	2161.72	0.10
LAT 4S	Alignment - LAT	20000	Prop 100yr	141.30	9.49	12.16		12.16	0.000155	0.66	691.32	2161.72	0.10
LAT 4S	Alignment - LAT	20500	Exist 100yr	141.30	9.51	12.28		12.38	0.002104	2.58	54.83	35.55	0.37
LAT 4S	Alignment - LAT	20500	Prop 100yr	141.30	9.51	12.28		12.38	0.002104	2.58	54.83	35.55	0.37
LAT 4S	Alignment - LAT	21000	Exist 100yr	141.30	9.52	12.91		12.95	0.000713	1.79	100.78	181.27	0.22
LAT 4S	Alignment - LAT	21000	Prop 100yr	141.30	9.52	12.91		12.95	0.000713	1.79	100.78	181.27	0.22
LAT 5	Alignment - LAT	500	Exist 100yr	282.60	2.71	8.15		8.15	0.000002	0.15	3300.39	1111.84	0.01
LAT 5	Alignment - LAT	500	Prop 100yr	282.60	2.71	7.11		7.11	0.000008	0.26	2150.66	1111.84	0.02
LAT 5	Alignment - LAT	1000	Exist 100yr	282.60	3.64	7.62	7.17	8.38	0.009792	6.99	40.44	16.62	0.79
LAT 5	Alignment - LAT	1000	Prop 100yr	282.60	3.64	7.17	7.17	8.29	0.016446	8.48	33.33	15.19	1.01
LAT 5	Alignment - LAT	1050.*	Exist 100yr	282.60	3.64	8.29		8.75	0.005012	5.45	51.89	18.68	0.58
LAT 5	Alignment - LAT	1050.*	Prop 100yr	282.60	3.64	8.31	7.20	8.77	0.004896	5.40	52.35	18.75	0.57
LAT 5	Alignment - LAT	1100.*	Exist 100yr	282.60	3.65	8.60		8.98	0.003808	4.92	57.48	19.58	0.51
LAT 5	Alignment - LAT	1100.*	Prop 100yr	282.60	3.65	8.62		8.99	0.003752	4.89	57.79	19.64	0.50
LAT 5	Alignment - LAT	1150.*	Exist 100yr	282.60	3.65	8.83		9.15	0.003154	4.58	61.64	20.22	0.46
LAT 5	Alignment - LAT	1150.*	Prop 100yr	282.60	3.65	8.84		9.16	0.003120	4.57	61.89	20.26	0.46
LAT 5	Alignment - LAT	1200.*	Exist 100yr	282.60	3.65	9.01		9.30	0.002739	4.35	64.97	20.71	0.43
LAT 5	Alignment - LAT	1200.*	Prop 100yr	282.60	3.65	9.02		9.31	0.002716	4.34	65.18	20.74	0.43
LAT 5	Alignment - LAT	1250.*	Exist 100yr	282.60	3.66	9.16		9.43	0.002430	4.16	67.90	21.09	0.41
LAT 5	Alignment - LAT	1250.*	Prop 100yr	282.60	3.66	9.17		9.44	0.002413	4.15	68.08	21.12	0.41
LAT 5	Alignment - LAT	1300.*	Exist 100yr	282.60	3.66	9.30		9.55	0.002201	4.01	70.44	21.44	0.39
LAT 5	Alignment - LAT	1300.*	Prop 100yr	282.60	3.66	9.31		9.55	0.002188	4.00	70.60	21.46	0.39
LAT 5	Alignment - LAT	1350.*	Exist 100yr	282.60	3.66	9.42		9.65	0.002018	3.88	72.75	21.74	0.37
LAT 5	Alignment - LAT	1350.*	Prop 100yr	282.60	3.66	9.43		9.66	0.002007	3.88	72.89	21.76	0.37
LAT 5	Alignment - LAT	1397		Culvert									
LAT 5	Alignment - LAT	1750.*	Exist 100yr	282.60	3.40	12.66	6.84	12.66	0.000010	0.42	1820.46	1127.83	0.03
LAT 5	Alignment - LAT	1750.*	Prop 100yr	282.60	3.40	12.66	6.84	12.66	0.000010	0.42	1820.46	1127.83	0.03
LAT 5	Alignment - LAT	1800.*	Exist 100yr	282.60	3.35	12.66		12.66	0.000010	0.42	1849.44	1172.38	0.03
LAT 5	Alignment - LAT	1800.*	Prop 100yr	282.60	3.35	12.66		12.66	0.000010	0.42	1849.44	1172.38	0.03
LAT 5	Alignment - LAT	1850.*	Exist 100yr	282.60	3.29	12.66		12.66	0.000010	0.42	1865.87	1216.94	0.03
LAT 5	Alignment - LAT	1850.*	Prop 100yr	282.60	3.29	12.66		12.66	0.000010	0.42	1865.87	1216.94	0.03
LAT 5	Alignment - LAT	1900.*	Exist 100yr	282.60	3.24	12.66		12.66	0.000010	0.43	1871.48	1241.84	0.03
LAT 5	Alignment - LAT	1900.*	Prop 100yr	282.60	3.24	12.66		12.66	0.000010	0.43	1871.48	1241.84	0.03
LAT 5	Alignment - LAT	1950.*	Exist 100yr	282.60	3.18	12.66		12.66	0.000010	0.43	1878.22	1235.98	0.03
LAT 5	Alignment - LAT	1950.*	Prop 100yr	282.60	3.18	12.66		12.66	0.000010	0.43	1878.22	1235.98	0.03
LAT 5	Alignment - LAT	2000	Exist 100yr	282.60	3.13	12.66		12.66	0.000010	0.42	1887.23	1233.24	0.03
LAT 5	Alignment - LAT	2000	Prop 100yr	282.60	3.13	12.66		12.66	0.000010	0.42	1887.23	1233.24	0.03
LAT 5	Alignment - LAT	2050.*	Exist 100yr	282.60	3.44	12.66		12.66	0.000010	0.44	1836.53	1235.50	0.03
LAT 5	Alignment - LAT	2050.*	Prop 100yr	282.60	3.44	12.66		12.66	0.000010	0.44	1836.53	1235.50	0.03

HEC-RAS Plan: Plan 05 (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
LAT 5	Alignment - LAT	2100.*	Exist 100yr	282.60	3.74	12.66		12.66	0.000011	0.45	1795.18	1241.88	0.03
LAT 5	Alignment - LAT	2100.*	Prop 100yr	282.60	3.74	12.66		12.66	0.000011	0.45	1795.18	1241.88	0.03
LAT 5	Alignment - LAT	2150.*	Exist 100yr	282.60	4.05	12.66		12.66	0.000012	0.45	1756.91	1209.03	0.03
LAT 5	Alignment - LAT	2150.*	Prop 100yr	282.60	4.05	12.66		12.66	0.000012	0.45	1756.91	1209.03	0.03
LAT 5	Alignment - LAT	2200.*	Exist 100yr	282.60	4.36	12.66		12.66	0.000013	0.45	1711.88	1161.84	0.03
LAT 5	Alignment - LAT	2200.*	Prop 100yr	282.60	4.36	12.66		12.66	0.000013	0.45	1711.88	1161.84	0.03
LAT 5	Alignment - LAT	2250.*	Exist 100yr	282.60	4.66	12.66		12.66	0.000014	0.45	1656.42	1114.66	0.03
LAT 5	Alignment - LAT	2250.*	Prop 100yr	282.60	4.66	12.66		12.66	0.000014	0.45	1656.42	1114.66	0.03
LAT 5	Alignment - LAT	2300.*	Exist 100yr	282.60	4.97	12.66		12.67	0.000015	0.46	1594.82	1067.47	0.04
LAT 5	Alignment - LAT	2300.*	Prop 100yr	282.60	4.97	12.66		12.67	0.000015	0.46	1594.82	1067.47	0.04
LAT 5	Alignment - LAT	2350.*	Exist 100yr	282.60	5.28	12.67		12.67	0.000016	0.47	1523.96	1020.28	0.04
LAT 5	Alignment - LAT	2350.*	Prop 100yr	282.60	5.28	12.67		12.67	0.000016	0.47	1523.96	1020.28	0.04
LAT 5	Alignment - LAT	2400.*	Exist 100yr	282.60	5.59	12.67		12.67	0.000018	0.48	1445.21	973.09	0.04
LAT 5	Alignment - LAT	2400.*	Prop 100yr	282.60	5.59	12.67		12.67	0.000018	0.48	1445.21	973.09	0.04
LAT 5	Alignment - LAT	2450.*	Exist 100yr	282.60	5.89	12.67		12.67	0.000021	0.50	1358.61	925.90	0.04
LAT 5	Alignment - LAT	2450.*	Prop 100yr	282.60	5.89	12.67		12.67	0.000021	0.50	1358.61	925.90	0.04
LAT 5	Alignment - LAT	2454		Culvert									
LAT 5	Alignment - LAT	2500	Exist 100yr	282.60	6.20	12.67	9.00	12.67	0.000025	0.53	1262.63	878.71	0.05
LAT 5	Alignment - LAT	2500	Prop 100yr	282.60	6.20	12.67	9.00	12.67	0.000025	0.53	1262.63	878.71	0.05
LAT 5	Alignment - LAT	3000	Exist 100yr	282.60	6.86	12.71		12.71	0.000023	0.48	1558.36	1282.76	0.04
LAT 5	Alignment - LAT	3000	Prop 100yr	282.60	6.86	12.71		12.71	0.000023	0.48	1558.36	1282.76	0.04
LAT 5	Alignment - LAT	3500	Exist 100yr	282.60	7.09	12.72		12.72	0.000014	0.39	1902.51	1399.76	0.03
LAT 5	Alignment - LAT	3500	Prop 100yr	282.60	7.09	12.72		12.72	0.000014	0.39	1902.51	1399.76	0.03
LAT 5	Alignment - LAT	4000	Exist 100yr	282.60	7.19	12.72		12.72	0.000017	0.43	1819.78	1442.87	0.04
LAT 5	Alignment - LAT	4000	Prop 100yr	282.60	7.19	12.72		12.72	0.000017	0.43	1819.78	1442.87	0.04
LAT 5	Alignment - LAT	4500	Exist 100yr	282.60	7.28	12.73		12.73	0.000012	0.35	2010.26	1427.35	0.03
LAT 5	Alignment - LAT	4500	Prop 100yr	282.60	7.28	12.73		12.73	0.000012	0.35	2010.26	1427.35	0.03
LAT 5	Alignment - LAT	5000	Exist 100yr	282.60	7.38	12.74		12.75	0.000079	0.88	1079.51	1471.28	0.08
LAT 5	Alignment - LAT	5000	Prop 100yr	282.60	7.38	12.74		12.75	0.000079	0.88	1079.51	1471.28	0.08
LAT 5	Alignment - LAT	5500	Exist 100yr	282.60	8.00	12.79	11.28	12.88	0.001510	2.52	218.92	1161.50	0.32
LAT 5	Alignment - LAT	5500	Prop 100yr	282.60	8.00	12.79	11.28	12.88	0.001510	2.52	218.92	1161.50	0.32
LAT 5	Alignment - LAT	5511		Culvert									
LAT 5	Alignment - LAT	5600.*	Exist 100yr	282.60	8.06	13.92	11.22	13.92	0.000006	0.23	3368.09	3098.52	0.02
LAT 5	Alignment - LAT	5600.*	Prop 100yr	282.60	8.06	13.92	11.22	13.92	0.000006	0.23	3368.09	3098.52	0.02
LAT 5	Alignment - LAT	5601		Culvert									
LAT 5	Alignment - LAT	5800.*	Exist 100yr	282.60	8.19	13.94	11.03	13.94	0.000005	0.21	3946.13	3715.99	0.02
LAT 5	Alignment - LAT	5800.*	Prop 100yr	282.60	8.19	13.94	11.03	13.94	0.000005	0.21	3946.13	3715.99	0.02
LAT 5	Alignment - LAT	5850.*	Exist 100yr	282.60	8.22	13.94		13.94	0.000004	0.21	4080.05	3831.29	0.02
LAT 5	Alignment - LAT	5850.*	Prop 100yr	282.60	8.22	13.94		13.94	0.000004	0.21	4080.05	3831.29	0.02
LAT 5	Alignment - LAT	5900.*	Exist 100yr	282.60	8.25	13.94		13.94	0.000004	0.21	4214.91	3955.83	0.02
LAT 5	Alignment - LAT	5900.*	Prop 100yr	282.60	8.25	13.94		13.94	0.000004	0.21	4214.91	3955.83	0.02
LAT 5	Alignment - LAT	5950.*	Exist 100yr	282.60	8.28	13.94		13.94	0.000004	0.19	4364.46	3810.97	0.02
LAT 5	Alignment - LAT	5950.*	Prop 100yr	282.60	8.28	13.94		13.94	0.000004	0.19	4364.46	3810.97	0.02
LAT 5	Alignment - LAT	6000	Exist 100yr	282.60	8.31	13.94		13.94	0.000003	0.18	4552.43	3780.92	0.02
LAT 5	Alignment - LAT	6000	Prop 100yr	282.60	8.31	13.94		13.94	0.000003	0.18	4552.43	3780.92	0.02
LAT 5	Alignment - LAT	6047		Culvert									
LAT 5	Alignment - LAT	6250.*	Exist 100yr	282.60	8.43	14.04	11.02	14.04	0.000004	0.22	4078.62	3837.86	0.02
LAT 5	Alignment - LAT	6250.*	Prop 100yr	282.60	8.43	14.04	11.02	14.04	0.000004	0.22	4078.62	3837.86	0.02
LAT 5	Alignment - LAT	6300.*	Exist 100yr	282.60	8.45	14.04		14.04	0.000005	0.23	3907.91	3839.98	0.02
LAT 5	Alignment - LAT	6300.*	Prop 100yr	282.60	8.45	14.04		14.04	0.000005	0.23	3907.91	3839.98	0.02
LAT 5	Alignment - LAT	6350.*	Exist 100yr	282.60	8.48	14.04		14.04	0.000006	0.25	3733.76	3856.21	0.02
LAT 5	Alignment - LAT	6350.*	Prop 100yr	282.60	8.48	14.04		14.04	0.000006	0.25	3733.76	3856.21	0.02
LAT 5	Alignment - LAT	6400.*	Exist 100yr	282.60	8.50	14.04		14.04	0.000006	0.25	3566.83	3574.28	0.02
LAT 5	Alignment - LAT	6400.*	Prop 100yr	282.60	8.50	14.04		14.04	0.000006	0.25	3566.83	3574.28	0.02
LAT 5	Alignment - LAT	6450.*	Exist 100yr	282.60	8.53	14.04		14.04	0.000006	0.25	3445.31	3322.77	0.02
LAT 5	Alignment - LAT	6450.*	Prop 100yr	282.60	8.53	14.04		14.04	0.000006	0.25	3445.31	3322.77	0.02
LAT 5	Alignment - LAT	6500	Exist 100yr	282.60	8.55	14.04		14.04	0.000007	0.26	3335.62	3249.56	0.02
LAT 5	Alignment - LAT	6500	Prop 100yr	282.60	8.55	14.04		14.04	0.000007	0.26	3335.62	3249.56	0.02

HEC-RAS Plan: Plan 05 (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)	
LAT 6	Alignment - LAT	1800	Exist 100yr	306.72	-0.21	9.22		9.22	0.000002	0.20	4038.26	1819.64	0.01
LAT 6	Alignment - LAT	1800	Prop 100yr	306.72	-0.21	8.07		8.07	0.000015	0.49	2060.24	1642.32	0.03
LAT 6	Alignment - LAT	2000	Exist 100yr	306.72	0.12	9.22		9.22	0.000005	0.29	3195.47	2108.89	0.02
LAT 6	Alignment - LAT	2000	Prop 100yr	306.72	0.12	8.08		8.08	0.000034	0.66	1205.67	911.78	0.05
LAT 6	Alignment - LAT	2200	Exist 100yr	306.72	0.34	9.21		9.23	0.000130	1.56	623.28	958.51	0.11
LAT 6	Alignment - LAT	2200	Prop 100yr	306.72	0.34	8.00		8.14	0.000659	3.08	137.06	144.78	0.23
LAT 6	Alignment - LAT	2400	Exist 100yr	306.72	0.46	9.23		9.26	0.000155	1.56	521.42	686.42	0.11
LAT 6	Alignment - LAT	2400	Prop 100yr	306.72	0.46	8.14		8.28	0.000721	2.94	127.99	169.54	0.24
LAT 6	Alignment - LAT	2600	Exist 100yr	306.72	0.52	9.27		9.29	0.000196	1.62	450.68	585.68	0.12
LAT 6	Alignment - LAT	2600	Prop 100yr	306.72	0.52	8.30		8.43	0.000825	2.91	109.38	58.49	0.25
LAT 6	Alignment - LAT	2610		Culvert									
LAT 6	Alignment - LAT	2650.*	Exist 100yr	306.72	0.71	9.51	5.16	9.53	0.000142	1.38	599.49	907.37	0.11
LAT 6	Alignment - LAT	2650.*	Prop 100yr	306.72	0.71	9.13	5.16	9.18	0.000294	1.90	355.57	485.33	0.15
LAT 6	Alignment - LAT	2700.*	Exist 100yr	306.72	0.89	9.52		9.54	0.000160	1.42	561.80	734.14	0.11
LAT 6	Alignment - LAT	2700.*	Prop 100yr	306.72	0.89	9.15		9.19	0.000340	1.97	337.32	483.98	0.16
LAT 6	Alignment - LAT	2750.*	Exist 100yr	306.72	1.08	9.53		9.55	0.000181	1.46	538.29	702.59	0.12
LAT 6	Alignment - LAT	2750.*	Prop 100yr	306.72	1.08	9.16		9.21	0.000397	2.04	320.67	483.65	0.17
LAT 6	Alignment - LAT	2800	Exist 100yr	306.72	1.27	9.54		9.56	0.000207	1.50	518.54	687.00	0.13
LAT 6	Alignment - LAT	2800	Prop 100yr	306.72	1.27	9.18		9.23	0.000462	2.11	308.14	455.96	0.19
LAT 6	Alignment - LAT	2830		Culvert									
LAT 6	Alignment - LAT	2900.*	Exist 100yr	306.72	1.90	9.73	6.14	9.75	0.000164	1.43	552.14	690.82	0.12
LAT 6	Alignment - LAT	2900.*	Prop 100yr	306.72	1.90	9.73	6.14	9.75	0.000164	1.43	553.42	691.90	0.12
LAT 6	Alignment - LAT	2950.*	Exist 100yr	306.72	2.22	9.74		9.76	0.000162	1.45	537.56	629.95	0.12
LAT 6	Alignment - LAT	2950.*	Prop 100yr	306.72	2.22	9.74		9.76	0.000161	1.45	538.71	630.56	0.12
LAT 6	Alignment - LAT	3000	Exist 100yr	306.72	2.54	9.75		9.77	0.000157	1.46	537.64	643.98	0.12
LAT 6	Alignment - LAT	3000	Prop 100yr	306.72	2.54	9.75		9.77	0.000156	1.45	538.79	644.62	0.12
LAT 6	Alignment - LAT	3200	Exist 100yr	306.72	1.91	9.78		9.79	0.000077	1.01	818.37	737.27	0.08
LAT 6	Alignment - LAT	3200	Prop 100yr	306.72	1.91	9.79		9.79	0.000077	1.01	819.59	737.37	0.08
LAT 6	Alignment - LAT	3250.*	Exist 100yr	306.72	2.09	9.78		9.80	0.000144	1.36	623.41	770.58	0.11
LAT 6	Alignment - LAT	3250.*	Prop 100yr	306.72	2.09	9.78		9.80	0.000143	1.36	624.69	770.70	0.11
LAT 6	Alignment - LAT	3300.*	Exist 100yr	306.72	2.28	9.77		9.82	0.000287	1.89	411.12	808.72	0.15
LAT 6	Alignment - LAT	3300.*	Prop 100yr	306.72	2.28	9.78		9.82	0.000286	1.88	412.52	808.91	0.15
LAT 6	Alignment - LAT	3318		Culvert									
LAT 6	Alignment - LAT	3350.*	Exist 100yr	306.72	2.46	10.15	5.94	10.18	0.000196	1.61	514.63	836.55	0.13
LAT 6	Alignment - LAT	3350.*	Prop 100yr	306.72	2.46	10.15	5.94	10.18	0.000196	1.61	516.11	837.84	0.13
LAT 6	Alignment - LAT	3400	Exist 100yr	306.72	2.64	10.15		10.19	0.000262	1.82	386.51	580.76	0.15
LAT 6	Alignment - LAT	3400	Prop 100yr	306.72	2.64	10.15		10.19	0.000261	1.82	387.52	581.76	0.15
LAT 6	Alignment - LAT	3600	Exist 100yr	306.72	3.03	10.20		10.26	0.000376	2.17	263.14	400.78	0.18
LAT 6	Alignment - LAT	3600	Prop 100yr	306.72	3.03	10.20		10.26	0.000375	2.16	263.77	401.61	0.18
LAT 6	Alignment - LAT	3800	Exist 100yr	306.72	3.49	10.27		10.34	0.000421	2.25	260.49	408.01	0.19
LAT 6	Alignment - LAT	3800	Prop 100yr	306.72	3.49	10.28		10.34	0.000420	2.25	261.05	408.75	0.19
LAT 6	Alignment - LAT	4000	Exist 100yr	306.72	4.05	10.36		10.44	0.000536	2.42	242.59	474.10	0.21
LAT 6	Alignment - LAT	4000	Prop 100yr	306.72	4.05	10.36		10.44	0.000535	2.41	243.14	479.29	0.21
LAT 6	Alignment - LAT	4200	Exist 100yr	306.72	4.45	10.48		10.55	0.000517	2.33	338.63	925.65	0.21
LAT 6	Alignment - LAT	4200	Prop 100yr	306.72	4.45	10.48		10.55	0.000515	2.33	339.64	928.20	0.21
LAT 6	Alignment - LAT	4400	Exist 100yr	306.72	4.72	10.59		10.64	0.000398	2.04	455.44	1187.21	0.18
LAT 6	Alignment - LAT	4400	Prop 100yr	306.72	4.72	10.60		10.64	0.000398	2.04	456.32	1188.79	0.18
LAT 6	Alignment - LAT	4600	Exist 100yr	306.72	4.97	10.69		10.71	0.000301	1.46	649.63	1730.34	0.15
LAT 6	Alignment - LAT	4600	Prop 100yr	306.72	4.97	10.69		10.71	0.000301	1.46	650.49	1731.18	0.15
LAT 6	Alignment - LAT	4800	Exist 100yr	306.72	5.24	10.75		10.77	0.000307	1.72	599.33	1364.36	0.16
LAT 6	Alignment - LAT	4800	Prop 100yr	306.72	5.24	10.75		10.77	0.000306	1.72	599.84	1365.08	0.16
LAT 6A	Alignment - LAT	200	Exist 100yr	204.48	2.17	9.22		9.22	0.000011	0.37	1148.33	545.90	0.03
LAT 6A	Alignment - LAT	200	Prop 100yr	204.48	2.17	8.06		8.07	0.000090	0.90	521.85	517.34	0.08
LAT 6A	Alignment - LAT	400	Exist 100yr	204.48	2.79	9.22		9.22	0.000014	0.40	1256.07	951.16	0.03
LAT 6A	Alignment - LAT	400	Prop 100yr	204.48	2.79	8.08		8.09	0.000141	1.03	433.64	408.07	0.10
LAT 6A	Alignment - LAT	600	Exist 100yr	204.48	3.20	9.22		9.22	0.000014	0.37	1311.04	1154.30	0.03
LAT 6A	Alignment - LAT	600	Prop 100yr	204.48	3.20	8.11		8.12	0.000113	0.84	528.41	493.28	0.09
LAT 6A	Alignment - LAT	800	Exist 100yr	204.48	3.68	9.23		9.23	0.000043	0.56	799.41	630.74	0.06
LAT 6A	Alignment - LAT	800	Prop 100yr	204.48	3.68	8.14		8.17	0.000568	1.69	270.95	363.15	0.20

HEC-RAS Plan: Plan 05 (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
LAT 6A	Alignment - LAT	850.*	Exist 100yr	204.48	3.87	9.23		9.23	0.000165	1.05	458.84	516.19	0.11
LAT 6A	Alignment - LAT	850.*	Prop 100yr	204.48	3.87	8.03	7.02	8.30	0.003933	4.29	58.63	124.16	0.51
LAT 6A	Alignment - LAT	900.*	Exist 100yr	204.48	4.06	9.20		9.27	0.000870	2.33	175.46	337.66	0.25
LAT 6A	Alignment - LAT	900.*	Prop 100yr	204.48	4.06	8.21		8.52	0.004173	4.47	45.76	20.30	0.52
LAT 6A	Alignment - LAT	943		Culvert									
LAT 6A	Alignment - LAT	1000	Exist 100yr	204.48	4.44	10.21	7.56	10.29	0.000682	2.45	131.62	465.85	0.23
LAT 6A	Alignment - LAT	1000	Prop 100yr	204.48	4.44	10.13	7.58	10.23	0.000772	2.57	105.49	247.63	0.24
LAT 6A	Alignment - LAT	1200	Exist 100yr	204.48	5.01	10.31	8.93	10.64	0.003892	4.57	44.73	16.32	0.49
LAT 6A	Alignment - LAT	1200	Prop 100yr	204.48	5.01	10.26	8.93	10.60	0.004075	4.65	43.96	16.18	0.50
LAT 6A	Alignment - LAT	1400	Exist 100yr	204.48	5.85	11.01	9.17	11.21	0.002140	3.63	62.28	125.86	0.38
LAT 6A	Alignment - LAT	1400	Prop 100yr	204.48	5.85	10.99	9.17	11.20	0.002188	3.67	60.04	107.40	0.38
LAT 6A	Alignment - LAT	1600	Exist 100yr	204.48	6.38	11.48		11.60	0.001698	3.02	123.84	315.85	0.34
LAT 6A	Alignment - LAT	1600	Prop 100yr	204.48	6.38	11.47		11.59	0.001741	3.05	120.97	309.39	0.34
LAT 6B	Alignment - LAT	200	Exist 100yr	511.20	-3.01	9.21		9.21	0.000005	0.36	2508.87	482.46	0.02
LAT 6B	Alignment - LAT	200	Prop 100yr	511.20	-3.01	8.05		8.05	0.000011	0.49	1948.71	482.46	0.03
LAT 6B	Alignment - LAT	400	Exist 100yr	511.20	-2.56	9.21		9.22	0.000003	0.29	3272.42	714.55	0.02
LAT 6B	Alignment - LAT	400	Prop 100yr	511.20	-2.56	8.06		8.06	0.000009	0.42	2443.74	714.55	0.03
LAT 6B	Alignment - LAT	450.*	Exist 100yr	511.20	-2.38	9.21		9.22	0.000003	0.28	3488.62	783.98	0.02
LAT 6B	Alignment - LAT	450.*	Prop 100yr	511.20	-2.38	8.06		8.06	0.000008	0.42	2579.65	783.98	0.03
LAT 6B	Alignment - LAT	500.*	Exist 100yr	511.20	-2.19	9.22		9.22	0.000003	0.27	3687.21	853.41	0.02
LAT 6B	Alignment - LAT	500.*	Prop 100yr	511.20	-2.19	8.06		8.06	0.000008	0.42	2697.98	853.41	0.03
LAT 6B	Alignment - LAT	510		Culvert									
LAT 6B	Alignment - LAT	650.*	Exist 100yr	511.20	-1.73	9.22	3.18	9.22	0.000002	0.23	4520.63	1144.17	0.01
LAT 6B	Alignment - LAT	650.*	Prop 100yr	511.20	-1.73	8.06	3.18	8.06	0.000007	0.36	3194.84	1144.17	0.02
LAT 6B	Alignment - LAT	700.*	Exist 100yr	511.20	-1.63	9.22		9.22	0.000002	0.21	4964.03	1296.08	0.01
LAT 6B	Alignment - LAT	700.*	Prop 100yr	511.20	-1.63	8.06		8.06	0.000006	0.34	3462.54	1296.08	0.02
LAT 6B	Alignment - LAT	750.*	Exist 100yr	511.20	-1.54	9.22		9.22	0.000002	0.20	5364.02	1448.00	0.01
LAT 6B	Alignment - LAT	750.*	Prop 100yr	511.20	-1.54	8.06		8.06	0.000006	0.33	3686.87	1448.00	0.02
LAT 6B	Alignment - LAT	800	Exist 100yr	511.20	-1.44	9.22		9.22	0.000002	0.19	5717.91	1599.91	0.01
LAT 6B	Alignment - LAT	800	Prop 100yr	511.20	-1.44	8.06		8.06	0.000006	0.32	3865.15	1599.91	0.02
LAT 6B	Alignment - LAT	1000	Exist 100yr	511.20	-1.17	9.22		9.22	0.000001	0.18	6375.30	1890.95	0.01
LAT 6B	Alignment - LAT	1000	Prop 100yr	511.20	-1.17	8.06		8.06	0.000005	0.31	4187.01	1890.95	0.02
LAT 6B	Alignment - LAT	1200	Exist 100yr	511.20	-0.92	9.22		9.22	0.000002	0.19	6216.70	2154.60	0.01
LAT 6B	Alignment - LAT	1200	Prop 100yr	511.20	-0.92	8.06		8.06	0.000008	0.34	3832.20	1969.57	0.02
LAT 6B	Alignment - LAT	1400	Exist 100yr	511.20	-0.75	9.22		9.22	0.000002	0.22	6001.22	2457.11	0.01
LAT 6B	Alignment - LAT	1400	Prop 100yr	511.20	-0.75	8.06		8.06	0.000014	0.47	3289.86	2238.21	0.03
LAT 6B	Alignment - LAT	1600	Exist 100yr	511.20	-0.52	9.22		9.22	0.000004	0.29	4719.40	2071.19	0.02
LAT 6B	Alignment - LAT	1600	Prop 100yr	511.20	-0.52	8.07		8.07	0.000035	0.75	2349.84	1996.19	0.05
LAT 7	Alignment - LAT	500	Exist 100yr	474.90	4.34	12.23		12.37	0.000914	3.11	161.48	67.21	0.27
LAT 7	Alignment - LAT	500	Prop 100yr	474.90	4.34	12.18		12.34	0.000943	3.14	158.65	65.05	0.27
LAT 7	Alignment - LAT	550.*	Exist 100yr	474.90	4.45	12.27		12.42	0.000937	3.14	153.33	55.43	0.27
LAT 7	Alignment - LAT	550.*	Prop 100yr	474.90	4.45	12.23		12.38	0.000964	3.18	151.12	52.16	0.28
LAT 7	Alignment - LAT	600.*	Exist 100yr	474.90	4.55	12.35		12.47	0.000658	2.78	171.00	36.74	0.23
LAT 7	Alignment - LAT	600.*	Prop 100yr	474.90	4.55	12.31		12.43	0.000673	2.80	169.58	36.58	0.23
LAT 7	Alignment - LAT	607		Culvert									
LAT 7	Alignment - LAT	650.*	Exist 100yr	474.90	4.66	13.03	8.25	13.12	0.000446	2.43	203.68	106.00	0.19
LAT 7	Alignment - LAT	650.*	Prop 100yr	474.90	4.66	12.99	8.25	13.08	0.000458	2.46	199.60	96.29	0.19
LAT 7	Alignment - LAT	700.*	Exist 100yr	474.90	4.76	13.04		13.16	0.000616	2.74	179.64	87.35	0.23
LAT 7	Alignment - LAT	700.*	Prop 100yr	474.90	4.76	13.00		13.12	0.000634	2.77	176.24	81.34	0.23
LAT 7	Alignment - LAT	750.*	Exist 100yr	474.90	4.86	13.07		13.19	0.000624	2.75	178.82	93.61	0.23
LAT 7	Alignment - LAT	750.*	Prop 100yr	474.90	4.86	13.03		13.15	0.000641	2.78	175.28	86.07	0.23
LAT 7	Alignment - LAT	800.*	Exist 100yr	474.90	4.97	13.10		13.22	0.000633	2.77	177.84	99.54	0.23
LAT 7	Alignment - LAT	800.*	Prop 100yr	474.90	4.97	13.06		13.18	0.000651	2.80	174.19	90.00	0.23
LAT 7	Alignment - LAT	850.*	Exist 100yr	474.90	5.07	13.13		13.25	0.000640	2.79	177.39	106.64	0.23
LAT 7	Alignment - LAT	850.*	Prop 100yr	474.90	5.07	13.09		13.22	0.000658	2.81	173.57	96.39	0.23
LAT 7	Alignment - LAT	900.*	Exist 100yr	474.90	5.18	13.16		13.28	0.000647	2.80	177.11	113.01	0.23
LAT 7	Alignment - LAT	900.*	Prop 100yr	474.90	5.18	13.13		13.25	0.000665	2.83	173.19	100.60	0.23
LAT 7	Alignment - LAT	950.*	Exist 100yr	474.90	5.28	13.19		13.32	0.000651	2.81	176.93	116.35	0.23
LAT 7	Alignment - LAT	950.*	Prop 100yr	474.90	5.28	13.16		13.28	0.000670	2.84	173.02	102.27	0.24



HEC-RAS Plan: Plan 05 (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)	
LAT 7	Alignment - LAT	1000	Exist 100yr	474.90	5.39	13.23		13.35	0.000653	2.82	177.06	122.35	0.23
LAT 7	Alignment - LAT	1000	Prop 100yr	474.90	5.39	13.19		13.32	0.000671	2.85	173.13	103.44	0.24
LAT 7	Alignment - LAT	1500	Exist 100yr	474.90	6.53	13.56		13.66	0.000573	2.55	222.84	236.37	0.22
LAT 7	Alignment - LAT	1500	Prop 100yr	474.90	6.53	13.53		13.63	0.000588	2.57	216.76	224.17	0.22
LAT 7	Alignment - LAT	1550.*	Exist 100yr	474.90	6.54	13.58		13.69	0.000601	2.60	204.07	189.78	0.22
LAT 7	Alignment - LAT	1550.*	Prop 100yr	474.90	6.54	13.56		13.67	0.000615	2.62	199.40	176.73	0.23
LAT 7	Alignment - LAT	1600.*	Exist 100yr	474.90	6.55	13.61		13.72	0.000623	2.64	190.75	133.43	0.23
LAT 7	Alignment - LAT	1600.*	Prop 100yr	474.90	6.55	13.59		13.70	0.000635	2.66	187.65	119.21	0.23
LAT 7	Alignment - LAT	1650.*	Exist 100yr	474.90	6.56	13.64		13.75	0.000639	2.67	184.66	78.03	0.23
LAT 7	Alignment - LAT	1650.*	Prop 100yr	474.90	6.56	13.62		13.73	0.000651	2.69	182.82	76.05	0.23
LAT 7	Alignment - LAT	1700.*	Exist 100yr	474.90	6.57	13.67		13.79	0.000655	2.70	181.54	70.55	0.23
LAT 7	Alignment - LAT	1700.*	Prop 100yr	474.90	6.57	13.65		13.76	0.000666	2.72	179.92	69.02	0.24
LAT 7	Alignment - LAT	1750.*	Exist 100yr	474.90	6.57	13.70		13.82	0.000671	2.73	178.99	66.01	0.24
LAT 7	Alignment - LAT	1750.*	Prop 100yr	474.90	6.57	13.68		13.80	0.000682	2.74	177.50	64.75	0.24
LAT 7	Alignment - LAT	1800.*	Exist 100yr	474.90	6.58	13.74		13.85	0.000685	2.75	176.83	62.48	0.24
LAT 7	Alignment - LAT	1800.*	Prop 100yr	474.90	6.58	13.71		13.83	0.000697	2.77	175.46	61.43	0.24
LAT 7	Alignment - LAT	1850.*	Exist 100yr	474.90	6.59	13.77		13.89	0.000700	2.78	175.03	60.23	0.24
LAT 7	Alignment - LAT	1850.*	Prop 100yr	474.90	6.59	13.75		13.87	0.000711	2.79	173.74	59.33	0.24
LAT 7	Alignment - LAT	1899											
			Culvert										
LAT 7	Alignment - LAT	1950.*	Exist 100yr	474.90	6.61	13.91	10.37	14.03	0.000688	2.78	175.84	59.21	0.24
LAT 7	Alignment - LAT	1950.*	Prop 100yr	474.90	6.61	13.89	10.37	14.01	0.000700	2.79	174.59	58.47	0.24
LAT 7	Alignment - LAT	2000	Exist 100yr	474.90	6.62	13.95		14.07	0.000698	2.80	174.14	58.04	0.24
LAT 7	Alignment - LAT	2000	Prop 100yr	474.90	6.62	13.93		14.05	0.000710	2.81	172.95	57.01	0.24
LAT 7	Alignment - LAT	2500	Exist 100yr	474.90	7.10	14.29		14.38	0.000543	2.52	320.11	546.21	0.21
LAT 7	Alignment - LAT	2500	Prop 100yr	474.90	7.10	14.27		14.36	0.000550	2.53	312.03	499.40	0.21
LAT 7	Alignment - LAT	3000	Exist 100yr	474.90	7.75	14.57		14.62	0.000438	2.19	512.00	947.35	0.19
LAT 7	Alignment - LAT	3000	Prop 100yr	474.90	7.75	14.55		14.61	0.000449	2.21	501.19	926.97	0.19
LAT 7	Alignment - LAT	3500	Exist 100yr	364.20	8.25	14.76		14.80	0.000278	1.77	415.09	568.67	0.15
LAT 7	Alignment - LAT	3500	Prop 100yr	364.20	8.25	14.76		14.80	0.000281	1.78	411.21	561.14	0.15
LAT 7	Alignment - LAT	4000	Exist 100yr	364.20	8.80	14.91		14.96	0.000356	1.93	371.22	509.97	0.17
LAT 7	Alignment - LAT	4000	Prop 100yr	364.20	8.80	14.91		14.96	0.000359	1.93	368.60	507.36	0.17
LAT 7	Alignment - LAT	4500	Exist 100yr	364.20	9.51	15.12		15.19	0.000589	2.34	247.77	306.47	0.22
LAT 7	Alignment - LAT	4500	Prop 100yr	364.20	9.51	15.12		15.19	0.000592	2.35	246.73	305.36	0.22
LAT 7	Alignment - LAT	5000	Exist 100yr	364.20	10.27	15.43		15.50	0.000625	2.35	281.07	367.30	0.22
LAT 7	Alignment - LAT	5000	Prop 100yr	364.20	10.27	15.43		15.50	0.000627	2.35	280.36	366.62	0.22
LAT 7	Alignment - LAT	5500	Exist 100yr	364.20	10.89	15.75		15.81	0.000611	2.27	317.61	417.74	0.22
LAT 7	Alignment - LAT	5500	Prop 100yr	364.20	10.89	15.75		15.81	0.000612	2.27	317.21	417.37	0.22
LAT 7	Alignment - LAT	6000	Exist 100yr	364.20	11.25	16.01		16.03	0.000344	1.70	493.72	592.10	0.17
LAT 7	Alignment - LAT	6000	Prop 100yr	364.20	11.25	16.01		16.03	0.000344	1.70	493.42	591.89	0.17
LAT 7	Alignment - LAT	6500	Exist 100yr	364.20	11.64	16.15		16.16	0.000197	1.26	716.19	786.98	0.12
LAT 7	Alignment - LAT	6500	Prop 100yr	364.20	11.64	16.15		16.16	0.000197	1.26	715.91	786.81	0.12
LAT 7	Alignment - LAT	7000	Exist 100yr	364.20	12.10	16.22		16.23	0.000083	0.80	1095.46	977.73	0.08
LAT 7	Alignment - LAT	7000	Prop 100yr	364.20	12.10	16.22		16.23	0.000084	0.80	1095.16	977.60	0.08
LAT 7	Alignment - LAT	7500	Exist 100yr	364.20	12.47	16.26		16.27	0.000077	0.73	1191.00	1094.30	0.08
LAT 7	Alignment - LAT	7500	Prop 100yr	364.20	12.47	16.26		16.26	0.000077	0.73	1190.69	1094.15	0.08
LAT 7	Alignment - LAT	8000	Exist 100yr	364.20	12.78	16.32		16.34	0.000302	1.42	678.05	913.90	0.15
LAT 7	Alignment - LAT	8000	Prop 100yr	364.20	12.78	16.32		16.34	0.000303	1.42	677.82	913.71	0.15
LAT 7	Alignment - LAT	8050.*	Exist 100yr	364.20	12.83	16.34		16.35	0.000408	1.63	585.63	830.36	0.18
LAT 7	Alignment - LAT	8050.*	Prop 100yr	364.20	12.83	16.34		16.35	0.000408	1.63	585.43	830.18	0.18
LAT 7	Alignment - LAT	8100.*	Exist 100yr	364.20	12.87	16.36		16.38	0.000543	1.85	507.29	767.86	0.20
LAT 7	Alignment - LAT	8100.*	Prop 100yr	364.20	12.87	16.35		16.38	0.000544	1.85	507.12	767.47	0.20
LAT 7	Alignment - LAT	8150.*	Exist 100yr	364.20	12.92	16.38		16.42	0.000722	2.11	440.42	779.47	0.23
LAT 7	Alignment - LAT	8150.*	Prop 100yr	364.20	12.92	16.38		16.42	0.000722	2.11	440.26	778.99	0.23
LAT 7	Alignment - LAT	8200.*	Exist 100yr	364.20	12.96	16.41		16.46	0.000930	2.37	393.29	797.87	0.26
LAT 7	Alignment - LAT	8200.*	Prop 100yr	364.20	12.96	16.41		16.46	0.000930	2.37	393.14	797.56	0.26
LAT 7	Alignment - LAT	8250.*	Exist 100yr	364.20	13.01	16.46		16.52	0.001139	2.60	365.08	812.09	0.29
LAT 7	Alignment - LAT	8250.*	Prop 100yr	364.20	13.01	16.46		16.52	0.001139	2.60	364.95	811.83	0.29
LAT 7	Alignment - LAT	8300.*	Exist 100yr	364.20	13.06	16.51		16.58	0.001317	2.78	351.86	827.53	0.31
LAT 7	Alignment - LAT	8300.*	Prop 100yr	364.20	13.06	16.51		16.58	0.001318	2.78	351.75	827.33	0.31
LAT 7	Alignment - LAT	8350.*	Exist 100yr	364.20	13.10	16.58		16.65	0.001421	2.87	355.13	857.74	0.32

HEC-RAS Plan: Plan 05 (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
LAT 7	Alignment - LAT	8350.*	Prop 100yr	364.20	13.10	16.58		16.65	0.001422	2.87	355.04	857.60	0.32
LAT 7	Alignment - LAT	8394		Culvert									
LAT 7	Alignment - LAT	8450.*	Exist 100yr	364.20	13.19	17.02	16.47	17.04	0.000387	1.59	729.05	1277.13	0.17
LAT 7	Alignment - LAT	8450.*	Prop 100yr	364.20	13.19	17.03	16.47	17.04	0.000383	1.58	732.96	1280.80	0.17
LAT 7	Alignment - LAT	8500	Exist 100yr	364.20	13.24	17.04		17.06	0.000437	1.66	693.63	1218.91	0.18
LAT 7	Alignment - LAT	8500	Prop 100yr	364.20	13.24	17.04		17.06	0.000432	1.65	697.09	1222.20	0.18
LAT 7	Alignment - LAT	9000	Exist 100yr	364.20	13.87	17.03	16.90	17.95	0.012792	7.68	47.43	22.08	0.92
LAT 7	Alignment - LAT	9000	Prop 100yr	364.20	13.87	17.03	16.90	17.95	0.012891	7.70	47.30	22.06	0.93
LAT 7	Alignment - LAT	9500	Exist 100yr	364.20	14.38	18.63	17.36	18.65	0.000422	1.77	836.04	2190.79	0.18
LAT 7	Alignment - LAT	9500	Prop 100yr	364.20	14.38	18.63	17.36	18.65	0.000422	1.77	836.73	2191.35	0.18
LAT 7	Alignment - LAT	10000	Exist 100yr	364.20	15.05	18.94	17.98	19.07	0.001884	3.48	337.79	1270.82	0.37
LAT 7	Alignment - LAT	10000	Prop 100yr	364.20	15.05	18.94	17.98	19.07	0.001885	3.48	337.57	1270.45	0.37
LAT 7A	Alignment - LAT	300	Exist 100yr	366.10	4.03	9.81		9.81	0.000001	0.10	6017.54	1886.62	0.01
LAT 7A	Alignment - LAT	300	Prop 100yr	366.10	4.03	8.55		8.55	0.000005	0.19	3640.32	1886.62	0.02
LAT 7A	Alignment - LAT	600	Exist 100yr	366.10	5.61	9.81		9.81	0.000004	0.19	4058.58	2242.99	0.02
LAT 7A	Alignment - LAT	600	Prop 100yr	366.10	5.61	8.55		8.55	0.000107	0.72	1364.32	1707.81	0.08
LAT 7A	Alignment - LAT	638		Culvert									
LAT 7A	Alignment - LAT	750.*	Exist 100yr	366.10	6.41	10.48	7.56	10.48	0.000002	0.13	5085.55	2580.12	0.01
LAT 7A	Alignment - LAT	750.*	Prop 100yr	366.10	6.41	10.50	7.56	10.50	0.000002	0.13	5152.46	2580.12	0.01
LAT 7A	Alignment - LAT	800.*	Exist 100yr	366.10	6.88	10.48		10.48	0.000003	0.13	4830.49	2609.22	0.01
LAT 7A	Alignment - LAT	800.*	Prop 100yr	366.10	6.88	10.50		10.50	0.000003	0.13	4898.21	2614.49	0.01
LAT 7A	Alignment - LAT	850.*	Exist 100yr	366.10	6.94	10.48		10.48	0.000003	0.12	4567.28	2568.75	0.01
LAT 7A	Alignment - LAT	850.*	Prop 100yr	366.10	6.94	10.50		10.50	0.000003	0.12	4634.02	2579.83	0.01
LAT 7A	Alignment - LAT	900	Exist 100yr	366.10	7.21	10.48		10.48	0.000002	0.12	5300.27	2690.82	0.01
LAT 7A	Alignment - LAT	900	Prop 100yr	366.10	7.21	10.50		10.50	0.000002	0.12	5370.00	2690.82	0.01
LAT 7A	Alignment - LAT	1200	Exist 100yr	366.10	7.75	10.46		10.49	0.003678	2.81	494.69	2580.61	0.46
LAT 7A	Alignment - LAT	1200	Prop 100yr	366.10	7.75	10.49		10.51	0.002362	2.30	581.39	2580.61	0.37
LAT 7A	Alignment - LAT	1500	Exist 100yr	366.10	7.97	10.81		10.81	0.000503	1.19	882.97	2227.54	0.18
LAT 7A	Alignment - LAT	1500	Prop 100yr	366.10	7.97	10.80		10.81	0.000528	1.22	866.87	2207.50	0.18
LAT 7A	Alignment - LAT	1800	Exist 100yr	366.10	8.13	10.93		10.93	0.000327	0.96	1069.24	2255.10	0.14
LAT 7A	Alignment - LAT	1800	Prop 100yr	366.10	8.13	10.93		10.93	0.000335	0.97	1061.58	2255.10	0.14
LAT 7A	Alignment - LAT	2100	Exist 100yr	366.10	8.26	11.11		11.13	0.001569	2.20	579.24	2183.67	0.31
LAT 7A	Alignment - LAT	2100	Prop 100yr	366.10	8.26	11.11		11.13	0.001573	2.21	578.55	2183.67	0.31
LAT 7A	Alignment - LAT	2400	Exist 100yr	366.10	8.39	11.28		11.29	0.000275	0.93	1087.84	2071.43	0.13
LAT 7A	Alignment - LAT	2400	Prop 100yr	366.10	8.39	11.29		11.29	0.000268	0.92	1096.37	2071.43	0.13
LAT 7A	Alignment - LAT	2700	Exist 100yr	366.10	8.53	11.38		11.39	0.000416	1.13	918.69	1961.22	0.16
LAT 7A	Alignment - LAT	2700	Prop 100yr	366.10	8.53	11.39		11.39	0.000410	1.12	922.87	1961.22	0.16
LAT 7A	Alignment - LAT	3000	Exist 100yr	366.10	8.65	11.53		11.53	0.000557	1.34	794.43	1767.35	0.19
LAT 7A	Alignment - LAT	3000	Prop 100yr	366.10	8.65	11.53		11.53	0.000554	1.34	795.78	1767.35	0.19
LAT 7A	Alignment - LAT	3300	Exist 100yr	366.10	8.77	11.74		11.75	0.001032	1.75	552.24	1413.26	0.25
LAT 7A	Alignment - LAT	3300	Prop 100yr	366.10	8.77	11.74		11.75	0.001031	1.75	552.42	1413.55	0.25
LAT 7B	Alignment - LAT	500	Exist 100yr	559.00	1.47	9.82		9.83	0.000013	0.49	2554.19	917.48	0.03
LAT 7B	Alignment - LAT	500	Prop 100yr	559.00	1.47	8.59		8.60	0.000079	1.06	1422.09	912.70	0.08
LAT 7B	Alignment - LAT	522		Culvert									
LAT 7B	Alignment - LAT	585.916*	Exist 100yr	559.00	1.63	10.94	7.19	10.94	0.000004	0.31	3880.41	1128.04	0.02
LAT 7B	Alignment - LAT	585.916*	Prop 100yr	559.00	1.63	10.88	7.19	10.88	0.000004	0.32	3818.69	1128.04	0.02
LAT 7B	Alignment - LAT	628.874*	Exist 100yr	559.00	1.70	10.94		10.94	0.000004	0.32	3924.65	1233.32	0.02
LAT 7B	Alignment - LAT	628.874*	Prop 100yr	559.00	1.70	10.88		10.88	0.000005	0.32	3857.19	1233.32	0.02
LAT 7B	Alignment - LAT	671.832*	Exist 100yr	559.00	1.78	10.94		10.94	0.000005	0.32	3903.77	1288.22	0.02
LAT 7B	Alignment - LAT	671.832*	Prop 100yr	559.00	1.78	10.88		10.88	0.000005	0.33	3833.64	1276.32	0.02
LAT 7B	Alignment - LAT	714.79	Exist 100yr	559.00	1.86	10.94		10.94	0.000005	0.32	3890.14	1237.27	0.02
LAT 7B	Alignment - LAT	714.79	Prop 100yr	559.00	1.86	10.88		10.88	0.000005	0.32	3822.84	1224.31	0.02
LAT 7B	Alignment - LAT	763.865*	Exist 100yr	559.00	1.93	10.94		10.94	0.000005	0.33	3857.40	1269.55	0.02
LAT 7B	Alignment - LAT	763.865*	Prop 100yr	559.00	1.93	10.88		10.88	0.000005	0.33	3788.37	1255.81	0.02
LAT 7B	Alignment - LAT	812.941*	Exist 100yr	559.00	2.01	10.94		10.94	0.000005	0.34	3817.31	1303.29	0.02
LAT 7B	Alignment - LAT	812.941*	Prop 100yr	559.00	2.01	10.88		10.89	0.000006	0.34	3746.47	1289.02	0.02
LAT 7B	Alignment - LAT	862.016*	Exist 100yr	559.00	2.08	10.94		10.94	0.000006	0.35	3768.49	1334.92	0.02
LAT 7B	Alignment - LAT	862.016*	Prop 100yr	559.00	2.08	10.88		10.89	0.000006	0.36	3695.95	1319.78	0.02
LAT 7B	Alignment - LAT	911.092*	Exist 100yr	559.00	2.15	10.94		10.94	0.000006	0.36	3711.80	1365.73	0.02

HEC-RAS Plan: Plan 05 (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
LAT 7B	Alignment - LAT	911.092*	Prop 100yr	559.00	2.15	10.89		10.89	0.000006	0.37	3637.62	1349.82	0.02
LAT 7B	Alignment - LAT	960.168*	Exist 100yr	559.00	2.23	10.94		10.94	0.000007	0.38	3644.18	1399.13	0.03
LAT 7B	Alignment - LAT	960.168*	Prop 100yr	559.00	2.23	10.89		10.89	0.000007	0.39	3568.22	1382.39	0.03
LAT 7B	Alignment - LAT	1009.24*	Exist 100yr	559.00	2.30	10.94		10.94	0.000007	0.40	3569.75	1429.43	0.03
LAT 7B	Alignment - LAT	1009.24*	Prop 100yr	559.00	2.30	10.89		10.89	0.000008	0.41	3492.19	1411.60	0.03
LAT 7B	Alignment - LAT	1058.31*	Exist 100yr	559.00	2.38	10.94		10.94	0.000008	0.42	3485.86	1458.81	0.03
LAT 7B	Alignment - LAT	1058.31*	Prop 100yr	559.00	2.38	10.89		10.89	0.000009	0.43	3406.75	1440.02	0.03
LAT 7B	Alignment - LAT	1107.39*	Exist 100yr	559.00	2.45	10.94		10.94	0.000009	0.44	3394.59	1491.19	0.03
LAT 7B	Alignment - LAT	1107.39*	Prop 100yr	559.00	2.45	10.89		10.89	0.000010	0.45	3313.79	1466.77	0.03
LAT 7B	Alignment - LAT	1156.47*	Exist 100yr	559.00	2.52	10.94		10.94	0.000010	0.40	3294.50	1519.60	0.03
LAT 7B	Alignment - LAT	1156.47*	Prop 100yr	559.00	2.52	10.89		10.89	0.000010	0.41	3212.22	1498.87	0.03
LAT 7B	Alignment - LAT	1205.54*	Exist 100yr	559.00	2.60	10.94		10.94	0.000011	0.42	3184.24	1546.98	0.03
LAT 7B	Alignment - LAT	1205.54*	Prop 100yr	559.00	2.60	10.89		10.89	0.000012	0.44	3100.51	1527.99	0.03
LAT 7B	Alignment - LAT	1254.62*	Exist 100yr	559.00	2.67	10.94		10.94	0.000012	0.45	3065.83	1577.85	0.03
LAT 7B	Alignment - LAT	1254.62*	Prop 100yr	559.00	2.67	10.89		10.89	0.000013	0.46	2980.64	1555.67	0.04
LAT 7B	Alignment - LAT	1292		Culvert									
LAT 7B	Alignment - LAT	1352.77*	Exist 100yr	559.00	2.82	10.95	7.41	10.95	0.000017	0.51	2814.69	1632.79	0.04
LAT 7B	Alignment - LAT	1352.77*	Prop 100yr	559.00	2.82	10.90	7.41	10.90	0.000018	0.53	2730.91	1612.57	0.04
LAT 7B	Alignment - LAT	1401.84*	Exist 100yr	559.00	2.89	10.95		10.95	0.000020	0.55	2672.47	1661.93	0.04
LAT 7B	Alignment - LAT	1401.84*	Prop 100yr	559.00	2.89	10.90		10.90	0.000021	0.57	2587.37	1638.49	0.04
LAT 7B	Alignment - LAT	1450.92*	Exist 100yr	559.00	2.97	10.95		10.95	0.000023	0.59	2521.13	1683.77	0.05
LAT 7B	Alignment - LAT	1450.92*	Prop 100yr	559.00	2.97	10.90		10.90	0.000025	0.62	2435.12	1656.04	0.05
LAT 7B	Alignment - LAT	1500	Exist 100yr	559.00	3.04	10.95		10.95	0.000028	0.66	2362.99	1705.21	0.05
LAT 7B	Alignment - LAT	1500	Prop 100yr	559.00	3.04	10.90		10.90	0.000031	0.68	2276.38	1648.47	0.05
LAT 7B	Alignment - LAT	1550.*	Exist 100yr	559.00	3.12	10.95		10.96	0.000031	0.67	2238.32	1634.19	0.05
LAT 7B	Alignment - LAT	1550.*	Prop 100yr	559.00	3.12	10.90		10.90	0.000034	0.69	2154.86	1617.92	0.06
LAT 7B	Alignment - LAT	1559		Culvert									
LAT 7B	Alignment - LAT	1750.*	Exist 100yr	559.00	3.42	10.96	7.84	10.96	0.000040	0.70	1877.51	1469.01	0.06
LAT 7B	Alignment - LAT	1750.*	Prop 100yr	559.00	3.42	10.92	7.84	10.92	0.000044	0.73	1819.01	1452.75	0.06
LAT 7B	Alignment - LAT	1800.*	Exist 100yr	559.00	3.50	10.96		10.96	0.000041	0.70	1832.69	1398.89	0.06
LAT 7B	Alignment - LAT	1800.*	Prop 100yr	559.00	3.50	10.92		10.92	0.000045	0.72	1777.33	1367.46	0.06
LAT 7B	Alignment - LAT	1850.*	Exist 100yr	559.00	3.57	10.96		10.97	0.000042	0.74	1832.44	1168.84	0.06
LAT 7B	Alignment - LAT	1850.*	Prop 100yr	559.00	3.57	10.92		10.93	0.000045	0.76	1786.04	1168.24	0.06
LAT 7B	Alignment - LAT	1900.*	Exist 100yr	559.00	3.65	10.96		10.97	0.000042	0.73	1859.96	1201.81	0.06
LAT 7B	Alignment - LAT	1900.*	Prop 100yr	559.00	3.65	10.92		10.93	0.000045	0.75	1812.44	1201.64	0.06
LAT 7B	Alignment - LAT	1950.*	Exist 100yr	559.00	3.72	10.97		10.97	0.000041	0.69	1887.99	1235.72	0.06
LAT 7B	Alignment - LAT	1950.*	Prop 100yr	559.00	3.72	10.93		10.93	0.000044	0.71	1839.35	1235.55	0.06
LAT 7B	Alignment - LAT	2000	Exist 100yr	559.00	3.80	10.97		10.97	0.000041	0.66	1914.79	1269.64	0.06
LAT 7B	Alignment - LAT	2000	Prop 100yr	559.00	3.80	10.93		10.93	0.000044	0.68	1865.05	1269.47	0.06
LAT 7B	Alignment - LAT	2500	Exist 100yr	559.00	4.43	10.99		11.00	0.000074	0.82	1542.46	1230.59	0.08
LAT 7B	Alignment - LAT	2500	Prop 100yr	559.00	4.43	10.96		10.96	0.000080	0.85	1496.84	1223.67	0.08
LAT 7B	Alignment - LAT	3000	Exist 100yr	559.00	5.19	11.05		11.06	0.000243	1.35	840.54	764.38	0.14
LAT 7B	Alignment - LAT	3000	Prop 100yr	559.00	5.19	11.02		11.03	0.000259	1.39	815.65	751.65	0.14
LAT 7B	Alignment - LAT	3500	Exist 100yr	559.00	5.69	11.21		11.24	0.000531	1.83	607.17	672.83	0.20
LAT 7B	Alignment - LAT	3500	Prop 100yr	559.00	5.69	11.19		11.22	0.000557	1.87	591.92	659.84	0.20
LAT 7B	Alignment - LAT	4000	Exist 100yr	559.00	6.55	11.59	11.02	12.02	0.007498	5.28	108.31	123.32	0.70
LAT 7B	Alignment - LAT	4000	Prop 100yr	559.00	6.55	11.60	11.02	12.03	0.007441	5.27	108.86	126.41	0.70
LAT 7B	Alignment - LAT	4030		Culvert									
LAT 7B	Alignment - LAT	4200.*	Exist 100yr	559.00	6.92	12.40	10.73	12.61	0.002485	3.74	180.75	321.86	0.43
LAT 7B	Alignment - LAT	4200.*	Prop 100yr	559.00	6.92	12.40	10.73	12.61	0.002457	3.72	182.76	328.48	0.42
LAT 7B	Alignment - LAT	4250.*	Exist 100yr	559.00	7.02	12.54		12.73	0.002161	3.57	192.98	323.23	0.40
LAT 7B	Alignment - LAT	4250.*	Prop 100yr	559.00	7.02	12.54		12.73	0.002144	3.56	194.37	327.82	0.40
LAT 7B	Alignment - LAT	4300.*	Exist 100yr	559.00	7.11	12.60		12.83	0.001533	3.91	187.34	245.01	0.36
LAT 7B	Alignment - LAT	4300.*	Prop 100yr	559.00	7.11	12.61		12.83	0.001526	3.90	188.21	249.45	0.36
LAT 7B	Alignment - LAT	4350.*	Exist 100yr	559.00	7.20	12.69		12.90	0.001414	3.81	194.39	242.99	0.34
LAT 7B	Alignment - LAT	4350.*	Prop 100yr	559.00	7.20	12.69		12.91	0.001409	3.81	195.13	244.39	0.34
LAT 7B	Alignment - LAT	4400.*	Exist 100yr	559.00	7.29	12.77		12.97	0.001328	3.74	199.04	248.58	0.33
LAT 7B	Alignment - LAT	4400.*	Prop 100yr	559.00	7.29	12.77		12.98	0.001323	3.74	199.72	249.78	0.33
LAT 7B	Alignment - LAT	4450.*	Exist 100yr	559.00	7.39	12.84		13.04	0.001266	3.69	202.08	256.09	0.32

HEC-RAS Plan: Plan 05 (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
LAT 7B	Alignment - LAT	4450.*	Prop 100yr	559.00	7.39	12.84		13.04	0.001262	3.69	202.71	257.18	0.32
LAT 7B	Alignment - LAT	4500	Exist 100yr	559.00	7.48	12.91		13.10	0.001218	3.65	204.42	258.87	0.32
LAT 7B	Alignment - LAT	4500	Prop 100yr	559.00	7.48	12.91		13.11	0.001215	3.64	204.99	259.85	0.32
LAT 7B	Alignment - LAT	4550.*	Exist 100yr	559.00	7.51	12.97		13.17	0.001283	3.69	209.28	276.28	0.33
LAT 7B	Alignment - LAT	4550.*	Prop 100yr	559.00	7.51	12.97		13.17	0.001280	3.69	209.85	277.21	0.33
LAT 7B	Alignment - LAT	4600.*	Exist 100yr	559.00	7.55	13.03		13.23	0.001339	3.72	216.66	294.64	0.33
LAT 7B	Alignment - LAT	4600.*	Prop 100yr	559.00	7.55	13.03		13.23	0.001335	3.71	217.21	295.46	0.33
LAT 7B	Alignment - LAT	4651											
LAT 7B	Alignment - LAT	4700.*	Exist 100yr	559.00	7.62	13.22	11.06	13.40	0.001332	3.63	254.07	399.52	0.33
LAT 7B	Alignment - LAT	4700.*	Prop 100yr	559.00	7.62	13.25	11.06	13.42	0.001267	3.56	266.72	435.34	0.32
LAT 7B	Alignment - LAT	4750.*	Exist 100yr	559.00	7.65	13.29		13.47	0.001345	3.60	277.68	510.72	0.33
LAT 7B	Alignment - LAT	4750.*	Prop 100yr	559.00	7.65	13.32		13.49	0.001276	3.52	292.52	544.61	0.32
LAT 7B	Alignment - LAT	4800.*	Exist 100yr	559.00	7.68	13.38		13.53	0.001307	3.50	316.23	630.44	0.33
LAT 7B	Alignment - LAT	4800.*	Prop 100yr	559.00	7.68	13.40		13.55	0.001242	3.42	331.72	662.64	0.32
LAT 7B	Alignment - LAT	4850.*	Exist 100yr	559.00	7.72	13.46		13.60	0.001227	3.34	371.01	781.50	0.31
LAT 7B	Alignment - LAT	4850.*	Prop 100yr	559.00	7.72	13.48		13.61	0.001170	3.27	386.55	811.04	0.31
LAT 7B	Alignment - LAT	4900.*	Exist 100yr	559.00	7.75	13.55		13.65	0.001089	3.10	444.72	910.48	0.29
LAT 7B	Alignment - LAT	4900.*	Prop 100yr	559.00	7.75	13.56		13.66	0.001044	3.04	458.61	928.85	0.29
LAT 7B	Alignment - LAT	4950.*	Exist 100yr	559.00	7.79	13.62		13.71	0.000966	2.87	515.47	1000.26	0.28
LAT 7B	Alignment - LAT	4950.*	Prop 100yr	559.00	7.79	13.63		13.71	0.000934	2.83	526.95	1013.10	0.27
LAT 7B	Alignment - LAT	5000	Exist 100yr	559.00	7.82	13.67		13.75	0.000834	2.92	565.49	1054.05	0.26
LAT 7B	Alignment - LAT	5000	Prop 100yr	559.00	7.82	13.68		13.76	0.000811	2.89	575.43	1064.42	0.26
LAT 7B	Alignment - LAT	5500	Exist 100yr	559.00	8.49	14.07		14.15	0.000768	2.68	499.77	930.68	0.25
LAT 7B	Alignment - LAT	5500	Prop 100yr	559.00	8.49	14.07		14.15	0.000765	2.67	501.27	932.62	0.25
LAT 7B	Alignment - LAT	6000	Exist 100yr	559.00	9.58	14.53		14.64	0.001227	2.83	322.96	603.35	0.30
LAT 7B	Alignment - LAT	6000	Prop 100yr	559.00	9.58	14.53		14.64	0.001227	2.83	323.07	603.82	0.30
LAT 7B	Alignment - LAT	6500	Exist 100yr	559.00	10.66	15.18	13.32	15.29	0.001372	2.89	434.93	1551.28	0.32
LAT 7B	Alignment - LAT	6500	Prop 100yr	559.00	10.66	15.18	13.32	15.29	0.001372	2.89	434.94	1551.31	0.32
LAT 7B	Alignment - LAT	7000	Exist 100yr	559.00	11.65	15.73		15.76	0.000658	2.05	836.37	1998.02	0.22
LAT 7B	Alignment - LAT	7000	Prop 100yr	559.00	11.65	15.73		15.76	0.000658	2.05	836.37	1998.02	0.22
LAT 7B	Alignment - LAT	7500	Exist 100yr	559.00	12.76	16.02		16.03	0.000463	1.64	1174.64	2359.82	0.18
LAT 7B	Alignment - LAT	7500	Prop 100yr	559.00	12.76	16.02		16.03	0.000463	1.64	1174.64	2359.82	0.18
LAT 7B	Alignment - LAT	8000	Exist 100yr	559.00	13.12	16.14		16.15	0.000130	0.72	2088.26	3332.14	0.09
LAT 7B	Alignment - LAT	8000	Prop 100yr	559.00	13.12	16.14		16.15	0.000130	0.72	2088.26	3332.14	0.09
LAT 7D	Alignment - LAT	10500	Exist 100yr	373.30	4.38	12.50		12.55	0.000280	1.91	258.48	348.09	0.15
LAT 7D	Alignment - LAT	10500	Prop 100yr	373.30	4.38	12.46		12.52	0.000291	1.93	246.48	323.72	0.16
LAT 7D	Alignment - LAT	11000	Exist 100yr	373.30	5.18	12.65		12.73	0.000436	2.27	164.79	37.27	0.19
LAT 7D	Alignment - LAT	11000	Prop 100yr	373.30	5.18	12.62		12.70	0.000445	2.28	163.67	37.15	0.19
LAT 7D	Alignment - LAT	11500	Exist 100yr	373.30	5.63	12.90		13.01	0.000691	2.70	138.17	33.28	0.23
LAT 7D	Alignment - LAT	11500	Prop 100yr	373.30	5.63	12.87		12.99	0.000702	2.72	137.33	33.19	0.24
LAT 7D	Alignment - LAT	11550.*	Exist 100yr	373.30	5.66	12.93		13.05	0.000714	2.73	136.70	33.26	0.24
LAT 7D	Alignment - LAT	11550.*	Prop 100yr	373.30	5.66	12.91		13.03	0.000726	2.75	135.88	33.17	0.24
LAT 7D	Alignment - LAT	11600.*	Exist 100yr	373.30	5.70	12.97		13.09	0.000737	2.76	135.27	33.22	0.24
LAT 7D	Alignment - LAT	11600.*	Prop 100yr	373.30	5.70	12.94		13.06	0.000749	2.78	134.48	33.13	0.24
LAT 7D	Alignment - LAT	11650.*	Exist 100yr	373.30	5.73	13.00		13.12	0.000760	2.79	133.94	33.19	0.24
LAT 7D	Alignment - LAT	11650.*	Prop 100yr	373.30	5.73	12.98		13.10	0.000772	2.80	133.16	33.10	0.25
LAT 7D	Alignment - LAT	11700.*	Exist 100yr	373.30	5.76	13.04		13.16	0.000783	2.81	132.68	33.17	0.25
LAT 7D	Alignment - LAT	11700.*	Prop 100yr	373.30	5.76	13.02		13.14	0.000795	2.83	131.92	33.08	0.25
LAT 7D	Alignment - LAT	11750.*	Exist 100yr	373.30	5.80	13.08		13.20	0.000805	2.84	131.47	33.11	0.25
LAT 7D	Alignment - LAT	11750.*	Prop 100yr	373.30	5.80	13.06		13.18	0.000817	2.86	130.74	33.02	0.25
LAT 7D	Alignment - LAT	11800.*	Exist 100yr	373.30	5.83	13.12		13.25	0.000827	2.86	130.36	33.07	0.25
LAT 7D	Alignment - LAT	11800.*	Prop 100yr	373.30	5.83	13.10		13.23	0.000839	2.88	129.65	32.98	0.26
LAT 7D	Alignment - LAT	11850.*	Exist 100yr	373.30	5.86	13.16		13.29	0.000847	2.88	129.41	33.05	0.26
LAT 7D	Alignment - LAT	11850.*	Prop 100yr	373.30	5.86	13.14		13.27	0.000859	2.90	128.72	32.97	0.26
LAT 7D	Alignment - LAT	11900.*	Exist 100yr	373.30	5.89	13.20		13.33	0.000867	2.91	128.43	33.02	0.26
LAT 7D	Alignment - LAT	11900.*	Prop 100yr	373.30	5.89	13.18		13.31	0.000880	2.92	127.76	32.94	0.26
LAT 7D	Alignment - LAT	11950.*	Exist 100yr	373.30	5.93	13.24		13.38	0.000887	2.93	127.55	33.00	0.26
LAT 7D	Alignment - LAT	11950.*	Prop 100yr	373.30	5.93	13.22		13.36	0.000899	2.94	126.90	32.92	0.26
LAT 7D	Alignment - LAT	11973											

HEC-RAS Plan: Plan 05 (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
LAT 7D	Alignment - LAT	12050.*	Exist 100yr	373.30	6.07	13.99	10.24	14.08	0.000588	2.50	149.48	36.11	0.22
LAT 7D	Alignment - LAT	12050.*	Prop 100yr	373.30	6.07	13.97	10.24	14.06	0.000596	2.51	148.74	36.02	0.22
LAT 7D	Alignment - LAT	12100.*	Exist 100yr	373.30	6.18	14.02		14.11	0.000599	2.51	148.98	36.42	0.22
LAT 7D	Alignment - LAT	12100.*	Prop 100yr	373.30	6.18	14.00		14.09	0.000607	2.52	148.24	36.33	0.22
LAT 7D	Alignment - LAT	12150.*	Exist 100yr	373.30	6.28	14.05		14.14	0.000609	2.51	148.54	36.70	0.22
LAT 7D	Alignment - LAT	12150.*	Prop 100yr	373.30	6.28	14.03		14.13	0.000618	2.53	147.81	36.61	0.22
LAT 7D	Alignment - LAT	12200.*	Exist 100yr	373.30	6.39	14.08		14.18	0.000624	2.52	148.08	37.17	0.22
LAT 7D	Alignment - LAT	12200.*	Prop 100yr	373.30	6.39	14.06		14.16	0.000630	2.53	147.36	37.01	0.22
LAT 7D	Alignment - LAT	12250.*	Exist 100yr	373.30	6.50	14.11		14.21	0.000637	2.53	147.84	37.71	0.22
LAT 7D	Alignment - LAT	12250.*	Prop 100yr	373.30	6.50	14.09		14.19	0.000644	2.54	147.11	37.57	0.23
LAT 7D	Alignment - LAT	12300.*	Exist 100yr	373.30	6.61	14.14		14.24	0.000648	2.53	147.64	38.20	0.23
LAT 7D	Alignment - LAT	12300.*	Prop 100yr	373.30	6.61	14.12		14.22	0.000655	2.54	146.92	38.06	0.23
LAT 7D	Alignment - LAT	12350.*	Exist 100yr	373.30	6.72	14.17		14.27	0.000652	2.53	147.30	38.58	0.23
LAT 7D	Alignment - LAT	12350.*	Prop 100yr	373.30	6.72	14.15		14.25	0.000663	2.55	146.59	38.45	0.23
LAT 7D	Alignment - LAT	12400.*	Exist 100yr	373.30	6.82	14.20		14.30	0.000655	2.54	147.12	38.88	0.23
LAT 7D	Alignment - LAT	12400.*	Prop 100yr	373.30	6.82	14.19		14.29	0.000665	2.55	146.43	38.77	0.23
LAT 7D	Alignment - LAT	12450.*	Exist 100yr	373.30	6.93	14.24		14.34	0.000658	2.54	146.95	39.15	0.23
LAT 7D	Alignment - LAT	12450.*	Prop 100yr	373.30	6.93	14.22		14.32	0.000668	2.55	146.27	39.05	0.23
LAT 7D	Alignment - LAT	12500	Exist 100yr	373.30	7.04	14.27		14.37	0.000661	2.55	146.72	39.37	0.23
LAT 7D	Alignment - LAT	12500	Prop 100yr	373.30	7.04	14.25		14.35	0.000671	2.56	146.06	39.29	0.23
LAT 7D	Alignment - LAT	13000	Exist 100yr	373.30	7.91	14.64		14.76	0.000904	2.80	133.36	38.63	0.27
LAT 7D	Alignment - LAT	13000	Prop 100yr	373.30	7.91	14.63		14.75	0.000913	2.81	132.90	38.56	0.27
LAT 7D	Alignment - LAT	13050.*	Exist 100yr	373.30	7.97	14.68		14.81	0.000914	2.83	132.09	37.95	0.27
LAT 7D	Alignment - LAT	13050.*	Prop 100yr	373.30	7.97	14.67		14.80	0.000922	2.84	131.65	37.89	0.27
LAT 7D	Alignment - LAT	13100.*	Exist 100yr	373.30	8.02	14.73		14.85	0.000924	2.86	130.73	37.23	0.27
LAT 7D	Alignment - LAT	13100.*	Prop 100yr	373.30	8.02	14.72		14.84	0.000932	2.86	130.31	37.17	0.27
LAT 7D	Alignment - LAT	13110		Culvert									
LAT 7D	Alignment - LAT	13150.*	Exist 100yr	373.30	8.08	15.93	11.96	15.97	0.000286	1.83	370.59	525.43	0.15
LAT 7D	Alignment - LAT	13150.*	Prop 100yr	373.30	8.08	15.92	11.96	15.96	0.000290	1.84	366.60	520.59	0.16
LAT 7D	Alignment - LAT	13200.*	Exist 100yr	373.30	8.14	15.94		15.99	0.000299	1.87	364.56	535.64	0.16
LAT 7D	Alignment - LAT	13200.*	Prop 100yr	373.30	8.14	15.93		15.98	0.000302	1.88	360.60	526.77	0.16
LAT 7D	Alignment - LAT	13250.*	Exist 100yr	373.30	8.19	15.95		16.00	0.000312	1.91	361.40	557.73	0.16
LAT 7D	Alignment - LAT	13250.*	Prop 100yr	373.30	8.19	15.95		16.00	0.000316	1.92	357.36	549.65	0.16
LAT 7D	Alignment - LAT	13300.*	Exist 100yr	373.30	8.25	15.97		16.02	0.000326	1.95	359.70	577.45	0.16
LAT 7D	Alignment - LAT	13300.*	Prop 100yr	373.30	8.25	15.96		16.01	0.000330	1.96	355.61	569.71	0.17
LAT 7D	Alignment - LAT	13350.*	Exist 100yr	373.30	8.31	15.98		16.04	0.000345	2.01	354.54	586.53	0.17
LAT 7D	Alignment - LAT	13350.*	Prop 100yr	373.30	8.31	15.98		16.03	0.000349	2.02	350.48	579.50	0.17
LAT 7D	Alignment - LAT	13400.*	Exist 100yr	373.30	8.37	16.00		16.05	0.000362	2.05	355.35	603.27	0.17
LAT 7D	Alignment - LAT	13400.*	Prop 100yr	373.30	8.37	15.99		16.05	0.000367	2.06	351.29	596.62	0.17
LAT 7D	Alignment - LAT	13450.*	Exist 100yr	373.30	8.42	16.02		16.07	0.000381	2.09	355.60	608.01	0.18
LAT 7D	Alignment - LAT	13450.*	Prop 100yr	373.30	8.42	16.01		16.07	0.000385	2.10	351.62	602.11	0.18
LAT 7D	Alignment - LAT	13500	Exist 100yr	373.30	8.48	16.04		16.09	0.000403	2.14	356.17	616.21	0.18
LAT 7D	Alignment - LAT	13500	Prop 100yr	373.30	8.48	16.03		16.09	0.000408	2.15	352.27	610.69	0.18
LAT 7D	Alignment - LAT	14000	Exist 100yr	34.10	9.05	16.16		16.16	0.000003	0.19	444.52	835.79	0.02
LAT 7D	Alignment - LAT	14000	Prop 100yr	34.10	9.05	16.15		16.15	0.000003	0.19	440.50	830.46	0.02
LAT 7D	Alignment - LAT	14500	Exist 100yr	34.10	9.63	16.16		16.16	0.000005	0.23	313.64	606.06	0.02
LAT 7D	Alignment - LAT	14500	Prop 100yr	34.10	9.63	16.15		16.15	0.000005	0.23	310.74	602.01	0.02
LAT 7D	Alignment - LAT	15000	Exist 100yr	34.10	10.29	16.16		16.16	0.000010	0.29	187.88	393.67	0.03
LAT 7D	Alignment - LAT	15000	Prop 100yr	34.10	10.29	16.16		16.16	0.000010	0.29	186.01	388.81	0.03
LAT 7D	Alignment - LAT	15500	Exist 100yr	34.10	10.90	16.17		16.17	0.000016	0.36	141.83	496.96	0.04
LAT 7D	Alignment - LAT	15500	Prop 100yr	34.10	10.90	16.16		16.16	0.000016	0.36	139.51	488.26	0.04
LAT 7D	Alignment - LAT	16000	Exist 100yr	34.10	11.45	16.18		16.18	0.000023	0.39	130.87	196.34	0.04
LAT 7D	Alignment - LAT	16000	Prop 100yr	34.10	11.45	16.17		16.17	0.000024	0.39	129.97	195.08	0.04
LAT 7D	Alignment - LAT	16500	Exist 100yr	34.10	11.78	16.19		16.19	0.000026	0.40	147.44	253.39	0.04
LAT 7D	Alignment - LAT	16500	Prop 100yr	34.10	11.78	16.19		16.19	0.000027	0.40	146.30	251.51	0.04
LAT 7D	Alignment - LAT	17000	Exist 100yr	34.10	12.20	16.20		16.21	0.000030	0.41	183.62	486.75	0.05
LAT 7D	Alignment - LAT	17000	Prop 100yr	34.10	12.20	16.20		16.20	0.000030	0.42	181.51	481.86	0.05
LAT 7D	Alignment - LAT	17050.*	Exist 100yr	34.10	12.24	16.21		16.21	0.000036	0.45	158.03	500.79	0.05
LAT 7D	Alignment - LAT	17050.*	Prop 100yr	34.10	12.24	16.20		16.20	0.000037	0.45	155.86	494.69	0.05
LAT 7D	Alignment - LAT	17071		Culvert									

HEC-RAS Plan: Plan 05 (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
LAT 7D	Alignment - LAT	17100.*	Exist 100yr	34.10	12.27	16.32	13.31	16.32	0.000028	0.40	202.62	635.63	0.04
LAT 7D	Alignment - LAT	17100.*	Prop 100yr	34.10	12.27	16.32	13.31	16.32	0.000028	0.41	199.91	633.63	0.05
LAT 7D	Alignment - LAT	17150.*	Exist 100yr	34.10	12.31	16.32		16.33	0.000031	0.43	181.75	638.65	0.05
LAT 7D	Alignment - LAT	17150.*	Prop 100yr	34.10	12.31	16.32		16.32	0.000032	0.43	179.04	636.61	0.05
LAT 7D	Alignment - LAT	17200.*	Exist 100yr	34.10	12.34	16.32		16.33	0.000035	0.45	165.02	639.17	0.05
LAT 7D	Alignment - LAT	17200.*	Prop 100yr	34.10	12.34	16.32		16.32	0.000035	0.45	162.33	637.11	0.05
LAT 7D	Alignment - LAT	17250.*	Exist 100yr	34.10	12.38	16.33		16.33	0.000036	0.45	153.91	572.70	0.05
LAT 7D	Alignment - LAT	17250.*	Prop 100yr	34.10	12.38	16.32		16.33	0.000036	0.46	151.52	568.44	0.05
LAT 7D	Alignment - LAT	17300.*	Exist 100yr	34.10	12.42	16.33		16.33	0.000036	0.45	152.52	528.90	0.05
LAT 7D	Alignment - LAT	17300.*	Prop 100yr	34.10	12.42	16.32		16.33	0.000037	0.46	150.33	524.90	0.05
LAT 7D	Alignment - LAT	17350.*	Exist 100yr	34.10	12.45	16.33		16.33	0.000035	0.45	155.95	478.59	0.05
LAT 7D	Alignment - LAT	17350.*	Prop 100yr	34.10	12.45	16.33		16.33	0.000035	0.45	153.99	473.29	0.05
LAT 7D	Alignment - LAT	17400.*	Exist 100yr	34.10	12.49	16.33		16.33	0.000033	0.43	165.74	456.06	0.05
LAT 7D	Alignment - LAT	17400.*	Prop 100yr	34.10	12.49	16.33		16.33	0.000033	0.43	163.87	452.07	0.05
LAT 7D	Alignment - LAT	17450.*	Exist 100yr	34.10	12.52	16.33		16.34	0.000030	0.41	178.37	453.25	0.05
LAT 7D	Alignment - LAT	17450.*	Prop 100yr	34.10	12.52	16.33		16.33	0.000031	0.41	176.53	449.90	0.05
LAT 7D	Alignment - LAT	17500	Exist 100yr	34.10	12.56	16.34		16.34	0.000028	0.39	192.20	457.01	0.04
LAT 7D	Alignment - LAT	17500	Prop 100yr	34.10	12.56	16.33		16.33	0.000028	0.40	190.35	454.10	0.04
LAT 7D	Alignment - LAT	18000	Exist 100yr	34.10	12.52	16.35		16.36	0.000051	0.55	80.50	175.88	0.06
LAT 7D	Alignment - LAT	18000	Prop 100yr	34.10	12.52	16.35		16.35	0.000051	0.55	79.83	173.73	0.06
LAT 7D	Alignment - LAT	18500	Exist 100yr	34.10	12.46	16.38		16.38	0.000055	0.57	83.05	168.00	0.06
LAT 7D	Alignment - LAT	18500	Prop 100yr	34.10	12.46	16.38		16.38	0.000056	0.57	82.44	166.36	0.06
LAT 7D	Alignment - LAT	19000	Exist 100yr	34.10	12.33	16.41		16.41	0.000065	0.62	69.13	100.63	0.07
LAT 7D	Alignment - LAT	19000	Prop 100yr	34.10	12.33	16.40		16.41	0.000065	0.62	68.78	99.37	0.07
LAT 7D	Alignment - LAT	19050.*	Exist 100yr	34.10	12.44	16.41		16.42	0.000069	0.63	68.05	103.97	0.07
LAT 7D	Alignment - LAT	19050.*	Prop 100yr	34.10	12.44	16.41		16.41	0.000069	0.63	67.69	102.79	0.07
LAT 7D	Alignment - LAT	19091		Culvert									
LAT 7D	Alignment - LAT	19150.*	Exist 100yr	34.10	12.66	16.50	13.85	16.50	0.000067	0.62	76.78	139.61	0.07
LAT 7D	Alignment - LAT	19150.*	Prop 100yr	34.10	12.66	16.50	13.85	16.50	0.000068	0.62	76.31	138.09	0.07
LAT 7D	Alignment - LAT	19200.*	Exist 100yr	34.10	12.77	16.50		16.51	0.000073	0.63	76.09	148.57	0.07
LAT 7D	Alignment - LAT	19200.*	Prop 100yr	34.10	12.77	16.50		16.51	0.000073	0.63	75.60	144.71	0.07
LAT 7D	Alignment - LAT	19250.*	Exist 100yr	34.10	12.89	16.51		16.51	0.000078	0.64	76.35	160.76	0.07
LAT 7D	Alignment - LAT	19250.*	Prop 100yr	34.10	12.89	16.50		16.51	0.000079	0.64	75.82	158.48	0.07
LAT 7D	Alignment - LAT	19300.*	Exist 100yr	34.10	13.00	16.51		16.52	0.000084	0.65	76.88	176.66	0.08
LAT 7D	Alignment - LAT	19300.*	Prop 100yr	34.10	13.00	16.51		16.51	0.000085	0.65	76.30	174.54	0.08
LAT 7D	Alignment - LAT	19350.*	Exist 100yr	34.10	13.11	16.51		16.52	0.000090	0.66	78.15	189.98	0.08
LAT 7D	Alignment - LAT	19350.*	Prop 100yr	34.10	13.11	16.51		16.52	0.000091	0.66	77.53	188.09	0.08
LAT 7D	Alignment - LAT	19400.*	Exist 100yr	34.10	13.22	16.52		16.53	0.000096	0.67	79.66	196.81	0.08
LAT 7D	Alignment - LAT	19400.*	Prop 100yr	34.10	13.22	16.52		16.52	0.000097	0.67	79.03	195.10	0.08
LAT 7D	Alignment - LAT	19450.*	Exist 100yr	34.10	13.33	16.52		16.53	0.000103	0.68	80.80	198.98	0.08
LAT 7D	Alignment - LAT	19450.*	Prop 100yr	34.10	13.33	16.52		16.53	0.000104	0.68	80.17	197.44	0.08
LAT 7D	Alignment - LAT	19500	Exist 100yr	34.10	13.44	16.53		16.54	0.000111	0.68	81.06	196.47	0.09
LAT 7D	Alignment - LAT	19500	Prop 100yr	34.10	13.44	16.53		16.53	0.000112	0.69	80.44	195.12	0.09
LAT 7D	Alignment - LAT	20000	Exist 100yr	34.10	13.43	16.58		16.59	0.000109	0.68	74.38	195.67	0.09
LAT 7D	Alignment - LAT	20000	Prop 100yr	34.10	13.43	16.58		16.59	0.000110	0.68	73.87	194.37	0.09
LAT 7D	Alignment - LAT	20050.*	Exist 100yr	34.10	13.43	16.59		16.60	0.000112	0.69	68.96	191.17	0.09
LAT 7D	Alignment - LAT	20050.*	Prop 100yr	34.10	13.43	16.59		16.59	0.000113	0.70	68.47	189.56	0.09
LAT 7D	Alignment - LAT	20100.*	Exist 100yr	34.10	13.44	16.60		16.60	0.000114	0.71	63.07	183.43	0.09
LAT 7D	Alignment - LAT	20100.*	Prop 100yr	34.10	13.44	16.59		16.60	0.000115	0.71	62.60	181.37	0.09
LAT 7D	Alignment - LAT	20150.*	Exist 100yr	34.10	13.44	16.60		16.61	0.000115	0.72	57.88	138.37	0.09
LAT 7D	Alignment - LAT	20150.*	Prop 100yr	34.10	13.44	16.60		16.61	0.000115	0.72	57.33	134.44	0.09
LAT 7D	Alignment - LAT	20200.*	Exist 100yr	34.10	13.45	16.61		16.61	0.000114	0.72	54.33	110.22	0.09
LAT 7D	Alignment - LAT	20200.*	Prop 100yr	34.10	13.45	16.60		16.61	0.000115	0.72	54.06	109.41	0.09
LAT 7D	Alignment - LAT	20250.*	Exist 100yr	34.10	13.45	16.61		16.62	0.000112	0.72	53.10	67.75	0.09
LAT 7D	Alignment - LAT	20250.*	Prop 100yr	34.10	13.45	16.61		16.62	0.000113	0.72	52.93	67.39	0.09
LAT 7D	Alignment - LAT	20300.*	Exist 100yr	34.10	13.45	16.62		16.63	0.000111	0.72	52.85	65.85	0.09
LAT 7D	Alignment - LAT	20300.*	Prop 100yr	34.10	13.45	16.61		16.62	0.000112	0.72	52.69	65.48	0.09
LAT 7D	Alignment - LAT	20350.*	Exist 100yr	34.10	13.46	16.62		16.63	0.000110	0.72	52.57	64.12	0.09
LAT 7D	Alignment - LAT	20350.*	Prop 100yr	34.10	13.46	16.62		16.63	0.000111	0.72	52.41	63.78	0.09

HEC-RAS Plan: Plan 05 (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
LAT 7D	Alignment - LAT	20400.*	Exist 100yr	34.10	13.46	16.63		16.64	0.000110	0.72	52.25	62.75	0.09
LAT 7D	Alignment - LAT	20400.*	Prop 100yr	34.10	13.46	16.63		16.63	0.000110	0.73	52.10	62.42	0.09
LAT 7D	Alignment - LAT	20433											
LAT 7D	Alignment - LAT	20500	Exist 100yr	34.10	13.47	16.67	14.39	16.67	0.000104	0.72	53.55	64.77	0.08
LAT 7D	Alignment - LAT	20500	Prop 100yr	34.10	13.47	16.66	14.39	16.67	0.000105	0.72	53.39	64.46	0.08
LAT 7D	Alignment - LAT	21000	Exist 100yr	34.10	13.59	16.72		16.73	0.000131	0.75	49.82	44.57	0.09
LAT 7D	Alignment - LAT	21000	Prop 100yr	34.10	13.59	16.72		16.73	0.000132	0.75	49.72	44.47	0.09
LAT 7D	Alignment - LAT	21050.*	Exist 100yr	34.10	13.61	16.73		16.74	0.000131	0.75	49.53	43.73	0.09
LAT 7D	Alignment - LAT	21050.*	Prop 100yr	34.10	13.61	16.73		16.74	0.000131	0.75	49.43	43.63	0.09
LAT 7D	Alignment - LAT	21100.*	Exist 100yr	34.10	13.63	16.74		16.75	0.000131	0.76	49.25	43.26	0.09
LAT 7D	Alignment - LAT	21100.*	Prop 100yr	34.10	13.63	16.74		16.74	0.000131	0.76	49.15	43.15	0.09
LAT 7D	Alignment - LAT	21150.*	Exist 100yr	34.10	13.65	16.74		16.75	0.000131	0.76	48.95	42.41	0.09
LAT 7D	Alignment - LAT	21150.*	Prop 100yr	34.10	13.65	16.74		16.75	0.000131	0.76	48.86	42.31	0.09
LAT 7D	Alignment - LAT	21200.*	Exist 100yr	34.10	13.67	16.75		16.76	0.000131	0.76	48.58	41.54	0.09
LAT 7D	Alignment - LAT	21200.*	Prop 100yr	34.10	13.67	16.75		16.76	0.000131	0.76	48.49	41.44	0.09
LAT 7D	Alignment - LAT	21250.*	Exist 100yr	34.10	13.69	16.76		16.77	0.000131	0.77	48.32	41.06	0.09
LAT 7D	Alignment - LAT	21250.*	Prop 100yr	34.10	13.69	16.75		16.76	0.000131	0.77	48.23	40.96	0.09
LAT 7D	Alignment - LAT	21300.*	Exist 100yr	34.10	13.71	16.76		16.77	0.000131	0.77	47.94	40.18	0.09
LAT 7D	Alignment - LAT	21300.*	Prop 100yr	34.10	13.71	16.76		16.77	0.000131	0.77	47.86	40.08	0.09
LAT 7D	Alignment - LAT	21350.*	Exist 100yr	34.10	13.73	16.77		16.78	0.000131	0.77	47.58	39.30	0.09
LAT 7D	Alignment - LAT	21350.*	Prop 100yr	34.10	13.73	16.77		16.78	0.000131	0.78	47.50	39.21	0.09
LAT 7D	Alignment - LAT	21400.*	Exist 100yr	34.10	13.75	16.78		16.79	0.000131	0.78	47.36	38.82	0.09
LAT 7D	Alignment - LAT	21400.*	Prop 100yr	34.10	13.75	16.77		16.78	0.000131	0.78	47.28	38.73	0.09
LAT 7D	Alignment - LAT	21419											
LAT 7D	Alignment - LAT	21450.*	Exist 100yr	34.10	13.77	16.93	14.70	16.93	0.000103	0.72	52.83	44.42	0.08
LAT 7D	Alignment - LAT	21450.*	Prop 100yr	34.10	13.77	16.92	14.70	16.93	0.000103	0.72	52.78	44.38	0.08
LAT 7D	Alignment - LAT	21500	Exist 100yr	34.10	13.79	16.93		16.94	0.000104	0.73	52.24	43.38	0.09
LAT 7D	Alignment - LAT	21500	Prop 100yr	34.10	13.79	16.93		16.94	0.000104	0.73	52.20	43.34	0.09
LAT 7D	Alignment - LAT	22000	Exist 100yr	34.10	14.03	16.99		17.00	0.000125	0.75	50.64	73.52	0.09
LAT 7D	Alignment - LAT	22000	Prop 100yr	34.10	14.03	16.99		17.00	0.000126	0.75	50.57	73.32	0.09
LAT 7D	Alignment - LAT	22500	Exist 100yr	34.10	14.00	17.05		17.05	0.000106	0.70	66.44	229.78	0.08
LAT 7D	Alignment - LAT	22500	Prop 100yr	34.10	14.00	17.05		17.05	0.000106	0.70	66.27	228.95	0.08
LAT 7D	Alignment - LAT	22550.*	Exist 100yr	34.10	14.07	17.05		17.06	0.000116	0.72	56.80	183.67	0.09
LAT 7D	Alignment - LAT	22550.*	Prop 100yr	34.10	14.07	17.05		17.06	0.000116	0.72	56.66	182.41	0.09
LAT 7D	Alignment - LAT	22600.*	Exist 100yr	34.10	14.14	17.06		17.07	0.000126	0.73	49.69	123.87	0.09
LAT 7D	Alignment - LAT	22600.*	Prop 100yr	34.10	14.14	17.06		17.06	0.000127	0.73	49.60	123.10	0.09
LAT 7D	Alignment - LAT	22650.*	Exist 100yr	34.10	14.21	17.06		17.07	0.000137	0.75	45.70	24.17	0.10
LAT 7D	Alignment - LAT	22650.*	Prop 100yr	34.10	14.21	17.06		17.07	0.000137	0.75	45.68	24.16	0.10
LAT 7D	Alignment - LAT	22700.*	Exist 100yr	34.10	14.28	17.07		17.08	0.000148	0.76	44.89	24.23	0.10
LAT 7D	Alignment - LAT	22700.*	Prop 100yr	34.10	14.28	17.07		17.08	0.000148	0.76	44.88	24.23	0.10
LAT 7D	Alignment - LAT	22750.*	Exist 100yr	34.10	14.34	17.08		17.09	0.000157	0.78	44.04	37.51	0.10
LAT 7D	Alignment - LAT	22750.*	Prop 100yr	34.10	14.34	17.08		17.09	0.000157	0.78	44.01	36.33	0.10
LAT 7D	Alignment - LAT	22781											
LAT 7D	Alignment - LAT	22800.*	Exist 100yr	34.10	14.41	17.18	15.26	17.19	0.000139	0.73	59.31	255.54	0.10
LAT 7D	Alignment - LAT	22800.*	Prop 100yr	34.10	14.41	17.18	15.26	17.19	0.000139	0.73	59.14	254.01	0.10
LAT 7D	Alignment - LAT	22850.*	Exist 100yr	34.10	14.48	17.19		17.20	0.000148	0.75	60.99	271.13	0.10
LAT 7D	Alignment - LAT	22850.*	Prop 100yr	34.10	14.48	17.19		17.20	0.000148	0.75	60.81	269.79	0.10
LAT 7D	Alignment - LAT	22900.*	Exist 100yr	34.10	14.55	17.20		17.21	0.000159	0.76	62.59	301.07	0.10
LAT 7D	Alignment - LAT	22900.*	Prop 100yr	34.10	14.55	17.20		17.21	0.000159	0.76	62.40	299.56	0.10
LAT 7D	Alignment - LAT	22950.*	Exist 100yr	34.10	14.62	17.21		17.22	0.000169	0.77	65.33	335.19	0.10
LAT 7D	Alignment - LAT	22950.*	Prop 100yr	34.10	14.62	17.21		17.22	0.000170	0.77	65.12	333.65	0.10
LAT 7D	Alignment - LAT	23000	Exist 100yr	34.10	14.69	17.21		17.23	0.000204	0.84	40.81	24.51	0.11
LAT 7D	Alignment - LAT	23000	Prop 100yr	34.10	14.69	17.21		17.23	0.000204	0.84	40.80	24.51	0.11
LAT 7D	Alignment - LAT	23500	Exist 100yr	34.10	14.83	17.47		17.47	0.000029	0.34	251.14	516.18	0.04
LAT 7D	Alignment - LAT	23500	Prop 100yr	34.10	14.83	17.47		17.47	0.000029	0.34	250.97	516.17	0.04
LAT 7D	Alignment - LAT	24000	Exist 100yr	34.10	14.90	17.64		17.64	0.000015	0.25	292.84	378.69	0.03
LAT 7D	Alignment - LAT	24000	Prop 100yr	34.10	14.90	17.64		17.64	0.000015	0.25	292.77	378.64	0.03
LAT 7D	Alignment - LAT	24500	Exist 100yr	34.10	15.18	17.65		17.65	0.000005	0.15	437.10	414.18	0.02
LAT 7D	Alignment - LAT	24500	Prop 100yr	34.10	15.18	17.65		17.65	0.000005	0.15	437.02	414.15	0.02

HEC-RAS Plan: Plan 05 (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)	
LAT 7D	Alignment - LAT	25000	Exist 100yr	34.10	15.00	17.65		17.66	0.000049	0.46	109.58	88.77	0.06
LAT 7D	Alignment - LAT	25000	Prop 100yr	34.10	15.00	17.65		17.66	0.000049	0.46	109.56	88.74	0.06
LAT 7D	Alignment - LAT	25050.*	Exist 100yr	34.10	15.02	17.66		17.66	0.000050	0.47	100.08	69.82	0.06
LAT 7D	Alignment - LAT	25050.*	Prop 100yr	34.10	15.02	17.66		17.66	0.000050	0.47	100.07	69.82	0.06
LAT 7D	Alignment - LAT	25066											
LAT 7D	Alignment - LAT	25100.*	Exist 100yr	34.10	15.03	18.28	15.87	18.28	0.000015	0.29	355.85	1187.09	0.03
LAT 7D	Alignment - LAT	25100.*	Prop 100yr	34.10	15.03	18.28	15.87	18.28	0.000015	0.29	355.63	1186.58	0.03
LAT 7D	Alignment - LAT	25150.*	Exist 100yr	34.10	15.05	18.28		18.28	0.000016	0.30	354.99	1214.78	0.03
LAT 7D	Alignment - LAT	25150.*	Prop 100yr	34.10	15.05	18.28		18.28	0.000016	0.30	354.76	1214.29	0.03
LAT 7D	Alignment - LAT	25200.*	Exist 100yr	34.10	15.06	18.28		18.28	0.000017	0.31	351.03	1214.82	0.04
LAT 7D	Alignment - LAT	25200.*	Prop 100yr	34.10	15.06	18.28		18.28	0.000017	0.31	350.80	1214.35	0.04
LAT 7D	Alignment - LAT	25250.*	Exist 100yr	34.10	15.08	18.28		18.28	0.000018	0.31	353.35	1213.19	0.04
LAT 7D	Alignment - LAT	25250.*	Prop 100yr	34.10	15.08	18.28		18.28	0.000018	0.31	353.11	1212.70	0.04
LAT 7D	Alignment - LAT	25300.*	Exist 100yr	34.10	15.10	18.28		18.28	0.000018	0.31	356.61	1252.11	0.04
LAT 7D	Alignment - LAT	25300.*	Prop 100yr	34.10	15.10	18.28		18.28	0.000018	0.31	356.38	1251.59	0.04
LAT 7D	Alignment - LAT	25350.*	Exist 100yr	34.10	15.11	18.28		18.28	0.000018	0.31	365.58	1294.37	0.04
LAT 7D	Alignment - LAT	25350.*	Prop 100yr	34.10	15.11	18.28		18.28	0.000018	0.31	365.34	1293.84	0.04
LAT 7D	Alignment - LAT	25400.*	Exist 100yr	34.10	15.13	18.28		18.28	0.000018	0.31	372.91	1318.35	0.04
LAT 7D	Alignment - LAT	25400.*	Prop 100yr	34.10	15.13	18.28		18.28	0.000018	0.31	372.66	1317.82	0.04
LAT 7D	Alignment - LAT	25450.*	Exist 100yr	34.10	15.14	18.28		18.28	0.000017	0.30	393.04	1340.15	0.03
LAT 7D	Alignment - LAT	25450.*	Prop 100yr	34.10	15.14	18.28		18.28	0.000017	0.30	392.80	1339.69	0.03
LAT 7D	Alignment - LAT	25500	Exist 100yr	34.10	15.16	18.28		18.29	0.000072	0.60	73.22	393.65	0.07
LAT 7D	Alignment - LAT	25500	Prop 100yr	34.10	15.16	18.28		18.29	0.000072	0.60	73.15	392.62	0.07
LAT 7D	Alignment - LAT	26000	Exist 100yr	34.10	15.69	18.33		18.34	0.000153	0.77	44.43	24.25	0.10
LAT 7D	Alignment - LAT	26000	Prop 100yr	34.10	15.69	18.33		18.34	0.000153	0.77	44.43	24.25	0.10
LAT 7E	Alignment - LAT	4000	Exist 100yr	592.20	-1.34	9.83		9.83	0.000016	0.58	2488.71	1116.71	0.04
LAT 7E	Alignment - LAT	4000	Prop 100yr	592.20	-1.34	8.60		8.61	0.000110	1.34	1115.50	1116.71	0.10
LAT 7E	Alignment - LAT	4050.*	Exist 100yr	592.20	-1.26	9.83		9.83	0.000010	0.46	3315.35	1522.63	0.03
LAT 7E	Alignment - LAT	4050.*	Prop 100yr	592.20	-1.26	8.61		8.62	0.000085	1.18	1455.59	1522.63	0.09
LAT 7E	Alignment - LAT	4100.*	Exist 100yr	592.20	-1.18	9.83		9.83	0.000009	0.42	3826.96	1919.98	0.03
LAT 7E	Alignment - LAT	4100.*	Prop 100yr	592.20	-1.18	8.61		8.62	0.000094	1.23	1487.23	1919.98	0.09
LAT 7E	Alignment - LAT	4150.*	Exist 100yr	592.20	-1.10	9.83		9.83	0.000008	0.40	4236.86	2317.33	0.03
LAT 7E	Alignment - LAT	4150.*	Prop 100yr	592.20	-1.10	8.62		8.63	0.000096	1.24	1480.63	1895.90	0.09
LAT 7E	Alignment - LAT	4200.*	Exist 100yr	592.20	-1.02	9.83		9.83	0.000008	0.39	4541.94	2714.68	0.03
LAT 7E	Alignment - LAT	4200.*	Prop 100yr	592.20	-1.02	8.62		8.63	0.000089	1.18	1582.27	1874.51	0.09
LAT 7E	Alignment - LAT	4250.*	Exist 100yr	592.20	-0.94	9.83		9.83	0.000008	0.40	4745.65	3112.04	0.03
LAT 7E	Alignment - LAT	4250.*	Prop 100yr	592.20	-0.94	8.63		8.64	0.000084	1.14	1716.54	2088.31	0.09
LAT 7E	Alignment - LAT	4300.*	Exist 100yr	592.20	-0.85	9.83		9.83	0.000007	0.36	4923.89	3089.32	0.02
LAT 7E	Alignment - LAT	4300.*	Prop 100yr	592.20	-0.85	8.63		8.64	0.000079	1.10	1850.60	2317.50	0.08
LAT 7E	Alignment - LAT	4350.*	Exist 100yr	592.20	-0.77	9.83		9.83	0.000006	0.34	5192.15	3046.42	0.02
LAT 7E	Alignment - LAT	4350.*	Prop 100yr	592.20	-0.77	8.64		8.64	0.000074	1.05	1983.71	2548.80	0.08
LAT 7E	Alignment - LAT	4400.*	Exist 100yr	592.20	-0.69	9.83		9.83	0.000005	0.31	5538.94	3023.34	0.02
LAT 7E	Alignment - LAT	4400.*	Prop 100yr	592.20	-0.69	8.64		8.65	0.000067	0.99	2127.12	2703.86	0.08
LAT 7E	Alignment - LAT	4412											
LAT 7E	Alignment - LAT	4450.*	Exist 100yr	592.20	-0.61	9.83	4.32	9.83	0.000004	0.28	5936.71	3181.49	0.02
LAT 7E	Alignment - LAT	4450.*	Prop 100yr	592.20	-0.61	8.65	4.32	8.65	0.000058	0.91	2283.69	2754.64	0.07
LAT 7E	Alignment - LAT	4500	Exist 100yr	592.20	-0.53	9.83		9.83	0.000004	0.28	5924.53	3431.36	0.02
LAT 7E	Alignment - LAT	4500	Prop 100yr	592.20	-0.53	8.65		8.65	0.000056	0.88	2288.80	2659.02	0.07
LAT 7E	Alignment - LAT	5000	Exist 100yr	592.20	-0.06	9.84		9.84	0.000004	0.26	5217.24	2207.01	0.02
LAT 7E	Alignment - LAT	5000	Prop 100yr	592.20	-0.06	8.67		8.67	0.000025	0.57	2791.56	1951.31	0.05
LAT 7E	Alignment - LAT	5500	Exist 100yr	592.20	0.23	9.84		9.84	0.000002	0.16	7498.64	2838.43	0.01
LAT 7E	Alignment - LAT	5500	Prop 100yr	592.20	0.23	8.68		8.68	0.000009	0.32	4363.02	2568.04	0.03
LAT 7E	Alignment - LAT	6000	Exist 100yr	592.20	0.61	9.83		9.84	0.000139	1.43	1363.46	2167.12	0.11
LAT 7E	Alignment - LAT	6000	Prop 100yr	592.20	0.61	8.57		8.74	0.001011	3.37	175.83	41.50	0.29
LAT 7E	Alignment - LAT	6500	Exist 100yr	592.20	1.13	9.90		9.93	0.000185	1.59	1190.17	2059.22	0.13
LAT 7E	Alignment - LAT	6500	Prop 100yr	592.20	1.13	9.06		9.22	0.000895	3.23	184.95	85.93	0.27
LAT 7E	Alignment - LAT	7000	Exist 100yr	592.20	1.99	9.99		10.09	0.000506	2.60	319.41	319.63	0.21
LAT 7E	Alignment - LAT	7000	Prop 100yr	592.20	1.99	9.50		9.64	0.000796	3.09	200.79	156.32	0.26
LAT 7E	Alignment - LAT	7500	Exist 100yr	592.20	2.48	10.26		10.37	0.000598	2.74	313.10	352.75	0.23
LAT 7E	Alignment - LAT	7500	Prop 100yr	592.20	2.48	9.91		10.06	0.000877	3.16	210.09	231.86	0.27



HEC-RAS Plan: Plan 05 (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
LAT 7E	Alignment - LAT	8000	Exist 100yr	592.20	2.94	10.57		10.68	0.000648	2.85	293.07	372.11	0.23
LAT 7E	Alignment - LAT	8000	Prop 100yr	592.20	2.94	10.34		10.49	0.000819	3.12	222.93	245.20	0.26
LAT 7E	Alignment - LAT	8500	Exist 100yr	592.20	2.90	10.89		10.99	0.000572	2.74	384.06	484.31	0.22
LAT 7E	Alignment - LAT	8500	Prop 100yr	592.20	2.90	10.74		10.87	0.000697	2.98	317.15	411.72	0.24
LAT 7E	Alignment - LAT	9000	Exist 100yr	592.20	2.78	11.17		11.27	0.000539	2.72	405.52	492.76	0.21
LAT 7E	Alignment - LAT	9000	Prop 100yr	592.20	2.78	11.08		11.19	0.000609	2.87	362.92	450.55	0.23
LAT 7E	Alignment - LAT	9500	Exist 100yr	592.20	2.73	11.43		11.58	0.000643	3.15	266.32	206.67	0.23
LAT 7E	Alignment - LAT	9500	Prop 100yr	592.20	2.73	11.37		11.52	0.000670	3.20	254.85	182.00	0.24
LAT 7E	Alignment - LAT	9550.*	Exist 100yr	592.20	2.80	11.46		11.61	0.000633	3.13	252.75	177.99	0.23
LAT 7E	Alignment - LAT	9550.*	Prop 100yr	592.20	2.80	11.41		11.56	0.000654	3.16	243.46	152.44	0.24
LAT 7E	Alignment - LAT	9600.*	Exist 100yr	592.20	2.87	11.50		11.64	0.000621	3.09	240.60	139.14	0.23
LAT 7E	Alignment - LAT	9600.*	Prop 100yr	592.20	2.87	11.45		11.59	0.000635	3.11	233.94	112.79	0.23
LAT 7E	Alignment - LAT	9650.*	Exist 100yr	592.20	2.94	11.53		11.67	0.000613	3.06	231.41	111.91	0.23
LAT 7E	Alignment - LAT	9650.*	Prop 100yr	592.20	2.94	11.48		11.62	0.000638	3.10	225.30	110.36	0.23
LAT 7E	Alignment - LAT	9700.*	Exist 100yr	592.20	3.01	11.56		11.70	0.000618	3.05	222.03	111.12	0.23
LAT 7E	Alignment - LAT	9700.*	Prop 100yr	592.20	3.01	11.51		11.65	0.000642	3.09	216.14	109.40	0.24
LAT 7E	Alignment - LAT	9750.*	Exist 100yr	592.20	3.09	11.59		11.73	0.000619	3.03	212.80	100.51	0.23
LAT 7E	Alignment - LAT	9750.*	Prop 100yr	592.20	3.09	11.54		11.68	0.000639	3.07	207.65	92.39	0.24
LAT 7E	Alignment - LAT	9800.*	Exist 100yr	592.20	3.16	11.63		11.76	0.000618	3.00	207.82	74.29	0.23
LAT 7E	Alignment - LAT	9800.*	Prop 100yr	592.20	3.16	11.58		11.72	0.000637	3.03	204.30	67.06	0.23
LAT 7E	Alignment - LAT	9850.*	Exist 100yr	592.20	3.23	11.66		11.79	0.000617	2.97	207.18	55.75	0.23
LAT 7E	Alignment - LAT	9850.*	Prop 100yr	592.20	3.23	11.61		11.75	0.000636	3.00	204.50	54.66	0.23
LAT 7E	Alignment - LAT	9880		Culvert									
LAT 7E	Alignment - LAT	9950.*	Exist 100yr	592.20	3.37	12.23	7.88	12.34	0.000441	2.64	237.94	77.39	0.20
LAT 7E	Alignment - LAT	9950.*	Prop 100yr	592.20	3.37	12.19	7.88	12.30	0.000453	2.66	234.80	71.31	0.20
LAT 7E	Alignment - LAT	10000	Exist 100yr	592.20	3.44	12.26		12.36	0.000448	2.63	235.86	60.18	0.20
LAT 7E	Alignment - LAT	10000	Prop 100yr	592.20	3.44	12.21		12.32	0.000460	2.66	233.37	59.52	0.20
LAT 7F	Alignment - LAT	1500	Exist 100yr	1277.80	-1.53	9.82		9.82	0.000002	0.22	12081.86	2697.24	0.01
LAT 7F	Alignment - LAT	1500	Prop 100yr	1277.80	-1.53	8.58		8.58	0.000004	0.31	8846.06	2433.26	0.02
LAT 7F	Alignment - LAT	2000	Exist 100yr	1277.80	-1.48	9.82		9.82	0.000001	0.20	12643.82	2743.23	0.01
LAT 7F	Alignment - LAT	2000	Prop 100yr	1277.80	-1.48	8.58		8.58	0.000004	0.30	9239.49	2743.23	0.02
LAT 7F	Alignment - LAT	2500	Exist 100yr	1277.80	-1.42	9.82		9.82	0.000002	0.21	12414.97	2870.23	0.01
LAT 7F	Alignment - LAT	2500	Prop 100yr	1277.80	-1.42	8.58		8.58	0.000005	0.32	8856.89	2870.23	0.02
LAT 7F	Alignment - LAT	2547.31*	Exist 100yr	1277.80	-1.47	9.82		9.82	0.000002	0.21	12481.65	2950.96	0.01
LAT 7F	Alignment - LAT	2547.31*	Prop 100yr	1277.80	-1.47	8.58		8.58	0.000005	0.33	8823.94	2950.96	0.02
LAT 7F	Alignment - LAT	2594.63*	Exist 100yr	1277.80	-1.51	9.82		9.82	0.000002	0.21	12514.65	3031.68	0.01
LAT 7F	Alignment - LAT	2594.63*	Prop 100yr	1277.80	-1.51	8.58		8.58	0.000006	0.34	8757.37	3031.68	0.02
LAT 7F	Alignment - LAT	2641.95*	Exist 100yr	1277.80	-1.56	9.82		9.82	0.000002	0.22	12509.31	3112.41	0.01
LAT 7F	Alignment - LAT	2641.95*	Prop 100yr	1277.80	-1.56	8.58		8.58	0.000006	0.35	8652.52	3112.41	0.02
LAT 7F	Alignment - LAT	2689.27*	Exist 100yr	1277.80	-1.60	9.82		9.82	0.000002	0.22	12464.70	3193.14	0.01
LAT 7F	Alignment - LAT	2689.27*	Prop 100yr	1277.80	-1.60	8.58		8.58	0.000007	0.37	8508.49	3193.14	0.02
LAT 7F	Alignment - LAT	2736.59*	Exist 100yr	1277.80	-1.65	9.82		9.82	0.000002	0.22	12380.18	3273.87	0.01
LAT 7F	Alignment - LAT	2736.59*	Prop 100yr	1277.80	-1.65	8.58		8.58	0.000007	0.39	8324.64	3273.87	0.03
LAT 7F	Alignment - LAT	2783.91*	Exist 100yr	1277.80	-1.69	9.82		9.82	0.000002	0.23	12268.00	3354.59	0.01
LAT 7F	Alignment - LAT	2783.91*	Prop 100yr	1277.80	-1.69	8.58		8.58	0.000008	0.41	8113.26	3354.59	0.03
LAT 7F	Alignment - LAT	2795		Culvert									
LAT 7F	Alignment - LAT	2831.23	Exist 100yr	1277.80	-1.74	9.82	5.91	9.82	0.000002	0.24	12110.14	3435.32	0.01
LAT 7F	Alignment - LAT	2831.23	Prop 100yr	1277.80	-1.74	8.59	5.91	8.59	0.000009	0.43	7857.60	3435.32	0.03
LAT 7F	Alignment - LAT	3500	Exist 100yr	1277.80	-1.48	9.83		9.83	0.000004	0.30	9804.25	3005.78	0.02
LAT 7F	Alignment - LAT	3500	Prop 100yr	1277.80	-1.48	8.59		8.59	0.000018	0.57	6101.46	3005.78	0.04
LAT 7G	Alignment - LAT	500	Exist 100yr	7693.40	-1.70	9.72		9.74	0.000157	2.27	6189.00	1056.66	0.13
LAT 7G	Alignment - LAT	500	Prop 100yr	7693.40	-1.70	8.35		8.40	0.000371	3.14	4745.70	1056.66	0.20
LAT 7G	Alignment - LAT	1000	Exist 100yr	7693.40	-1.61	9.79		9.81	0.000105	1.83	7751.82	1356.07	0.11
LAT 7G	Alignment - LAT	1000	Prop 100yr	7693.40	-1.61	8.52		8.54	0.000238	2.50	6024.71	1356.07	0.16
LAT 8	Alignment - LAT	6000	Exist 100yr	825.30	2.79	10.54		10.64	0.000792	3.14	506.33	340.30	0.26
LAT 8	Alignment - LAT	6000	Prop 100yr	825.30	2.79	9.31	8.05	10.02	0.004926	6.75	122.40	49.12	0.62
LAT 8	Alignment - LAT	6400	Exist 100yr	825.30	3.70	10.86		10.94	0.000751	3.03	734.58	895.02	0.25
LAT 8	Alignment - LAT	6400	Prop 100yr	825.30	3.70	10.73	8.69	10.86	0.001055	3.54	618.22	894.79	0.30
LAT 8	Alignment - LAT	6800	Exist 100yr	825.30	4.47	11.19	9.24	11.42	0.001703	4.36	470.88	1023.64	0.37

HEC-RAS Plan: Plan 05 (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
LAT 8	Alignment - LAT	6800	Prop 100yr	825.30	4.47	11.18	9.24	11.42	0.001730	4.40	465.14	1023.63	0.38
LAT 8	Alignment - LAT	7200	Exist 100yr	825.30	5.25	11.84	9.79	12.04	0.001423	4.20	521.09	1035.14	0.35
LAT 8	Alignment - LAT	7200	Prop 100yr	825.30	5.25	11.84	9.79	12.04	0.001407	4.18	525.20	1035.15	0.34
LAT 8	Alignment - LAT	7600	Exist 100yr	825.30	6.67	12.46		12.61	0.001392	3.81	594.66	1031.84	0.33
LAT 8	Alignment - LAT	7600	Prop 100yr	825.30	6.67	12.46		12.61	0.001400	3.82	592.61	1031.84	0.34
LAT 8	Alignment - LAT	7650.*	Exist 100yr	825.30	6.70	12.53		12.68	0.001395	3.82	594.72	1031.29	0.34
LAT 8	Alignment - LAT	7650.*	Prop 100yr	825.30	6.70	12.53		12.68	0.001402	3.83	593.07	1031.29	0.34
LAT 8	Alignment - LAT	7700.*	Exist 100yr	825.30	6.72	12.60		12.74	0.001376	3.81	600.57	1030.76	0.33
LAT 8	Alignment - LAT	7700.*	Prop 100yr	825.30	6.72	12.60		12.74	0.001380	3.82	599.50	1030.75	0.33
LAT 8	Alignment - LAT	7750.*	Exist 100yr	825.30	6.75	12.67		12.81	0.001385	3.83	599.41	1030.21	0.34
LAT 8	Alignment - LAT	7750.*	Prop 100yr	825.30	6.75	12.67		12.81	0.001389	3.84	598.66	1030.21	0.34
LAT 8	Alignment - LAT	7800.*	Exist 100yr	825.30	6.78	12.74		12.88	0.001394	3.86	598.06	1029.68	0.34
LAT 8	Alignment - LAT	7800.*	Prop 100yr	825.30	6.78	12.74		12.88	0.001397	3.86	597.52	1029.68	0.34
LAT 8	Alignment - LAT	7850.*	Exist 100yr	825.30	6.81	12.81		12.95	0.001374	3.84	604.34	1029.19	0.34
LAT 8	Alignment - LAT	7850.*	Prop 100yr	825.30	6.81	12.81		12.95	0.001376	3.84	604.00	1029.19	0.34
LAT 8	Alignment - LAT	7857		Culvert									
LAT 8	Alignment - LAT	7900.*	Exist 100yr	825.30	6.84	14.47	11.35	14.47	0.000041	0.83	2509.64	1533.13	0.06
LAT 8	Alignment - LAT	7900.*	Prop 100yr	825.30	6.84	14.46	11.35	14.46	0.000042	0.84	2492.65	1526.13	0.06
LAT 8	Alignment - LAT	7950.*	Exist 100yr	825.30	6.86	14.47		14.48	0.000039	0.81	2771.72	1864.60	0.06
LAT 8	Alignment - LAT	7950.*	Prop 100yr	825.30	6.86	14.46		14.47	0.000040	0.82	2751.12	1855.74	0.06
LAT 8	Alignment - LAT	8000	Exist 100yr	825.30	6.89	14.48		14.48	0.000033	0.75	3131.46	2016.19	0.06
LAT 8	Alignment - LAT	8000	Prop 100yr	825.30	6.89	14.46		14.47	0.000034	0.76	3109.26	2011.01	0.06
LAT 8	Alignment - LAT	8050.*	Exist 100yr	825.30	6.98	14.48		14.48	0.000038	0.80	2949.25	1953.45	0.06
LAT 8	Alignment - LAT	8050.*	Prop 100yr	825.30	6.98	14.47		14.47	0.000039	0.80	2927.79	1948.23	0.06
LAT 8	Alignment - LAT	8085		Culvert									
LAT 8	Alignment - LAT	8150.*	Exist 100yr	825.30	7.16	14.48	11.82	14.48	0.000051	0.89	2621.28	1839.60	0.07
LAT 8	Alignment - LAT	8150.*	Prop 100yr	825.30	7.16	14.48	11.82	14.48	0.000051	0.90	2614.68	1837.76	0.07
LAT 8	Alignment - LAT	8200.*	Exist 100yr	825.30	7.26	14.48		14.49	0.000059	0.95	2479.10	1834.43	0.07
LAT 8	Alignment - LAT	8200.*	Prop 100yr	825.30	7.26	14.48		14.48	0.000059	0.95	2472.55	1830.61	0.07
LAT 8	Alignment - LAT	8250.*	Exist 100yr	825.30	7.35	14.48		14.49	0.000066	1.00	2372.07	1825.48	0.08
LAT 8	Alignment - LAT	8250.*	Prop 100yr	825.30	7.35	14.48		14.49	0.000067	1.00	2365.59	1823.35	0.08
LAT 8	Alignment - LAT	8300.*	Exist 100yr	825.30	7.44	14.49		14.49	0.000074	1.04	2295.48	1886.49	0.08
LAT 8	Alignment - LAT	8300.*	Prop 100yr	825.30	7.44	14.48		14.49	0.000074	1.04	2288.81	1882.68	0.08
LAT 8	Alignment - LAT	8350.*	Exist 100yr	825.30	7.53	14.49		14.50	0.000075	1.03	2238.21	1630.05	0.08
LAT 8	Alignment - LAT	8350.*	Prop 100yr	825.30	7.53	14.49		14.49	0.000076	1.04	2232.49	1630.05	0.08
LAT 8	Alignment - LAT	8400	Exist 100yr	825.30	7.62	14.49		14.50	0.000094	1.14	1855.09	1137.01	0.09
LAT 8	Alignment - LAT	8400	Prop 100yr	825.30	7.62	14.49		14.50	0.000094	1.14	1851.13	1137.01	0.09
LAT 8	Alignment - LAT	8800	Exist 100yr	825.30	8.12	14.53		14.60	0.000753	2.98	764.94	909.69	0.25
LAT 8	Alignment - LAT	8800	Prop 100yr	825.30	8.12	14.53		14.60	0.000760	2.99	761.85	909.69	0.25
LAT 8	Alignment - LAT	9200	Exist 100yr	825.30	8.53	14.87	13.07	15.07	0.001618	4.28	617.26	1781.45	0.36
LAT 8	Alignment - LAT	9200	Prop 100yr	825.30	8.53	14.87	13.07	15.07	0.001621	4.28	616.25	1779.53	0.36
LAT 8	Alignment - LAT	9600	Exist 100yr	825.30	8.70	15.35		15.38	0.000426	2.26	1621.07	3679.55	0.19
LAT 8	Alignment - LAT	9600	Prop 100yr	825.30	8.70	15.35		15.38	0.000426	2.26	1621.47	3679.64	0.19
LAT 8	Alignment - LAT	10000	Exist 100yr	825.30	9.02	15.54		15.58	0.000589	2.59	1445.22	3763.63	0.22
LAT 8	Alignment - LAT	10000	Prop 100yr	825.30	9.02	15.54		15.58	0.000589	2.59	1445.32	3763.64	0.22
LAT 8	Alignment - LAT	10050.*	Exist 100yr	825.30	9.11	15.57		15.61	0.000579	2.56	1479.60	3782.71	0.22
LAT 8	Alignment - LAT	10050.*	Prop 100yr	825.30	9.11	15.57		15.61	0.000579	2.56	1479.67	3782.72	0.22
LAT 8	Alignment - LAT	10100.*	Exist 100yr	825.30	9.20	15.60		15.64	0.000573	2.54	1509.97	3803.45	0.22
LAT 8	Alignment - LAT	10100.*	Prop 100yr	825.30	9.20	15.60		15.64	0.000573	2.54	1510.02	3803.46	0.22
LAT 8	Alignment - LAT	10150.*	Exist 100yr	825.30	9.28	15.63		15.67	0.000565	2.51	1540.94	3822.00	0.21
LAT 8	Alignment - LAT	10150.*	Prop 100yr	825.30	9.28	15.63		15.67	0.000565	2.51	1540.98	3822.01	0.21
LAT 8	Alignment - LAT	10200.*	Exist 100yr	825.30	9.37	15.66		15.70	0.000551	2.46	1580.09	3845.97	0.21
LAT 8	Alignment - LAT	10200.*	Prop 100yr	825.30	9.37	15.66		15.70	0.000551	2.46	1580.13	3845.97	0.21
LAT 8	Alignment - LAT	10250.*	Exist 100yr	825.30	9.46	15.69		15.73	0.000545	2.43	1609.14	3863.56	0.21
LAT 8	Alignment - LAT	10250.*	Prop 100yr	825.30	9.46	15.69		15.73	0.000545	2.43	1609.17	3863.57	0.21
LAT 8	Alignment - LAT	10265		Culvert									
LAT 8	Alignment - LAT	10400	Exist 100yr	825.30	9.72	15.70	15.27	15.73	0.000555	2.36	1439.43	3321.65	0.21
LAT 8	Alignment - LAT	10400	Prop 100yr	825.30	9.72	15.70	15.27	15.73	0.000555	2.36	1439.58	3321.78	0.21
LAT 8	Alignment - LAT	10450.*	Exist 100yr	825.30	9.86	15.73		15.76	0.000737	2.71	1173.47	2599.32	0.24

HEC-RAS Plan: Plan 05 (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
LAT 8	Alignment - LAT	10450.*	Prop 100yr	825.30	9.86	15.73		15.76	0.000737	2.71	1173.57	2599.64	0.24
LAT 8	Alignment - LAT	10500.*	Exist 100yr	825.30	9.99	15.76		15.81	0.000971	3.10	1004.26	2229.64	0.28
LAT 8	Alignment - LAT	10500.*	Prop 100yr	825.30	9.99	15.76		15.81	0.000971	3.10	1004.33	2229.89	0.28
LAT 8	Alignment - LAT	10521	Bridge										
LAT 8	Alignment - LAT	10550.*	Exist 100yr	825.30	10.13	15.84	15.56	15.89	0.001004	3.17	981.44	2320.92	0.28
LAT 8	Alignment - LAT	10550.*	Prop 100yr	825.30	10.13	15.84	15.56	15.89	0.001004	3.17	981.49	2321.11	0.28
LAT 8	Alignment - LAT	10600.*	Exist 100yr	825.30	10.27	15.88		15.95	0.001150	3.39	900.47	2157.63	0.30
LAT 8	Alignment - LAT	10600.*	Prop 100yr	825.30	10.27	15.88		15.95	0.001150	3.39	900.51	2158.08	0.30
LAT 8	Alignment - LAT	10650.*	Exist 100yr	825.30	10.41	15.93		16.02	0.001423	3.76	858.54	2144.10	0.34
LAT 8	Alignment - LAT	10650.*	Prop 100yr	825.30	10.41	15.93		16.02	0.001423	3.76	858.56	2144.28	0.34
LAT 8	Alignment - LAT	10700.*	Exist 100yr	825.30	10.55	16.01		16.09	0.001217	3.49	930.45	2223.54	0.31
LAT 8	Alignment - LAT	10700.*	Prop 100yr	825.30	10.55	16.01		16.09	0.001217	3.49	930.49	2223.64	0.31
LAT 8	Alignment - LAT	10703	Culvert										
LAT 8	Alignment - LAT	10750.*	Exist 100yr	825.30	10.68	16.62	15.82	16.62	0.000130	1.25	2572.39	3831.69	0.10
LAT 8	Alignment - LAT	10750.*	Prop 100yr	825.30	10.68	16.62	15.82	16.62	0.000131	1.25	2570.49	3829.76	0.10
LAT 8	Alignment - LAT	10800	Exist 100yr	825.30	10.82	16.61		16.64	0.000476	2.36	1484.48	3032.12	0.20
LAT 8	Alignment - LAT	10800	Prop 100yr	825.30	10.82	16.61		16.64	0.000477	2.36	1482.91	3029.84	0.20
LAT 8	Alignment - LAT	11200	Exist 100yr	825.30	11.03	16.76		16.76	0.000210	1.56	1711.48	1714.48	0.13
LAT 8	Alignment - LAT	11200	Prop 100yr	825.30	11.03	16.75		16.76	0.000210	1.56	1710.98	1714.24	0.13
LAT 8	Alignment - LAT	11600	Exist 100yr	825.30	10.88	16.86		16.87	0.000338	2.08	1407.98	1496.68	0.17
LAT 8	Alignment - LAT	11600	Prop 100yr	825.30	10.88	16.86		16.87	0.000338	2.08	1407.63	1496.21	0.17
LAT 8A	Alignment - LAT	400	Exist 100yr	465.80	-1.93	10.01		10.01	0.000000	0.10	10498.28	2349.76	0.01
LAT 8A	Alignment - LAT	400	Prop 100yr	231.90	-1.93	8.53		8.53	0.000000	0.07	7353.75	1904.58	0.00
LAT 8A	Alignment - LAT	800	Exist 100yr	465.80	-1.84	10.01		10.01	0.000000	0.07	13089.33	2673.78	0.00
LAT 8A	Alignment - LAT	800	Prop 100yr	231.90	-1.84	8.53		8.53	0.000000	0.05	9465.82	2228.44	0.00
LAT 8A	Alignment - LAT	1200	Exist 100yr	465.80	-1.63	10.01		10.01	0.000000	0.08	15173.21	4467.38	0.00
LAT 8A	Alignment - LAT	1200	Prop 100yr	231.90	-1.63	8.53		8.53	0.000000	0.06	9435.27	3283.36	0.00
LAT 8A	Alignment - LAT	1247.65*	Exist 100yr	465.80	-1.54	10.01		10.01	0.000000	0.08	15655.66	5431.64	0.00
LAT 8A	Alignment - LAT	1247.65*	Prop 100yr	231.90	-1.54	8.53		8.53	0.000000	0.06	9454.07	3528.30	0.00
LAT 8A	Alignment - LAT	1295.31*	Exist 100yr	465.80	-1.46	10.01		10.01	0.000000	0.07	16655.20	5289.90	0.00
LAT 8A	Alignment - LAT	1295.31*	Prop 100yr	231.90	-1.46	8.53		8.53	0.000000	0.06	9686.20	3796.64	0.00
LAT 8A	Alignment - LAT	1342.97*	Exist 100yr	465.80	-1.37	10.01		10.01	0.000000	0.07	17607.11	5288.69	0.00
LAT 8A	Alignment - LAT	1342.97*	Prop 100yr	231.90	-1.37	8.53		8.53	0.000000	0.07	10325.30	4547.65	0.00
LAT 8A	Alignment - LAT	1388	Bridge										
LAT 8A	Alignment - LAT	1438.28*	Exist 100yr	465.80	-1.20	10.01	3.48	10.01	0.000000	0.06	18677.87	4633.44	0.00
LAT 8A	Alignment - LAT	1438.28*	Prop 100yr	231.90	-1.20	8.53	1.83	8.53	0.000000	0.05	12088.29	4281.34	0.00
LAT 8A	Alignment - LAT	1485.94*	Exist 100yr	465.80	-1.12	10.01		10.01	0.000000	0.05	18636.44	4304.93	0.00
LAT 8A	Alignment - LAT	1485.94*	Prop 100yr	231.90	-1.12	8.53		8.53	0.000000	0.04	12536.80	3947.04	0.00
LAT 8A	Alignment - LAT	1533.6	Exist 100yr	465.80	-1.03	10.01		10.01	0.000000	0.05	18230.70	3979.26	0.00
LAT 8A	Alignment - LAT	1533.6	Prop 100yr	231.90	-1.03	8.53		8.53	0.000000	0.04	12616.80	3615.57	0.00
LAT 8A	Alignment - LAT	2101.85	Exist 100yr	465.80	0.01	10.01		10.01	0.000000	0.08	11685.44	3054.30	0.00
LAT 8A	Alignment - LAT	2101.85	Prop 100yr	231.90	0.01	8.53		8.53	0.000000	0.06	8254.85	2087.00	0.00
LAT 8A	Alignment - LAT	2400	Exist 100yr	465.80	-0.52	10.01		10.01	0.000001	0.15	8848.03	3523.45	0.01
LAT 8A	Alignment - LAT	2400	Prop 100yr	231.90	-0.52	8.53		8.53	0.000001	0.15	4540.04	2304.47	0.01
LAT 8A	Alignment - LAT	2800	Exist 100yr	465.80	-0.72	10.00		10.01	0.000035	0.99	1718.77	1805.65	0.06
LAT 8A	Alignment - LAT	2800	Prop 100yr	231.90	-0.72	8.52		8.53	0.000037	0.90	468.76	254.00	0.06
LAT 8A	Alignment - LAT	2850.*	Exist 100yr	465.80	-0.49	10.00		10.01	0.000040	1.04	1589.97	1730.40	0.06
LAT 8A	Alignment - LAT	2850.*	Prop 100yr	231.90	-0.49	8.52		8.54	0.000045	0.96	417.15	237.18	0.07
LAT 8A	Alignment - LAT	2900.*	Exist 100yr	465.80	-0.26	10.00		10.02	0.000047	1.09	1473.49	1669.60	0.07
LAT 8A	Alignment - LAT	2900.*	Prop 100yr	231.90	-0.26	8.52		8.54	0.000055	1.02	368.45	217.64	0.07
LAT 8A	Alignment - LAT	2938	Bridge										
LAT 8A	Alignment - LAT	3000.*	Exist 100yr	465.80	0.20	10.10	4.28	10.11	0.000059	1.15	1419.96	1992.13	0.08
LAT 8A	Alignment - LAT	3000.*	Prop 100yr	231.90	0.20	8.54	3.17	8.56	0.000086	1.18	280.59	186.12	0.09
LAT 8A	Alignment - LAT	3050.*	Exist 100yr	465.80	0.43	10.10		10.11	0.000070	1.21	1335.00	2030.28	0.08
LAT 8A	Alignment - LAT	3050.*	Prop 100yr	231.90	0.43	8.55		8.57	0.000110	1.28	238.87	161.32	0.10
LAT 8A	Alignment - LAT	3100.*	Exist 100yr	465.80	0.66	10.10		10.12	0.000082	1.26	1261.55	2008.55	0.09
LAT 8A	Alignment - LAT	3100.*	Prop 100yr	231.90	0.66	8.55		8.58	0.000143	1.38	203.40	134.72	0.11
LAT 8A	Alignment - LAT	3150.*	Exist 100yr	465.80	0.89	10.11		10.12	0.000098	1.31	1186.50	1963.47	0.09
LAT 8A	Alignment - LAT	3150.*	Prop 100yr	231.90	0.89	8.55		8.59	0.000189	1.50	173.98	102.94	0.12

HEC-RAS Plan: Plan 05 (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
LAT 8A	Alignment - LAT	3200	Exist 100yr	465.80	1.12	10.11		10.13	0.000117	1.36	1128.84	1921.75	0.10
LAT 8A	Alignment - LAT	3200	Prop 100yr	231.90	1.12	8.56		8.60	0.000255	1.62	150.96	77.43	0.14
LAT 8A	Alignment - LAT	3600	Exist 100yr	465.80	1.21	10.15		10.15	0.000022	0.60	2600.98	2231.78	0.04
LAT 8A	Alignment - LAT	3600	Prop 100yr	231.90	1.21	8.66		8.69	0.000181	1.41	354.96	725.93	0.12
LAT 8A	Alignment - LAT	4000	Exist 100yr	465.80	1.32	10.16		10.16	0.000065	0.98	1598.41	2328.56	0.07
LAT 8A	Alignment - LAT	4000	Prop 100yr	231.90	1.32	8.74		8.77	0.000238	1.58	239.97	370.76	0.14
LAT 8A	Alignment - LAT	4400	Exist 100yr	465.80	1.40	10.18		10.19	0.000092	1.20	1152.21	1286.14	0.09
LAT 8A	Alignment - LAT	4400	Prop 100yr	231.90	1.40	8.83		8.87	0.000259	1.68	215.57	324.57	0.14
LAT 8A	Alignment - LAT	4800	Exist 100yr	465.80	1.42	10.22		10.24	0.000126	1.50	967.85	1169.19	0.11
LAT 8A	Alignment - LAT	4800	Prop 100yr	231.90	1.42	8.93		8.97	0.000239	1.76	187.78	218.53	0.14
LAT 8A	Alignment - LAT	5200	Exist 100yr	465.80	1.44	10.28		10.31	0.000198	1.76	717.03	884.68	0.13
LAT 8A	Alignment - LAT	5200	Prop 100yr	231.90	1.44	9.03		9.08	0.000270	1.76	154.20	113.67	0.15
LAT 8A	Alignment - LAT	5250.*	Exist 100yr	465.80	1.42	10.29		10.32	0.000189	1.74	735.05	898.23	0.13
LAT 8A	Alignment - LAT	5250.*	Prop 100yr	231.90	1.42	9.04		9.09	0.000265	1.75	150.85	106.67	0.15
LAT 8A	Alignment - LAT	5300.*	Exist 100yr	465.80	1.40	10.30		10.32	0.000180	1.71	753.42	906.82	0.13
LAT 8A	Alignment - LAT	5300.*	Prop 100yr	231.90	1.40	9.06		9.10	0.000255	1.74	147.82	96.57	0.14
LAT 8A	Alignment - LAT	5350.*	Exist 100yr	465.80	1.39	10.31		10.33	0.000169	1.68	774.33	916.40	0.12
LAT 8A	Alignment - LAT	5350.*	Prop 100yr	231.90	1.39	9.07		9.12	0.000242	1.72	146.34	83.66	0.14
LAT 8A	Alignment - LAT	5400.*	Exist 100yr	465.80	1.37	10.32		10.34	0.000159	1.65	798.40	928.09	0.12
LAT 8A	Alignment - LAT	5400.*	Prop 100yr	231.90	1.37	9.08		9.13	0.000231	1.71	146.31	77.94	0.14
LAT 8A	Alignment - LAT	5450.*	Exist 100yr	465.80	1.35	10.33		10.35	0.000148	1.61	824.40	937.34	0.12
LAT 8A	Alignment - LAT	5450.*	Prop 100yr	231.90	1.35	9.09		9.14	0.000219	1.69	148.21	83.52	0.14
LAT 8A	Alignment - LAT	5500.*	Exist 100yr	465.80	1.34	10.33		10.36	0.000138	1.57	851.78	966.99	0.11
LAT 8A	Alignment - LAT	5500.*	Prop 100yr	231.90	1.34	9.11		9.15	0.000209	1.67	153.15	130.12	0.13
LAT 8A	Alignment - LAT	5519		Culvert									
LAT 8A	Alignment - LAT	5550.*	Exist 100yr	465.80	1.32	10.48	5.86	10.50	0.000100	1.37	1020.11	1040.47	0.10
LAT 8A	Alignment - LAT	5550.*	Prop 100yr	231.90	1.32	9.28	4.71	9.32	0.000170	1.56	201.12	290.74	0.12
LAT 8A	Alignment - LAT	5600	Exist 100yr	465.80	1.30	10.49		10.50	0.000093	1.34	1051.80	1046.34	0.09
LAT 8A	Alignment - LAT	5600	Prop 100yr	231.90	1.30	9.29		9.32	0.000158	1.52	220.98	323.26	0.12
LAT 8A	Alignment -LAT 8	300	Exist 100yr	112.00	1.68	10.50		10.50	0.000002	0.23	1242.87	610.21	0.02
LAT 8A	Alignment -LAT 8	300	Prop 100yr	112.00	1.68	9.33		9.33	0.000009	0.41	641.80	404.23	0.03
LAT 8A	Alignment -LAT 8	600	Exist 100yr	112.00	2.17	10.50		10.50	0.000001	0.15	1946.70	879.43	0.01
LAT 8A	Alignment -LAT 8	600	Prop 100yr	112.00	2.17	9.33		9.33	0.000004	0.27	1059.40	634.34	0.02
LAT 8A	Alignment -LAT 8	900	Exist 100yr	112.00	3.46	10.50		10.50	0.000001	0.13	2014.89	1043.71	0.01
LAT 8A	Alignment -LAT 8	900	Prop 100yr	112.00	3.46	9.33		9.33	0.000008	0.29	960.62	752.91	0.03
LAT 8A	Alignment -LAT 8	950.*	Exist 100yr	112.00	3.82	10.50		10.50	0.000002	0.16	1738.06	1066.79	0.01
LAT 8A	Alignment -LAT 8	950.*	Prop 100yr	112.00	3.82	9.33		9.33	0.000021	0.43	681.00	733.83	0.04
LAT 8A	Alignment -LAT 8	1000.*	Exist 100yr	112.00	4.19	10.50		10.50	0.000004	0.20	1423.95	1064.56	0.02
LAT 8A	Alignment -LAT 8	1000.*	Prop 100yr	112.00	4.19	9.33		9.33	0.000081	0.79	380.66	726.30	0.08
LAT 8A	Alignment -LAT 8	1050.*	Exist 100yr	112.00	4.55	10.50		10.50	0.000008	0.28	1093.89	1031.63	0.02
LAT 8A	Alignment -LAT 8	1050.*	Prop 100yr	112.00	4.55	9.32		9.35	0.000294	1.42	110.64	375.19	0.15
LAT 8A	Alignment -LAT 8	1100.*	Exist 100yr	112.00	4.91	10.50		10.51	0.000023	0.44	751.73	1066.25	0.04
LAT 8A	Alignment -LAT 8	1100.*	Prop 100yr	112.00	4.91	9.33		9.37	0.000439	1.66	67.47	24.61	0.18
LAT 8A	Alignment -LAT 8	1150.*	Exist 100yr	112.00	5.28	10.50		10.51	0.000074	0.75	418.25	867.13	0.07
LAT 8A	Alignment -LAT 8	1150.*	Prop 100yr	112.00	5.28	9.34		9.40	0.000622	1.89	59.30	23.19	0.21
LAT 8A	Alignment -LAT 8	1188		Culvert									
LAT 8A	Alignment -LAT 8	1250.*	Exist 100yr	112.00	5.82	10.61	7.60	10.62	0.000171	1.10	207.63	510.20	0.11
LAT 8A	Alignment -LAT 8	1250.*	Prop 100yr	112.00	5.82	9.40	7.60	9.47	0.000871	2.10	53.30	23.15	0.24
LAT 8A	Alignment -LAT 8	1300.*	Exist 100yr	112.00	6.01	10.61		10.63	0.000199	1.18	158.36	401.57	0.12
LAT 8A	Alignment -LAT 8	1300.*	Prop 100yr	112.00	6.01	9.45		9.51	0.000832	2.03	55.11	24.53	0.24
LAT 8A	Alignment -LAT 8	1350.*	Exist 100yr	112.00	6.19	10.62		10.64	0.000210	1.20	133.85	320.04	0.12
LAT 8A	Alignment -LAT 8	1350.*	Prop 100yr	112.00	6.19	9.49		9.55	0.000804	1.97	56.74	25.90	0.24
LAT 8A	Alignment -LAT 8	1400.*	Exist 100yr	112.00	6.37	10.63		10.65	0.000212	1.19	123.28	282.52	0.13
LAT 8A	Alignment -LAT 8	1400.*	Prop 100yr	112.00	6.37	9.54		9.59	0.000784	1.92	58.27	27.32	0.23
LAT 8A	Alignment -LAT 8	1450.*	Exist 100yr	112.00	6.56	10.64		10.66	0.000211	1.17	118.51	254.26	0.13
LAT 8A	Alignment -LAT 8	1450.*	Prop 100yr	112.00	6.56	9.58		9.63	0.000766	1.87	59.80	28.78	0.23
LAT 8A	Alignment -LAT 8	1500	Exist 100yr	112.00	6.74	10.65		10.67	0.000208	1.15	118.62	235.17	0.12
LAT 8A	Alignment -LAT 8	1500	Prop 100yr	112.00	6.74	9.62		9.67	0.000754	1.83	61.24	30.27	0.23
LAT 8A	Alignment -LAT 8	1550.*	Exist 100yr	112.00	6.76	10.66		10.69	0.000282	1.29	86.62	34.33	0.14

HEC-RAS Plan: Plan 05 (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)	
LAT 8A	Alignment -LAT 8	1550.*	Prop 100yr	112.00	6.76	9.65		9.72	0.001006	2.04	54.89	28.60	0.26
LAT 8A	Alignment -LAT 8	1600.*	Exist 100yr	112.00	6.79	10.67		10.71	0.000372	1.43	78.16	32.62	0.16
LAT 8A	Alignment -LAT 8	1600.*	Prop 100yr	112.00	6.79	9.70		9.78	0.001342	2.28	49.15	26.94	0.30
LAT 8A	Alignment -LAT 8	1650.*	Exist 100yr	112.00	6.81	10.69		10.73	0.000494	1.59	70.24	30.90	0.19
LAT 8A	Alignment -LAT 8	1650.*	Prop 100yr	112.00	6.81	9.76		9.86	0.001766	2.53	44.19	25.32	0.34
LAT 8A	Alignment -LAT 8	1686		Culvert									
LAT 8A	Alignment -LAT 8	1750.*	Exist 100yr	112.00	6.86	11.45	9.00	11.48	0.000366	1.45	77.32	32.58	0.16
LAT 8A	Alignment -LAT 8	1750.*	Prop 100yr	112.00	6.86	10.82	9.00	10.88	0.000803	1.92	58.46	27.96	0.23
LAT 8A	Alignment -LAT 8	1766		Bridge									
LAT 8A	Alignment -LAT 8	1800	Exist 100yr	112.00	6.88	11.47	9.18	11.51	0.000487	1.63	69.35	39.45	0.19
LAT 8A	Alignment -LAT 8	1800	Prop 100yr	112.00	6.88	10.86	9.18	10.93	0.001083	2.15	52.19	26.20	0.27
LAT 8A	Alignment -LAT 8	1850.*	Exist 100yr	112.00	7.14	11.49		11.54	0.000595	1.77	63.57	28.28	0.20
LAT 8A	Alignment -LAT 8	1850.*	Prop 100yr	112.00	7.14	10.91		11.00	0.001286	2.31	48.39	24.66	0.29
LAT 8A	Alignment -LAT 8	1865		Culvert									
LAT 8A	Alignment -LAT 8	1950.*	Exist 100yr	112.00	7.65	11.99	9.75	12.03	0.000514	1.73	65.14	27.17	0.19
LAT 8A	Alignment -LAT 8	1950.*	Prop 100yr	112.00	7.65	11.40	9.75	11.47	0.001101	2.24	50.09	23.83	0.27
LAT 8A	Alignment -LAT 8	2000.*	Exist 100yr	112.00	7.91	12.01		12.07	0.000634	1.88	59.74	25.07	0.21
LAT 8A	Alignment -LAT 8	2000.*	Prop 100yr	112.00	7.91	11.45		11.54	0.001317	2.42	46.36	22.38	0.30
LAT 8A	Alignment -LAT 8	2050.*	Exist 100yr	112.00	8.16	12.04		12.10	0.000785	2.05	54.76	23.36	0.23
LAT 8A	Alignment -LAT 8	2050.*	Prop 100yr	112.00	8.16	11.51		11.61	0.001566	2.61	42.98	21.02	0.32
LAT 8A	Alignment -LAT 8	2100	Exist 100yr	112.00	8.42	12.07		12.15	0.000974	2.23	50.22	21.76	0.26
LAT 8A	Alignment -LAT 8	2100	Prop 100yr	112.00	8.42	11.58		11.70	0.001848	2.80	40.00	19.78	0.35
LAT 8A	Alignment -LAT 8	2150.*	Exist 100yr	112.00	8.49	12.12		12.20	0.001031	2.28	49.18	21.72	0.26
LAT 8A	Alignment -LAT 8	2150.*	Prop 100yr	112.00	8.49	11.67		11.80	0.001875	2.81	39.87	19.86	0.35
LAT 8A	Alignment -LAT 8	2200.*	Exist 100yr	112.00	8.56	12.17		12.26	0.001083	2.32	48.27	21.68	0.27
LAT 8A	Alignment -LAT 8	2200.*	Prop 100yr	112.00	8.56	11.77		11.89	0.001887	2.81	39.84	19.96	0.35
LAT 8A	Alignment -LAT 8	2250.*	Exist 100yr	112.00	8.62	12.23		12.31	0.001133	2.36	47.49	21.70	0.28
LAT 8A	Alignment -LAT 8	2250.*	Prop 100yr	112.00	8.62	11.86		11.98	0.001896	2.81	39.90	20.12	0.35
LAT 8A	Alignment -LAT 8	2300.*	Exist 100yr	112.00	8.69	12.28		12.37	0.001192	2.41	46.73	21.85	0.28
LAT 8A	Alignment -LAT 8	2300.*	Prop 100yr	112.00	8.69	11.96		12.08	0.001892	2.81	39.90	20.28	0.35
LAT 8A	Alignment -LAT 8	2303		Culvert									
LAT 8A	Alignment -LAT 8	2350.*	Exist 100yr	112.00	8.76	12.78	10.78	12.84	0.000597	1.90	84.80	171.52	0.21
LAT 8A	Alignment -LAT 8	2350.*	Prop 100yr	112.00	8.76	12.52	10.78	12.60	0.000968	2.25	52.71	68.98	0.26
LAT 8A	Alignment -LAT 8	2400	Exist 100yr	112.00	8.83	12.81		12.87	0.000606	1.91	88.51	175.22	0.21
LAT 8A	Alignment -LAT 8	2400	Prop 100yr	112.00	8.83	12.56		12.64	0.000982	2.28	55.61	88.96	0.26
LAT 8A	Alignment -LAT 8	2700	Exist 100yr	112.00	9.11	13.00		13.05	0.000612	1.93	95.97	256.36	0.21
LAT 8A	Alignment -LAT 8	2700	Prop 100yr	112.00	9.11	12.85		12.92	0.000849	2.18	69.35	138.04	0.24
LAT 8A	Alignment -LAT 8	3000	Exist 100yr	112.00	9.55	13.21		13.27	0.000859	2.03	90.21	294.85	0.24
LAT 8A	Alignment -LAT 8	3000	Prop 100yr	112.00	9.55	13.13		13.20	0.001057	2.19	72.43	160.17	0.27
LAT 8A	Alignment -LAT 8	3300	Exist 100yr	112.00	9.96	13.46		13.52	0.000822	2.02	106.01	421.17	0.24
LAT 8A	Alignment -LAT 8	3300	Prop 100yr	112.00	9.96	13.43		13.50	0.000908	2.11	94.29	370.56	0.25
LAT 8A	Alignment -LAT 8	3600	Exist 100yr	112.00	10.74	13.78	12.69	13.86	0.001632	2.44	84.06	411.20	0.32
LAT 8A	Alignment -LAT 8	3600	Prop 100yr	112.00	10.74	13.78		13.86	0.001649	2.45	83.01	405.80	0.33
LAT 8A	Alignment -LAT 8	3900	Exist 100yr	112.00	11.29	14.22		14.26	0.001098	2.03	134.59	528.57	0.27
LAT 8A	Alignment -LAT 8	3900	Prop 100yr	112.00	11.29	14.22		14.26	0.001096	2.03	134.69	528.89	0.27
LAT 8A	Alignment -LAT 8	4200	Exist 100yr	112.00	11.60	14.49		14.52	0.000666	1.65	184.39	556.80	0.21
LAT 8A	Alignment -LAT 8	4200	Prop 100yr	112.00	11.60	14.49		14.52	0.000666	1.65	184.40	556.81	0.21
LAT 8A	Alignment -LAT 8	4500	Exist 100yr	112.00	11.99	15.06		15.06	0.000116	0.73	449.37	876.26	0.09
LAT 8A	Alignment -LAT 8	4500	Prop 100yr	112.00	11.99	15.06		15.06	0.000116	0.73	449.37	876.26	0.09
LAT 8A	Alignment -LAT 8	4800	Exist 100yr	112.00	12.65	15.19		15.19	0.000176	0.76	406.82	888.93	0.11
LAT 8A	Alignment -LAT 8	4800	Prop 100yr	112.00	12.65	15.19		15.19	0.000176	0.76	406.82	888.93	0.11
LAT 8A	Alignment -LAT 8	5100	Exist 100yr	112.00	13.44	15.45		15.46	0.000536	1.07	239.43	526.83	0.18
LAT 8A	Alignment -LAT 8	5100	Prop 100yr	112.00	13.44	15.45		15.46	0.000536	1.07	239.43	526.83	0.18

HEC-RAS Plan: EXISTING W P

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
IRON GATE DITCH	CL IRON GATE DIT	15956.9	Exist 100-YR	236.00	11.16	30.21		30.21	0.000000	0.06	5124.88	477.33	0.00
IRON GATE DITCH	CL IRON GATE DIT	15956.9	PROP 100-YR	236.00	11.16	30.21		30.21	0.000000	0.06	5124.88	477.33	0.00
IRON GATE DITCH	CL IRON GATE DIT	15486.5	Exist 100-YR	236.00	11.87	30.21		30.21	0.000000	0.03	9391.67	891.60	0.00
IRON GATE DITCH	CL IRON GATE DIT	15486.5	PROP 100-YR	236.00	11.87	30.21		30.21	0.000000	0.03	9391.67	891.60	0.00
IRON GATE DITCH	CL IRON GATE DIT	15137.84	Exist 100-YR	236.00	12.09	30.21		30.21	0.000000	0.03	9884.23	899.53	0.00
IRON GATE DITCH	CL IRON GATE DIT	15137.84	PROP 100-YR	236.00	12.09	30.21		30.21	0.000000	0.03	9884.23	899.53	0.00
IRON GATE DITCH	CL IRON GATE DIT	14097.23	Exist 100-YR	236.00	14.69	30.21		30.21	0.000000	0.03	9676.04	908.15	0.00
IRON GATE DITCH	CL IRON GATE DIT	14097.23	PROP 100-YR	236.00	14.69	30.21		30.21	0.000000	0.03	9676.04	908.15	0.00
IRON GATE DITCH	CL IRON GATE DIT	14072.5*	Exist 100-YR	236.00	14.72	30.21	17.60	30.21	0.000000	0.03	9624.29	906.21	0.00
IRON GATE DITCH	CL IRON GATE DIT	14072.5*	PROP 100-YR	236.00	14.72	30.21	17.60	30.21	0.000000	0.03	9624.29	906.21	0.00
IRON GATE DITCH	CL IRON GATE DIT	13971		Culvert									
IRON GATE DITCH	CL IRON GATE DIT	13949.0*	Exist 100-YR	236.00	14.89	30.21		30.21	0.000000	0.03	9370.36	896.52	0.00
IRON GATE DITCH	CL IRON GATE DIT	13949.0*	PROP 100-YR	236.00	14.89	30.21		30.21	0.000000	0.03	9370.36	896.52	0.00
IRON GATE DITCH	CL IRON GATE DIT	12491.7*	Exist 100-YR	236.00	16.87	30.21	20.23	30.21	0.000000	0.04	6523.77	782.11	0.00
IRON GATE DITCH	CL IRON GATE DIT	12491.7*	PROP 100-YR	236.00	16.87	30.21	20.23	30.21	0.000000	0.04	6523.77	782.11	0.00
IRON GATE DITCH	CL IRON GATE DIT	12437		Culvert									
IRON GATE DITCH	CL IRON GATE DIT	12370.5*	Exist 100-YR	236.00	16.97	30.21		30.21	0.000000	0.04	6458.95	780.54	0.00
IRON GATE DITCH	CL IRON GATE DIT	12370.5*	PROP 100-YR	236.00	16.97	30.21		30.21	0.000000	0.04	6458.95	780.54	0.00
IRON GATE DITCH	CL IRON GATE DIT	9958.56*	Exist 100-YR	236.00	18.85	30.21	22.50	30.21	0.000000	0.05	5891.23	789.66	0.00
IRON GATE DITCH	CL IRON GATE DIT	9958.56*	PROP 100-YR	236.00	18.85	30.21	22.50	30.21	0.000000	0.05	5891.23	789.66	0.00
IRON GATE DITCH	CL IRON GATE DIT	9885		Culvert									
IRON GATE DITCH	CL IRON GATE DIT	9862.08	Exist 100-YR	236.00	18.92	30.21		30.21	0.000000	0.05	5865.91	790.03	0.00
IRON GATE DITCH	CL IRON GATE DIT	9862.08	PROP 100-YR	236.00	18.92	30.21		30.21	0.000000	0.05	5865.91	790.03	0.00
IRON GATE DITCH	CL IRON GATE DIT	7131.45	Exist 100-YR	236.00	21.21	30.21		30.21	0.000015	0.25	1378.19	390.69	0.02
IRON GATE DITCH	CL IRON GATE DIT	7131.45	PROP 100-YR	236.00	21.21	30.21		30.21	0.000015	0.25	1378.19	390.69	0.02
IRON GATE DITCH	CL IRON GATE DIT	7112.36*	Exist 100-YR	236.00	21.15	30.21		30.21	0.000015	0.26	1379.02	406.72	0.02
IRON GATE DITCH	CL IRON GATE DIT	7112.36*	PROP 100-YR	236.00	21.15	30.21		30.21	0.000015	0.26	1379.02	406.72	0.02
IRON GATE DITCH	CL IRON GATE DIT	7093.27*	Exist 100-YR	236.00	21.10	30.21	23.69	30.21	0.000016	0.27	1378.69	422.76	0.02
IRON GATE DITCH	CL IRON GATE DIT	7093.27*	PROP 100-YR	236.00	21.10	30.21	23.69	30.21	0.000016	0.27	1378.69	422.76	0.02
IRON GATE DITCH	CL IRON GATE DIT	7046		Culvert									
IRON GATE DITCH	CL IRON GATE DIT	7036.01*	Exist 100-YR	236.00	20.92	30.20		30.20	0.000018	0.29	1370.55	470.86	0.02
IRON GATE DITCH	CL IRON GATE DIT	7036.01*	PROP 100-YR	236.00	20.92	30.20		30.20	0.000018	0.29	1370.55	470.86	0.02
IRON GATE DITCH	CL IRON GATE DIT	7016.92*	Exist 100-YR	236.00	20.87	30.20		30.20	0.000019	0.29	1366.63	486.89	0.02
IRON GATE DITCH	CL IRON GATE DIT	7016.92*	PROP 100-YR	236.00	20.87	30.20		30.20	0.000019	0.29	1366.63	486.89	0.02
IRON GATE DITCH	CL IRON GATE DIT	6997.84*	Exist 100-YR	236.00	20.81	30.20		30.20	0.000019	0.30	1361.09	502.93	0.02
IRON GATE DITCH	CL IRON GATE DIT	6997.84*	PROP 100-YR	236.00	20.81	30.20		30.20	0.000019	0.30	1361.09	502.93	0.02
IRON GATE DITCH	CL IRON GATE DIT	6978.75*	Exist 100-YR	236.00	20.75	30.20		30.20	0.000020	0.30	1354.62	518.96	0.02
IRON GATE DITCH	CL IRON GATE DIT	6978.75*	PROP 100-YR	236.00	20.75	30.20		30.20	0.000020	0.30	1354.62	518.96	0.02
IRON GATE DITCH	CL IRON GATE DIT	6959.66*	Exist 100-YR	236.00	20.70	30.20		30.20	0.000020	0.30	1346.56	534.43	0.02
IRON GATE DITCH	CL IRON GATE DIT	6959.66*	PROP 100-YR	236.00	20.70	30.20		30.20	0.000020	0.30	1346.56	534.43	0.02
IRON GATE DITCH	CL IRON GATE DIT	6940.58	Exist 100-YR	236.00	20.64	30.20		30.20	0.000020	0.31	1339.65	541.39	0.02
IRON GATE DITCH	CL IRON GATE DIT	6940.58	PROP 100-YR	236.00	20.64	30.20		30.20	0.000020	0.31	1339.65	541.39	0.02
IRON GATE DITCH	CL IRON GATE DIT	4079.34	Exist 100-YR	236.00	20.93	30.15		30.15	0.000015	0.26	1664.75	675.66	0.02
IRON GATE DITCH	CL IRON GATE DIT	4079.34	PROP 100-YR	236.00	20.93	30.15		30.15	0.000015	0.26	1664.75	675.66	0.02
IRON GATE DITCH	CL IRON GATE DIT	3135.17	Exist 100-YR	236.00	21.19	30.14		30.14	0.000007	0.18	2138.60	696.06	0.01
IRON GATE DITCH	CL IRON GATE DIT	3135.17	PROP 100-YR	236.00	21.19	30.14		30.14	0.000007	0.18	2138.60	696.06	0.01
IRON GATE DITCH	CL IRON GATE DIT	3116.46*	Exist 100-YR	236.00	21.15	30.14	23.63	30.14	0.000007	0.17	2196.68	696.62	0.01
IRON GATE DITCH	CL IRON GATE DIT	3116.46*	PROP 100-YR	236.00	21.15	30.14	23.63	30.14	0.000007	0.17	2196.68	696.62	0.01
IRON GATE DITCH	CL IRON GATE DIT	3080		Culvert									
IRON GATE DITCH	CL IRON GATE DIT	3079.04*	Exist 100-YR	236.00	21.06	30.13		30.13	0.000006	0.16	2308.39	697.76	0.01
IRON GATE DITCH	CL IRON GATE DIT	3079.04*	PROP 100-YR	236.00	21.06	30.13		30.13	0.000006	0.16	2308.39	697.76	0.01
IRON GATE DITCH	CL IRON GATE DIT	3060.33	Exist 100-YR	236.00	21.02	30.13		30.13	0.000006	0.15	2369.79	698.32	0.01
IRON GATE DITCH	CL IRON GATE DIT	3060.33	PROP 100-YR	236.00	21.02	30.13		30.13	0.000006	0.15	2369.79	698.32	0.01
IRON GATE DITCH	CL IRON GATE DIT	2302.76	Exist 100-YR	236.00	20.87	30.13		30.13	0.000005	0.15	2372.01	639.34	0.01
IRON GATE DITCH	CL IRON GATE DIT	2302.76	PROP 100-YR	236.00	20.87	30.13		30.13	0.000005	0.15	2372.01	639.34	0.01
IRON GATE DITCH	CL IRON GATE DIT	2281.40*	Exist 100-YR	236.00	20.93	30.13	23.38	30.13	0.000005	0.15	2393.54	638.72	0.01
IRON GATE DITCH	CL IRON GATE DIT	2281.40*	PROP 100-YR	236.00	20.93	30.13	23.38	30.13	0.000005	0.15	2393.54	638.72	0.01
IRON GATE DITCH	CL IRON GATE DIT	2240		Culvert									
IRON GATE DITCH	CL IRON GATE DIT	2238.70*	Exist 100-YR	236.00	21.06	28.06		28.06	0.000048	0.39	1117.79	637.48	0.03
IRON GATE DITCH	CL IRON GATE DIT	2238.70*	PROP 100-YR	236.00	21.06	28.06		28.06	0.000048	0.39	1117.79	637.48	0.03

HEC-RAS Plan: EXISTING W P (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
IRON GATE DITCH	CL IRON GATE DIT	2217.35	Exist 100-YR	236.00	21.12	28.06		28.06	0.000047	0.38	1139.07	636.86	0.03
IRON GATE DITCH	CL IRON GATE DIT	2217.35	PROP 100-YR	236.00	21.12	28.06		28.06	0.000047	0.38	1139.07	636.86	0.03
IRON GATE DITCH	CL IRON GATE DIT	1092.05	Exist 100-YR	236.00	21.73	28.03		28.03	0.000020	0.23	1465.19	634.01	0.02
IRON GATE DITCH	CL IRON GATE DIT	1092.05	PROP 100-YR	236.00	21.73	28.03		28.03	0.000020	0.23	1465.19	634.01	0.02
IRON GATE DITCH	CL IRON GATE DIT	1067.10*	Exist 100-YR	236.00	21.69	28.03		28.03	0.000022	0.25	1433.14	634.81	0.02
IRON GATE DITCH	CL IRON GATE DIT	1067.10*	PROP 100-YR	236.00	21.69	28.03		28.03	0.000022	0.25	1433.14	634.81	0.02
IRON GATE DITCH	CL IRON GATE DIT	1042.15*	Exist 100-YR	236.00	21.65	28.03	24.33	28.03	0.000025	0.26	1400.48	635.62	0.02
IRON GATE DITCH	CL IRON GATE DIT	1042.15*	PROP 100-YR	236.00	21.65	28.03	24.33	28.03	0.000025	0.26	1400.48	635.62	0.02
IRON GATE DITCH	CL IRON GATE DIT	991		Culvert									
IRON GATE DITCH	CL IRON GATE DIT	967.308*	Exist 100-YR	236.00	21.52	27.70		27.70	0.000056	0.42	1095.06	638.03	0.03
IRON GATE DITCH	CL IRON GATE DIT	967.308*	PROP 100-YR	236.00	21.52	27.70		27.70	0.000056	0.42	1095.06	638.03	0.03
IRON GATE DITCH	CL IRON GATE DIT	942.36	Exist 100-YR	236.00	21.48	27.70		27.70	0.000063	0.46	1059.75	638.83	0.04
IRON GATE DITCH	CL IRON GATE DIT	942.36	PROP 100-YR	236.00	21.48	27.70		27.70	0.000063	0.46	1059.75	638.83	0.04
IRON GATE DITCH	CL IRON GATE DIT	176.15	Exist 100-YR	236.00	24.18	27.59		27.60	0.000527	0.79	489.30	436.26	0.09
IRON GATE DITCH	CL IRON GATE DIT	176.15	PROP 100-YR	236.00	24.18	27.59		27.60	0.000527	0.79	489.30	436.26	0.09
IRON GATE DITCH	CL IRON GATE DIT	152.367*	Exist 100-YR	236.00	24.19	27.58	25.85	27.58	0.000529	0.81	480.27	428.43	0.09
IRON GATE DITCH	CL IRON GATE DIT	152.367*	PROP 100-YR	236.00	24.19	27.58	25.85	27.58	0.000529	0.81	480.27	428.43	0.09
IRON GATE DITCH	CL IRON GATE DIT	117		Culvert									
IRON GATE DITCH	CL IRON GATE DIT	104.802*	Exist 100-YR	236.00	24.19	26.58	25.87	26.62	0.007677	2.38	150.11	192.08	0.33
IRON GATE DITCH	CL IRON GATE DIT	104.802*	PROP 100-YR	236.00	24.19	26.58	25.87	26.62	0.007677	2.38	150.11	192.08	0.33
IRON GATE DITCH	CL IRON GATE DIT	81.02	Exist 100-YR	236.00	24.20	25.85	25.85	26.16	0.091135	5.78	56.92	100.48	1.03
IRON GATE DITCH	CL IRON GATE DIT	81.02	PROP 100-YR	236.00	24.20	25.85	25.85	26.16	0.091135	5.78	56.92	100.48	1.03
Cow Bayou	Cow Bayou Rch 8	250421	Exist 100-YR	567.00	72.98	78.25		78.26	0.000184	0.44	1311.23	711.25	0.05
Cow Bayou	Cow Bayou Rch 8	250421	PROP 100-YR	567.00	72.98	78.25		78.26	0.000184	0.44	1311.23	711.25	0.05
Cow Bayou	Cow Bayou Rch 8	250371	Exist 100-YR	567.00	72.98	78.25	76.28	78.25	0.000167	0.46	1381.43	765.30	0.05
Cow Bayou	Cow Bayou Rch 8	250371	PROP 100-YR	567.00	72.98	78.25	76.28	78.25	0.000167	0.46	1381.43	765.30	0.05
Cow Bayou	Cow Bayou Rch 8	250346		Culvert									
Cow Bayou	Cow Bayou Rch 8	250321	Exist 100-YR	567.00	72.98	77.19	76.24	77.20	0.000838	0.79	776.74	595.22	0.11
Cow Bayou	Cow Bayou Rch 8	250321	PROP 100-YR	567.00	72.98	77.19	76.24	77.20	0.000838	0.79	776.74	595.22	0.11
Cow Bayou	Cow Bayou Rch 8	250157	Exist 100-YR	567.00	72.67	77.08		77.09	0.000576	0.63	1107.01	677.34	0.07
Cow Bayou	Cow Bayou Rch 8	250157	PROP 100-YR	567.00	72.67	77.08		77.09	0.000576	0.63	1107.01	677.34	0.07
Cow Bayou	Cow Bayou Rch 8	250043	Exist 100-YR	567.00	72.25	77.01		77.02	0.000666	0.69	1081.66	670.09	0.08
Cow Bayou	Cow Bayou Rch 8	250043	PROP 100-YR	567.00	72.25	77.01		77.02	0.000666	0.69	1081.66	670.09	0.08
Cow Bayou	Cow Bayou Rch 8	249742	Exist 100-YR	567.00	71.06	76.86		76.86	0.000411	0.62	998.24	687.16	0.08
Cow Bayou	Cow Bayou Rch 8	249742	PROP 100-YR	567.00	71.06	76.86		76.86	0.000411	0.62	998.24	687.16	0.08
Cow Bayou	Cow Bayou Rch 8	249327	Exist 100-YR	567.00	69.42	76.68		76.68	0.000480	0.71	995.71	755.08	0.09
Cow Bayou	Cow Bayou Rch 8	249327	PROP 100-YR	567.00	69.42	76.68		76.68	0.000480	0.71	995.71	755.08	0.09
Cow Bayou	Cow Bayou Rch 8	249245	Exist 100-YR	567.00	69.57	76.65	74.54	76.65	0.000088	0.31	2273.48	1555.07	0.04
Cow Bayou	Cow Bayou Rch 8	249245	PROP 100-YR	567.00	69.57	76.65	74.54	76.65	0.000088	0.31	2273.48	1555.07	0.04
Cow Bayou	Cow Bayou Rch 8	249162		Culvert									
Cow Bayou	Cow Bayou Rch 8	249083	Exist 100-YR	567.00	69.87	75.35	73.86	75.63	0.009837	4.26	133.12	898.94	0.41
Cow Bayou	Cow Bayou Rch 8	249083	PROP 100-YR	567.00	69.87	75.35	73.86	75.63	0.009837	4.26	133.12	898.94	0.41
Cow Bayou	Cow Bayou Rch 8	249012	Exist 100-YR	567.00	69.87	75.24		75.26	0.001754	1.36	555.45	860.71	0.16
Cow Bayou	Cow Bayou Rch 8	249012	PROP 100-YR	567.00	69.87	75.24		75.26	0.001754	1.36	555.45	860.71	0.16
Cow Bayou	Cow Bayou Rch 8	247796	Exist 100-YR	567.00	68.55	73.98		73.99	0.000711	0.73	776.99	383.32	0.09
Cow Bayou	Cow Bayou Rch 8	247796	PROP 100-YR	567.00	68.55	73.98		73.99	0.000711	0.73	776.99	383.32	0.09
Cow Bayou	Cow Bayou Rch 8	246004	Exist 100-YR	567.00	66.39	73.61		73.62	0.000096	0.52	1095.22	249.40	0.04
Cow Bayou	Cow Bayou Rch 8	246004	PROP 100-YR	567.00	66.39	73.61		73.62	0.000096	0.52	1095.22	249.40	0.04
Cow Bayou	Cow Bayou Rch 8	245955	Exist 100-YR	567.00	66.57	73.61	69.94	73.61	0.000078	0.41	1402.71	710.00	0.04
Cow Bayou	Cow Bayou Rch 8	245955	PROP 100-YR	567.00	66.57	73.61	69.94	73.61	0.000078	0.41	1402.71	710.00	0.04
Cow Bayou	Cow Bayou Rch 8	245904		Culvert									
Cow Bayou	Cow Bayou Rch 8	245828	Exist 100-YR	567.00	66.94	71.54	70.23	71.81	0.011698	4.18	135.74	349.65	0.44
Cow Bayou	Cow Bayou Rch 8	245828	PROP 100-YR	567.00	66.94	71.54	70.23	71.81	0.011698	4.18	135.74	349.65	0.44
Cow Bayou	Cow Bayou Rch 8	245753	Exist 100-YR	567.00	66.94	71.42		71.44	0.001554	1.13	503.31	289.39	0.15
Cow Bayou	Cow Bayou Rch 8	245753	PROP 100-YR	567.00	66.94	71.42		71.44	0.001554	1.13	503.31	289.39	0.15
Cow Bayou	Cow Bayou Rch 8	244696	Exist 100-YR	567.00	65.33	69.91		69.92	0.001331	0.96	588.50	285.44	0.12
Cow Bayou	Cow Bayou Rch 8	244696	PROP 100-YR	567.00	65.33	69.91		69.92	0.001331	0.96	588.50	285.44	0.12
Cow Bayou	Cow Bayou Rch 8	244137	Exist 100-YR	567.00	64.56	68.63		68.71	0.004079	2.24	253.28	106.40	0.26
Cow Bayou	Cow Bayou Rch 8	244137	PROP 100-YR	567.00	64.56	68.63		68.71	0.004079	2.24	253.28	106.40	0.26
Cow Bayou	Cow Bayou Rch 8	244093	Exist 100-YR	567.00	64.11	67.79	67.26	68.22	0.027365	5.31	106.84	150.15	0.65
Cow Bayou	Cow Bayou Rch 8	244093	PROP 100-YR	567.00	64.11	67.79	67.26	68.22	0.027365	5.31	106.84	150.15	0.65

HEC-RAS Plan: EXISTING W P (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
Cow Bayou	Cow Bayou Rch 8	244065		Culvert									
Cow Bayou	Cow Bayou Rch 8	244037	Exist 100-YR	567.00	63.53	67.19	67.19	67.97	0.073552	7.10	79.91	153.43	1.00
Cow Bayou	Cow Bayou Rch 8	244037	PROP 100-YR	567.00	63.53	67.19	67.19	67.97	0.073552	7.10	79.91	153.43	1.00
Cow Bayou	Cow Bayou Rch 8	243934	Exist 100-YR	567.00	63.53	67.38		67.47	0.024329	2.42	234.53	201.53	0.39
Cow Bayou	Cow Bayou Rch 8	243934	PROP 100-YR	567.00	63.53	67.38		67.47	0.024329	2.42	234.53	201.53	0.39
Cow Bayou	Cow Bayou Rch 8	241961	Exist 100-YR	567.00	60.69	66.67		66.68	0.000110	0.30	2577.34	1624.02	0.03
Cow Bayou	Cow Bayou Rch 8	241961	PROP 100-YR	567.00	60.69	66.67		66.68	0.000110	0.30	2577.34	1624.02	0.03
Cow Bayou	Cow Bayou Rch 8	241907	Exist 100-YR	567.00	60.69	66.67	64.22	66.67	0.000074	0.29	2455.86	1757.11	0.03
Cow Bayou	Cow Bayou Rch 8	241907	PROP 100-YR	567.00	60.69	66.67	64.22	66.67	0.000074	0.29	2455.86	1757.11	0.03
Cow Bayou	Cow Bayou Rch 8	241843		Culvert									
Cow Bayou	Cow Bayou Rch 8	241780	Exist 100-YR	567.00	60.69	65.79	64.03	66.04	0.007815	4.08	138.92	1127.51	0.38
Cow Bayou	Cow Bayou Rch 8	241780	PROP 100-YR	567.00	60.69	65.79	64.03	66.04	0.007815	4.08	138.92	1127.51	0.38
Cow Bayou	Cow Bayou Rch 8	241643	Exist 100-YR	567.00	60.80	65.58		65.60	0.001192	1.06	768.04	1412.63	0.13
Cow Bayou	Cow Bayou Rch 8	241643	PROP 100-YR	567.00	60.80	65.58		65.60	0.001192	1.06	768.04	1412.63	0.13
Cow Bayou	Cow Bayou Rch 8	239671	Exist 100-YR	567.00	58.99	62.43		62.45	0.002333	1.27	464.02	353.47	0.15
Cow Bayou	Cow Bayou Rch 8	239671	PROP 100-YR	567.00	58.99	62.43		62.45	0.002333	1.27	464.02	353.47	0.15
Cow Bayou	Cow Bayou Rch 8	238719	Exist 100-YR	567.00	58.07	61.25		61.25	0.000779	0.57	986.33	608.16	0.08
Cow Bayou	Cow Bayou Rch 8	238719	PROP 100-YR	567.00	58.07	61.25		61.25	0.000779	0.57	986.33	608.16	0.08
Cow Bayou	Cow Bayou Rch 8	238669	Exist 100-YR	567.00	58.07	61.21	60.36	61.21	0.000813	0.58	980.81	729.65	0.08
Cow Bayou	Cow Bayou Rch 8	238669	PROP 100-YR	567.00	58.07	61.21	60.36	61.21	0.000813	0.58	980.81	729.65	0.08
Cow Bayou	Cow Bayou Rch 8	238642		Culvert									
Cow Bayou	Cow Bayou Rch 8	238615	Exist 100-YR	567.00	58.04	61.01	59.99	61.02	0.001310	0.69	838.65	802.04	0.11
Cow Bayou	Cow Bayou Rch 8	238615	PROP 100-YR	567.00	58.04	61.01	59.99	61.02	0.001310	0.69	838.65	802.04	0.11
Cow Bayou	Cow Bayou Rch 8	238511	Exist 100-YR	567.00	58.04	60.18		60.21	0.006214	1.37	412.65	405.74	0.24
Cow Bayou	Cow Bayou Rch 8	238511	PROP 100-YR	567.00	58.04	60.18		60.21	0.006214	1.37	412.65	405.74	0.24
Cow Bayou	Cow Bayou Rch 8	237245	Exist 100-YR	567.00	55.21	59.61		59.61	0.000157	0.32	1842.90	912.52	0.04
Cow Bayou	Cow Bayou Rch 8	237245	PROP 100-YR	567.00	55.21	59.61		59.61	0.000157	0.32	1842.90	912.52	0.04
Cow Bayou	Cow Bayou Rch 8	236272	Exist 100-YR	567.00	55.01	59.48		59.48	0.000118	0.42	1352.26	549.86	0.04
Cow Bayou	Cow Bayou Rch 8	236272	PROP 100-YR	567.00	55.01	59.48		59.48	0.000118	0.42	1352.26	549.86	0.04
Cow Bayou	Cow Bayou Rch 8	236209	Exist 100-YR	567.00	55.00	59.19	57.31	59.40	0.006192	3.69	153.46	418.82	0.34
Cow Bayou	Cow Bayou Rch 8	236209	PROP 100-YR	567.00	55.00	59.19	57.31	59.40	0.006192	3.69	153.46	418.82	0.34
Cow Bayou	Cow Bayou Rch 8	236151		Culvert									
Cow Bayou	Cow Bayou Rch 8	236096	Exist 100-YR	567.00	54.91	58.50	57.19	58.80	0.010784	4.36	129.93	520.11	0.44
Cow Bayou	Cow Bayou Rch 8	236096	PROP 100-YR	567.00	54.91	58.50	57.19	58.80	0.010784	4.36	129.93	520.11	0.44
Cow Bayou	Cow Bayou Rch 8	235987	Exist 100-YR	567.00	54.09	58.62		58.62	0.000067	0.32	1838.58	745.74	0.03
Cow Bayou	Cow Bayou Rch 8	235987	PROP 100-YR	567.00	54.09	58.62		58.62	0.000067	0.32	1838.58	745.74	0.03
Cow Bayou	Cow Bayou Rch 8	235065	Exist 100-YR	567.00	53.57	58.56		58.56	0.000071	0.21	2770.79	1121.80	0.02
Cow Bayou	Cow Bayou Rch 8	235065	PROP 100-YR	567.00	53.57	58.56		58.56	0.000071	0.21	2770.79	1121.80	0.02
Cow Bayou	Cow Bayou Rch 8	233914	Exist 100-YR	567.00	52.08	58.45		58.45	0.000135	0.36	1598.54	522.85	0.03
Cow Bayou	Cow Bayou Rch 8	233914	PROP 100-YR	567.00	52.08	58.45		58.45	0.000135	0.36	1598.54	522.85	0.03
Cow Bayou	Cow Bayou Rch 8	233864	Exist 100-YR	567.00	52.08	58.44	55.25	58.44	0.000215	0.37	1539.60	506.10	0.04
Cow Bayou	Cow Bayou Rch 8	233864	PROP 100-YR	567.00	52.08	58.44	55.25	58.44	0.000215	0.37	1539.60	506.10	0.04
Cow Bayou	Cow Bayou Rch 8	233813		Culvert									
Cow Bayou	Cow Bayou Rch 8	233763	Exist 100-YR	567.00	52.34	58.42	55.54	58.42	0.000355	0.43	1355.42	529.41	0.04
Cow Bayou	Cow Bayou Rch 8	233763	PROP 100-YR	567.00	52.34	58.42	55.54	58.42	0.000355	0.43	1355.42	529.41	0.04
Cow Bayou	Cow Bayou Rch 8	233662	Exist 100-YR	567.00	52.34	58.38		58.38	0.000344	0.39	1485.31	610.37	0.04
Cow Bayou	Cow Bayou Rch 8	233662	PROP 100-YR	567.00	52.34	58.38		58.38	0.000344	0.39	1485.31	610.37	0.04
Cow Bayou	Cow Bayou Rch 8	232376	Exist 100-YR	1134.00	51.40	57.28		57.29	0.001666	0.94	1205.34	474.23	0.10
Cow Bayou	Cow Bayou Rch 8	232376	PROP 100-YR	1134.00	51.40	57.28		57.29	0.001666	0.94	1205.34	474.23	0.10
Cow Bayou	Cow Bayou Rch 8	230768	Exist 100-YR	1134.00	50.20	56.67		56.68	0.000164	0.53	2155.11	720.29	0.05
Cow Bayou	Cow Bayou Rch 8	230768	PROP 100-YR	1134.00	50.20	56.67		56.68	0.000164	0.53	2155.11	720.29	0.05
Cow Bayou	Cow Bayou Rch 8	228941	Exist 100-YR	1134.00	48.78	56.51		56.51	0.000055	0.32	5442.67	2278.60	0.03
Cow Bayou	Cow Bayou Rch 8	228941	PROP 100-YR	1134.00	48.78	56.51		56.51	0.000055	0.32	5442.67	2278.60	0.03
Cow Bayou	Cow Bayou Rch 8	228891	Exist 100-YR	1134.00	48.78	56.38	52.03	56.48	0.001348	2.46	460.82	539.83	0.17
Cow Bayou	Cow Bayou Rch 8	228891	PROP 100-YR	1134.00	48.78	56.38	52.03	56.48	0.001348	2.46	460.82	539.83	0.17
Cow Bayou	Cow Bayou Rch 8	228752		Culvert									
Cow Bayou	Cow Bayou Rch 8	228697	Exist 100-YR	1134.00	48.78	56.25	52.02	56.35	0.001414	2.48	456.75	512.91	0.18
Cow Bayou	Cow Bayou Rch 8	228697	PROP 100-YR	1134.00	48.78	56.25	52.02	56.35	0.001414	2.48	456.75	512.91	0.18
Cow Bayou	Cow Bayou Rch 8	228695	Exist 100-YR	1134.00	48.78	56.25	52.02	56.34	0.001830	2.43	466.60	512.91	0.17
Cow Bayou	Cow Bayou Rch 8	228695	PROP 100-YR	1134.00	48.78	56.25	52.02	56.34	0.001830	2.43	466.60	512.91	0.17



HEC-RAS Plan: EXISTING W P (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
Cow Bayou	Cow Bayou Rch 8	228646		Bridge									
Cow Bayou	Cow Bayou Rch 8	228596	Exist 100-YR	1134.00	48.78	55.56	52.03	55.68	0.002772	2.77	408.93	751.72	0.21
Cow Bayou	Cow Bayou Rch 8	228596	PROP 100-YR	1134.00	48.78	55.56	52.03	55.68	0.002772	2.77	408.93	751.72	0.21
Cow Bayou	Cow Bayou Rch 8	228496	Exist 100-YR	1134.00	48.78	55.53		55.54	0.000420	0.55	2178.10	749.08	0.05
Cow Bayou	Cow Bayou Rch 8	228496	PROP 100-YR	1134.00	48.78	55.53		55.54	0.000420	0.55	2178.10	749.08	0.05
Cow Bayou	Cow Bayou Rch 8	224759	Exist 100-YR	1134.00	49.10	54.65		54.65	0.000151	0.60	1905.34	482.38	0.05
Cow Bayou	Cow Bayou Rch 8	224759	PROP 100-YR	1134.00	49.10	54.65		54.65	0.000151	0.60	1905.34	482.38	0.05
Cow Bayou	Cow Bayou Rch 8	220617	Exist 100-YR	1134.00	48.06	54.33		54.33	0.000046	0.34	3322.59	757.23	0.03
Cow Bayou	Cow Bayou Rch 8	220617	PROP 100-YR	1134.00	48.06	54.33		54.33	0.000046	0.34	3322.59	757.23	0.03
Cow Bayou	Cow Bayou Rch 8	220431	Exist 100-YR	1134.00	48.06	54.32	51.16	54.33	0.000046	0.32	3573.43	833.10	0.03
Cow Bayou	Cow Bayou Rch 8	220431	PROP 100-YR	1134.00	48.06	54.32	51.16	54.33	0.000046	0.32	3573.43	833.10	0.03
Cow Bayou	Cow Bayou Rch 8	220378		Culvert									
Cow Bayou	Cow Bayou Rch 8	220325	Exist 100-YR	1134.00	48.06	54.31	51.18	54.32	0.000006	0.31	3651.65	1014.37	0.03
Cow Bayou	Cow Bayou Rch 8	220325	PROP 100-YR	1134.00	48.06	54.31	51.18	54.32	0.000006	0.31	3651.65	1014.37	0.03
Cow Bayou	Cow Bayou Rch 8	220108	Exist 100-YR	1134.00	48.06	54.31		54.31	0.000061	0.34	3353.74	730.04	0.03
Cow Bayou	Cow Bayou Rch 8	220108	PROP 100-YR	1134.00	48.06	54.31		54.31	0.000061	0.34	3353.74	730.04	0.03
Cow Bayou	Cow Bayou Rch 8	216544	Exist 100-YR	1134.00	46.83	54.15		54.15	0.000037	0.20	7220.19	2665.00	0.02
Cow Bayou	Cow Bayou Rch 8	216544	PROP 100-YR	1134.00	46.83	54.15		54.15	0.000037	0.20	7220.19	2665.00	0.02
Cow Bayou	Cow Bayou Rch 8	213411	Exist 100-YR	1134.00	45.74	53.94		53.94	0.000144	0.33	3636.37	1359.61	0.03
Cow Bayou	Cow Bayou Rch 8	213411	PROP 100-YR	1134.00	45.74	53.94		53.94	0.000144	0.33	3636.37	1359.61	0.03
Cow Bayou	Cow Bayou Rch 8	213358	Exist 100-YR	1134.00	44.95	53.94	50.01	53.94	0.000106	0.39	3096.22	1276.58	0.04
Cow Bayou	Cow Bayou Rch 8	213358	PROP 100-YR	1134.00	44.95	53.94	50.01	53.94	0.000106	0.39	3096.22	1276.58	0.04
Cow Bayou	Cow Bayou Rch 8	213340		Bridge									
Cow Bayou	Cow Bayou Rch 8	213321	Exist 100-YR	1134.00	44.95	53.93		53.93	0.000115	0.39	3057.36	1218.75	0.04
Cow Bayou	Cow Bayou Rch 8	213321	PROP 100-YR	1134.00	44.95	53.93		53.93	0.000115	0.39	3057.36	1218.75	0.04
Cow Bayou	Cow Bayou Rch 8	213225	Exist 100-YR	1134.00	45.49	53.92		53.92	0.000158	0.34	3446.02	1101.30	0.03
Cow Bayou	Cow Bayou Rch 8	213225	PROP 100-YR	1134.00	45.49	53.92		53.92	0.000158	0.34	3446.02	1101.30	0.03
Cow Bayou	Cow Bayou Rch 8	208428	Exist 100-YR	4559.00	43.54	48.51		48.53	0.003286	0.99	4654.65	2208.48	0.12
Cow Bayou	Cow Bayou Rch 8	208428	PROP 100-YR	4559.00	43.54	48.51		48.53	0.003286	0.99	4654.65	2208.48	0.12
Cow Bayou	Cow Bayou Rch 8	203715	Exist 100-YR	4559.00	41.50	47.47		47.47	0.000074	0.31	22423.58	10772.30	0.03
Cow Bayou	Cow Bayou Rch 8	203715	PROP 100-YR	4559.00	41.50	47.47		47.47	0.000074	0.31	22423.58	10772.30	0.03
Cow Bayou	Cow Bayou Rch 8	198997	Exist 100-YR	4559.00	40.43	47.28		47.28	0.000026	0.26	20441.04	6151.65	0.02
Cow Bayou	Cow Bayou Rch 8	198997	PROP 100-YR	4559.00	40.43	47.28		47.28	0.000026	0.26	20441.04	6151.65	0.02
Cow Bayou	Cow Bayou Rch 8	196104	Exist 100-YR	4559.00	40.00	47.16		47.17	0.000074	0.33	17469.21	7139.00	0.03
Cow Bayou	Cow Bayou Rch 8	196104	PROP 100-YR	4559.00	40.00	47.16		47.17	0.000074	0.33	17469.21	7139.00	0.03
Cow Bayou	Cow Bayou Rch 8	196049	Exist 100-YR	4559.00	40.00	47.16	41.82	47.16	0.000074	0.33	17442.65	7139.00	0.03
Cow Bayou	Cow Bayou Rch 8	196049	PROP 100-YR	4559.00	40.00	47.16	41.82	47.16	0.000074	0.33	17442.65	7139.00	0.03
Cow Bayou	Cow Bayou Rch 8	196000		Culvert									
Cow Bayou	Cow Bayou Rch 8	195952	Exist 100-YR	4559.00	40.19	46.65		46.65	0.000157	0.39	14099.25	6417.86	0.03
Cow Bayou	Cow Bayou Rch 8	195952	PROP 100-YR	4559.00	40.19	46.65		46.65	0.000157	0.39	14099.25	6417.86	0.03
Cow Bayou	Cow Bayou Rch 8	195849	Exist 100-YR	4559.00	40.19	46.63		46.63	0.000204	0.39	13981.68	6391.95	0.03
Cow Bayou	Cow Bayou Rch 8	195849	PROP 100-YR	4559.00	40.19	46.63		46.63	0.000204	0.39	13981.68	6391.95	0.03
Cow Bayou	Cow Bayou Rch 8	194975	Exist 100-YR	4559.00	39.11	46.43		46.44	0.000252	0.40	12819.26	6009.29	0.04
Cow Bayou	Cow Bayou Rch 8	194975	PROP 100-YR	4559.00	39.11	46.43		46.44	0.000252	0.40	12819.26	6009.29	0.04
Cow Bayou	Cow Bayou Rch 8	193730	Exist 100-YR	4559.00	38.70	46.11		46.11	0.000279	0.53	10333.70	7041.70	0.06
Cow Bayou	Cow Bayou Rch 8	193730	PROP 100-YR	4559.00	38.70	46.11		46.11	0.000279	0.53	10333.70	7041.70	0.06
Cow Bayou	Cow Bayou Rch 8	193680	Exist 100-YR	4559.00	38.70	46.00	41.43	46.07	0.001175	2.04	2230.44	6376.43	0.14
Cow Bayou	Cow Bayou Rch 8	193680	PROP 100-YR	4559.00	38.70	46.00	41.43	46.07	0.001175	2.04	2230.44	6376.43	0.14
Cow Bayou	Cow Bayou Rch 8	193633		Bridge									
Cow Bayou	Cow Bayou Rch 8	193586	Exist 100-YR	4559.00	38.88	45.22	41.23	45.24	0.001223	1.21	4370.51	5191.11	0.13
Cow Bayou	Cow Bayou Rch 8	193586	PROP 100-YR	4559.00	38.88	45.22	41.23	45.24	0.001223	1.21	4370.51	5191.11	0.13
Cow Bayou	Cow Bayou Rch 8	193476	Exist 100-YR	4559.00	38.88	45.09		45.11	0.001106	0.97	5126.83	4206.44	0.10
Cow Bayou	Cow Bayou Rch 8	193476	PROP 100-YR	4559.00	38.88	45.09		45.11	0.001106	0.97	5126.83	4206.44	0.10
Cow Bayou	Cow Bayou Rch 8	190399	Exist 100-YR	4559.00	38.31	44.17		44.18	0.000139	0.36	15976.78	6812.24	0.03
Cow Bayou	Cow Bayou Rch 8	190399	PROP 100-YR	4559.00	38.31	44.17		44.18	0.000139	0.36	15976.78	6812.24	0.03
Cow Bayou	Cow Bayou Rch 8	185722	Exist 100-YR	4559.00	37.33	43.37		43.37	0.000235	0.43	13090.05	4522.00	0.04
Cow Bayou	Cow Bayou Rch 8	185722	PROP 100-YR	4559.00	37.33	43.37		43.37	0.000235	0.43	13090.05	4522.00	0.04
Cow Bayou	Cow Bayou Rch 8	180882	Exist 100-YR	4559.00	35.88	41.83		41.83	0.000500	0.57	10957.58	4701.78	0.05
Cow Bayou	Cow Bayou Rch 8	180882	PROP 100-YR	4559.00	35.88	41.83		41.83	0.000500	0.57	10957.58	4701.78	0.05
Cow Bayou	Cow Bayou Rch 8	174623	Exist 100-YR	4559.00	33.65	39.44		39.45	0.000310	0.42	11662.16	4482.41	0.04

HEC-RAS Plan: EXISTING W P (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
Cow Bayou	Cow Bayou Rch 8	174623	PROP 100-YR	4559.00	33.65	39.44		39.45	0.000310	0.42	11662.16	4482.41	0.04
Cow Bayou	Cow Bayou Rch 8	174513	Exist 100-YR	4559.00	32.49	39.41	39.40	39.42	0.000230	0.30	15396.38	7304.27	0.03
Cow Bayou	Cow Bayou Rch 8	174513	PROP 100-YR	4559.00	32.49	39.41	39.40	39.42	0.000230	0.30	15396.38	7304.27	0.03
Cow Bayou	Cow Bayou Rch 8	174477		Bridge									
Cow Bayou	Cow Bayou Rch 8	174442	Exist 100-YR	4559.00	32.49	39.05	39.00	39.05	0.000312	0.33	14017.10	7089.42	0.04
Cow Bayou	Cow Bayou Rch 8	174442	PROP 100-YR	4559.00	32.49	39.05	39.00	39.05	0.000312	0.33	14017.10	7089.42	0.04
Cow Bayou	Cow Bayou Rch 8	174339	Exist 100-YR	4559.00	32.62	39.01		39.01	0.000320	0.34	13903.55	7062.31	0.04
Cow Bayou	Cow Bayou Rch 8	174339	PROP 100-YR	4559.00	32.62	39.01		39.01	0.000320	0.34	13903.55	7062.31	0.04
Cow Bayou	Cow Bayou Rch 8	168441	Exist 100-YR	4559.00	31.28	37.78		37.78	0.000147	0.39	11619.34	4690.99	0.04
Cow Bayou	Cow Bayou Rch 8	168441	PROP 100-YR	4559.00	31.28	37.78		37.78	0.000147	0.39	11619.34	4690.99	0.04
Cow Bayou	Cow Bayou Rch 8	162115	Exist 100-YR	4559.00	29.36	36.92		36.93	0.000125	0.44	11512.37	4476.78	0.04
Cow Bayou	Cow Bayou Rch 8	162115	PROP 100-YR	4559.00	29.36	36.92		36.93	0.000125	0.44	11512.37	4476.78	0.04
Cow Bayou	Cow Bayou Rch 8	162034	Exist 100-YR	4559.00	29.33	36.91	33.00	36.91	0.000234	0.35	13869.41	6324.53	0.03
Cow Bayou	Cow Bayou Rch 8	162034	PROP 100-YR	4559.00	29.33	36.91	33.00	36.91	0.000234	0.35	13869.41	6324.53	0.03
Cow Bayou	Cow Bayou Rch 8	162014		Culvert									
Cow Bayou	Cow Bayou Rch 8	161995	Exist 100-YR	4559.00	28.08	36.91	32.46	36.91	0.000195	0.34	14060.63	6292.20	0.03
Cow Bayou	Cow Bayou Rch 8	161995	PROP 100-YR	4559.00	28.08	36.91	32.46	36.91	0.000195	0.34	14060.63	6292.20	0.03
Cow Bayou	Cow Bayou Rch 8	161951	Exist 100-YR	4559.00	28.08	36.90		36.90	0.000085	0.35	13905.30	6241.73	0.03
Cow Bayou	Cow Bayou Rch 8	161951	PROP 100-YR	4559.00	28.08	36.90		36.90	0.000085	0.35	13905.30	6241.73	0.03
Cow Bayou	Cow Bayou Rch 8	159836	Exist 100-YR	4559.00	26.47	36.67		36.67	0.000146	0.52	11118.63	4885.98	0.05
Cow Bayou	Cow Bayou Rch 8	159836	PROP 100-YR	4559.00	26.47	36.67		36.67	0.000146	0.52	11118.63	4885.98	0.05
Cow Bayou	Cow Bayou Rch 8	157946	Exist 100-YR	4559.00	25.04	36.45		36.45	0.000098	0.51	11965.24	4003.00	0.04
Cow Bayou	Cow Bayou Rch 8	157946	PROP 100-YR	4559.00	25.04	36.45		36.45	0.000098	0.51	11965.24	4003.00	0.04
Cow Bayou	Cow Bayou Rch 8	157773	Exist 100-YR	4559.00	25.04	36.43	33.41	36.43	0.000103	0.51	11835.78	4026.00	0.04
Cow Bayou	Cow Bayou Rch 8	157773	PROP 100-YR	4559.00	25.04	36.43	33.41	36.43	0.000103	0.51	11835.78	4026.00	0.04
Cow Bayou	Cow Bayou Rch 8	157746		Bridge									
Cow Bayou	Cow Bayou Rch 8	157719	Exist 100-YR	4559.00	24.79	34.99	33.17	35.00	0.000350	0.77	7170.64	3246.92	0.07
Cow Bayou	Cow Bayou Rch 8	157719	PROP 100-YR	4559.00	24.79	34.99	33.17	35.00	0.000351	0.77	7167.80	3246.32	0.07
Cow Bayou	Cow Bayou Rch 8	157509	Exist 100-YR	4559.00	24.79	34.93		34.93	0.000275	0.69	8222.56	3550.88	0.06
Cow Bayou	Cow Bayou Rch 8	157509	PROP 100-YR	4559.00	24.79	34.93		34.93	0.000275	0.69	8219.22	3550.35	0.06
Cow Bayou	Cow Bayou Rch 8	151416	Exist 100-YR	6591.00	22.32	32.84		32.84	0.000414	0.76	10798.77	5047.28	0.08
Cow Bayou	Cow Bayou Rch 8	151416	PROP 100-YR	6591.00	22.32	32.84		32.85	0.000412	0.76	10822.38	5048.52	0.08
Cow Bayou	Cow Bayou Rch 8	146024	Exist 100-YR	6591.00	17.35	31.34		31.34	0.000206	0.53	21686.17	12382.10	0.05
Cow Bayou	Cow Bayou Rch 8	146024	PROP 100-YR	6591.00	17.35	31.31		31.31	0.000215	0.54	21313.93	12293.65	0.05
Cow Bayou	Cow Bayou Rch 8	145842	Exist 100-YR	6591.00	17.35	31.28	26.80	31.28	0.000194	0.46	21943.27	13700.98	0.05
Cow Bayou	Cow Bayou Rch 8	145842	PROP 100-YR	6591.00	17.35	31.25	26.80	31.25	0.000203	0.46	21495.05	13583.12	0.05
Cow Bayou	Cow Bayou Rch 8	145767		Bridge									
Cow Bayou	Cow Bayou Rch 8	145692	Exist 100-YR	6591.00	17.35	31.24	27.25	31.24	0.000233	0.52	17893.37	12529.32	0.05
Cow Bayou	Cow Bayou Rch 8	145692	PROP 100-YR	6591.00	17.35	31.21	27.25	31.21	0.000247	0.53	17454.02	12406.26	0.06
Cow Bayou	Cow Bayou Rch 8	145348	Exist 100-YR	6591.00	17.35	31.17		31.17	0.000226	0.54	18621.50	13475.95	0.06
Cow Bayou	Cow Bayou Rch 8	145348	PROP 100-YR	6591.00	17.35	31.13		31.13	0.000243	0.56	18075.25	13337.68	0.06
Cow Bayou	Cow Bayou Rch 8	143799	Exist 100-YR	6591.00	19.26	30.70		30.70	0.000455	0.63	12679.21	8554.49	0.08
Cow Bayou	Cow Bayou Rch 8	143799	PROP 100-YR	6591.00	19.26	30.60		30.61	0.000532	0.67	11883.14	8417.24	0.08
Cow Bayou	Cow Bayou Rch 8	142641	Exist 100-YR	6591.00	20.68	30.19		30.20	0.000444	0.77	9983.96	7321.17	0.08
Cow Bayou	Cow Bayou Rch 8	142641	PROP 100-YR	6591.00	20.68	29.99		30.00	0.000555	0.83	8795.11	4768.95	0.09
Cow Bayou	Cow Bayou Rch 8	142471	Exist 100-YR	6591.00	20.68	30.11	28.40	30.12	0.000475	0.81	9068.49	6578.86	0.08
Cow Bayou	Cow Bayou Rch 8	142471	PROP 100-YR	6591.00	20.68	29.89	28.40	29.90	0.000597	0.87	8079.11	3919.83	0.09
Cow Bayou	Cow Bayou Rch 8	142447		Bridge									
Cow Bayou	Cow Bayou Rch 8	142423	Exist 100-YR	6591.00	20.65	30.08	27.45	30.09	0.000425	0.79	9118.33	4682.17	0.08
Cow Bayou	Cow Bayou Rch 8	142423	PROP 100-YR	6591.00	20.65	29.85	27.45	29.86	0.000536	0.85	8226.72	3582.50	0.09
Cow Bayou	Cow Bayou Rch 8	142303	Exist 100-YR	6591.00	20.65	30.03		30.04	0.000462	0.81	8653.85	3547.24	0.08
Cow Bayou	Cow Bayou Rch 8	142303	PROP 100-YR	6591.00	20.65	29.78		29.79	0.000602	0.88	7799.99	3351.50	0.09
Cow Bayou	Cow Bayou Rch 8	136165	Exist 100-YR	6591.00	15.84	28.48		28.49	0.000161	0.74	11225.39	5990.30	0.08
Cow Bayou	Cow Bayou Rch 8	136165	PROP 100-YR	2366.00	15.84	27.14		27.14	0.000215	0.55	4405.38	4164.62	0.08
Cow Bayou	Cow Bayou Rch 8	134787	Exist 100-YR	6591.00	15.38	28.24		28.25	0.000189	0.88	11048.88	5475.46	0.08
Cow Bayou	Cow Bayou Rch 8	134787	PROP 100-YR	2366.00	15.38	26.86		26.87	0.000188	0.60	4809.56	3660.32	0.09
Cow Bayou	Cow Bayou Rch 8	132071	Exist 100-YR	6591.00	13.63	27.44		27.46	0.000516	1.25	9419.22	5353.34	0.14
Cow Bayou	Cow Bayou Rch 8	132071	PROP 100-YR	2366.00	13.63	25.63		25.66	0.002061	1.54	2057.43	2673.26	0.25
Cow Bayou	Cow Bayou Rch 8	131919	Exist 100-YR	6591.00	12.49	27.36		27.38	0.000655	1.21	9308.64	5235.27	0.13
Cow Bayou	Cow Bayou Rch 8	131919	PROP 100-YR	2366.00	12.49	25.48		25.51	0.000597	1.48	1994.24	2418.77	0.22

HEC-RAS Plan: EXISTING W P (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
Cow Bayou	Cow Bayou Rch 8	131755	Exist 100-YR	6591.00	12.49	27.26	23.70	27.28	0.000717	1.26	8763.87	5057.50	0.13
Cow Bayou	Cow Bayou Rch 8	131755	PROP 100-YR	2366.00	12.49	25.37	19.53	25.41	0.000654	1.51	1852.18	2181.20	0.21
Cow Bayou	Cow Bayou Rch 8	131730		Bridge									
Cow Bayou	Cow Bayou Rch 8	131705	Exist 100-YR	6591.00	11.11	27.22	22.25	27.24	0.000681	1.23	8928.20	5032.34	0.13
Cow Bayou	Cow Bayou Rch 8	131705	PROP 100-YR	2366.00	11.11	25.23	17.83	25.26	0.000479	1.35	1895.02	1983.13	0.17
Cow Bayou	Cow Bayou Rch 8	131422	Exist 100-YR	6591.00	11.11	27.10		27.12	0.000293	1.18	8919.48	4880.54	0.11
Cow Bayou	Cow Bayou Rch 8	131422	PROP 100-YR	2366.00	11.11	25.08		25.10	0.000593	1.07	2220.46	1712.63	0.14
Cow Bayou	Cow Bayou Rch 8	130431	Exist 100-YR	6591.00	12.15	26.94		26.95	0.000110	0.80	11382.35	5109.93	0.07
Cow Bayou	Cow Bayou Rch 8	130431	PROP 100-YR	2366.00	12.15	24.82		24.82	0.000160	0.62	3798.93	1773.52	0.07
Cow Bayou	Cow Bayou Rch 8	128325	Exist 100-YR	6591.00	11.44	26.32		26.37	0.001511	2.10	5184.18	3050.36	0.24
Cow Bayou	Cow Bayou Rch 8	128325	PROP 100-YR	2366.00	11.44	23.89		24.01	0.001862	2.80	846.49	258.60	0.27
Cow Bayou	Cow Bayou Rch 8	128270	Exist 100-YR	6591.00	11.42	25.62	22.97	26.11	0.003558	5.61	1174.95	2718.10	0.41
Cow Bayou	Cow Bayou Rch 8	128270	PROP 100-YR	2366.00	11.42	23.77	19.55	23.91	0.001673	2.97	796.90	870.59	0.26
Cow Bayou	Cow Bayou Rch 8	128221		Bridge									
Cow Bayou	Cow Bayou Rch 8	128173	Exist 100-YR	6591.00	11.39	24.70	22.74	25.32	0.005169	6.30	1045.51	1699.22	0.49
Cow Bayou	Cow Bayou Rch 8	128173	PROP 100-YR	2366.00	11.39	23.53	18.45	23.67	0.001565	2.92	809.09	1222.42	0.26
Cow Bayou	Cow Bayou Rch 8	128072	Exist 100-YR	6591.00	11.35	24.87		24.90	0.000578	1.38	4775.74	1774.85	0.15
Cow Bayou	Cow Bayou Rch 8	128072	PROP 100-YR	2366.00	11.35	23.53		23.54	0.000370	0.89	2661.94	1369.24	0.11
Cow Bayou	Cow Bayou Rch 8	125587	Exist 100-YR	5656.00	10.52	23.64		23.66	0.000423	1.01	5606.45	2777.53	0.12
Cow Bayou	Cow Bayou Rch 8	125587	PROP 100-YR	2366.00	10.52	22.42		22.43	0.000555	0.87	2729.15	1975.78	0.13
Cow Bayou	Cow Bayou Rch 8	123458	Exist 100-YR	5656.00	9.80	23.31		23.31	0.000085	0.51	11402.04	4868.54	0.06
Cow Bayou	Cow Bayou Rch 8	123458	PROP 100-YR	2366.00	9.80	21.66		21.67	0.000250	0.55	4339.85	3469.32	0.09
Cow Bayou	Cow Bayou Rch 8	122895	Exist 100-YR	5656.00	9.04	23.26		23.26	0.000090	0.55	10661.48	4604.16	0.06
Cow Bayou	Cow Bayou Rch 8	122895	PROP 100-YR	2366.00	9.04	21.53		21.53	0.000222	0.56	4207.25	2928.49	0.08
Cow Bayou	Cow Bayou Rch 8	122840	Exist 100-YR	5656.00	9.04	23.25	19.33	23.26	0.000097	0.56	10440.18	4598.66	0.06
Cow Bayou	Cow Bayou Rch 8	122840	PROP 100-YR	2366.00	9.04	21.52	15.82	21.52	0.000265	0.59	3985.46	2922.33	0.09
Cow Bayou	Cow Bayou Rch 8	122829		Bridge									
Cow Bayou	Cow Bayou Rch 8	122819	Exist 100-YR	5656.00	9.04	23.25	19.30	23.25	0.000094	0.59	10423.54	4599.29	0.06
Cow Bayou	Cow Bayou Rch 8	122819	PROP 100-YR	2366.00	9.04	21.51	15.83	21.51	0.000265	0.59	3985.05	2923.39	0.09
Cow Bayou	Cow Bayou Rch 8	122648	Exist 100-YR	5656.00	9.04	23.23		23.24	0.000104	0.59	10010.55	4530.56	0.06
Cow Bayou	Cow Bayou Rch 8	122648	PROP 100-YR	2366.00	9.04	21.46		21.47	0.000311	0.63	3759.58	2855.04	0.10
Cow Bayou	Cow Bayou Rch 8	121922	Exist 100-YR	5656.00	8.73	23.01		23.06	0.001039	2.99	7852.49	3413.92	0.22
Cow Bayou	Cow Bayou Rch 8	121922	PROP 100-YR	2366.00	8.73	20.85		21.00	0.001824	3.66	2124.36	1626.36	0.28
Cow Bayou	Cow Bayou Rch 8	120715	Exist 100-YR	5656.00	8.48	22.73		22.74	0.000125	0.73	8149.22	3014.92	0.07
Cow Bayou	Cow Bayou Rch 8	120715	PROP 100-YR	2366.00	8.48	20.39		20.40	0.000212	0.75	3163.41	1385.15	0.09
Cow Bayou	Cow Bayou Rch 8	119108	Exist 100-YR	5656.00	6.92	22.46		22.47	0.000226	0.74	7611.62	3543.16	0.09
Cow Bayou	Cow Bayou Rch 8	119108	PROP 100-YR	2366.00	6.92	19.99		20.00	0.000294	1.00	2367.70	857.00	0.11
Cow Bayou	Cow Bayou Rch 8	118006	Exist 100-YR	5656.00	5.53	22.17		22.18	0.000306	1.05	6108.73	3026.10	0.11
Cow Bayou	Cow Bayou Rch 8	118006	PROP 100-YR	2366.00	5.53	19.73		19.75	0.000184	0.96	2474.92	674.44	0.09
Cow Bayou	Cow Bayou Rch 8	117638	Exist 100-YR	5656.00	5.06	22.03		22.05	0.000441	1.08	7023.21	4094.63	0.13
Cow Bayou	Cow Bayou Rch 8	117638	PROP 100-YR	2366.00	5.06	19.65		19.67	0.000265	1.12	2112.84	593.69	0.10
Cow Bayou	Cow Bayou Rch 8	116625	Exist 100-YR	5656.00	4.58	21.91		21.92	0.000060	0.47	13025.07	5132.11	0.05
Cow Bayou	Cow Bayou Rch 8	116625	PROP 100-YR	2366.00	4.58	19.49		19.50	0.000113	0.53	4440.74	2020.93	0.06
Cow Bayou	Cow Bayou Rch 8	115889	Exist 100-YR	5656.00	4.13	21.86		21.87	0.000083	0.55	11406.49	4709.68	0.06
Cow Bayou	Cow Bayou Rch 8	115889	PROP 100-YR	2366.00	4.13	19.37		19.38	0.000224	0.68	3458.76	1805.09	0.09
Cow Bayou	Cow Bayou Rch 8	115840	Exist 100-YR	5656.00	4.13	21.86	14.36	21.86	0.000082	0.55	11332.57	4831.61	0.06
Cow Bayou	Cow Bayou Rch 8	115840	PROP 100-YR	2366.00	4.13	19.36	10.49	19.37	0.000227	0.68	3458.82	1821.45	0.09
Cow Bayou	Cow Bayou Rch 8	115816		Bridge									
Cow Bayou	Cow Bayou Rch 8	115792	Exist 100-YR	5656.00	4.13	21.85	14.36	21.86	0.000081	0.55	11318.66	5058.83	0.06
Cow Bayou	Cow Bayou Rch 8	115792	PROP 100-YR	2366.00	4.13	19.34	10.49	19.35	0.000227	0.69	3453.49	1816.50	0.09
Cow Bayou	Cow Bayou Rch 8	115694	Exist 100-YR	5656.00	4.13	21.84		21.85	0.000077	0.55	11618.49	5227.28	0.06
Cow Bayou	Cow Bayou Rch 8	115694	PROP 100-YR	2366.00	4.13	19.32		19.33	0.000211	0.67	3526.48	1814.52	0.08
Cow Bayou	Cow Bayou Rch 8	114430	Exist 100-YR	5656.00	4.56	21.59		21.65	0.000487	3.04	9019.10	3962.37	0.16
Cow Bayou	Cow Bayou Rch 8	114430	PROP 100-YR	2366.00	4.56	18.90		18.97	0.000412	2.49	2991.43	1117.37	0.14
Cow Bayou	Cow Bayou Rch 8	113302	Exist 100-YR	5656.00	6.24	21.18		21.18	0.000366	0.69	9300.29	4383.22	0.06
Cow Bayou	Cow Bayou Rch 8	113302	PROP 100-YR	2366.00	6.24	18.46		18.47	0.000454	0.88	2700.30	1070.76	0.10
Cow Bayou	Cow Bayou Rch 8	113253	Exist 100-YR	5656.00	6.28	21.16		21.17	0.000145	0.76	9076.29	4263.41	0.07
Cow Bayou	Cow Bayou Rch 8	113253	PROP 100-YR	2366.00	6.28	18.44		18.45	0.000374	0.87	2731.03	1169.40	0.10
Cow Bayou	Cow Bayou Rch 8	113192	Exist 100-YR	5656.00	5.46	20.82	13.39	21.08	0.001074	4.11	1377.39	4731.20	0.24
Cow Bayou	Cow Bayou Rch 8	113192	PROP 100-YR	2366.00	5.46	18.33	9.98	18.41	0.000397	2.29	1032.53	129.37	0.14
Cow Bayou	Cow Bayou Rch 8	113140		Multi Open									

HEC-RAS Plan: EXISTING W P (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
Cow Bayou	Cow Bayou Rch 8	113088	Exist 100-YR	5656.00	6.20	20.41	14.02	20.76	0.001331	4.79	1179.67	5298.57	0.30
Cow Bayou	Cow Bayou Rch 8	113088	PROP 100-YR	2366.00	6.20	18.18	10.71	18.30	0.000525	2.69	878.24	441.28	0.18
Cow Bayou	Cow Bayou Rch 8	113035	Exist 100-YR	5656.00	6.50	20.55		20.57	0.000224	0.94	7355.71	3581.87	0.10
Cow Bayou	Cow Bayou Rch 8	113035	PROP 100-YR	2366.00	6.50	18.19		18.22	0.000730	1.37	1728.70	904.30	0.17
Cow Bayou	Cow Bayou Rch 8	112951	Exist 100-YR	5656.00	6.42	20.54		20.55	0.000204	0.92	7773.47	3582.72	0.10
Cow Bayou	Cow Bayou Rch 8	112951	PROP 100-YR	2366.00	6.42	18.12		18.15	0.000925	1.38	1710.71	1052.38	0.19
Cow Bayou	Cow Bayou Rch 8	112138	Exist 100-YR	5807.00	-0.22	20.39		20.41	0.000154	1.07	7051.34	2511.04	0.09
Cow Bayou	Cow Bayou Rch 8	112138	PROP 100-YR	2575.00	-0.22	17.49		17.52	0.000676	1.35	1912.81	965.69	0.17
Cow Bayou	Cow Bayou Rch 8	110778	Exist 100-YR	5807.00	2.00	20.04		20.08	0.000419	1.66	3492.15	961.39	0.15
Cow Bayou	Cow Bayou Rch 8	110778	PROP 100-YR	2575.00	2.00	17.00		17.04	0.000216	1.48	1737.80	301.73	0.11
Cow Bayou	Cow Bayou Rch 8	110728	Exist 100-YR	5807.00	2.00	19.99	11.06	20.06	0.000353	1.99	2913.36	621.87	0.13
Cow Bayou	Cow Bayou Rch 8	110728	PROP 100-YR	2575.00	2.00	16.99	8.28	17.03	0.000214	1.43	1805.39	356.02	0.11
Cow Bayou	Cow Bayou Rch 8	110696	Bridge										
Cow Bayou	Cow Bayou Rch 8	110665	Exist 100-YR	5807.00	2.00	19.95	11.06	20.00	0.000295	1.83	3173.15	978.60	0.11
Cow Bayou	Cow Bayou Rch 8	110665	PROP 100-YR	2575.00	2.00	16.97	8.27	17.00	0.000189	1.25	2053.02	575.63	0.09
Cow Bayou	Cow Bayou Rch 8	110567	Exist 100-YR	5807.00	2.00	19.94		19.96	0.000279	1.05	5549.70	1141.45	0.08
Cow Bayou	Cow Bayou Rch 8	110567	PROP 100-YR	2575.00	2.00	16.96		16.97	0.000167	0.90	2851.49	633.27	0.07
Cow Bayou	Cow Bayou Rch 8	107945	Exist 100-YR	5807.00	-0.03	19.05		19.07	0.000424	1.14	5164.29	1252.17	0.10
Cow Bayou	Cow Bayou Rch 8	107945	PROP 100-YR	2575.00	-0.03	16.39		16.41	0.000292	1.02	2513.13	755.94	0.10
Cow Bayou	Cow Bayou Rch 8	105487	Exist 100-YR	5807.00	-0.49	18.05		18.13	0.000344	3.19	7799.33	2299.99	0.15
Cow Bayou	Cow Bayou Rch 8	105487	PROP 100-YR	2575.00	-0.49	15.75		15.80	0.000214	2.22	3761.23	1205.67	0.12
Cow Bayou	Cow Bayou Rch 8	103387	Exist 100-YR	5807.00	-3.92	17.56		17.56	0.000210	0.55	12477.72	5392.39	0.06
Cow Bayou	Cow Bayou Rch 8	103387	PROP 100-YR	2575.00	-3.92	15.33		15.34	0.000211	0.92	2785.84	1396.49	0.12
Cow Bayou	NW Vidor #3	6426	Exist 100-YR	593.00	12.99	20.11		20.11	0.000021	0.17	4864.62	2721.51	0.02
Cow Bayou	NW Vidor #3	6426	PROP 100-YR	593.00	12.99	20.11		20.11	0.000021	0.17	4867.04	2725.58	0.02
Cow Bayou	NW Vidor #3	6364	Exist 100-YR	593.00	12.71	20.11		20.11	0.000017	0.30	4244.12	3330.96	0.03
Cow Bayou	NW Vidor #3	6364	PROP 100-YR	593.00	12.71	20.11		20.11	0.000017	0.30	4247.09	3331.12	0.03
Cow Bayou	NW Vidor #3	6316	Exist 100-YR	593.00	12.29	20.11	15.55	20.11	0.000014	0.29	3643.39	3408.78	0.02
Cow Bayou	NW Vidor #3	6316	PROP 100-YR	593.00	12.29	20.11	15.55	20.11	0.000014	0.29	3646.43	3408.81	0.02
Cow Bayou	NW Vidor #3	6259	Culvert										
Cow Bayou	NW Vidor #3	6218	Exist 100-YR	593.00	12.98	18.68	16.06	18.85	0.001770	3.32	178.56	1534.89	0.28
Cow Bayou	NW Vidor #3	6218	PROP 100-YR	593.00	12.98	18.50	16.06	18.69	0.002029	3.46	171.41	1520.76	0.29
Cow Bayou	NW Vidor #3	6092	Exist 100-YR	593.00	12.98	18.68		18.68	0.000357	0.72	1592.67	2153.24	0.08
Cow Bayou	NW Vidor #3	6092	PROP 100-YR	593.00	12.98	18.46		18.48	0.000588	0.88	1153.50	1958.15	0.11
Cow Bayou	NW Vidor #3	4226	Exist 100-YR	593.00	9.28	17.85		17.87	0.000545	1.05	566.48	215.99	0.11
Cow Bayou	NW Vidor #3	4226	PROP 100-YR	593.00	9.28	16.97		17.00	0.001098	1.54	385.80	191.25	0.19
Cow Bayou	NW Vidor #3	4176	Exist 100-YR	593.00	9.28	17.76	13.40	17.82	0.000795	2.04	290.43	220.94	0.18
Cow Bayou	NW Vidor #3	4176	PROP 100-YR	593.00	9.28	16.81	13.40	16.92	0.001499	2.65	223.92	182.32	0.26
Cow Bayou	NW Vidor #3	4152	Bridge										
Cow Bayou	NW Vidor #3	4129	Exist 100-YR	593.00	10.58	17.65	13.69	17.69	0.000376	1.70	348.31	368.54	0.13
Cow Bayou	NW Vidor #3	4129	PROP 100-YR	593.00	10.58	16.63	13.69	16.70	0.000788	2.13	278.98	227.95	0.18
Cow Bayou	NW Vidor #3	4029	Exist 100-YR	593.00	10.58	17.65		17.65	0.000096	0.50	1190.83	587.56	0.06
Cow Bayou	NW Vidor #3	4029	PROP 100-YR	593.00	10.58	16.59		16.60	0.000542	0.91	651.50	430.88	0.13
Cow Bayou	NW Vidor #3	2910	Exist 100-YR	593.00	7.82	17.57		17.57	0.000055	0.54	1797.26	1012.57	0.05
Cow Bayou	NW Vidor #3	2910	PROP 100-YR	593.00	7.82	16.16		16.17	0.000289	0.92	750.71	471.93	0.10
Cow Bayou	NW Vidor #3	1269	Exist 100-YR	1186.00	3.70	17.41		17.43	0.000120	1.07	2470.91	1029.44	0.08
Cow Bayou	NW Vidor #3	1269	PROP 100-YR	1186.00	3.70	15.18		15.25	0.000863	2.12	632.50	351.75	0.19
Cow Bayou	NW Vidor #3	86	Exist 100-YR	1186.00	0.85	17.39		17.39	0.000010	0.38	6587.31	893.14	0.02
Cow Bayou	NW Vidor #3	86	PROP 100-YR	1186.00	0.85	15.12		15.13	0.000031	0.53	4582.04	850.15	0.04
Cow Bayou	Cow Bayou Rch 7	102436	Exist 100-YR	5680.00	1.88	17.31		17.32	0.000321	0.99	9695.65	6593.36	0.09
Cow Bayou	Cow Bayou Rch 7	102436	PROP 100-YR	2634.00	1.88	14.99		15.02	0.000639	1.36	2085.78	1596.51	0.18
Cow Bayou	Cow Bayou Rch 7	102367	Exist 100-YR	5680.00	1.88	17.28	11.06	17.30	0.000284	1.04	9285.90	6012.49	0.09
Cow Bayou	Cow Bayou Rch 7	102367	PROP 100-YR	2634.00	1.88	14.95	7.79	14.98	0.000538	1.23	2306.52	1588.56	0.14
Cow Bayou	Cow Bayou Rch 7	102354	Bridge										
Cow Bayou	Cow Bayou Rch 7	102342	Exist 100-YR	5680.00	1.88	17.27	12.98	17.29	0.000325	1.06	8958.40	5459.20	0.09
Cow Bayou	Cow Bayou Rch 7	102342	PROP 100-YR	2634.00	1.88	14.92	7.79	14.94	0.000582	1.25	2254.16	1555.15	0.15
Cow Bayou	Cow Bayou Rch 7	102210	Exist 100-YR	5680.00	1.88	17.24		17.25	0.000249	0.95	9363.59	5199.57	0.08
Cow Bayou	Cow Bayou Rch 7	102210	PROP 100-YR	2634.00	1.88	14.85		14.87	0.000483	1.08	2505.57	1331.76	0.12
Cow Bayou	Cow Bayou Rch 7	100604	Exist 100-YR	5680.00	-4.22	17.06		17.07	0.000070	1.65	13338.80	4816.71	0.07
Cow Bayou	Cow Bayou Rch 7	100604	PROP 100-YR	2634.00	-4.22	14.65		14.66	0.000061	1.38	5362.19	1527.43	0.06

HEC-RAS Plan: EXISTING W P (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
Cow Bayou	Cow Bayou Rch 7	97948	Exist 100-YR	5680.00	-3.10	16.78		16.80	0.000191	1.58	9296.11	2093.55	0.10
Cow Bayou	Cow Bayou Rch 7	97948	PROP 100-YR	2634.00	-3.10	14.43		14.45	0.000127	1.32	5495.35	1507.56	0.09
Cow Bayou	NW Vidor #2	15260	Exist 100-YR	432.00	14.94	21.50		21.50	0.000137	0.78	1986.24	1438.67	0.07
Cow Bayou	NW Vidor #2	15260	PROP 100-YR	432.00	14.94	21.50		21.50	0.000137	0.77	1987.70	1438.85	0.07
Cow Bayou	NW Vidor #2	15208	Exist 100-YR	432.00	14.94	21.49	18.36	21.49	0.000108	0.19	2880.38	1821.69	0.02
Cow Bayou	NW Vidor #2	15208	PROP 100-YR	432.00	14.94	21.49	18.36	21.49	0.000108	0.19	2882.25	1821.83	0.02
Cow Bayou	NW Vidor #2	15167		Culvert									
Cow Bayou	NW Vidor #2	15127	Exist 100-YR	432.00	14.94	21.48	18.09	21.48	0.000172	0.24	2275.69	1553.56	0.03
Cow Bayou	NW Vidor #2	15127	PROP 100-YR	432.00	14.94	21.48	18.09	21.48	0.000172	0.24	2273.91	1553.42	0.03
Cow Bayou	NW Vidor #2	15006	Exist 100-YR	432.00	14.90	21.44		21.44	0.000521	0.63	1527.91	1166.91	0.06
Cow Bayou	NW Vidor #2	15006	PROP 100-YR	432.00	14.90	21.44		21.44	0.000522	0.63	1526.45	1166.64	0.06
Cow Bayou	NW Vidor #2	14798	Exist 100-YR	432.00	14.82	21.42		21.42	0.000037	0.29	1919.49	1199.49	0.04
Cow Bayou	NW Vidor #2	14798	PROP 100-YR	432.00	14.82	21.42		21.42	0.000037	0.29	1917.94	1199.32	0.04
Cow Bayou	NW Vidor #2	14553	Exist 100-YR	432.00	14.73	21.40		21.40	0.000210	0.34	1686.06	1087.12	0.04
Cow Bayou	NW Vidor #2	14553	PROP 100-YR	432.00	14.73	21.40		21.40	0.000210	0.34	1684.62	1086.94	0.04
Cow Bayou	NW Vidor #2	14122	Exist 100-YR	432.00	14.58	21.29		21.31	0.000251	1.03	1063.27	816.76	0.10
Cow Bayou	NW Vidor #2	14122	PROP 100-YR	432.00	14.58	21.29		21.30	0.000252	1.03	1061.99	816.52	0.10
Cow Bayou	NW Vidor #2	13923	Exist 100-YR	432.00	14.38	21.27		21.27	0.000096	0.50	1314.06	840.80	0.06
Cow Bayou	NW Vidor #2	13923	PROP 100-YR	432.00	14.38	21.27		21.27	0.000096	0.50	1312.69	840.55	0.06
Cow Bayou	NW Vidor #2	12973	Exist 100-YR	432.00	13.45	21.22		21.22	0.000035	0.20	2361.16	1509.66	0.03
Cow Bayou	NW Vidor #2	12973	PROP 100-YR	432.00	13.45	21.22		21.22	0.000035	0.20	2358.48	1509.33	0.03
Cow Bayou	NW Vidor #2	12942	Exist 100-YR	432.00	13.45	21.22	17.75	21.22	0.000012	0.16	3554.00	2621.82	0.02
Cow Bayou	NW Vidor #2	12942	PROP 100-YR	432.00	13.45	21.22	17.75	21.22	0.000012	0.16	3549.34	2621.42	0.02
Cow Bayou	NW Vidor #2	12866		Culvert									
Cow Bayou	NW Vidor #2	12813	Exist 100-YR	432.00	13.25	20.39	16.97	20.46	0.000755	2.06	209.84	1564.38	0.17
Cow Bayou	NW Vidor #2	12813	PROP 100-YR	432.00	13.25	20.39	16.97	20.45	0.000756	2.06	209.74	1564.08	0.17
Cow Bayou	NW Vidor #2	12539	Exist 100-YR	432.00	12.81	20.20	15.73	20.27	0.000635	2.13	538.27	3578.56	0.16
Cow Bayou	NW Vidor #2	12539	PROP 100-YR	432.00	12.81	20.20	15.73	20.27	0.000645	2.15	517.64	3577.96	0.16
Cow Bayou	NW Vidor #2	12489	Exist 100-YR	432.00	12.81	20.16	15.73	20.24	0.000704	2.24	385.54	3574.12	0.17
Cow Bayou	NW Vidor #2	12489	PROP 100-YR	432.00	12.81	20.16	15.73	20.23	0.000713	2.25	363.40	3573.48	0.17
Cow Bayou	NW Vidor #2	12479		Culvert									
Cow Bayou	NW Vidor #2	12469	Exist 100-YR	432.00	12.81	20.16	15.73	20.24	0.000709	2.24	374.91	3573.81	0.17
Cow Bayou	NW Vidor #2	12469	PROP 100-YR	432.00	12.81	20.15	15.73	20.23	0.000717	2.25	353.65	3573.20	0.17
Cow Bayou	NW Vidor #2	12369	Exist 100-YR	432.00	12.81	20.08	15.73	20.16	0.000779	2.33	187.21	69.92	0.18
Cow Bayou	NW Vidor #2	12369	PROP 100-YR	432.00	12.81	20.07	15.73	20.15	0.000782	2.33	186.83	68.04	0.18
Cow Bayou	NW Vidor #2	11930	Exist 100-YR	432.00	12.40	19.88		19.88	0.000445	0.66	661.57	553.91	0.09
Cow Bayou	NW Vidor #2	11930	PROP 100-YR	432.00	12.40	19.87		19.88	0.000448	0.66	657.90	530.46	0.09
Cow Bayou	NW Vidor #2	10943	Exist 100-YR	432.00	11.39	19.35		19.38	0.000594	1.42	477.11	890.94	0.15
Cow Bayou	NW Vidor #2	10943	PROP 100-YR	432.00	11.39	19.33		19.36	0.000610	1.43	463.23	884.86	0.15
Cow Bayou	NW Vidor #2	10710	Exist 100-YR	432.00	10.93	19.26		19.27	0.000330	1.01	528.99	908.12	0.12
Cow Bayou	NW Vidor #2	10710	PROP 100-YR	432.00	10.93	19.24		19.26	0.000336	1.02	513.03	899.32	0.12
Cow Bayou	NW Vidor #2	10664	Exist 100-YR	432.00	10.84	19.25	14.59	19.26	0.000313	0.92	566.47	940.83	0.11
Cow Bayou	NW Vidor #2	10664	PROP 100-YR	432.00	10.84	19.23	14.59	19.24	0.000319	0.93	549.65	935.95	0.11
Cow Bayou	NW Vidor #2	10627		Culvert									
Cow Bayou	NW Vidor #2	10591	Exist 100-YR	432.00	10.70	18.98	14.47	19.04	0.000458	2.01	215.19	162.41	0.15
Cow Bayou	NW Vidor #2	10591	PROP 100-YR	432.00	10.70	18.91	14.47	18.98	0.000477	2.03	212.67	159.40	0.15
Cow Bayou	NW Vidor #2	10446	Exist 100-YR	866.00	10.42	18.81		18.89	0.001563	2.40	677.64	829.25	0.24
Cow Bayou	NW Vidor #2	10446	PROP 100-YR	866.00	10.42	18.72		18.81	0.001786	2.53	603.56	783.54	0.26
Cow Bayou	NW Vidor #2	10004	Exist 100-YR	866.00	9.44	18.33		18.40	0.000800	2.04	424.84	146.83	0.21
Cow Bayou	NW Vidor #2	10004	PROP 100-YR	866.00	9.44	18.18		18.25	0.000896	2.15	402.94	143.38	0.23
Cow Bayou	NW Vidor #2	9978	Exist 100-YR	866.00	9.44	18.27	14.53	18.37	0.000871	2.53	341.74	189.75	0.20
Cow Bayou	NW Vidor #2	9978	PROP 100-YR	866.00	9.44	18.11	14.53	18.22	0.000965	2.61	331.39	181.92	0.21
Cow Bayou	NW Vidor #2	9962		Bridge									
Cow Bayou	NW Vidor #2	9947	Exist 100-YR	866.00	9.44	18.09	14.69	18.22	0.000831	2.86	302.62	179.72	0.24
Cow Bayou	NW Vidor #2	9947	PROP 100-YR	866.00	9.44	17.92	14.69	18.06	0.000943	2.97	291.29	171.87	0.25
Cow Bayou	NW Vidor #2	9925	Exist 100-YR	866.00	9.44	18.10		18.17	0.000788	2.17	398.51	184.86	0.26
Cow Bayou	NW Vidor #2	9925	PROP 100-YR	866.00	9.44	17.93		18.01	0.000913	2.35	367.75	175.91	0.29
Cow Bayou	NW Vidor #2	9337	Exist 100-YR	866.00	7.83	17.95		17.96	0.000178	0.85	1529.14	1074.88	0.10
Cow Bayou	NW Vidor #2	9337	PROP 100-YR	866.00	7.83	17.72		17.74	0.000259	0.95	1297.86	932.13	0.12
Cow Bayou	NW Vidor #2	9287	Exist 100-YR	866.00	7.70	17.94	12.96	17.95	0.000181	0.85	1566.30	1134.10	0.10
Cow Bayou	NW Vidor #2	9287	PROP 100-YR	866.00	7.70	17.52	12.96	17.68	0.000612	3.13	276.95	1051.05	0.21

HEC-RAS Plan: EXISTING W P (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
Cow Bayou	NW Vidor #2	9267		Bridge									
Cow Bayou	NW Vidor #2	9248	Exist 100-YR	866.00	7.60	17.47	12.98	17.48	0.000313	0.99	1459.76	1173.38	0.13
Cow Bayou	NW Vidor #2	9248	PROP 100-YR	866.00	7.60	17.01	12.98	17.20	0.000900	3.50	247.75	879.61	0.25
Cow Bayou	NW Vidor #2	8999	Exist 100-YR	866.00	6.94	17.40		17.41	0.000249	1.11	2240.20	1463.19	0.12
Cow Bayou	NW Vidor #2	8999	PROP 100-YR	866.00	6.94	16.91		16.94	0.000504	1.48	1589.41	1236.95	0.17
Cow Bayou	NW Vidor #2	7993	Exist 100-YR	866.00	5.99	17.15		17.17	0.000258	1.27	1861.83	1537.99	0.12
Cow Bayou	NW Vidor #2	7993	PROP 100-YR	866.00	5.99	16.34		16.39	0.000609	1.86	918.92	904.48	0.20
Cow Bayou	NW Vidor #2	7290	Exist 100-YR	866.00	5.01	17.04		17.05	0.000133	1.03	2860.36	1994.94	0.09
Cow Bayou	NW Vidor #2	7290	PROP 100-YR	866.00	5.01	16.00		16.04	0.000452	1.75	1071.30	1142.58	0.18
Cow Bayou	NW Vidor #2	6299	Exist 100-YR	866.00	4.56	16.94		16.95	0.000078	0.83	3445.01	2024.30	0.06
Cow Bayou	NW Vidor #2	6299	PROP 100-YR	866.00	4.56	15.69		15.72	0.000232	1.39	1249.77	1208.79	0.12
Cow Bayou	NW Vidor #2	5300	Exist 100-YR	866.00	3.65	16.87		16.88	0.000057	0.87	4288.52	2317.86	0.06
Cow Bayou	NW Vidor #2	5300	PROP 100-YR	866.00	3.65	15.40		15.45	0.000320	1.83	1031.54	2068.15	0.15
Cow Bayou	NW Vidor #2	4907	Exist 100-YR	866.00	3.16	16.85		16.86	0.000053	0.82	4008.36	2103.00	0.06
Cow Bayou	NW Vidor #2	4907	PROP 100-YR	866.00	3.16	15.30		15.34	0.000220	1.63	880.06	1909.35	0.13
Cow Bayou	NW Vidor #2	4854	Exist 100-YR	866.00	3.10	16.85	8.27	16.86	0.000061	0.73	4093.06	2113.88	0.05
Cow Bayou	NW Vidor #2	4854	PROP 100-YR	866.00	3.10	15.29	8.27	15.33	0.000251	1.49	913.27	1930.83	0.13
Cow Bayou	NW Vidor #2	4831		Culvert									
Cow Bayou	NW Vidor #2	4809	Exist 100-YR	866.00	3.04	16.85	8.20	16.86	0.000060	0.68	4077.74	2056.87	0.05
Cow Bayou	NW Vidor #2	4809	PROP 100-YR	866.00	3.04	14.93	8.20	14.97	0.000292	1.61	537.84	136.29	0.14
Cow Bayou	NW Vidor #2	4707	Exist 100-YR	866.00	2.92	16.84		16.85	0.000068	0.62	3924.36	2342.89	0.05
Cow Bayou	NW Vidor #2	4707	PROP 100-YR	866.00	2.92	14.90		14.94	0.000281	1.48	585.68	180.59	0.14
Cow Bayou	NW Vidor #2	4355	Exist 100-YR	866.00	2.48	16.82		16.83	0.000049	0.57	4490.74	2331.35	0.04
Cow Bayou	NW Vidor #2	4355	PROP 100-YR	866.00	2.48	14.82		14.85	0.000232	1.34	683.70	467.73	0.13
Cow Bayou	NW Vidor #2	3267	Exist 100-YR	866.00	1.60	16.79		16.79	0.000025	0.22	5164.18	2031.09	0.02
Cow Bayou	NW Vidor #2	3267	PROP 100-YR	866.00	1.60	14.66		14.66	0.000119	0.51	1708.21	774.78	0.06
Cow Bayou	NW Vidor #2	1898	Exist 100-YR	866.00	0.44	16.76		16.77	0.000018	0.67	4242.42	1048.45	0.04
Cow Bayou	NW Vidor #2	1898	PROP 100-YR	866.00	0.44	14.54		14.56	0.000059	1.02	2311.97	750.90	0.07
Cow Bayou	NW Vidor #2	840	Exist 100-YR	1299.00	-0.73	16.74		16.74	0.000029	0.61	5176.71	1076.72	0.04
Cow Bayou	NW Vidor #2	840	PROP 100-YR	1299.00	-0.73	14.46		14.48	0.000102	1.06	2727.73	1071.53	0.07
Cow Bayou	NW Vidor #2	45	Exist 100-YR	1299.00	-1.48	16.72		16.72	0.000024	0.38	6373.46	816.39	0.02
Cow Bayou	NW Vidor #2	45	PROP 100-YR	1299.00	-1.48	14.41		14.41	0.000064	0.57	4486.46	816.39	0.04
Cow Bayou	Cow Bayou Rch 6	97172	Exist 100-YR	5720.00	-4.90	16.64		16.65	0.000197	0.65	9860.47	3028.38	0.05
Cow Bayou	Cow Bayou Rch 6	97172	PROP 100-YR	4094.00	-4.90	14.28		14.29	0.000294	0.76	5406.90	1232.92	0.06
Cow Bayou	Cow Bayou Rch 6	94841	Exist 100-YR	5720.00	-7.32	16.04		16.12	0.000292	2.95	7823.06	3413.41	0.13
Cow Bayou	Cow Bayou Rch 6	94841	PROP 100-YR	4094.00	-7.32	13.57		13.64	0.000289	2.64	4070.51	745.50	0.12
Cow Bayou	Cow Bayou Rch 6	91802	Exist 100-YR	5720.00	-8.05	15.78		15.78	0.000057	0.35	17352.20	3077.60	0.02
Cow Bayou	Cow Bayou Rch 6	91802	PROP 100-YR	4094.00	-8.05	13.09		13.09	0.000125	0.43	9810.24	2707.91	0.04
Cow Bayou	Cow Bayou Rch 6	91444	Exist 100-YR	5720.00	-7.70	15.76		15.76	0.000088	0.39	16089.11	3891.97	0.03
Cow Bayou	Cow Bayou Rch 6	91444	PROP 100-YR	4094.00	-7.70	13.03		13.03	0.000235	0.58	7197.74	2808.63	0.06
Cow Bayou	NW Vidor #1	20114	Exist 100-YR	192.00	15.82	21.19		21.21	0.000453	1.21	194.13	502.32	0.13
Cow Bayou	NW Vidor #1	20114	PROP 100-YR	192.00	15.82	21.18		21.20	0.000457	1.21	191.28	499.06	0.13
Cow Bayou	NW Vidor #1	19694	Exist 100-YR	192.00	16.06	21.01		21.02	0.000444	0.93	224.00	330.20	0.13
Cow Bayou	NW Vidor #1	19694	PROP 100-YR	192.00	16.06	21.00		21.01	0.000449	0.93	221.56	322.61	0.14
Cow Bayou	NW Vidor #1	19091	Exist 100-YR	192.00	15.73	20.96		20.96	0.000036	0.22	1375.72	1639.36	0.03
Cow Bayou	NW Vidor #1	19091	PROP 100-YR	192.00	15.73	20.95		20.95	0.000037	0.22	1361.40	1636.99	0.03
Cow Bayou	NW Vidor #1	19041	Exist 100-YR	192.00	15.70	20.91	17.76	20.95	0.000506	1.57	122.52	1551.72	0.14
Cow Bayou	NW Vidor #1	19041	PROP 100-YR	192.00	15.70	20.90	17.76	20.94	0.000510	1.57	122.22	1549.47	0.14
Cow Bayou	NW Vidor #1	19007		Culvert									
Cow Bayou	NW Vidor #1	18974	Exist 100-YR	192.00	15.67	20.67	17.72	20.72	0.000609	1.66	115.75	1421.54	0.16
Cow Bayou	NW Vidor #1	18974	PROP 100-YR	192.00	15.67	20.66	17.72	20.71	0.000614	1.66	115.45	1420.25	0.16
Cow Bayou	NW Vidor #1	18871	Exist 100-YR	192.00	15.61	20.65		20.66	0.000250	0.74	810.82	1385.31	0.09
Cow Bayou	NW Vidor #1	18871	PROP 100-YR	192.00	15.61	20.64		20.65	0.000257	0.75	797.38	1383.32	0.09
Cow Bayou	NW Vidor #1	17165	Exist 100-YR	192.00	14.69	20.08		20.10	0.000448	1.04	185.70	127.96	0.13
Cow Bayou	NW Vidor #1	17165	PROP 100-YR	192.00	14.69	20.06		20.07	0.000462	1.05	182.61	104.47	0.14
Cow Bayou	NW Vidor #1	17112	Exist 100-YR	192.00	14.66	20.03	16.72	20.07	0.000544	1.54	124.51	150.64	0.15
Cow Bayou	NW Vidor #1	17112	PROP 100-YR	192.00	14.66	20.00	16.72	20.04	0.000557	1.55	123.53	148.46	0.15
Cow Bayou	NW Vidor #1	17081		Culvert									
Cow Bayou	NW Vidor #1	17050	Exist 100-YR	192.00	14.63	19.96	16.68	19.99	0.000355	1.54	124.37	202.02	0.15
Cow Bayou	NW Vidor #1	17050	PROP 100-YR	192.00	14.63	19.93	16.68	19.97	0.000363	1.56	123.38	198.10	0.15

HEC-RAS Plan: EXISTING W P (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
Cow Bayou	NW Vidor #1	17048	Exist 100-YR	192.00	14.63	19.96	16.68	19.99	0.000339	1.42	134.97	202.33	0.15
Cow Bayou	NW Vidor #1	17048	PROP 100-YR	192.00	14.63	19.93	16.68	19.96	0.000348	1.44	133.73	198.40	0.15
Cow Bayou	NW Vidor #1	17022		Bridge									
Cow Bayou	NW Vidor #1	16995	Exist 100-YR	192.00	14.63	19.91	16.68	19.94	0.000364	1.45	132.58	194.74	0.15
Cow Bayou	NW Vidor #1	16995	PROP 100-YR	192.00	14.63	19.88	16.68	19.91	0.000373	1.46	131.30	190.66	0.15
Cow Bayou	NW Vidor #1	16895	Exist 100-YR	192.00	14.57	19.88		19.90	0.000340	1.12	171.00	93.26	0.15
Cow Bayou	NW Vidor #1	16895	PROP 100-YR	192.00	14.57	19.85		19.87	0.000350	1.14	168.33	92.79	0.15
Cow Bayou	NW Vidor #1	15794	Exist 100-YR	192.00	13.94	19.53	15.95	19.55	0.000294	1.08	176.97	92.00	0.14
Cow Bayou	NW Vidor #1	15794	PROP 100-YR	192.00	13.94	19.49	15.95	19.51	0.000305	1.11	173.32	91.73	0.14
Cow Bayou	NW Vidor #1	12169	Exist 100-YR	192.00	12.76	18.39		18.42	0.000331	1.22	157.16	63.05	0.14
Cow Bayou	NW Vidor #1	12169	PROP 100-YR	192.00	12.76	18.26		18.28	0.000376	1.29	148.81	60.50	0.14
Cow Bayou	NW Vidor #1	8928	Exist 100-YR	192.00	11.80	16.70		16.78	0.000857	2.28	84.30	25.00	0.22
Cow Bayou	NW Vidor #1	8928	PROP 100-YR	192.00	11.80	15.72		15.87	0.002092	3.14	61.17	22.18	0.33
Cow Bayou	NW Vidor #1	8585	Exist 100-YR	192.00	11.70	16.48	13.20	16.54	0.000547	1.93	99.59	21.83	0.16
Cow Bayou	NW Vidor #1	8585	PROP 100-YR	192.00	11.70	15.13	13.20	15.24	0.001544	2.73	70.25	21.59	0.27
Cow Bayou	NW Vidor #1	8496		Culvert									
Cow Bayou	NW Vidor #1	8406	Exist 100-YR	192.00	11.00	16.43	12.79	16.47	0.000344	1.65	116.62	25.83	0.14
Cow Bayou	NW Vidor #1	8406	PROP 100-YR	192.00	11.00	15.02	12.79	15.10	0.000999	2.37	81.15	24.39	0.23
Cow Bayou	NW Vidor #1	5055	Exist 100-YR	192.00	6.60	16.42		16.42	0.000003	0.05	5269.45	3057.54	0.01
Cow Bayou	NW Vidor #1	5055	PROP 100-YR	192.00	6.60	13.70		13.71	0.000224	1.04	550.34	791.86	0.16
Cow Bayou	NW Vidor #1	4947	Exist 100-YR	192.00	5.60	16.42		16.42	0.000001	0.04	8157.92	3527.97	0.00
Cow Bayou	NW Vidor #1	4947	PROP 100-YR	192.00	5.60	13.69		13.70	0.000046	0.38	1411.56	1708.66	0.05
Cow Bayou	NW Vidor #1	3489	Exist 100-YR	192.00	3.42	16.42		16.42	0.000002	0.14	2387.52	1328.32	0.01
Cow Bayou	NW Vidor #1	3489	PROP 100-YR	192.00	3.42	13.67		13.67	0.000012	0.29	838.62	283.63	0.03
Cow Bayou	NW Vidor #1	2809	Exist 100-YR	192.00	2.40	16.42		16.42	0.000003	0.23	2181.50	1291.10	0.02
Cow Bayou	NW Vidor #1	2809	PROP 100-YR	192.00	2.40	13.65		13.66	0.000018	0.43	738.72	236.86	0.03
Cow Bayou	NW Vidor #1	2739	Exist 100-YR	192.00	2.00	16.42		16.42	0.000005	0.16	2030.69	1290.04	0.01
Cow Bayou	NW Vidor #1	2739	PROP 100-YR	192.00	2.00	13.65		13.66	0.000023	0.48	495.21	263.79	0.05
Cow Bayou	NW Vidor #1	58	Exist 100-YR	192.00	-1.80	16.42		16.42	0.000000	0.04	10381.47	1115.00	0.00
Cow Bayou	NW Vidor #1	58	PROP 100-YR	192.00	-1.80	13.65		13.65	0.000000	0.06	7295.33	1115.00	0.00
Cow Bayou	Cow Bayou Rch 5	90944	Exist 100-YR	5714.00	-8.25	15.69		15.74	0.000451	2.48	5661.66	1233.13	0.11
Cow Bayou	Cow Bayou Rch 5	90944	PROP 100-YR	3219.00	-8.25	12.96		13.00	0.000411	2.10	3246.59	790.34	0.10
Cow Bayou	Cow Bayou Rch 5	89815	Exist 100-YR	5714.00	-8.54	15.28		15.38	0.000249	3.21	5506.44	824.24	0.14
Cow Bayou	Cow Bayou Rch 5	89815	PROP 100-YR	3219.00	-8.54	12.68		12.73	0.000164	2.33	3747.49	588.74	0.11
Cow Bayou	Cow Bayou Rch 5	89765	Exist 100-YR	5714.00	-8.54	15.32	4.01	15.33	0.000157	0.66	8797.73	1877.38	0.05
Cow Bayou	Cow Bayou Rch 5	89765	PROP 100-YR	3219.00	-8.54	12.69	1.35	12.70	0.000135	0.62	5198.86	1096.09	0.05
Cow Bayou	Cow Bayou Rch 5	89755		Bridge									
Cow Bayou	Cow Bayou Rch 5	89745	Exist 100-YR	5714.00	-8.54	15.31		15.32	0.000174	0.66	8792.18	1866.75	0.05
Cow Bayou	Cow Bayou Rch 5	89745	PROP 100-YR	3219.00	-8.54	12.69		12.69	0.000138	0.62	5220.14	1096.44	0.05
Cow Bayou	Cow Bayou Rch 5	89695	Exist 100-YR	5714.00	-8.54	15.30		15.31	0.000178	0.65	8839.90	1839.18	0.05
Cow Bayou	Cow Bayou Rch 5	89695	PROP 100-YR	3219.00	-8.54	12.68		12.68	0.000135	0.60	5355.04	1099.16	0.05
Cow Bayou	Cow Bayou Rch 5	88110	Exist 100-YR	5714.00	-8.94	14.94		15.02	0.000203	2.94	5289.84	1168.40	0.13
Cow Bayou	Cow Bayou Rch 5	88110	PROP 100-YR	3219.00	-8.94	12.40		12.46	0.000152	2.28	3042.63	648.40	0.11
Cow Bayou	Cow Bayou Rch 5	88060	Exist 100-YR	5714.00	-8.94	14.97	3.50	14.98	0.000014	1.08	5324.34	1172.98	0.08
Cow Bayou	Cow Bayou Rch 5	88060	PROP 100-YR	3219.00	-8.94	12.42	0.96	12.44	0.000021	1.05	3054.20	652.38	0.09
Cow Bayou	Cow Bayou Rch 5	88050		Bridge									
Cow Bayou	Cow Bayou Rch 5	88040	Exist 100-YR	5714.00	-8.94	14.95		14.96	0.000198	1.09	5302.05	1170.02	0.08
Cow Bayou	Cow Bayou Rch 5	88040	PROP 100-YR	3219.00	-8.94	12.42		12.43	0.000164	1.05	3052.43	651.77	0.09
Cow Bayou	Cow Bayou Rch 5	87991	Exist 100-YR	5714.00	-8.96	14.91	4.15	14.95	0.000479	1.50	4028.82	1073.38	0.11
Cow Bayou	Cow Bayou Rch 5	87991	PROP 100-YR	3219.00	-8.96	12.37	1.52	12.41	0.000329	1.72	1873.78	415.57	0.11
Cow Bayou	Cow Bayou Rch 5	87901		Multi Open									
Cow Bayou	Cow Bayou Rch 5	87811	Exist 100-YR	5714.00	-8.96	14.55	4.16	14.59	0.000260	1.63	3684.09	857.38	0.12
Cow Bayou	Cow Bayou Rch 5	87811	PROP 100-YR	3219.00	-8.96	12.24	1.52	12.29	0.000207	1.75	1841.16	409.74	0.11
Cow Bayou	Cow Bayou Rch 5	87809	Exist 100-YR	5714.00	-8.96	14.46	4.16	14.57	0.000506	2.68	2132.18	830.83	0.18
Cow Bayou	Cow Bayou Rch 5	87809	PROP 100-YR	3219.00	-8.96	12.22	1.52	12.28	0.000289	2.05	1568.89	408.56	0.13
Cow Bayou	Cow Bayou Rch 5	87777		Multi Open									
Cow Bayou	Cow Bayou Rch 5	87740	Exist 100-YR	5714.00	-9.05	14.37	6.41	14.43	0.000202	1.92	2971.52	999.68	0.11
Cow Bayou	Cow Bayou Rch 5	87740	PROP 100-YR	3219.00	-9.05	12.17	1.72	12.20	0.000148	1.39	2311.86	736.67	0.09
Cow Bayou	Cow Bayou Rch 5	87661	Exist 100-YR	5714.00	-9.05	14.37		14.38	0.000142	1.09	5321.89	998.57	0.08
Cow Bayou	Cow Bayou Rch 5	87661	PROP 100-YR	3219.00	-9.05	12.15		12.17	0.000127	0.94	3448.99	735.43	0.08

HEC-RAS Plan: EXISTING W P (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
Cow Bayou	Cow Bayou Rch 5	87579	Exist 100-YR	5714.00	-9.05	14.35		14.37	0.000273	1.09	5305.06	995.52	0.08
Cow Bayou	Cow Bayou Rch 5	87579	PROP 100-YR	3219.00	-9.05	12.14		12.15	0.000200	0.95	3438.78	734.12	0.08
Cow Bayou	Cow Bayou Rch 5	87483	Exist 100-YR	5714.00	-9.08	14.32		14.34	0.000309	1.09	5229.05	1014.14	0.08
Cow Bayou	Cow Bayou Rch 5	87483	PROP 100-YR	3219.00	-9.08	12.12		12.13	0.000238	0.96	3341.42	741.33	0.08
Cow Bayou	Cow Bayou Rch 5	86170	Exist 100-YR	5714.00	-9.39	13.98		13.99	0.000229	0.77	7473.51	1713.00	0.06
Cow Bayou	Cow Bayou Rch 5	86170	PROP 100-YR	3219.00	-9.39	11.83		11.83	0.000216	0.75	4297.86	1262.01	0.07
Cow Bayou	Cow Bayou Rch 5	84097	Exist 100-YR	5714.00	-7.42	13.66		13.66	0.000116	0.40	14196.01	3341.45	0.03
Cow Bayou	Cow Bayou Rch 5	84097	PROP 100-YR	3219.00	-7.42	11.49		11.49	0.000129	0.43	7476.00	2728.96	0.05
Cow Bayou	Cow Bayou Rch 5	81440	Exist 100-YR	5714.00	-8.19	13.24		13.24	0.000225	0.58	9839.02	2599.15	0.05
Cow Bayou	Cow Bayou Rch 5	81440	PROP 100-YR	3219.00	-8.19	11.07		11.08	0.000193	0.62	5210.86	1433.11	0.06
Cow Bayou	Cow Bayou Rch 5	78630	Exist 100-YR	5714.00	-7.19	12.44		12.52	0.000310	3.04	8225.16	2219.91	0.13
Cow Bayou	Cow Bayou Rch 5	78630	PROP 100-YR	3219.00	-7.19	10.41		10.47	0.000248	2.49	4479.24	1364.61	0.12
Cow Bayou	Cow Bayou Rch 5	76232	Exist 100-YR	5714.00	-6.77	11.70		11.71	0.000349	0.77	8729.49	4308.03	0.07
Cow Bayou	Cow Bayou Rch 5	76232	PROP 100-YR	3219.00	-6.77	9.84		9.84	0.000263	0.79	4080.71	1159.91	0.07
Cow Bayou	Cow Bayou Rch 5	73948	Exist 100-YR	5714.00	-6.83	11.34		11.35	0.000090	0.47	12289.24	3039.08	0.04
Cow Bayou	Cow Bayou Rch 5	73948	PROP 100-YR	3219.00	-6.83	9.54		9.54	0.000079	0.41	7821.10	2148.35	0.04
Cow Bayou	Cow Bayou Rch 5	73893	Exist 100-YR	5714.00	-6.77	11.33	4.86	11.34	0.000124	0.72	7897.48	2957.59	0.05
Cow Bayou	Cow Bayou Rch 5	73893	PROP 100-YR	3219.00	-6.77	9.53	0.36	9.54	0.000093	0.55	5844.19	2099.21	0.04
Cow Bayou	Cow Bayou Rch 5	73847		Bridge									
Cow Bayou	Cow Bayou Rch 5	73801	Exist 100-YR	5714.00	-6.80	11.26	4.76	11.26	0.000092	0.47	12051.99	2937.07	0.04
Cow Bayou	Cow Bayou Rch 5	73801	PROP 100-YR	3219.00	-6.80	9.51	0.39	9.51	0.000101	0.54	5913.73	2163.80	0.04
Cow Bayou	Cow Bayou Rch 5	73701	Exist 100-YR	5714.00	-6.84	11.25		11.25	0.000205	0.52	11192.33	3139.59	0.05
Cow Bayou	Cow Bayou Rch 5	73701	PROP 100-YR	3219.00	-6.84	9.50		9.50	0.000128	0.43	7462.81	1888.92	0.04
Cow Bayou	Cow Bayou Rch 5	72752	Exist 100-YR	5714.00	-6.86	11.10		11.10	0.000124	0.45	12910.88	3521.10	0.04
Cow Bayou	Cow Bayou Rch 5	72752	PROP 100-YR	3219.00	-6.86	9.39		9.39	0.000097	0.39	8179.27	2326.90	0.04
Cow Bayou	Terry Gully	47737	Exist 100-YR	384.00	16.33	21.51		21.51	0.000180	0.82	1419.75	1208.87	0.09
Cow Bayou	Terry Gully	47737	PROP 100-YR	384.00	16.33	21.30		21.31	0.000278	0.97	1171.75	1187.42	0.11
Cow Bayou	Terry Gully	45470	Exist 100-YR	384.00	13.91	21.16		21.17	0.000131	0.78	1508.35	1414.82	0.08
Cow Bayou	Terry Gully	45470	PROP 100-YR	384.00	13.91	20.32		20.35	0.000715	1.47	454.17	1089.23	0.18
Cow Bayou	Terry Gully	43482	Exist 100-YR	384.00	13.15	21.09		21.09	0.000017	0.32	4114.83	3747.86	0.03
Cow Bayou	Terry Gully	43482	PROP 100-YR	384.00	13.15	19.52		19.53	0.000263	0.91	423.35	190.39	0.11
Cow Bayou	Terry Gully	41545	Exist 100-YR	384.00	11.88	21.08		21.08	0.000005	0.13	4474.07	3181.62	0.02
Cow Bayou	Terry Gully	41545	PROP 100-YR	384.00	11.88	18.57		18.60	0.001168	1.20	320.24	290.43	0.20
Cow Bayou	Terry Gully	41492	Exist 100-YR	384.00	11.84	21.08	15.06	21.08	0.000010	0.26	3705.39	3233.80	0.02
Cow Bayou	Terry Gully	41492	PROP 100-YR	384.00	11.84	18.48	15.06	18.54	0.000689	1.96	196.12	135.05	0.18
Cow Bayou	Terry Gully	41446		Culvert									
Cow Bayou	Terry Gully	41401	Exist 100-YR	384.00	11.77	21.08	15.01	21.08	0.000004	0.12	4901.69	3375.96	0.01
Cow Bayou	Terry Gully	41401	PROP 100-YR	384.00	11.77	17.89	15.01	17.97	0.001136	2.26	169.91	253.02	0.23
Cow Bayou	Terry Gully	41298	Exist 100-YR	384.00	11.70	21.08		21.08	0.000006	0.22	5442.49	3546.65	0.02
Cow Bayou	Terry Gully	41298	PROP 100-YR	384.00	11.70	17.78		17.83	0.001299	1.74	220.78	123.02	0.23
Cow Bayou	Terry Gully	39999	Exist 100-YR	768.00	10.84	21.06		21.06	0.000024	0.43	7003.69	4137.34	0.03
Cow Bayou	Terry Gully	39999	PROP 100-YR	176.00	10.84	16.68		16.69	0.000442	0.93	188.33	100.73	0.12
Cow Bayou	Terry Gully	39047	Exist 100-YR	768.00	10.81	21.04		21.04	0.000023	0.30	5882.54	4750.06	0.03
Cow Bayou	Terry Gully	39047	PROP 100-YR	176.00	10.81	16.28		16.31	0.000360	1.25	140.78	40.75	0.12
Cow Bayou	Terry Gully	39000	Exist 100-YR	768.00	10.81	21.03	14.76	21.04	0.000032	0.49	5117.84	4650.48	0.04
Cow Bayou	Terry Gully	39000	PROP 100-YR	176.00	10.81	16.27	12.74	16.29	0.000369	1.26	139.25	40.30	0.12
Cow Bayou	Terry Gully	38954		Culvert									
Cow Bayou	Terry Gully	38920	Exist 100-YR	768.00	10.81	21.03	14.77	21.03	0.000031	0.48	5111.39	4649.71	0.04
Cow Bayou	Terry Gully	38920	PROP 100-YR	176.00	10.81	16.26	12.74	16.28	0.000371	1.27	138.94	40.26	0.12
Cow Bayou	Terry Gully	38918	Exist 100-YR	768.00	10.81	20.98	14.77	21.02	0.000330	1.67	465.06	4618.98	0.12
Cow Bayou	Terry Gully	38918	PROP 100-YR	176.00	10.81	16.26	12.74	16.28	0.000371	1.27	138.90	40.25	0.12
Cow Bayou	Terry Gully	38872		Bridge									
Cow Bayou	Terry Gully	38838	Exist 100-YR	768.00	10.80	20.82	14.85	20.86	0.000396	1.72	446.21	4536.94	0.13
Cow Bayou	Terry Gully	38838	PROP 100-YR	176.00	10.80	16.19	12.82	16.22	0.000426	1.34	131.05	38.41	0.13
Cow Bayou	Terry Gully	38836	Exist 100-YR	768.00	10.80	20.78	14.85	20.85	0.000464	2.20	349.22	4515.36	0.15
Cow Bayou	Terry Gully	38836	PROP 100-YR	176.00	10.80	16.19	12.82	16.22	0.000426	1.34	131.02	38.41	0.13
Cow Bayou	Terry Gully	38812		Culvert									
Cow Bayou	Terry Gully	38788	Exist 100-YR	768.00	10.80	20.28	14.85	20.36	0.000602	2.38	323.00	4230.41	0.17
Cow Bayou	Terry Gully	38788	PROP 100-YR	176.00	10.80	15.89	12.82	15.92	0.000547	1.47	119.72	37.02	0.14
Cow Bayou	Terry Gully	38682	Exist 100-YR	768.00	10.80	20.29		20.29	0.000170	0.62	2842.90	4270.92	0.08
Cow Bayou	Terry Gully	38682	PROP 100-YR	176.00	10.80	15.83		15.86	0.000566	1.50	117.49	36.14	0.15



HEC-RAS Plan: EXISTING W P (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
Cow Bayou	Terry Gully	38467	Exist 100-YR	768.00	10.77	20.27		20.27	0.000057	0.48	5165.52	4401.44	0.05
Cow Bayou	Terry Gully	38467	PROP 100-YR	176.00	10.77	15.73		15.75	0.000445	1.27	138.66	46.62	0.13
Cow Bayou	Terry Gully	35740	Exist 100-YR	768.00	9.60	20.06		20.07	0.000095	1.14	2879.94	2555.56	0.07
Cow Bayou	Terry Gully	35740	PROP 100-YR	176.00	9.60	14.88		14.90	0.000229	1.03	170.27	46.03	0.09
Cow Bayou	Terry Gully	33942	Exist 100-YR	768.00	9.23	19.83		19.84	0.000196	0.73	2453.65	2771.92	0.09
Cow Bayou	Terry Gully	33942	PROP 100-YR	176.00	9.23	14.28		14.31	0.000493	1.57	111.88	33.45	0.15
Cow Bayou	Terry Gully	32387	Exist 100-YR	768.00	7.81	19.53		19.54	0.000198	0.81	1947.90	3195.38	0.09
Cow Bayou	Terry Gully	32387	PROP 100-YR	176.00	7.81	13.26		13.32	0.000873	1.85	95.24	32.80	0.19
Cow Bayou	Terry Gully	31637	Exist 100-YR	1536.00	7.91	18.96		19.11	0.001199	3.13	490.37	102.45	0.25
Cow Bayou	Terry Gully	31637	PROP 100-YR	110.00	7.91	13.04		13.05	0.000132	0.84	131.71	38.21	0.08
Cow Bayou	Terry Gully	31557	Exist 100-YR	1536.00	9.09	18.85	13.41	19.03	0.000780	3.38	454.82	185.31	0.22
Cow Bayou	Terry Gully	31557	PROP 100-YR	110.00	9.09	13.03	10.03	13.04	0.000151	0.84	131.26	42.45	0.08
Cow Bayou	Terry Gully	31517		Culvert									
Cow Bayou	Terry Gully	31477	Exist 100-YR	1536.00	7.91	18.46	12.94	18.64	0.000630	3.40	452.14	165.05	0.22
Cow Bayou	Terry Gully	31477	PROP 100-YR	110.00	7.91	13.02	9.38	13.03	0.000078	0.74	148.98	42.40	0.07
Cow Bayou	Terry Gully	31475	Exist 100-YR	1536.00	7.91	18.46	12.94	18.64	0.000635	3.41	451.09	164.97	0.22
Cow Bayou	Terry Gully	31475	PROP 100-YR	110.00	7.91	13.02	9.38	13.03	0.000078	0.74	148.98	42.40	0.07
Cow Bayou	Terry Gully	31408		Culvert									
Cow Bayou	Terry Gully	31339	Exist 100-YR	1536.00	7.16	18.02	13.10	18.24	0.000910	3.80	404.55	846.55	0.26
Cow Bayou	Terry Gully	31339	PROP 100-YR	110.00	7.16	13.01	8.43	13.02	0.000092	0.79	139.97	39.81	0.07
Cow Bayou	Terry Gully	31337	Exist 100-YR	1536.00	7.16	18.01	13.09	18.24	0.000962	3.84	400.11	836.44	0.27
Cow Bayou	Terry Gully	31337	PROP 100-YR	110.00	7.16	13.01	8.42	13.02	0.000092	0.79	139.96	39.81	0.07
Cow Bayou	Terry Gully	31298		Culvert									
Cow Bayou	Terry Gully	31257	Exist 100-YR	1536.00	7.16	17.68	13.09	17.92	0.001038	3.93	390.95	647.55	0.28
Cow Bayou	Terry Gully	31257	PROP 100-YR	110.00	7.16	13.00	8.43	13.01	0.000093	0.79	139.70	39.76	0.07
Cow Bayou	Terry Gully	31157	Exist 100-YR	1536.00	6.63	17.69		17.72	0.000855	1.36	1131.01	804.78	0.20
Cow Bayou	Terry Gully	31157	PROP 100-YR	110.00	6.63	13.00		13.00	0.000053	0.66	165.82	40.13	0.06
Cow Bayou	Terry Gully	28430	Exist 100-YR	1536.00	4.90	17.23		17.24	0.000075	1.12	9836.06	4983.26	0.07
Cow Bayou	Terry Gully	28430	PROP 100-YR	110.00	4.90	12.89		12.89	0.000032	0.56	195.23	41.31	0.05
Cow Bayou	Terry Gully	25921	Exist 100-YR	1536.00	3.80	16.84		16.85	0.000468	1.00	1540.60	1109.99	0.15
Cow Bayou	Terry Gully	25921	PROP 100-YR	110.00	3.80	12.83		12.83	0.000017	0.45	244.69	44.54	0.03
Cow Bayou	Terry Gully	23366	Exist 100-YR	1536.00	2.94	16.69		16.69	0.000024	0.32	8163.60	4967.34	0.04
Cow Bayou	Terry Gully	23366	PROP 100-YR	471.00	2.94	12.53		12.57	0.000224	1.66	284.13	51.20	0.12
Cow Bayou	Terry Gully	21297	Exist 100-YR	1536.00	2.07	16.67		16.67	0.000003	0.17	11284.79	4377.53	0.01
Cow Bayou	Terry Gully	21297	PROP 100-YR	471.00	2.07	12.05		12.05	0.000272	0.62	761.22	745.48	0.11
Cow Bayou	Terry Gully	21195	Exist 100-YR	1536.00	2.39	16.67		16.67	0.000003	0.16	12002.70	4409.05	0.01
Cow Bayou	Terry Gully	21195	PROP 100-YR	471.00	2.39	12.03		12.03	0.000120	0.47	1002.21	804.13	0.07
Cow Bayou	Terry Gully	21119	Exist 100-YR	1536.00	1.72	16.52		16.66	0.000434	3.00	511.69	57.92	0.18
Cow Bayou	Terry Gully	21119	PROP 100-YR	471.00	1.72	11.98		12.02	0.000187	1.65	286.00	42.62	0.11
Cow Bayou	Terry Gully	20999	Exist 100-YR	1536.00	1.28	16.38		16.58	0.000792	3.67	418.63	54.96	0.23
Cow Bayou	Terry Gully	20999	PROP 100-YR	471.00	1.28	11.91		11.99	0.000385	2.15	219.28	37.01	0.16
Cow Bayou	Terry Gully	20833	Exist 100-YR	1536.00	1.09	16.44		16.47	0.000209	1.73	2795.81	2529.51	0.12
Cow Bayou	Terry Gully	20833	PROP 100-YR	471.00	1.09	11.91		11.94	0.000120	1.33	354.61	55.28	0.09
Cow Bayou	Terry Gully	18136	Exist 100-YR	1536.00	1.21	15.75		15.83	0.000270	2.46	1657.57	1879.28	0.15
Cow Bayou	Terry Gully	18136	PROP 100-YR	471.00	1.21	11.53		11.57	0.000160	1.47	319.99	53.05	0.11
Cow Bayou	Terry Gully	16216	Exist 100-YR	2348.00	0.94	15.45		15.46	0.000148	0.82	3288.13	2128.25	0.09
Cow Bayou	Terry Gully	16216	PROP 100-YR	381.00	0.94	11.17		11.19	0.000259	1.10	345.76	132.65	0.12
Cow Bayou	Terry Gully	16105	Exist 100-YR	2348.00	0.94	15.10	8.43	15.35	0.001185	4.00	587.73	2150.70	0.29
Cow Bayou	Terry Gully	16105	PROP 100-YR	381.00	0.94	11.14	4.07	11.17	0.000116	1.24	307.67	77.85	0.09
Cow Bayou	Terry Gully	16059		Bridge									
Cow Bayou	Terry Gully	16013	Exist 100-YR	2348.00	0.95	14.45	9.25	14.94	0.002161	5.58	420.95	1226.44	0.39
Cow Bayou	Terry Gully	16013	PROP 100-YR	381.00	0.95	11.10	4.16	11.14	0.000175	1.51	252.42	140.74	0.11
Cow Bayou	Terry Gully	15936	Exist 100-YR	2348.00	0.95	14.66		14.67	0.000144	0.99	4087.44	1897.39	0.10
Cow Bayou	Terry Gully	15936	PROP 100-YR	381.00	0.95	11.09		11.11	0.000438	1.06	360.98	221.92	0.15
Cow Bayou	Terry Gully	15495	Exist 100-YR	2348.00	0.79	14.65		14.65	0.000025	0.44	5967.88	2157.70	0.04
Cow Bayou	Terry Gully	15495	PROP 100-YR	381.00	0.79	10.78		10.79	0.001363	0.91	419.52	773.27	0.22
Cow Bayou	Terry Gully	15395	Exist 100-YR	2348.00	0.87	14.64		14.65	0.000025	0.43	6449.47	2227.87	0.04
Cow Bayou	Terry Gully	15395	PROP 100-YR	381.00	0.87	10.72		10.73	0.000320	0.55	698.45	962.08	0.11
Cow Bayou	Terry Gully	15309	Exist 100-YR	2348.00	0.87	14.30	8.21	14.56	0.001038	4.12	569.43	1859.41	0.28
Cow Bayou	Terry Gully	15309	PROP 100-YR	381.00	0.87	10.68	3.66	10.71	0.000116	1.24	308.04	171.33	0.09

HEC-RAS Plan: EXISTING W P (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
Cow Bayou	Terry Gully	15270		Bridge									
Cow Bayou	Terry Gully	15231	Exist 100-YR	2348.00	0.40	13.39	8.44	13.78	0.001720	4.99	470.32	1319.28	0.35
Cow Bayou	Terry Gully	15231	PROP 100-YR	381.00	0.40	10.66	3.83	10.69	0.000128	1.27	300.82	53.04	0.09
Cow Bayou	Terry Gully	15090	Exist 100-YR	2348.00	0.40	13.51		13.52	0.000231	0.91	2675.05	1500.67	0.11
Cow Bayou	Terry Gully	15090	PROP 100-YR	381.00	0.40	10.63		10.65	0.000608	1.26	303.58	185.02	0.17
Cow Bayou	Terry Gully	14969	Exist 100-YR	2348.00	0.00	13.49		13.50	0.000157	0.79	3070.69	1588.68	0.09
Cow Bayou	Terry Gully	14969	PROP 100-YR	381.00	0.00	10.54		10.57	0.000889	1.36	279.78	200.51	0.20
Cow Bayou	Terry Gully	13562	Exist 100-YR	2348.00	-1.16	13.30		13.31	0.000121	0.69	3718.86	2326.12	0.08
Cow Bayou	Terry Gully	13562	PROP 100-YR	381.00	-1.16	10.18		10.19	0.000125	0.84	454.08	153.28	0.09
Cow Bayou	Terry Gully	9979	Exist 100-YR	2348.00	-1.80	13.14		13.14	0.000024	0.41	9621.21	5475.26	0.04
Cow Bayou	Terry Gully	9979	PROP 100-YR	381.00	-1.80	9.66		9.67	0.000169	0.58	655.38	491.27	0.09
Cow Bayou	Terry Gully	8735	Exist 100-YR	2348.00	0.23	13.07		13.08	0.000100	0.85	4494.38	2878.28	0.08
Cow Bayou	Terry Gully	8735	PROP 100-YR	381.00	0.23	9.57		9.57	0.000044	0.46	826.30	317.74	0.05
Cow Bayou	Terry Gully	8645	Exist 100-YR	2348.00	1.29	13.07		13.08	0.000061	0.72	4592.54	2741.89	0.06
Cow Bayou	Terry Gully	8645	PROP 100-YR	381.00	1.29	9.57		9.57	0.000021	0.35	1085.70	367.50	0.04
Cow Bayou	Terry Gully	8577	Exist 100-YR	2348.00	0.33	12.86	6.99	13.02	0.001137	3.24	723.93	1745.49	0.27
Cow Bayou	Terry Gully	8577	PROP 100-YR	381.00	0.33	9.53	2.72	9.56	0.000137	1.27	299.89	209.38	0.09
Cow Bayou	Terry Gully	8565		Bridge									
Cow Bayou	Terry Gully	8554	Exist 100-YR	2348.00	0.08	12.73	6.93	12.91	0.001242	3.35	699.95	1188.30	0.29
Cow Bayou	Terry Gully	8554	PROP 100-YR	381.00	0.08	9.52	2.48	9.55	0.000127	1.24	308.05	58.92	0.09
Cow Bayou	Terry Gully	8552	Exist 100-YR	2348.00	0.08	12.81	6.93	12.83	0.000395	1.31	1873.37	1321.92	0.15
Cow Bayou	Terry Gully	8552	PROP 100-YR	381.00	0.08	9.52	2.47	9.55	0.000126	1.24	308.04	58.83	0.09
Cow Bayou	Terry Gully	8496		Bridge									
Cow Bayou	Terry Gully	8439	Exist 100-YR	2348.00	-0.95	12.68	4.64	12.70	0.000260	1.12	2091.43	806.31	0.12
Cow Bayou	Terry Gully	8439	PROP 100-YR	381.00	-0.95	9.51	1.03	9.52	0.000051	0.83	459.29	185.14	0.06
Cow Bayou	Terry Gully	8241	Exist 100-YR	2348.00	-0.95	12.53		12.62	0.000301	2.75	2073.24	665.88	0.15
Cow Bayou	Terry Gully	8241	PROP 100-YR	381.00	-0.95	9.51		9.51	0.000037	0.79	716.70	262.32	0.05
Cow Bayou	Terry Gully	6909	Exist 100-YR	2348.00	-3.20	12.38		12.39	0.000096	0.84	2805.08	801.10	0.08
Cow Bayou	Terry Gully	6909	PROP 100-YR	381.00	-3.20	9.49		9.49	0.000012	0.30	1270.40	347.93	0.03
Cow Bayou	Terry Gully	6308	Exist 100-YR	2348.00	-0.41	12.33		12.34	0.000071	0.88	3225.64	933.93	0.07
Cow Bayou	Terry Gully	6308	PROP 100-YR	381.00	-0.41	9.47		9.48	0.000029	0.34	1112.96	490.89	0.04
Cow Bayou	Terry Gully	6236	Exist 100-YR	2348.00	-0.46	12.32		12.33	0.000068	0.88	3213.15	925.16	0.07
Cow Bayou	Terry Gully	6236	PROP 100-YR	381.00	-0.46	9.47		9.47	0.000024	0.33	1159.67	474.25	0.04
Cow Bayou	Terry Gully	6150	Exist 100-YR	2348.00	-0.62	12.30	5.04	12.32	0.000104	1.11	2658.31	876.00	0.09
Cow Bayou	Terry Gully	6150	PROP 100-YR	381.00	-0.62	9.46	1.21	9.47	0.000056	0.89	430.42	369.28	0.06
Cow Bayou	Terry Gully	6126		Bridge									
Cow Bayou	Terry Gully	6103	Exist 100-YR	2348.00	-1.41	12.28	4.40	12.30	0.000078	1.04	2766.45	842.30	0.08
Cow Bayou	Terry Gully	6103	PROP 100-YR	381.00	-1.41	9.44	0.68	9.44	0.000020	0.34	1106.30	360.49	0.03
Cow Bayou	Terry Gully	6045	Exist 100-YR	2348.00	-0.70	12.27		12.29	0.000130	1.17	2466.57	832.03	0.10
Cow Bayou	Terry Gully	6045	PROP 100-YR	381.00	-0.70	9.43		9.44	0.000062	0.49	773.37	347.48	0.06
Cow Bayou	Terry Gully	5982	Exist 100-YR	2348.00	-0.44	12.26		12.28	0.000125	1.15	2516.97	842.11	0.09
Cow Bayou	Terry Gully	5982	PROP 100-YR	381.00	-0.44	9.43		9.43	0.000064	0.49	777.70	361.02	0.06
Cow Bayou	Terry Gully	4695	Exist 100-YR	2348.00	2.10	12.06		12.09	0.000184	1.35	2211.44	990.38	0.11
Cow Bayou	Terry Gully	4695	PROP 100-YR	381.00	2.10	9.34		9.35	0.000065	0.55	694.33	273.00	0.06
Cow Bayou	Terry Gully	4645	Exist 100-YR	2348.00	1.44	11.44	7.38	11.93	0.001961	5.62	417.56	872.72	0.38
Cow Bayou	Terry Gully	4645	PROP 100-YR	381.00	1.44	9.31	4.09	9.34	0.000128	1.31	290.06	284.39	0.10
Cow Bayou	Terry Gully	4591		Culvert									
Cow Bayou	Terry Gully	4537	Exist 100-YR	2348.00	1.05	11.05	6.79	11.50	0.001653	5.37	437.14	797.22	0.36
Cow Bayou	Terry Gully	4537	PROP 100-YR	381.00	1.05	9.31	3.42	9.33	0.000114	1.16	327.09	416.13	0.09
Cow Bayou	Terry Gully	4414	Exist 100-YR	2348.00	0.61	11.24		11.25	0.000103	0.89	2760.72	955.87	0.08
Cow Bayou	Terry Gully	4414	PROP 100-YR	381.00	0.61	9.31		9.32	0.000012	0.26	1452.80	503.04	0.03
Cow Bayou	Terry Gully	4216	Exist 100-YR	2348.00	-0.11	11.22		11.23	0.000094	0.84	2913.83	1008.02	0.08
Cow Bayou	Terry Gully	4216	PROP 100-YR	381.00	-0.11	9.31		9.31	0.000013	0.25	1502.37	555.98	0.03
Cow Bayou	Terry Gully	1752	Exist 100-YR	2348.00	-3.96	11.06		11.07	0.000049	0.63	3719.73	1147.42	0.06
Cow Bayou	Terry Gully	1752	PROP 100-YR	381.00	-3.96	9.29		9.29	0.000005	0.17	2212.55	711.04	0.02
Cow Bayou	Terry Gully	117	Exist 100-YR	2348.00	-3.56	11.02		11.02	0.000017	0.39	10110.28	1957.01	0.03
Cow Bayou	Terry Gully	117	PROP 100-YR	381.00	-3.56	9.29		9.29	0.000002	0.10	6860.59	1687.81	0.01
Cow Bayou	Cow Bayou Rch 4	71073	Exist 100-YR	7622.00	-7.87	10.92		10.93	0.000089	0.81	10750.24	3693.21	0.06
Cow Bayou	Cow Bayou Rch 4	71073	PROP 100-YR	4520.00	-7.87	9.20		9.21	0.000123	0.76	5976.59	1763.25	0.07
Cow Bayou	Cow Bayou Rch 4	69128	Exist 100-YR	7622.00	-6.62	10.73		10.74	0.000106	0.89	9929.31	2695.48	0.07
Cow Bayou	Cow Bayou Rch 4	69128	PROP 100-YR	4520.00	-6.62	8.96		8.97	0.000118	0.81	5740.81	1932.55	0.07

HEC-RAS Plan: EXISTING W P (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
Cow Bayou	Cow Bayou Rch 4	66740	Exist 100-YR	7622.00	-5.03	10.23		10.29	0.000432	1.93	4243.31	1857.68	0.14
Cow Bayou	Cow Bayou Rch 4	66740	PROP 100-YR	4520.00	-5.03	8.47		8.51	0.000374	1.62	2786.89	585.09	0.13
Cow Bayou	Cow Bayou Rch 4	66690	Exist 100-YR	7622.00	-5.03	10.06	4.30	10.23	0.000694	3.25	2343.02	1318.47	0.20
Cow Bayou	Cow Bayou Rch 4	66690	PROP 100-YR	4520.00	-5.03	8.38	2.29	8.47	0.000506	2.40	1882.17	896.10	0.16
Cow Bayou	Cow Bayou Rch 4	66672	Bridge										
Cow Bayou	Cow Bayou Rch 4	66654	Exist 100-YR	7622.00	-5.03	9.92	4.31	10.09	0.000737	3.31	2300.78	1272.72	0.20
Cow Bayou	Cow Bayou Rch 4	66654	PROP 100-YR	4520.00	-5.03	8.30	2.29	8.39	0.000530	2.43	1856.44	936.61	0.16
Cow Bayou	Cow Bayou Rch 4	66543	Exist 100-YR	7622.00	-5.03	9.96		9.98	0.000148	1.14	7145.71	1506.29	0.08
Cow Bayou	Cow Bayou Rch 4	66543	PROP 100-YR	4520.00	-5.03	8.31		8.33	0.000121	0.93	5015.66	1142.68	0.07
Cow Bayou	Cow Bayou Rch 4	63504	Exist 100-YR	7622.00	-10.45	8.98		9.15	0.000686	4.26	5469.79	1173.22	0.20
Cow Bayou	Cow Bayou Rch 4	63504	PROP 100-YR	4520.00	-10.45	7.58		7.69	0.000452	3.21	3933.02	1032.66	0.16
Cow Bayou	Cow Bayou Rch 4	57870	Exist 100-YR	7622.00	-8.70	7.67		7.69	0.000135	1.13	6734.51	1323.18	0.09
Cow Bayou	Cow Bayou Rch 4	57870	PROP 100-YR	4520.00	-8.70	6.71		6.72	0.000088	0.82	5496.31	1271.07	0.07
Cow Bayou	Cow Bayou Rch 4	56181	Exist 100-YR	7622.00	-10.47	7.41		7.43	0.000167	1.17	6500.69	1420.26	0.10
Cow Bayou	Cow Bayou Rch 4	56181	PROP 100-YR	4520.00	-10.47	6.55		6.56	0.000105	0.85	5312.59	1330.41	0.08
Cow Bayou	Cow Bayou Rch 4	54396	Exist 100-YR	7622.00	-12.34	7.28		7.28	0.000049	0.64	13887.87	3523.81	0.05
Cow Bayou	Cow Bayou Rch 4	54396	PROP 100-YR	4520.00	-12.34	6.46		6.46	0.000033	0.47	11026.44	3445.94	0.04
Cow Bayou	Cole Creek	53002	Exist 100-YR	425.00	21.92	27.41		27.41	0.000063	0.32	2456.44	1656.11	0.04
Cow Bayou	Cole Creek	53002	PROP 100-YR	425.00	21.92	27.41		27.41	0.000063	0.32	2457.11	1656.12	0.04
Cow Bayou	Cole Creek	52932	Exist 100-YR	425.00	21.51	27.41		27.41	0.000033	0.24	2396.51	1692.81	0.03
Cow Bayou	Cole Creek	52932	PROP 100-YR	425.00	21.51	27.41		27.41	0.000033	0.24	2397.20	1692.98	0.03
Cow Bayou	Cole Creek	52862	Exist 100-YR	425.00	21.54	27.41	24.15	27.41	0.000020	0.17	2761.52	1754.01	0.02
Cow Bayou	Cole Creek	52862	PROP 100-YR	425.00	21.54	27.41	24.15	27.41	0.000020	0.17	2762.23	1754.03	0.02
Cow Bayou	Cole Creek	52805	Culvert										
Cow Bayou	Cole Creek	52749	Exist 100-YR	425.00	21.52	26.44	24.48	26.62	0.003943	3.43	124.05	1731.25	0.35
Cow Bayou	Cole Creek	52749	PROP 100-YR	425.00	21.52	26.42	24.48	26.61	0.004017	3.45	123.36	1730.53	0.35
Cow Bayou	Cole Creek	52683	Exist 100-YR	425.00	21.03	26.50		26.50	0.000117	0.31	1745.84	1609.42	0.05
Cow Bayou	Cole Creek	52683	PROP 100-YR	425.00	21.03	26.49		26.49	0.000122	0.32	1718.89	1606.82	0.05
Cow Bayou	Cole Creek	52632	Exist 100-YR	425.00	21.42	26.49		26.50	0.000147	0.34	1759.99	1635.65	0.06
Cow Bayou	Cole Creek	52632	PROP 100-YR	425.00	21.42	26.48		26.48	0.000154	0.35	1732.03	1633.25	0.06
Cow Bayou	Cole Creek	51265	Exist 100-YR	425.00	20.18	26.24		26.24	0.000243	0.44	1102.07	1122.73	0.07
Cow Bayou	Cole Creek	51265	PROP 100-YR	425.00	20.18	26.20		26.20	0.000272	0.45	1059.75	1113.75	0.08
Cow Bayou	Cole Creek	49981	Exist 100-YR	425.00	19.02	26.18		26.18	0.000020	0.18	3644.70	3174.18	0.02
Cow Bayou	Cole Creek	49981	PROP 100-YR	425.00	19.02	26.13		26.13	0.000023	0.18	3502.49	3146.82	0.02
Cow Bayou	Cole Creek	49931	Exist 100-YR	425.00	19.02	26.18	22.18	26.18	0.000012	0.15	4071.86	3310.47	0.02
Cow Bayou	Cole Creek	49931	PROP 100-YR	425.00	19.02	26.13	22.18	26.13	0.000014	0.16	3923.17	3285.46	0.02
Cow Bayou	Cole Creek	49902	Culvert										
Cow Bayou	Cole Creek	49874	Exist 100-YR	425.00	18.46	24.78	21.76	24.78	0.000113	0.54	793.48	571.18	0.08
Cow Bayou	Cole Creek	49874	PROP 100-YR	425.00	18.46	24.80	21.76	24.81	0.000112	0.53	809.88	618.44	0.07
Cow Bayou	Cole Creek	49872	Exist 100-YR	425.00	18.46	24.65	21.59	24.74	0.000524	2.32	183.37	420.93	0.19
Cow Bayou	Cole Creek	49872	PROP 100-YR	425.00	18.46	24.68	21.59	24.77	0.000514	2.30	184.53	439.44	0.19
Cow Bayou	Cole Creek	49829	Bridge										
Cow Bayou	Cole Creek	49784	Exist 100-YR	425.00	18.46	23.78	21.57	23.91	0.001040	2.85	149.31	245.54	0.26
Cow Bayou	Cole Creek	49784	PROP 100-YR	425.00	18.46	23.84	21.57	23.96	0.000986	2.80	151.72	252.71	0.25
Cow Bayou	Cole Creek	49668	Exist 100-YR	425.00	18.32	23.77		23.78	0.000379	0.95	445.24	293.02	0.14
Cow Bayou	Cole Creek	49668	PROP 100-YR	425.00	18.32	23.83		23.85	0.000347	0.92	464.31	304.43	0.13
Cow Bayou	Cole Creek	49521	Exist 100-YR	425.00	18.20	23.72		23.73	0.000327	0.99	428.82	238.20	0.13
Cow Bayou	Cole Creek	49521	PROP 100-YR	425.00	18.20	23.78		23.80	0.000297	0.95	445.30	244.00	0.12
Cow Bayou	Cole Creek	49460	Exist 100-YR	425.00	18.16	23.48	21.38	23.65	0.001370	3.29	129.01	234.01	0.30
Cow Bayou	Cole Creek	49460	PROP 100-YR	425.00	18.16	23.56	21.38	23.72	0.001279	3.23	131.69	242.53	0.29
Cow Bayou	Cole Creek	49443	Bridge										
Cow Bayou	Cole Creek	49427	Exist 100-YR	425.00	18.13	22.84	21.37	23.06	0.002340	3.74	113.61	173.71	0.38
Cow Bayou	Cole Creek	49427	PROP 100-YR	425.00	18.13	22.97	21.37	23.17	0.002053	3.60	118.17	185.08	0.35
Cow Bayou	Cole Creek	49307	Exist 100-YR	425.00	18.04	22.74		22.78	0.001181	1.67	254.26	168.98	0.24
Cow Bayou	Cole Creek	49307	PROP 100-YR	425.00	18.04	22.89		22.92	0.000952	1.51	280.85	184.41	0.22
Cow Bayou	Cole Creek	48509	Exist 100-YR	425.00	17.41	22.35		22.36	0.000307	0.81	950.87	1573.18	0.12
Cow Bayou	Cole Creek	48509	PROP 100-YR	425.00	17.41	21.70		21.79	0.002416	2.53	282.34	734.62	0.35
Cow Bayou	Cole Creek	45656	Exist 100-YR	425.00	15.49	22.31	18.10	22.31	0.000005	0.20	7027.27	3780.02	0.02
Cow Bayou	Cole Creek	45656	PROP 100-YR	425.00	15.49	21.05	18.10	21.06	0.000089	0.68	2500.41	3410.85	0.07
Cow Bayou	Cole Creek	45634	Bridge										

HEC-RAS Plan: EXISTING W P (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
Cow Bayou	Cole Creek	45613	Exist 100-YR	425.00	15.49	22.31	18.10	22.31	0.000005	0.19	5483.13	2908.27	0.02
Cow Bayou	Cole Creek	45613	PROP 100-YR	425.00	15.49	21.05	18.10	21.05	0.000085	0.58	2090.75	2456.59	0.07
Cow Bayou	Cole Creek	45500	Exist 100-YR	425.00	15.49	22.31	18.10	22.31	0.000005	0.19	5482.61	2908.20	0.02
Cow Bayou	Cole Creek	45500	PROP 100-YR	425.00	15.49	21.04	18.10	21.05	0.000086	0.58	2083.69	2455.57	0.07
Cow Bayou	Cole Creek	43506	Exist 100-YR	425.00	14.19	22.31		22.31	0.000006	0.18	5453.30	4523.87	0.02
Cow Bayou	Cole Creek	43506	PROP 100-YR	425.00	14.19	21.03		21.04	0.000085	0.43	1626.18	1624.02	0.06
Cow Bayou	Cole Creek	43453	Exist 100-YR	425.00	14.19	22.31	17.60	22.31	0.000007	0.19	5927.18	4787.63	0.02
Cow Bayou	Cole Creek	43453	PROP 100-YR	425.00	14.19	21.03	17.60	21.03	0.000110	0.50	1576.20	1613.42	0.07
Cow Bayou	Cole Creek	43427		Bridge									
Cow Bayou	Cole Creek	43402	Exist 100-YR	425.00	14.19	22.31		22.31	0.000013	0.26	6334.60	4936.66	0.02
Cow Bayou	Cole Creek	43402	PROP 100-YR	425.00	14.19	21.02		21.02	0.000192	0.76	1677.25	1798.58	0.08
Cow Bayou	Cole Creek	43400	Exist 100-YR	425.00	14.19	22.31	17.61	22.31	0.000013	0.26	6334.47	4936.62	0.02
Cow Bayou	Cole Creek	43400	PROP 100-YR	425.00	14.19	21.02	17.61	21.02	0.000192	0.76	1676.54	1798.44	0.08
Cow Bayou	Cole Creek	43352		Bridge									
Cow Bayou	Cole Creek	43342	Exist 100-YR	425.00	14.19	22.31		22.31	0.000009	0.20	6301.14	4908.34	0.02
Cow Bayou	Cole Creek	43342	PROP 100-YR	425.00	14.19	21.00		21.00	0.000122	0.51	1662.57	1685.37	0.06
Cow Bayou	Cole Creek	43302	Exist 100-YR	425.00	14.19	22.31		22.31	0.000014	0.25	6085.95	4894.67	0.02
Cow Bayou	Cole Creek	43302	PROP 100-YR	425.00	14.19	20.99		21.00	0.000241	0.74	1456.59	1734.01	0.09
Cow Bayou	Cole Creek	42023	Exist 100-YR	425.00	14.01	22.30		22.30	0.000006	0.16	6868.12	3683.97	0.02
Cow Bayou	Cole Creek	42023	PROP 100-YR	425.00	14.01	20.82		20.82	0.000084	0.39	2234.13	2602.94	0.05
Cow Bayou	Cole Creek	41126	Exist 100-YR	425.00	13.88	22.29		22.29	0.000017	0.23	3827.13	2527.07	0.03
Cow Bayou	Cole Creek	41126	PROP 100-YR	425.00	13.88	20.65		20.66	0.000686	0.76	766.22	1210.89	0.14
Cow Bayou	Cole Creek	41068	Exist 100-YR	425.00	13.88	22.29	17.06	22.29	0.000017	0.23	3797.69	2525.87	0.03
Cow Bayou	Cole Creek	41068	PROP 100-YR	425.00	13.88	20.60	17.06	20.61	0.001045	0.85	682.69	1170.26	0.16
Cow Bayou	Cole Creek	41057		Culvert									
Cow Bayou	Cole Creek	41046	Exist 100-YR	425.00	13.88	22.27		22.27	0.000013	0.21	3903.45	2513.92	0.02
Cow Bayou	Cole Creek	41046	PROP 100-YR	425.00	13.88	20.60		20.61	0.000443	0.65	825.20	1163.96	0.11
Cow Bayou	Cole Creek	40996	Exist 100-YR	425.00	13.88	22.27		22.27	0.000011	0.19	3943.46	2509.34	0.02
Cow Bayou	Cole Creek	40996	PROP 100-YR	425.00	13.88	20.58		20.58	0.000362	0.59	857.80	1133.64	0.10
Cow Bayou	Cole Creek	40353	Exist 100-YR	425.00	13.66	22.27		22.27	0.000005	0.15	5780.83	3455.37	0.01
Cow Bayou	Cole Creek	40353	PROP 100-YR	425.00	13.66	20.47		20.48	0.000095	0.40	1271.69	1571.15	0.06
Cow Bayou	Cole Creek	39801	Exist 100-YR	425.00	13.35	22.26		22.26	0.000024	0.30	3676.62	2318.26	0.03
Cow Bayou	Cole Creek	39801	PROP 100-YR	425.00	13.35	20.33		20.36	0.000814	1.33	374.71	553.45	0.17
Cow Bayou	Cole Creek	39729	Exist 100-YR	425.00	13.52	22.26		22.26	0.000029	0.33	3599.20	2321.30	0.03
Cow Bayou	Cole Creek	39729	PROP 100-YR	425.00	13.52	20.24		20.27	0.001598	1.62	329.45	534.43	0.22
Cow Bayou	Cole Creek	39654	Exist 100-YR	425.00	12.95	22.26	16.58	22.26	0.000016	0.27	3748.58	2320.54	0.03
Cow Bayou	Cole Creek	39654	PROP 100-YR	425.00	12.95	20.17	16.58	20.19	0.000698	1.13	422.10	384.03	0.15
Cow Bayou	Cole Creek	39619		Culvert									
Cow Bayou	Cole Creek	39584	Exist 100-YR	425.00	13.44	22.26	16.23	22.26	0.000009	0.17	3937.05	2321.69	0.02
Cow Bayou	Cole Creek	39584	PROP 100-YR	425.00	13.44	20.16	16.23	20.17	0.000837	0.82	518.44	554.80	0.15
Cow Bayou	Cole Creek	39519	Exist 100-YR	425.00	13.61	22.26		22.26	0.000010	0.17	3883.48	2370.24	0.02
Cow Bayou	Cole Creek	39519	PROP 100-YR	425.00	13.61	20.03		20.06	0.003220	1.50	282.75	334.41	0.29
Cow Bayou	Cole Creek	39463	Exist 100-YR	425.00	13.32	22.26		22.26	0.000009	0.19	4189.13	2360.53	0.02
Cow Bayou	Cole Creek	39463	PROP 100-YR	425.00	13.32	19.99		20.00	0.000517	0.85	497.48	347.73	0.13
Cow Bayou	Cole Creek	38552	Exist 100-YR	1700.00	12.22	22.22		22.22	0.000081	0.55	5172.76	2475.22	0.06
Cow Bayou	Cole Creek	38552	PROP 100-YR	381.00	12.22	19.02		19.06	0.003413	1.70	223.92	228.82	0.30
Cow Bayou	Cole Creek	37359	Exist 100-YR	1700.00	10.78	22.16		22.16	0.000036	0.51	6186.65	2732.77	0.04
Cow Bayou	Cole Creek	37359	PROP 100-YR	381.00	10.78	17.84		17.85	0.000475	0.76	504.03	397.13	0.12
Cow Bayou	Cole Creek	37251	Exist 100-YR	1700.00	12.00	22.15		22.16	0.000032	0.46	6443.72	2871.90	0.04
Cow Bayou	Cole Creek	37251	PROP 100-YR	381.00	12.00	17.79		17.80	0.000501	0.77	491.77	389.33	0.12
Cow Bayou	Cole Creek	37197	Exist 100-YR	1700.00	11.32	22.15	17.08	22.15	0.000027	0.42	6489.53	2894.98	0.04
Cow Bayou	Cole Creek	37197	PROP 100-YR	381.00	11.32	17.68	14.20	17.75	0.000809	2.09	182.57	364.70	0.18
Cow Bayou	Cole Creek	37164		Bridge									
Cow Bayou	Cole Creek	37131	Exist 100-YR	1700.00	11.24	19.38	17.25	19.41	0.000510	1.30	1334.73	742.22	0.15
Cow Bayou	Cole Creek	37131	PROP 100-YR	381.00	11.24	17.58	14.05	17.66	0.000820	2.30	165.60	354.33	0.20
Cow Bayou	Cole Creek	37068	Exist 100-YR	1700.00	11.02	19.36		19.38	0.000345	1.13	1509.66	637.53	0.13
Cow Bayou	Cole Creek	37068	PROP 100-YR	381.00	11.02	17.59		17.59	0.000275	0.66	573.49	426.06	0.10
Cow Bayou	Cole Creek	36998	Exist 100-YR	1700.00	11.40	19.24		19.32	0.001737	3.29	1335.70	600.73	0.29
Cow Bayou	Cole Creek	36998	PROP 100-YR	381.00	11.40	17.53		17.56	0.000489	1.74	513.15	372.06	0.16
Cow Bayou	Cole Creek	34355	Exist 100-YR	1700.00	10.08	18.78		18.79	0.000067	0.51	5634.02	3409.36	0.06

HEC-RAS Plan: EXISTING W P (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
Cow Bayou	Cole Creek	34355	PROP 100-YR	381.00	10.08	16.61		16.61	0.000265	0.54	780.97	1042.11	0.09
Cow Bayou	Cole Creek	32208	Exist 100-YR	1700.00	7.92	18.69		18.69	0.000034	0.39	10139.11	5446.41	0.04
Cow Bayou	Cole Creek	32208	PROP 100-YR	381.00	7.92	16.19		16.19	0.000155	0.49	1530.58	1994.41	0.08
Cow Bayou	Cole Creek	32158	Exist 100-YR	1700.00	7.92	18.56		18.67	0.000599	2.72	624.50	97.83	0.19
Cow Bayou	Cole Creek	32158	PROP 100-YR	381.00	7.92	16.17		16.18	0.000104	0.94	406.05	85.02	0.08
Cow Bayou	Cole Creek	32058	Exist 100-YR	1700.00	7.92	18.50		18.61	0.000616	2.75	618.33	97.49	0.19
Cow Bayou	Cole Creek	32058	PROP 100-YR	381.00	7.92	16.16		16.17	0.000105	0.94	405.15	84.97	0.08
Cow Bayou	Cole Creek	31947	Exist 100-YR	1700.00	7.92	18.56		18.56	0.000052	0.48	7018.56	4598.74	0.05
Cow Bayou	Cole Creek	31947	PROP 100-YR	381.00	7.92	16.15		16.15	0.000234	0.56	735.75	1255.73	0.09
Cow Bayou	Cole Creek	30285	Exist 100-YR	1700.00	7.65	18.37		18.40	0.000283	1.77	4518.63	2853.91	0.13
Cow Bayou	Cole Creek	30285	PROP 100-YR	381.00	7.65	15.73		15.76	0.000238	1.47	322.14	368.35	0.11
Cow Bayou	Cole Creek	29126	Exist 100-YR	1700.00	7.21	18.09		18.10	0.000212	1.09	6000.69	4648.41	0.10
Cow Bayou	Cole Creek	29126	PROP 100-YR	381.00	7.21	15.44		15.47	0.000256	1.39	329.19	385.66	0.12
Cow Bayou	Cole Creek	29073	Exist 100-YR	1700.00	7.19	18.08	12.90	18.09	0.000215	1.03	5745.16	4571.21	0.10
Cow Bayou	Cole Creek	29073	PROP 100-YR	381.00	7.19	15.43	9.78	15.46	0.000232	1.39	321.34	346.30	0.11
Cow Bayou	Cole Creek	29065											
			Bridge										
Cow Bayou	Cole Creek	29057	Exist 100-YR	1700.00	7.18	18.08		18.08	0.000179	1.01	6039.26	4643.17	0.09
Cow Bayou	Cole Creek	29057	PROP 100-YR	381.00	7.18	15.42		15.45	0.000261	1.39	326.49	367.67	0.12
Cow Bayou	Cole Creek	28962	Exist 100-YR	1700.00	7.14	18.05		18.06	0.000231	1.22	5545.63	4539.63	0.11
Cow Bayou	Cole Creek	28962	PROP 100-YR	381.00	7.14	15.40		15.43	0.000246	1.40	295.24	180.45	0.11
Cow Bayou	Cole Creek	28059	Exist 100-YR	1700.00	6.80	17.98		17.98	0.000041	0.47	8701.79	5364.56	0.05
Cow Bayou	Cole Creek	28059	PROP 100-YR	381.00	6.80	14.97		14.99	0.001325	1.08	352.62	410.58	0.21
Cow Bayou	Cole Creek	25389	Exist 100-YR	1700.00	3.59	17.79		17.80	0.000139	0.91	5609.69	5091.91	0.08
Cow Bayou	Cole Creek	25389	PROP 100-YR	381.00	3.59	14.28		14.29	0.000109	0.80	473.96	129.16	0.07
Cow Bayou	Cole Creek	23355	Exist 100-YR	3203.00	3.73	17.54		17.56	0.000112	1.43	10715.57	5272.46	0.09
Cow Bayou	Cole Creek	23355	PROP 100-YR	1206.00	3.73	13.65		13.70	0.000437	1.93	889.64	651.73	0.15
Cow Bayou	Cole Creek	20465	Exist 100-YR	3203.00	1.40	17.44		17.44	0.000020	0.47	10339.19	3895.64	0.03
Cow Bayou	Cole Creek	20465	PROP 100-YR	1206.00	1.40	13.16		13.17	0.000098	0.64	1890.90	680.14	0.07
Cow Bayou	Cole Creek	20398	Exist 100-YR	3203.00	8.14	17.44	11.72	17.44	0.000021	0.46	9586.89	3887.82	0.04
Cow Bayou	Cole Creek	20398	PROP 100-YR	1206.00	8.14	12.98	10.04	13.12	0.000989	2.94	410.01	605.35	0.24
Cow Bayou	Cole Creek	20340											
			Bridge										
Cow Bayou	Cole Creek	20283	Exist 100-YR	3203.00	2.46	16.57	9.70	16.58	0.000046	0.62	6707.42	2906.84	0.05
Cow Bayou	Cole Creek	20283	PROP 100-YR	1206.00	2.46	12.80	6.69	12.88	0.000515	2.36	510.15	528.38	0.17
Cow Bayou	Cole Creek	20281	Exist 100-YR	3203.00	2.46	16.28	9.70	16.51	0.000739	3.83	836.67	2637.45	0.22
Cow Bayou	Cole Creek	20281	PROP 100-YR	1206.00	2.46	12.80	6.69	12.88	0.000513	2.32	519.58	528.50	0.17
Cow Bayou	Cole Creek	20248											
			Bridge										
Cow Bayou	Cole Creek	20214	Exist 100-YR	3203.00	2.46	16.07	9.70	16.31	0.000784	3.86	829.33	2444.22	0.23
Cow Bayou	Cole Creek	20214	PROP 100-YR	1206.00	2.46	12.72	6.69	12.80	0.000536	2.33	517.30	511.22	0.17
Cow Bayou	Cole Creek	20212	Exist 100-YR	3203.00	2.46	16.06	9.70	16.30	0.000810	3.95	810.89	2430.05	0.23
Cow Bayou	Cole Creek	20212	PROP 100-YR	1206.00	2.46	12.72	6.69	12.80	0.000539	2.37	509.91	510.27	0.18
Cow Bayou	Cole Creek	20148											
			Bridge										
Cow Bayou	Cole Creek	20082	Exist 100-YR	3203.00	0.73	15.10	9.63	15.67	0.003377	6.07	527.84	1214.32	0.43
Cow Bayou	Cole Creek	20082	PROP 100-YR	1206.00	0.73	12.43	6.09	12.60	0.000843	3.31	364.09	197.89	0.22
Cow Bayou	Cole Creek	20080	Exist 100-YR	3203.00	0.73	15.08	9.62	15.66	0.003213	6.10	525.36	1209.29	0.42
Cow Bayou	Cole Creek	20080	PROP 100-YR	1206.00	0.73	12.43	6.09	12.60	0.000844	3.31	364.00	197.85	0.22
Cow Bayou	Cole Creek	20060											
			Bridge										
Cow Bayou	Cole Creek	20035	Exist 100-YR	3203.00	0.73	14.57	9.71	15.26	0.003559	6.66	480.76	858.41	0.45
Cow Bayou	Cole Creek	20035	PROP 100-YR	1206.00	0.73	12.31	6.16	12.49	0.000916	3.42	352.87	194.99	0.23
Cow Bayou	Cole Creek	19946	Exist 100-YR	3203.00	0.84	14.80		14.82	0.000413	1.63	5519.45	1774.51	0.14
Cow Bayou	Cole Creek	19946	PROP 100-YR	1206.00	0.84	12.34		12.37	0.000252	1.89	2239.10	1028.63	0.12
Cow Bayou	Cole Creek	19579	Exist 100-YR	3203.00	2.37	14.65		14.65	0.000390	1.34	6054.89	1721.22	0.14
Cow Bayou	Cole Creek	19579	PROP 100-YR	1206.00	2.37	12.23		12.26	0.000315	1.89	2462.61	1300.36	0.13
Cow Bayou	Cole Creek	18984	Exist 100-YR	3203.00	0.38	14.50		14.52	0.000271	1.72	6324.41	1900.86	0.13
Cow Bayou	Cole Creek	18984	PROP 100-YR	1206.00	0.38	12.10		12.13	0.000218	1.67	2379.86	1275.02	0.11
Cow Bayou	Cole Creek	18091	Exist 100-YR	3203.00	0.74	14.28		14.29	0.000287	1.42	6968.73	2443.14	0.12
Cow Bayou	Cole Creek	18091	PROP 100-YR	1206.00	0.74	11.91		11.94	0.000233	1.73	2558.48	1454.13	0.12
Cow Bayou	Cole Creek	17270	Exist 100-YR	3203.00	0.17	14.04		14.06	0.000353	1.65	7506.68	3463.41	0.14
Cow Bayou	Cole Creek	17270	PROP 100-YR	1206.00	0.17	11.67		11.72	0.000334	2.07	1827.55	1458.13	0.14
Cow Bayou	Cole Creek	16502	Exist 100-YR	3203.00	0.08	13.72		13.74	0.000510	1.96	6158.55	2855.05	0.16
Cow Bayou	Cole Creek	16502	PROP 100-YR	1206.00	0.08	11.36		11.43	0.000435	2.28	1495.59	1204.80	0.16

HEC-RAS Plan: EXISTING W P (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
Cow Bayou	Cole Creek	15862	Exist 100-YR	3203.00	0.05	13.47		13.48	0.000373	1.33	8247.74	3682.10	0.13
Cow Bayou	Cole Creek	15862	PROP 100-YR	1206.00	0.05	11.19		11.22	0.000238	1.70	2669.01	1526.65	0.12
Cow Bayou	Cole Creek	15126	Exist 100-YR	3203.00	-0.66	13.22		13.26	0.000259	2.18	8458.41	4024.82	0.13
Cow Bayou	Cole Creek	15126	PROP 100-YR	1206.00	-0.66	10.98		11.02	0.000291	1.93	1954.58	1703.93	0.13
Cow Bayou	Cole Creek	14313	Exist 100-YR	3203.00	0.29	12.98		13.03	0.000329	1.98	5096.34	2632.34	0.14
Cow Bayou	Cole Creek	14313	PROP 100-YR	1206.00	0.29	10.82		10.85	0.000157	1.36	1566.93	834.57	0.10
Cow Bayou	Cole Creek	13100	Exist 100-YR	3203.00	-0.53	12.57		12.60	0.000389	1.60	3487.44	1536.27	0.14
Cow Bayou	Cole Creek	13100	PROP 100-YR	1206.00	-0.53	10.54		10.57	0.000380	1.32	1181.08	669.02	0.13
Cow Bayou	Cole Creek	12470	Exist 100-YR	3203.00	-0.76	12.35		12.37	0.000326	1.39	4752.98	1697.70	0.13
Cow Bayou	Cole Creek	12470	PROP 100-YR	1206.00	-0.76	10.34		10.35	0.000300	1.10	2020.59	969.15	0.12
Cow Bayou	Cole Creek	11680	Exist 100-YR	3203.00	-1.43	12.01		12.06	0.000487	2.08	3240.27	1666.46	0.17
Cow Bayou	Cole Creek	11680	PROP 100-YR	1206.00	-1.43	10.04		10.07	0.000437	1.42	1122.44	420.35	0.14
Cow Bayou	Cole Creek	10571	Exist 100-YR	3203.00	-2.06	11.57		11.59	0.000357	1.36	4685.09	1822.02	0.13
Cow Bayou	Cole Creek	10571	PROP 100-YR	1206.00	-2.06	9.57		9.59	0.000426	1.23	1793.73	1018.42	0.14
Cow Bayou	Cole Creek	9781	Exist 100-YR	3203.00	-1.97	11.34		11.36	0.000259	1.18	3630.68	1870.42	0.11
Cow Bayou	Cole Creek	9781	PROP 100-YR	1206.00	-1.97	9.28		9.30	0.000349	1.02	1444.60	723.25	0.12
Cow Bayou	Cole Creek	8874	Exist 100-YR	3203.00	-3.37	11.00		11.04	0.000522	1.79	3070.63	1277.51	0.16
Cow Bayou	Cole Creek	8874	PROP 100-YR	1206.00	-3.37	8.97		8.99	0.000333	1.30	1397.25	631.01	0.13
Cow Bayou	Cole Creek	8593	Exist 100-YR	3203.00	-2.83	10.94		10.96	0.000192	1.12	4524.07	2121.78	0.10
Cow Bayou	Cole Creek	8593	PROP 100-YR	1206.00	-2.83	8.91		8.92	0.000188	0.86	2009.11	893.01	0.09
Cow Bayou	Cole Creek	7804	Exist 100-YR	3203.00	-3.31	10.77		10.79	0.000239	1.24	3461.32	1308.49	0.11
Cow Bayou	Cole Creek	7804	PROP 100-YR	1206.00	-3.31	8.73		8.75	0.000282	0.96	1520.68	735.64	0.11
Cow Bayou	Cole Creek	6802	Exist 100-YR	3203.00	-4.17	10.42		10.46	0.000486	1.77	2870.21	1290.76	0.16
Cow Bayou	Cole Creek	6802	PROP 100-YR	1206.00	-4.17	8.38		8.41	0.000413	1.31	1149.12	556.66	0.14
Cow Bayou	Cole Creek	5555	Exist 100-YR	3203.00	-3.72	9.83		9.87	0.000457	1.75	2948.97	1020.51	0.16
Cow Bayou	Cole Creek	5555	PROP 100-YR	1206.00	-3.72	7.83		7.86	0.000475	1.35	1217.33	696.21	0.15
Cow Bayou	Cole Creek	5402	Exist 100-YR	3203.00	-3.63	9.73		9.79	0.000528	1.94	2375.12	818.97	0.17
Cow Bayou	Cole Creek	5402	PROP 100-YR	1206.00	-3.63	7.76		7.78	0.000421	1.36	1092.63	529.55	0.14
Cow Bayou	Cole Creek	4425	Exist 100-YR	3203.00	-3.47	9.22		9.26	0.000540	1.63	1965.18	631.63	0.16
Cow Bayou	Cole Creek	4425	PROP 100-YR	1206.00	-3.47	7.35		7.38	0.000414	1.21	997.05	409.19	0.14
Cow Bayou	Cole Creek	3537	Exist 100-YR	3203.00	-4.71	8.59		8.67	0.000818	2.36	1360.05	340.99	0.21
Cow Bayou	Cole Creek	3537	PROP 100-YR	1206.00	-4.71	6.97		7.00	0.000425	1.41	855.83	282.89	0.14
Cow Bayou	Cole Creek	3415	Exist 100-YR	3203.00	-3.13	8.40	4.87	8.55	0.000950	3.06	1045.72	281.45	0.23
Cow Bayou	Cole Creek	3415	PROP 100-YR	1206.00	-3.13	6.91	1.99	6.95	0.000373	1.59	758.34	230.04	0.14
Cow Bayou	Cole Creek	3386		Bridge									
Cow Bayou	Cole Creek	3358	Exist 100-YR	3203.00	-0.67	8.30	4.99	8.45	0.000948	3.05	1049.98	344.14	0.23
Cow Bayou	Cole Creek	3358	PROP 100-YR	1206.00	-0.67	6.88	3.82	6.92	0.000385	1.58	765.39	299.22	0.14
Cow Bayou	Cole Creek	3262	Exist 100-YR	3203.00	-3.85	8.24		8.33	0.000850	2.41	1330.32	329.60	0.21
Cow Bayou	Cole Creek	3262	PROP 100-YR	1206.00	-3.85	6.85		6.88	0.000362	1.34	902.20	284.39	0.13
Cow Bayou	Cole Creek	615	Exist 100-YR	3203.00	-7.44	7.60		7.61	0.000133	1.07	4833.10	1197.21	0.09
Cow Bayou	Cole Creek	615	PROP 100-YR	1206.00	-7.44	6.65		6.65	0.000037	0.52	3714.75	1152.17	0.04
Cow Bayou	Cow Bayou Rch 3	50009	Exist 100-YR	8135.00	-11.54	6.90		6.93	0.000170	1.27	6408.15	1275.90	0.10
Cow Bayou	Cow Bayou Rch 3	50009	PROP 100-YR	6067.00	-11.54	6.15		6.17	0.000152	1.11	5471.16	1215.20	0.09
Cow Bayou	Cow Bayou Rch 3	46350	Exist 100-YR	8135.00	-13.47	6.36		6.38	0.000131	0.93	8735.91	2259.47	0.08
Cow Bayou	Cow Bayou Rch 3	46350	PROP 100-YR	6067.00	-13.47	5.64		5.65	0.000128	0.85	7165.24	2094.66	0.08
Cow Bayou	Sandy Creek	19194	Exist 100-YR	1350.00	7.30	18.42		18.42	0.000013	0.26	7086.44	2820.86	0.02
Cow Bayou	Sandy Creek	19194	PROP 100-YR	1350.00	7.30	18.42		18.42	0.000013	0.26	7086.54	2820.88	0.02
Cow Bayou	Sandy Creek	19075	Exist 100-YR	1350.00	7.29	18.42	11.16	18.42	0.000011	0.24	7395.94	2843.18	0.02
Cow Bayou	Sandy Creek	19075	PROP 100-YR	1350.00	7.29	18.42	11.16	18.42	0.000011	0.24	7396.04	2843.19	0.02
Cow Bayou	Sandy Creek	19028		Culvert									
Cow Bayou	Sandy Creek	18982	Exist 100-YR	1350.00	7.29	18.41	11.16	18.41	0.000011	0.24	7351.38	2828.42	0.02
Cow Bayou	Sandy Creek	18982	PROP 100-YR	1350.00	7.29	18.41	11.16	18.41	0.000011	0.24	7351.49	2828.44	0.02
Cow Bayou	Sandy Creek	18980	Exist 100-YR	1350.00	7.29	18.31	11.15	18.39	0.000330	2.29	590.26	2774.32	0.13
Cow Bayou	Sandy Creek	18980	PROP 100-YR	1350.00	7.29	18.31	11.15	18.39	0.000330	2.29	590.26	2774.34	0.13
Cow Bayou	Sandy Creek	18911		Culvert									
Cow Bayou	Sandy Creek	18840	Exist 100-YR	1350.00	6.25	16.70	10.08	16.80	0.000403	2.45	550.23	2213.99	0.15
Cow Bayou	Sandy Creek	18840	PROP 100-YR	1350.00	6.25	16.70	10.08	16.80	0.000403	2.45	550.24	2214.00	0.15
Cow Bayou	Sandy Creek	18838	Exist 100-YR	1350.00	6.25	16.75	10.11	16.75	0.000091	0.55	3463.35	1743.78	0.06
Cow Bayou	Sandy Creek	18838	PROP 100-YR	1350.00	6.25	16.75	10.11	16.75	0.000091	0.55	3463.42	1743.79	0.06
Cow Bayou	Sandy Creek	18820		Culvert									
Cow Bayou	Sandy Creek	18800	Exist 100-YR	1350.00	6.25	16.22	10.11	16.22	0.000206	0.75	2550.47	1697.76	0.09



HEC-RAS Plan: EXISTING W P (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
Cow Bayou	Sandy Creek	18800	PROP 100-YR	1350.00	6.25	16.22	10.11	16.22	0.000206	0.75	2550.55	1697.76	0.09
Cow Bayou	Sandy Creek	18712	Exist 100-YR	1350.00	6.25	16.20	10.08	16.21	0.000161	0.74	2490.10	1485.82	0.08
Cow Bayou	Sandy Creek	18712	PROP 100-YR	1350.00	6.25	16.20	10.08	16.21	0.000161	0.74	2490.16	1485.82	0.08
Cow Bayou	Sandy Creek	18690		Culvert									
Cow Bayou	Sandy Creek	18669	Exist 100-YR	1350.00	6.18	15.92	11.39	15.94	0.000920	1.20	1589.26	1498.87	0.17
Cow Bayou	Sandy Creek	18669	PROP 100-YR	1350.00	6.18	15.92	11.39	15.94	0.000921	1.20	1589.09	1498.86	0.17
Cow Bayou	Sandy Creek	18515	Exist 100-YR	1350.00	5.84	15.22	12.38	15.47	0.031547	4.02	376.56	1400.09	0.87
Cow Bayou	Sandy Creek	18515	PROP 100-YR	1350.00	5.84	15.22	12.38	15.47	0.031479	4.02	377.11	1402.06	0.87
Cow Bayou	Sandy Creek	17930	Exist 100-YR	1350.00	3.27	14.42		14.49	0.000501	2.26	1457.13	1462.24	0.15
Cow Bayou	Sandy Creek	17930	PROP 100-YR	1350.00	3.27	14.42		14.49	0.000501	2.26	1457.51	1462.39	0.15
Cow Bayou	Sandy Creek	17384	Exist 100-YR	1350.00	1.98	14.28		14.31	0.000201	1.59	2483.71	1298.71	0.10
Cow Bayou	Sandy Creek	17384	PROP 100-YR	1350.00	1.98	14.28		14.31	0.000201	1.59	2484.05	1298.73	0.10
Cow Bayou	Sandy Creek	16731	Exist 100-YR	1350.00	3.97	14.11		14.15	0.000324	1.90	1954.67	1163.03	0.13
Cow Bayou	Sandy Creek	16731	PROP 100-YR	1350.00	3.97	14.11		14.15	0.000324	1.90	1955.02	1163.20	0.13
Cow Bayou	Sandy Creek	16109	Exist 100-YR	1350.00	2.22	13.91		13.93	0.000374	1.33	2718.86	1522.46	0.12
Cow Bayou	Sandy Creek	16109	PROP 100-YR	1350.00	2.22	13.91		13.93	0.000374	1.33	2719.44	1522.60	0.12
Cow Bayou	Sandy Creek	15514	Exist 100-YR	1350.00	2.70	13.62		13.65	0.000589	1.83	1709.64	1088.51	0.16
Cow Bayou	Sandy Creek	15514	PROP 100-YR	1350.00	2.70	13.62		13.65	0.000589	1.83	1710.21	1088.73	0.16
Cow Bayou	Sandy Creek	15033	Exist 100-YR	1350.00	2.48	13.35		13.38	0.000582	1.97	1932.52	1170.65	0.16
Cow Bayou	Sandy Creek	15033	PROP 100-YR	1350.00	2.48	13.35		13.38	0.000582	1.97	1933.31	1170.87	0.16
Cow Bayou	Sandy Creek	14064	Exist 100-YR	1350.00	1.76	12.84		12.88	0.000537	1.79	1746.71	1063.57	0.15
Cow Bayou	Sandy Creek	14064	PROP 100-YR	1350.00	1.76	12.84		12.88	0.000536	1.79	1747.81	1064.00	0.15
Cow Bayou	Sandy Creek	13579	Exist 100-YR	1350.00	1.86	12.46		12.54	0.000885	2.42	1140.05	735.04	0.20
Cow Bayou	Sandy Creek	13579	PROP 100-YR	1350.00	1.86	12.47		12.54	0.000884	2.42	1141.04	735.59	0.20
Cow Bayou	Sandy Creek	13004	Exist 100-YR	1350.00	0.78	12.11		12.18	0.000480	2.20	1353.09	896.69	0.15
Cow Bayou	Sandy Creek	13004	PROP 100-YR	1350.00	0.78	12.11		12.18	0.000480	2.20	1354.68	897.35	0.15
Cow Bayou	Sandy Creek	12404	Exist 100-YR	1350.00	0.49	11.87		11.89	0.000434	1.32	2053.25	1201.16	0.13
Cow Bayou	Sandy Creek	12404	PROP 100-YR	1350.00	0.49	11.87		11.89	0.000433	1.32	2056.03	1202.76	0.13
Cow Bayou	Sandy Creek	11685	Exist 100-YR	1350.00	0.35	11.50		11.53	0.000596	1.54	1410.11	639.32	0.15
Cow Bayou	Sandy Creek	11685	PROP 100-YR	1350.00	0.35	11.51		11.54	0.000593	1.54	1412.42	639.49	0.15
Cow Bayou	Sandy Creek	11638	Exist 100-YR	1350.00	0.35	11.47	5.85	11.51	0.000619	1.56	1400.54	602.92	0.16
Cow Bayou	Sandy Creek	11638	PROP 100-YR	1350.00	0.35	11.48	5.85	11.51	0.000616	1.56	1402.76	604.08	0.16
Cow Bayou	Sandy Creek	11623		Bridge									
Cow Bayou	Sandy Creek	11609	Exist 100-YR	1350.00	0.35	10.66	5.84	10.71	0.001530	2.01	1011.01	459.51	0.23
Cow Bayou	Sandy Creek	11609	PROP 100-YR	1350.00	0.35	10.67	5.84	10.72	0.001520	2.01	1013.26	459.86	0.23
Cow Bayou	Sandy Creek	11470	Exist 100-YR	1350.00	0.11	10.63		10.65	0.000146	0.92	1600.63	484.96	0.08
Cow Bayou	Sandy Creek	11470	PROP 100-YR	1350.00	0.11	10.64		10.65	0.000146	0.92	1603.08	485.97	0.08
Cow Bayou	Sandy Creek	11149	Exist 100-YR	1350.00	-0.18	10.60		10.61	0.000093	0.73	2245.98	918.75	0.06
Cow Bayou	Sandy Creek	11149	PROP 100-YR	1350.00	-0.18	10.60		10.61	0.000093	0.73	2250.76	920.80	0.06
Cow Bayou	Sandy Creek	10624	Exist 100-YR	1350.00	-0.92	10.55		10.56	0.000087	0.68	2375.48	951.28	0.06
Cow Bayou	Sandy Creek	10624	PROP 100-YR	1350.00	-0.92	10.56		10.57	0.000087	0.68	2380.63	953.07	0.06
Cow Bayou	Sandy Creek	10229	Exist 100-YR	1350.00	-0.77	10.50		10.52	0.000141	1.11	1844.85	781.86	0.08
Cow Bayou	Sandy Creek	10229	PROP 100-YR	1350.00	-0.77	10.51		10.52	0.000141	1.11	1849.26	785.70	0.08
Cow Bayou	Sandy Creek	10179	Exist 100-YR	1350.00	-2.03	10.49	2.43	10.51	0.000120	1.04	1956.34	852.92	0.08
Cow Bayou	Sandy Creek	10179	PROP 100-YR	1350.00	-2.03	10.50	2.43	10.51	0.000120	1.04	1961.16	854.02	0.08
Cow Bayou	Sandy Creek	10161		Culvert									
Cow Bayou	Sandy Creek	10143	Exist 100-YR	1350.00	-2.03	8.47	2.43	8.52	0.000490	1.66	912.70	375.99	0.16
Cow Bayou	Sandy Creek	10143	PROP 100-YR	1350.00	-2.03	8.43	2.43	8.47	0.000515	1.69	894.21	371.30	0.16
Cow Bayou	Sandy Creek	10041	Exist 100-YR	1350.00	-0.77	8.43		8.46	0.000519	1.49	990.13	464.43	0.16
Cow Bayou	Sandy Creek	10041	PROP 100-YR	1350.00	-0.77	8.37		8.41	0.000554	1.52	965.87	458.34	0.16
Cow Bayou	Sandy Creek	9399	Exist 100-YR	1350.00	-2.28	8.31		8.32	0.000116	0.71	2238.42	1174.45	0.07
Cow Bayou	Sandy Creek	9399	PROP 100-YR	1350.00	-2.28	8.25		8.25	0.000126	0.73	2165.16	1153.06	0.08
Cow Bayou	Sandy Creek	9342	Exist 100-YR	1350.00	-2.28	8.30	1.25	8.31	0.000145	0.91	2237.81	1179.51	0.09
Cow Bayou	Sandy Creek	9342	PROP 100-YR	1350.00	-2.28	8.23	1.25	8.25	0.000156	0.93	2163.31	1157.76	0.09
Cow Bayou	Sandy Creek	9331		Bridge									
Cow Bayou	Sandy Creek	9321	Exist 100-YR	1350.00	-2.28	8.29		8.30	0.000150	0.92	2228.57	1176.05	0.09
Cow Bayou	Sandy Creek	9321	PROP 100-YR	1350.00	-2.28	8.23		8.24	0.000161	0.94	2153.66	1153.92	0.09
Cow Bayou	Sandy Creek	9194	Exist 100-YR	1350.00	-1.65	8.27		8.28	0.000126	0.75	2170.03	1154.67	0.08
Cow Bayou	Sandy Creek	9194	PROP 100-YR	1350.00	-1.65	8.21		8.22	0.000137	0.77	2095.09	1130.28	0.08
Cow Bayou	Sandy Creek	9115	Exist 100-YR	1350.00	-1.12	8.26	2.03	8.27	0.000136	0.72	1951.41	961.65	0.08
Cow Bayou	Sandy Creek	9115	PROP 100-YR	1350.00	-1.12	8.20	2.03	8.21	0.000148	0.74	1888.56	929.07	0.08

HEC-RAS Plan: EXISTING W P (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
Cow Bayou	Sandy Creek	9097		Bridge									
Cow Bayou	Sandy Creek	9080	Exist 100-YR	1350.00	-1.12	8.26		8.26	0.000137	0.72	1931.58	917.05	0.08
Cow Bayou	Sandy Creek	9080	PROP 100-YR	1350.00	-1.12	8.19		8.20	0.000150	0.74	1871.09	882.76	0.08
Cow Bayou	Sandy Creek	8980	Exist 100-YR	1350.00	-1.12	8.24		8.25	0.000159	0.91	1644.14	697.41	0.09
Cow Bayou	Sandy Creek	8980	PROP 100-YR	1350.00	-1.12	8.17		8.18	0.000171	0.94	1596.65	664.43	0.09
Cow Bayou	Sandy Creek	8876	Exist 100-YR	1350.00	-1.66	8.22		8.23	0.000138	0.91	1638.79	593.15	0.08
Cow Bayou	Sandy Creek	8876	PROP 100-YR	1350.00	-1.66	8.15		8.16	0.000148	0.92	1597.66	585.65	0.09
Cow Bayou	Sandy Creek	8826	Exist 100-YR	1350.00	-1.66	8.21	1.45	8.23	0.000156	0.85	1666.37	598.25	0.09
Cow Bayou	Sandy Creek	8826	PROP 100-YR	1350.00	-1.66	8.14	1.45	8.16	0.000166	0.87	1624.59	590.72	0.09
Cow Bayou	Sandy Creek	8813		Bridge									
Cow Bayou	Sandy Creek	8900	Exist 100-YR	1350.00	-1.66	8.21		8.22	0.000153	0.81	1672.21	599.80	0.08
Cow Bayou	Sandy Creek	8900	PROP 100-YR	1350.00	-1.66	8.14		8.15	0.000164	0.83	1629.96	592.02	0.09
Cow Bayou	Sandy Creek	8697	Exist 100-YR	1350.00	-1.66	8.19		8.20	0.000136	0.91	1577.08	544.84	0.08
Cow Bayou	Sandy Creek	8697	PROP 100-YR	1350.00	-1.66	8.12		8.13	0.000146	0.93	1538.11	537.52	0.09
Cow Bayou	Sandy Creek	8502	Exist 100-YR	1350.00	-2.38	8.16		8.17	0.000134	0.91	1504.27	447.76	0.08
Cow Bayou	Sandy Creek	8502	PROP 100-YR	1350.00	-2.38	8.09		8.10	0.000142	0.93	1471.49	441.68	0.09
Cow Bayou	Sandy Creek	8452	Exist 100-YR	1350.00	-2.38	8.16	0.70	8.17	0.000136	0.90	1513.67	445.66	0.08
Cow Bayou	Sandy Creek	8452	PROP 100-YR	1350.00	-2.38	8.08	0.70	8.09	0.000146	0.91	1480.85	439.63	0.09
Cow Bayou	Sandy Creek	8442		Bridge									
Cow Bayou	Sandy Creek	8432	Exist 100-YR	1350.00	-2.38	8.15		8.16	0.000151	0.91	1490.80	439.07	0.09
Cow Bayou	Sandy Creek	8432	PROP 100-YR	1350.00	-2.38	8.07		8.09	0.000160	0.93	1458.13	433.90	0.09
Cow Bayou	Sandy Creek	8332	Exist 100-YR	1350.00	-2.38	8.13		8.14	0.000222	0.99	1363.18	470.12	0.10
Cow Bayou	Sandy Creek	8332	PROP 100-YR	1350.00	-2.38	8.05		8.07	0.000237	1.02	1327.63	461.70	0.11
Cow Bayou	Sandy Creek	7583	Exist 100-YR	1350.00	-2.88	7.99		8.00	0.000152	0.85	1614.82	602.21	0.09
Cow Bayou	Sandy Creek	7583	PROP 100-YR	1350.00	-2.88	7.91		7.92	0.000164	0.88	1563.30	587.53	0.09
Cow Bayou	Sandy Creek	6507	Exist 100-YR	1350.00	-3.56	7.89		7.90	0.000070	0.62	2176.30	640.93	0.06
Cow Bayou	Sandy Creek	6507	PROP 100-YR	1350.00	-3.56	7.79		7.80	0.000075	0.64	2115.70	632.90	0.06
Cow Bayou	Sandy Creek	6457	Exist 100-YR	1350.00	-3.56	7.89	1.33	7.89	0.000067	0.62	2194.99	635.92	0.06
Cow Bayou	Sandy Creek	6457	PROP 100-YR	1350.00	-3.56	7.79	1.33	7.80	0.000072	0.63	2134.67	628.35	0.06
Cow Bayou	Sandy Creek	6447		Bridge									
Cow Bayou	Sandy Creek	6437	Exist 100-YR	1350.00	-3.56	7.88		7.89	0.000067	0.62	2185.38	631.95	0.06
Cow Bayou	Sandy Creek	6437	PROP 100-YR	1350.00	-3.56	7.79		7.79	0.000073	0.64	2125.33	624.36	0.06
Cow Bayou	Sandy Creek	6337	Exist 100-YR	3608.00	-3.56	7.82		7.86	0.000363	1.60	2298.14	615.09	0.14
Cow Bayou	Sandy Creek	6337	PROP 100-YR	3608.00	-3.56	7.72		7.76	0.000392	1.64	2237.35	608.19	0.14
Cow Bayou	Sandy Creek	5916	Exist 100-YR	3608.00	-0.52	7.74		7.75	0.000167	1.03	3511.90	967.80	0.09
Cow Bayou	Sandy Creek	5916	PROP 100-YR	3608.00	-0.52	7.63		7.65	0.000182	1.06	3409.46	946.22	0.10
Cow Bayou	Sandy Creek	5866	Exist 100-YR	3608.00	-0.52	7.61	2.57	7.71	0.000482	2.61	1379.81	702.68	0.18
Cow Bayou	Sandy Creek	5866	PROP 100-YR	3608.00	-0.52	7.50	2.57	7.60	0.000509	2.66	1357.54	688.80	0.18
Cow Bayou	Sandy Creek	5838		Bridge									
Cow Bayou	Sandy Creek	5810	Exist 100-YR	3608.00	-0.52	7.52	2.54	7.62	0.000439	2.54	1418.89	555.65	0.17
Cow Bayou	Sandy Creek	5810	PROP 100-YR	3608.00	-0.52	7.41	2.54	7.51	0.000462	2.58	1396.99	547.07	0.17
Cow Bayou	Sandy Creek	5700	Exist 100-YR	3608.00	-5.70	7.49	0.42	7.55	0.000420	1.85	1945.97	423.06	0.15
Cow Bayou	Sandy Creek	5700	PROP 100-YR	3608.00	-5.70	7.38	0.42	7.44	0.000443	1.90	1899.19	414.28	0.16
Cow Bayou	Sandy Creek	5682		Bridge									
Cow Bayou	Sandy Creek	5664	Exist 100-YR	3608.00	-5.70	7.44	0.55	7.49	0.000439	1.76	3102.64	1799.23	0.15
Cow Bayou	Sandy Creek	5664	PROP 100-YR	3608.00	-5.70	7.33	0.55	7.38	0.000488	1.83	2894.50	1743.99	0.16
Cow Bayou	Sandy Creek	5564	Exist 100-YR	3608.00	-5.70	7.40		7.44	0.000457	1.81	3015.77	1782.79	0.16
Cow Bayou	Sandy Creek	5564	PROP 100-YR	3608.00	-5.70	7.27		7.33	0.000509	1.87	2802.98	1658.73	0.16
Cow Bayou	Sandy Creek	4705	Exist 100-YR	3608.00	-6.42	7.11		7.13	0.000288	0.97	3724.33	1637.27	0.11
Cow Bayou	Sandy Creek	4705	PROP 100-YR	3608.00	-6.42	6.93		6.95	0.000367	1.05	3429.27	1595.45	0.13
Cow Bayou	Sandy Creek	3508	Exist 100-YR	3608.00	-7.31	6.64		6.66	0.000550	1.18	3053.26	1618.20	0.15
Cow Bayou	Sandy Creek	3508	PROP 100-YR	3608.00	-7.31	6.23		6.27	0.000981	1.48	2434.00	1415.42	0.20
Cow Bayou	Sandy Creek	1921	Exist 100-YR	3608.00	-8.49	6.37		6.38	0.000086	0.78	4655.44	1157.47	0.07
Cow Bayou	Sandy Creek	1921	PROP 100-YR	3608.00	-8.49	5.80		5.82	0.000131	0.90	4020.13	1093.77	0.08
Cow Bayou	Sandy Creek	263	Exist 100-YR	3608.00	-9.72	6.24		6.24	0.000075	0.60	6018.17	1970.33	0.06
Cow Bayou	Sandy Creek	263	PROP 100-YR	3608.00	-9.72	5.58		5.59	0.000147	0.76	4764.64	1822.24	0.08
Cow Bayou	Sandy Creek	194	Exist 100-YR	3608.00	-9.72	6.01	-3.38	6.18	0.000333	3.38	1069.00	1877.32	0.16
Cow Bayou	Sandy Creek	194	PROP 100-YR	3608.00	-9.72	5.32	-3.38	5.51	0.000398	3.56	1013.91	1724.78	0.18
Cow Bayou	Sandy Creek	176		Bridge									

HEC-RAS Plan: EXISTING W P (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
Cow Bayou	Sandy Creek	157	Exist 100-YR	3608.00	-9.72	5.93	-3.36	5.94	0.000081	0.63	5741.57	1869.18	0.06
Cow Bayou	Sandy Creek	157	PROP 100-YR	3608.00	-9.72	5.13	-3.36	5.33	0.000422	3.62	996.48	1686.91	0.18
Cow Bayou	Sandy Creek	66	Exist 100-YR	3608.00	-9.72	5.93		5.93	0.000077	0.62	5825.93	1861.23	0.06
Cow Bayou	Sandy Creek	66	PROP 100-YR	3608.00	-9.72	5.20		5.21	0.000156	0.79	4539.07	1693.36	0.09
Cow Bayou	Cow Bayou Rch 2	41598	Exist 100-YR	9007.00	-14.51	5.90		5.92	0.000294	1.14	10378.58	3876.88	0.12
Cow Bayou	Cow Bayou Rch 2	41598	PROP 100-YR	7358.00	-14.51	5.17		5.19	0.000292	1.22	7940.11	2957.65	0.12
Cow Bayou	Cow Bayou Rch 2	38584	Exist 100-YR	9007.00	-15.00	4.78		4.86	0.000453	2.38	5488.64	2552.14	0.17
Cow Bayou	Cow Bayou Rch 2	38584	PROP 100-YR	7358.00	-15.00	3.99		4.07	0.000509	2.33	3797.47	1726.38	0.17
Cow Bayou	Cow Bayou Rch 2	38365	Exist 100-YR	9007.00	-15.00	4.64	-7.38	4.75	0.000539	2.58	3492.13	1669.36	0.18
Cow Bayou	Cow Bayou Rch 2	38365	PROP 100-YR	7358.00	-15.00	3.87	-8.22	3.96	0.000546	2.40	3060.16	1030.80	0.18
Cow Bayou	Cow Bayou Rch 2	38305		Bridge									
Cow Bayou	Cow Bayou Rch 2	38245	Exist 100-YR	9007.00	-15.00	4.56	-7.35	4.67	0.000349	2.64	3413.02	1589.72	0.19
Cow Bayou	Cow Bayou Rch 2	38245	PROP 100-YR	7358.00	-15.00	3.79	-8.20	3.88	0.000354	2.47	2984.33	1002.00	0.19
Cow Bayou	Cow Bayou Rch 2	38068	Exist 100-YR	9007.00	-15.00	4.50		4.61	0.000347	2.62	4162.24	1462.42	0.19
Cow Bayou	Cow Bayou Rch 2	38068	PROP 100-YR	7358.00	-15.00	3.72		3.82	0.000359	2.48	3251.29	978.61	0.19
Cow Bayou	Cow Bayou Rch 2	37815	Exist 100-YR	9118.00	-15.00	4.41	-7.33	4.52	0.000369	2.68	4008.04	1205.32	0.19
Cow Bayou	Cow Bayou Rch 2	37815	PROP 100-YR	7358.00	-15.00	3.63	-8.21	3.73	0.000369	2.51	3171.67	944.67	0.19

# APPENDIX D

**PRELIMINARY ENGINEERS ESTIMATE OF CONSTRUCTION COST  
ORANGE COUNTY DRAINAGE DISTRICT**

PROJECT: Cow Bayou Detention Pond 1  
1,500 Acre Detention Facility

ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	AMOUNT
MOBILIZATION	1	L.S.	\$750,000	\$750,000
EXCAVATION	25,000,000	C.Y.	\$6	\$150,000,000
R.O.W. ACQUISITION (DETENTION AND SPOIL)	2,325	ACRES	\$3,500	\$8,137,500
OUTLET/WEIR STRUCTURE	1	L.S.	\$125,000	\$125,000

SUBTOTAL	\$159,012,500
CONTINGENCIES (15%)	\$23,851,875
TOTAL ESTIMATED CONSTRUCTION COSTS	\$182,864,375
R.O.W. ACQUISITION, ENGINEERING, ADMINISTRATION (20%)	\$36,572,875
TOTAL ESTIMATED COST	\$219,437,250

**Not Included in Estimates**

Utility Adjustments/Relocations  
Pipeline Adjustment/Relocations

Estimated Unit Prices are for Contractor Bid Work in 2015 Dollars

**PRELIMINARY ENGINEERS ESTIMATE OF CONSTRUCTION COST  
ORANGE COUNTY DRAINAGE DISTRICT**

PROJECT: Cow Bayou Detention Pond 2  
1,000 Acre Detention Facility

ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	AMOUNT
MOBILIZATION	1	L.S.	\$750,000	\$750,000
EXCAVATION	17,500,000	C.Y.	\$6	\$105,000,000
R.O.W. ACQUISITION (DETENTION AND SPOIL)	1,550	ACRES	\$3,500	\$5,425,000
OUTLET/WEIR STRUCTURE	1	L.S.	\$90,000	\$90,000

SUBTOTAL	\$111,265,000
CONTINGENCIES (15%)	\$16,689,750
TOTAL ESTIMATED CONSTRUCTION COSTS	\$127,954,750
R.O.W. ACQUISITION, ENGINEERING, ADMINISTRATION (20%)	\$25,590,950
TOTAL ESTIMATED COST	\$153,545,700

**Not Included in Estimates**

Utility Adjustments/Relocations  
Pipeline Adjustment/Relocations

Estimated Unit Prices are for Contractor Bid Work in 2015 Dollars



**PRELIMINARY ENGINEERS ESTIMATE OF CONSTRUCTION COST  
ORANGE COUNTY DRAINAGE DISTRICT**

PROJECT: Cow Bayou Diversion Channel  
13 Mile Diversion Channel

ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	AMOUNT
MOBILIZATION	1	L.S.	\$2,000,000	\$2,000,000
EXCAVATION	2,750,000	C.Y.	\$6	\$16,500,000
LARGE CROSSINGS	3	L.S.	\$1,500,000	\$4,500,000
SMALL CROSSINGS	10	L.S.	\$500,000	\$5,000,000
PIPELINE CROSSINGS	4	L.S.	\$2,000,000	\$8,000,000
R.O.W. ACQUISITION (CHANNEL AND SPOIL)	500	ACRES	\$3,500	\$1,750,000

SUBTOTAL	\$37,750,000
CONTINGENCIES (15%)	\$5,662,500
TOTAL ESTIMATED CONSTRUCTION COSTS	\$43,412,500
R.O.W. ACQUISITION, ENGINEERING, ADMINISTRATION (20%)	\$8,682,500
TOTAL ESTIMATED COST	\$52,095,000

**Not Included in Estimates**

Utility Adjustments/Relocations

Estimated Unit Prices are for Contractor Bid Work in 2015 Dollars

**PRELIMINARY ENGINEERS ESTIMATE OF CONSTRUCTION COST  
ORANGE COUNTY DRAINAGE DISTRICT**

PROJECT: Terry Gully Detention Pond 1  
100 Acre Detention Facility

ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	AMOUNT
MOBILIZATION	1	L.S.	\$750,000	\$750,000
EXCAVATION	1,650,000	C.Y.	\$6	\$9,900,000
R.O.W. ACQUISITION (DETENTION AND SPOIL)	155	ACRES	\$3,500	\$542,500
OUTLET/WEIR STRUCTURE	1	L.S.	\$35,000	\$35,000

SUBTOTAL	\$11,227,500
CONTINGENCIES (15%)	\$1,684,125
TOTAL ESTIMATED CONSTRUCTION COSTS	\$12,911,625
R.O.W. ACQUISITION, ENGINEERING, ADMINISTRATION (20%)	\$2,582,325
TOTAL ESTIMATED COST	\$15,493,950

**Not Included in Estimates**

Utility Adjustments/Relocations  
Pipeline Adjustment/Relocations

Estimated Unit Prices are for Contractor Bid Work in 2015 Dollars

**PRELIMINARY ENGINEERS ESTIMATE OF CONSTRUCTION COST  
ORANGE COUNTY DRAINAGE DISTRICT**

PROJECT: Terry Gully Detention Pond 2  
100 Acre Detention Facility

ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	AMOUNT
MOBILIZATION	1	L.S.	\$750,000	\$750,000
EXCAVATION	1,650,000	C.Y.	\$6	\$9,900,000
R.O.W. ACQUISITION (DETENTION AND SPOIL)	155	ACRES	\$3,500	\$542,500
OUTLET/WEIR STRUCTURE	1	L.S.	\$40,000	\$40,000

SUBTOTAL	\$11,232,500
CONTINGENCIES (15%)	\$1,684,875
TOTAL ESTIMATED CONSTRUCTION COSTS	\$12,917,375
R.O.W. ACQUISITION, ENGINEERING, ADMINISTRATION (20%)	\$2,583,475
TOTAL ESTIMATED COST	\$15,500,850

**Not Included in Estimates**

Utility Adjustments/Relocations  
Pipeline Adjustment/Relocations

Estimated Unit Prices are for Contractor Bid Work in 2015 Dollars

**PRELIMINARY ENGINEERS ESTIMATE OF CONSTRUCTION COST  
ORANGE COUNTY DRAINAGE DISTRICT**

PROJECT: Terry Gully Detention Pond 3  
37 Acre Detention Facility

ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	AMOUNT
MOBILIZATION	1	L.S.	\$300,000	\$300,000
EXCAVATION	600,000	C.Y.	\$6	\$3,600,000
R.O.W. ACQUISITION (DETENTION AND SPOIL)	0	ACRES	\$3,500	\$0
OUTLET/WEIR STRUCTURE	1	L.S.	\$45,000	\$45,000

SUBTOTAL	\$3,945,000
CONTINGENCIES (15%)	\$591,750
TOTAL ESTIMATED CONSTRUCTION COSTS	\$4,536,750
R.O.W. ACQUISITION, ENGINEERING, ADMINISTRATION (20%)	\$907,350
TOTAL ESTIMATED COST	\$5,444,100

**Not Included in Estimates**

Utility Adjustments/Relocations  
Pipeline Adjustment/Relocations

Estimated Unit Prices are for Contractor Bid Work in 2015 Dollars

**PRELIMINARY ENGINEERS ESTIMATE OF CONSTRUCTION COST  
ORANGE COUNTY DRAINAGE DISTRICT**

PROJECT: Terry Gully Detention Pond 4  
85 Acre Detention Facility

ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	AMOUNT
MOBILIZATION	1	L.S.	\$600,000	\$600,000
EXCAVATION	1,400,000	C.Y.	\$6	\$8,400,000
R.O.W. ACQUISITION (DETENTION AND SPOIL)	0	ACRES	\$3,500	\$0
OUTLET/WEIR STRUCTURE	1	L.S.	\$40,000	\$40,000

SUBTOTAL	\$9,040,000
CONTINGENCIES (15%)	\$1,356,000
TOTAL ESTIMATED CONSTRUCTION COSTS	\$10,396,000
R.O.W. ACQUISITION, ENGINEERING, ADMINISTRATION (20%)	\$2,079,200
TOTAL ESTIMATED COST	\$12,475,200

**Not Included in Estimates**

Utility Adjustments/Relocations  
Pipeline Adjustment/Relocations

Estimated Unit Prices are for Contractor Bid Work in 2015 Dollars

**PRELIMINARY ENGINEERS ESTIMATE OF CONSTRUCTION COST  
ORANGE COUNTY DRAINAGE DISTRICT**

PROJECT: Cole Creek Detention Pond 1  
100 Acre Detention Facility

ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	AMOUNT
MOBILIZATION	1	L.S.	\$750,000	\$750,000
EXCAVATION	1,650,000	C.Y.	\$6	\$9,900,000
R.O.W. ACQUISITION (DETENTION AND SPOIL)	155	ACRES	\$3,500	\$542,500
OUTLET/WEIR STRUCTURE	1	L.S.	\$45,000	\$45,000

SUBTOTAL	\$11,237,500
CONTINGENCIES (15%)	\$1,685,625
TOTAL ESTIMATED CONSTRUCTION COSTS	\$12,923,125
R.O.W. ACQUISITION, ENGINEERING, ADMINISTRATION (20%)	\$2,584,625
TOTAL ESTIMATED COST	\$15,507,750

**Not Included in Estimates**

Utility Adjustments/Relocations  
Pipeline Adjustment/Relocations

Estimated Unit Prices are for Contractor Bid Work in 2015 Dollars



**PRELIMINARY ENGINEERS ESTIMATE OF CONSTRUCTION COST  
ORANGE COUNTY DRAINAGE DISTRICT**

PROJECT: Adams Bayou Detention Pond 1  
300 Acre Detention Facility

ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	AMOUNT
MOBILIZATION	1	L.S.	\$2,500,000	\$2,500,000
EXCAVATION	5,000,000	C.Y.	\$6	\$30,000,000
R.O.W. ACQUISITION (DETENTION AND SPOIL)	465	ACRES	\$6	\$2,790
OUTLET/WEIR STRUCTURE	1	L.S.	\$50,000	\$50,000

SUBTOTAL	\$32,552,790
CONTINGENCIES (15%)	\$4,882,919
TOTAL ESTIMATED CONSTRUCTION COSTS	\$37,435,709
R.O.W. ACQUISITION, ENGINEERING, ADMINISTRATION (20%)	\$7,487,142
TOTAL ESTIMATED COST	\$44,922,850

**Not Included in Estimates**

Utility Adjustments/Relocations  
Pipeline Adjustment/Relocations

Estimated Unit Prices are for Contractor Bid Work in 2015 Dollars

**PRELIMINARY ENGINEERS ESTIMATE OF CONSTRUCTION COST  
ORANGE COUNTY DRAINAGE DISTRICT**

PROJECT: Adams Bayou Detention Pond 2  
200 Acre Detention Facility

ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	AMOUNT
MOBILIZATION	1	L.S.	\$1,500,000	\$1,500,000
EXCAVATION	3,250,000	C.Y.	\$6	\$19,500,000
R.O.W. ACQUISITION (DETENTION AND SPOIL)	310	ACRES	\$3,500	\$1,085,000
OUTLET/WEIR STRUCTURE	1	L.S.	\$45,000	\$45,000

SUBTOTAL	\$22,130,000
CONTINGENCIES (15%)	\$3,319,500
TOTAL ESTIMATED CONSTRUCTION COSTS	\$25,449,500
R.O.W. ACQUISITION, ENGINEERING, ADMINISTRATION (20%)	\$5,089,900
TOTAL ESTIMATED COST	\$30,539,400

**Not Included in Estimates**

Utility Adjustments/Relocations  
Pipeline Adjustment/Relocations

Estimated Unit Prices are for Contractor Bid Work in 2015 Dollars

**PRELIMINARY ENGINEERS ESTIMATE OF CONSTRUCTION COST  
ORANGE COUNTY DRAINAGE DISTRICT**

PROJECT: Adams Bayou Detention Pond 3  
700 Acre Detention Facility

ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	AMOUNT
MOBILIZATION	1	L.S.	\$5,000,000	\$5,000,000
EXCAVATION	11,500,000	C.Y.	\$6	\$69,000,000
R.O.W. ACQUISITION (DETENTION AND SPOIL)	1,085	ACRES	\$3,500	\$3,797,500
OUTLET/WEIR STRUCTURE	1	L.S.	\$65,000	\$65,000

SUBTOTAL	\$77,862,500
CONTINGENCIES (15%)	\$11,679,375
TOTAL ESTIMATED CONSTRUCTION COSTS	\$89,541,875
R.O.W. ACQUISITION, ENGINEERING, ADMINISTRATION (20%)	\$17,908,375
TOTAL ESTIMATED COST	\$107,450,250

**Not Included in Estimates**

Utility Adjustments/Relocations  
Pipeline Adjustment/Relocations

Estimated Unit Prices are for Contractor Bid Work in 2015 Dollars

**PRELIMINARY ENGINEERS ESTIMATE OF CONSTRUCTION COST  
ORANGE COUNTY DRAINAGE DISTRICT**

PROJECT: Adams Bayou Detention Pond 4  
100 Acre Detention Facility

ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	AMOUNT
MOBILIZATION	1	L.S.	\$750,000	\$750,000
EXCAVATION	1,650,000	C.Y.	\$6	\$9,900,000
R.O.W. ACQUISITION (DETENTION AND SPOIL)	155	ACRES	\$3,500	\$542,500
OUTLET/WEIR STRUCTURE	1	L.S.	\$35,000	\$35,000

SUBTOTAL	\$11,227,500
CONTINGENCIES (15%)	\$1,684,125
TOTAL ESTIMATED CONSTRUCTION COSTS	\$12,911,625
R.O.W. ACQUISITION, ENGINEERING, ADMINISTRATION (20%)	\$2,582,325
TOTAL ESTIMATED COST	\$15,493,950

**Not Included in Estimates**

Utility Adjustments/Relocations  
Pipeline Adjustment/Relocations

Estimated Unit Prices are for Contractor Bid Work in 2015 Dollars

# **APPENDIX E**



Environmental Services, Inc.

23 April 2015

Mr. Kim Carroll, P.E.  
Carroll & Blackman, Inc.  
3120 Fannin St.  
Beaumont, TX 77701

RE: **Adams and Cow Bayous Proposed Drainage Improvements Sites,  
Orange County Drainage District, Orange, Texas  
Preliminary Environmental Review  
HJN 140033-WD**

Dear Kim:

Horizon Environmental Services, Inc. (Horizon) has evaluated the referenced Sites for potential areas subject to jurisdiction under Section 404 of the Clean Water Act and regulated by the US Army Corps of Engineers (USACE) (wetlands and other "waters of the U.S."), as well as cultural resources and threatened or endangered species. This letter and attachments provide the results of our investigation.

### **Project Location and General Description**

Since the potential improvements location map provided only showed a star for each Site proposed for the improvements we established approximate boundaries around an area where the star was located so as to have an area to evaluate. The proposed project involves 10 Sites as follows: Site AB1 located approximately 1100 feet north of the end of Cowpen Road in Mauriceville (Global Positioning System (GPS) location is approximately 30°13'58.33" N and 93°52'5.98"W); Site AB2 approximately located south of the FM 1130 – Morris Road intersection in Mauriceville (Global Positioning System (GPS) location is approximately 30°12'43.60"N and 93°50'45.18"W); Site AB3 located at the southern end of Wilkinson Road Mauriceville (Global Positioning System (GPS) location is approximately 30°10'23.14"N and 93°49'35.01"W); Site AB4 located at the southeast corner of the FM 1078 – Womack Road intersection (Global Positioning System (GPS) location is approximately 30° 7'57.90"N and 93°48'42.44"W); Site AB5 located at the southeast corner of the FM 3247 – Allie Payne Road intersection in Orange (Global Positioning System (GPS) location is approximately 30° 8'6.44"N and 93°46'59.15"W); Site CC1 approximately located northeast of the FM 1136 – Linscomb Road intersection (Global Positioning System (GPS) location is approximately 30°10'15.61" N and 93°52'26.46" W); Site TG1 approximately located at the northwest corner of the SH 12 – Freeway Drive intersection in Vidor (Global Positioning System (GPS) location is approximately 30°8'48.26" N and 93°59'28.68" W); Site TG2 approximately located at the northwest corner of the IH 10 – FM 1132 intersection in

### **CORPORATE HEADQUARTERS**

1507 South IH 35 ★ Austin, Texas 78741 ★ 512.328.2430 ★ Fax 512.328.1804 ★ [www.horizon-esi.com](http://www.horizon-esi.com)

**Certified DBE/HUB/SBE**

Vidor (Global Positioning System (GPS) location is approximately 30°7'55.83" N and 93°57'47.00" W); Site TG3 approximately 3500 feet south of TG2 (Global Positioning System (GPS) location is approximately 30°6'47.49" N and 93°57'25.07" W), located adjacent to and west of Terry Gully; and TG4 located at the southeast corner of the FM 1135 – S Terry Road intersection (Global Positioning System (GPS) location is approximately 30°5'52.09" N and 93°55'46.15" W); all in Orange County, Texas (Figure 1).

### **Preliminary Jurisdictional Determination**

The preliminary jurisdictional determination consisted of a desktop review of existing map sources and aerial photography, including the USFWS National Wetland Inventory (NWI) map, Federal Emergency Management Agency (FEMA) flood hazard map, US Geological Survey (USGS) topographic map, US Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil survey and historic black and white and color aerial photography for the years 1989, 1996, 1997, 2005, 2006, 2008, 2010, 2011, 2013 and 2014 to evaluate the subject Sites for potential wetlands or other "waters of the U.S." that would require further assessment during a future field investigations.

The NWI maps indicated the presence of potential wetland areas classified as palustrine, forested, broad leaved, temporarily flooded (PFO1A) within Sites AB1, AB2, AB5, CC1, TG1, TG2, TG3 and TG4. Palustrine shrub/scrub, broad-leaved deciduous, semipermanent (PSS1A) were also identified at AB2, AB5 and TG1.

The published FEMA maps appear to indicate that Sites AB1, AB2, AB3, AB4, and CC1 are not within the FEMA 100-year floodplain. The other five Sites are, at least partially within the 100-year floodplain.

Sites AB1, AB2, AB3, AB4, AB5 and CC1 are located within the Mauriceville, TX. 7.5' topographic quadrangle, Sites TG1 and TG 2 are located in the Texla, TX. 7.5' topographic quadrangle and Sites TG3 and TG4 are located in the Terry, TX. 7.5' topographic quadrangle. All of the Sites are located in areas of very little topographic relief at elevations of less than 30 feet above mean sea level.

The NRCS web soil survey mapping indicates that the soils present within the ten Sites are as shown in the following Table 1.

The prevalent soil series within the Sites seems to be the Evadale series, a hydric soil series. It should be noted that the mapping of hydric or non-hydric soils is not sufficient to determine whether the area has hydric soils or not. A field verification of the soils is mandatory for a determination because all NRCS soil maps have inclusions that may or may not be hydric. Thus, an area mapped as non-hydric soils may have inclusions that are hydric and vice versa.



**TABLE 1  
SOILS SERIES PRESENT**

SOIL SERIES	PRESENT AT SITES	HYDRIC
Aldine	AB1, TG3 and TG4	No
Aris	AB4, CC1	Yes
Campdown	AB1, AB2, TG2 and TG3	Yes
Cowmarsh	AB5	Yes
Evadale	AB1, AB2, AB3, AB5, CC1, TG1, TG2, TG3 AND TG4	Yes
Gist	AB1, AB3, CC1, TG1, TG2 and TG4	No
Labelle	AB3, AB5, and TG4	No
Levac	AB5 and TG4	No
Orcadia	AB4, TG1 and TG2	No
Spindletop	TG3	Yes
Texla	AB2, AB3 and CC1	No
Vidor	AB1	Yes

The aerial photograph interpretation with regards to vegetation and soil moisture or inundation indicates that Sites AB1, AB5, CC1, TG1, TG2 and TG3 may have significant areas dominated by bald cypress (*Taxodium distichum*) forested wetlands. This type of wetland ecosystem is considered by the agencies to be one of very high value and is extremely difficult to obtain authorization for impacts. We strongly recommend that field verification of at least those areas with regards to dominant vegetation be conducted as part of early due diligence.

The literature evaluation determined that there is a potential for wetland areas at eight Sites (AB1, AB2, AB5, CC1, TG1, TG2, TG3 and TG4) and Site AB 3 had potentially jurisdictional streams. All the aerial photographs showed Site AB4 to be under agricultural use. What appears to be an irrigation or drainage ditch crosses Site AB4 from north to south and it is unclear whether it connects to a larger ditch or to a stream located along the south boundary. It is Horizon's initial opinion that this ditch is not jurisdictional, but specific field verification is required. The 1989 aerial shows what appears to be low spots within Site AB4; however, the soils within the Site are predominantly mapped as Orcadia soils, a non-hydric series.

Table 2 shows an estimate of the potential wetland acreage at each Site. Because we have arbitrarily determined the evaluation boundaries for each Site in most instances, the evaluation areas and extent of wetlands do not necessarily reflect the scope of project impacts or permitting. These acreages only provide a general indication of the relative degree of difficulty for permitting.

Additionally, specific project design at each site has not been evaluated and could significantly alter project impacts and permit requirements. As indicated earlier, this estimate is based on a general desktop analysis. A more definitive answer as to the size and character of the wetland areas in each Site requires a field investigation to assess the existing vegetation, soils and hydrology conditions at each Site. The total jurisdictional acreage may be greater or smaller as well as the project footprint.

**TABLE 2  
WETLAND ACREAGE AT EACH SITE**

<b>SITE</b>	<b>ACRES</b>	<b>FIGURE</b>
<b>AB1</b>	16.31 (jurisdictional streams may be present)	2
<b>AB2</b>	27.54	3
<b>AB3</b>	0.0 (jurisdictional streams may be present)	4
<b>AB4</b>	0.0 (non-jurisdictional ditch present)	5
<b>AB5</b>	112.29 (jurisdictional streams may be present)	6
<b>CC1</b>	12.25	7
<b>TG1</b>	73.95 (jurisdictional streams may be present)	8
<b>TG2</b>	26.25	9
<b>TG3</b>	85.7 (jurisdictional streams may be present)	10
<b>TG4</b>	1.60	11

The term “adjacent,” as defined in the Rapanos Guidance, means bordering, contiguous, or neighboring. Under this definition, the USACE and EPA consider wetlands to be adjacent if 1) there is an unbroken or shallow sub-surface connection to jurisdictional waters, 2) the wetlands are physically separated from jurisdictional waters by man-made ditches or barriers, natural river berms, beach dunes, and the like, or 3) the wetlands proximity to a jurisdictional water is reasonably close, supporting science-based inference such that wetlands have an ecological interconnection with jurisdictional waters. Adjacency to traditional navigable waters (TNWs) and relatively permanent waters (RPWs) is usually defined in the Galveston District by the FEMA 100-year flood plain. Sites AB5, TG1, TG2, TG3, and TG4 are clearly located, at least partially, within the FEMA 100-year flood plain of a TNW or RPW, while Sites AB1, AB2, AB3, AB4, and CC1 appear to be outside of the 100-year floodplain according to FEMA published maps. Presence within the floodplain generally assures jurisdiction would be exerted. Wetlands located outside of the floodplain (i.e., Sites AB1, AB2, AB3, AB4, and CC1), while potentially non-jurisdictional, are not automatically assumed to be non-jurisdictional as there are other factors that need to be evaluated to determine jurisdiction or lack thereof. A site specific determination is required in all cases.

### **Cultural Resources**

In southeast Texas, prehistoric archeological sites are commonly found in upland areas and on alluvial terraces near stream/river channels or drainages, and historic-age sites may occur in virtually any physiographic environment. All proposed drainage improvement Sites are in general proximity to waterways by design. Based on the physiographic setting, it is Horizon’s opinion that all the various Sites possess moderate to high potential for undocumented aboriginal cultural resources. Site specific cultural resources would be needed to document presence or absence of any cultural sites.

### **Threatened or Endangered Species**

Federally-listed threatened or endangered (T/E) species known to occur in Orange County include the bald eagle (delisted, but monitored) and the West Indian manatee. Additionally, the USFWS lists the following migratory bird species as being of potential occurrence in many or all Texas counties: Eskimo curlew, interior least tern, piping plover, and whooping crane. Examination of the Texas Parks and Wildlife Department (TPWD) Natural Diversity Database (NDD) by the TPWD in Austin indicated no documented occurrences of listed species on or within the immediate vicinity of the subject Sites. The TPWD also lists the Sprag’s pipit as a potential inhabitant of Orange County, although it has not yet been federally listed. TPWD also notes the Louisiana black bear as a possible transient and notes that the red wolf, considered extirpated, formerly occupied the area. There is no federally-designated critical habitat for any listed species within Orange County.

Of those species, only the bald eagle is of potential occurrence on any of the Sites. The bald eagle is no longer protected under the Endangered Species Act, but is still similarly protected under the Bald and Golden Eagle Protection Act. The specific occurrence or absence of bald eagle nests on any of the Sites would need to be determined by a detailed site survey.

## **Summary and Recommendations**

Based on the desktop evaluation, Horizon has determined that only Site AB4 is not likely to have wetlands or other water features subject to jurisdiction. Sites AB2 and CC1 contain wetlands that may be non-jurisdictional. Sites AB1 and AB3 may contain non-jurisdictional wetlands, but have stream channels that are likely jurisdictional. The other 5 Sites all have the potential to contain jurisdictional wetlands or waters to varying degrees.

As most of these sites are intended for detention purposes, project siting and design can greatly influence the degree of jurisdictional impacts and permitting difficulty. Below-grade detention (i.e., excavated) is likely to result in the greatest level of impacts due to the need for almost complete site disturbance. At-grade detention (i.e., leveed) (if hydraulically possible), can be a reasonable means of reducing impacts to existing wetlands while achieving adequate detention goals. Today's wetland regulatory climate will require each site to be evaluated with the goal of reducing jurisdictional impacts. Avoidance and minimization are paramount in the Corps of Engineers' permit evaluation process before the issue of mitigation is even discussed.

A possible diversion from Cow Bayou to the Neches River has also been discussed. While no specific route has been identified as of yet, a diversion channel will have the same permitting challenges discussed above (there is almost no potential route that would avoid wetlands or other sensitive resources, as indicated on the watershed constraints mapping we produced in March of 2014). A diversion also presents some other environmental challenges, notably the indirect ecological effects of removing water from one basin and adding to another basin. In a similar project for Jefferson County Drainage District No. 6 (Needmore Diversion), extensive wetland, cultural resources, and other ecological studies were required not only for the footprint of the diversion, but also downstream on Taylors Bayou from the diversion and along the Intracoastal Waterway that was to receive diversion flows. Extensive hydraulic modeling was also done on Taylors Bayou and the Intracoastal to provide better assessment of changes in flood stage heights and durations to assess impacts on biological communities. Design of the Needmore Diversion was predicated on minimizing adverse effects on wetlands in Taylors Bayou and on erosion, flooding adjacent lands and flow velocities in the Intracoastal. Studies, design, and permitting took over 12 years. The same will likely be required for a Cow Bayou – Neches River diversion. While diversions can be very effective, significant study, design, and agency coordination is required to permit one.

The presence or absence of cultural resources or bald eagles would need to be determined on a site by site basis. Both of these resources would need to be investigated as part of a Corps of Engineers permit. Additionally, bald eagle nests are protected independently under the Bald and Golden Eagle Protection Act. As Orange County Drainage District is a subdivision of the State, any ground disturbing activities they conduct fall under purview of the Texas Antiquities Code, necessitating a determination of cultural resources impacts independent of the Corps of Engineers permit program.

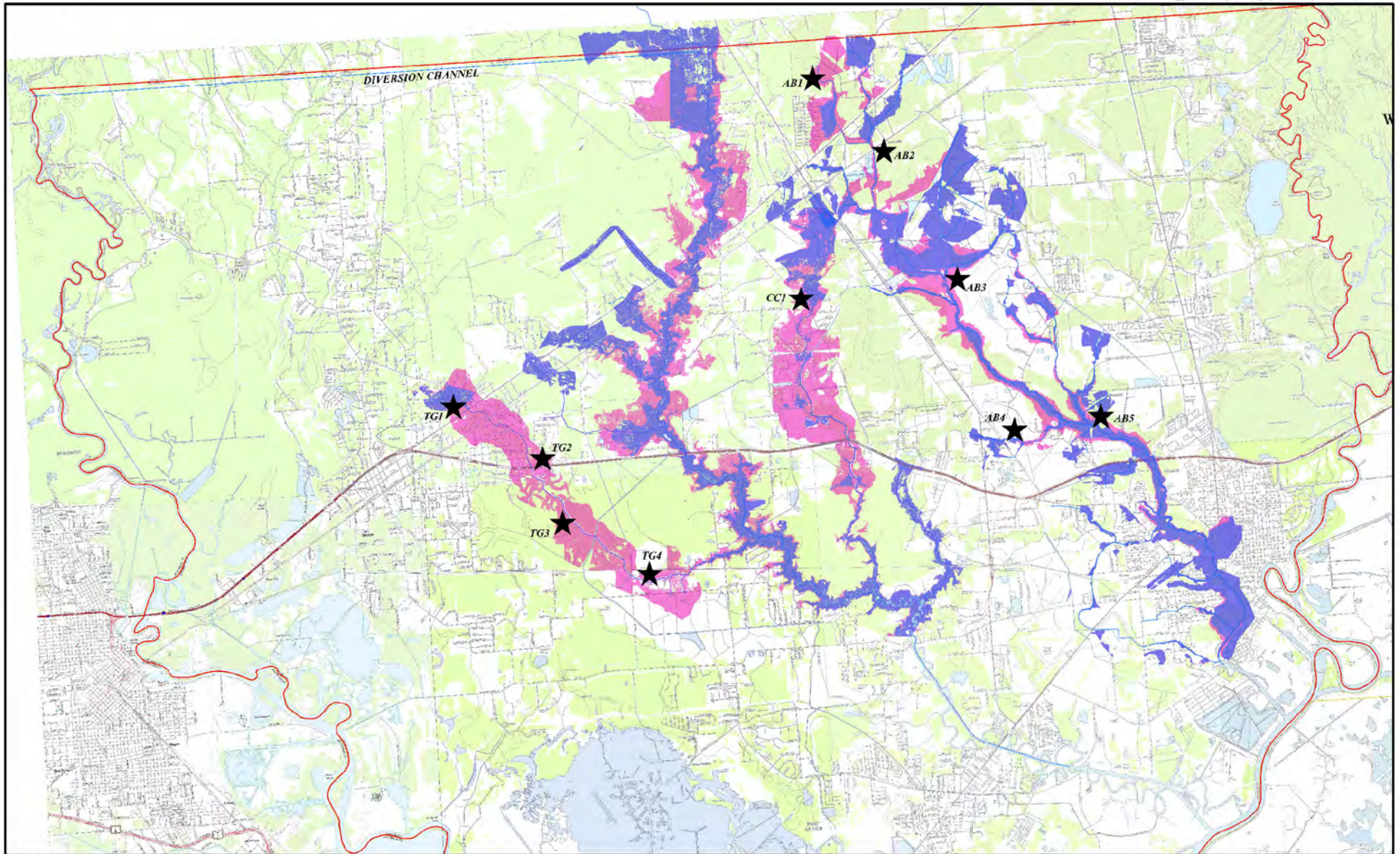
If you have any questions or require additional information please contact me at 512-328-2430.

Sincerely,



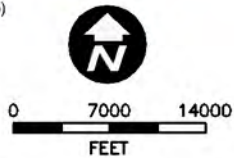
C. Lee Sherrod  
Vice President





MAP SOURCE:  
CARROLL & BLACKMAN INC. (APRIL 2015)

**Horizon**  
Environmental Services, Inc.

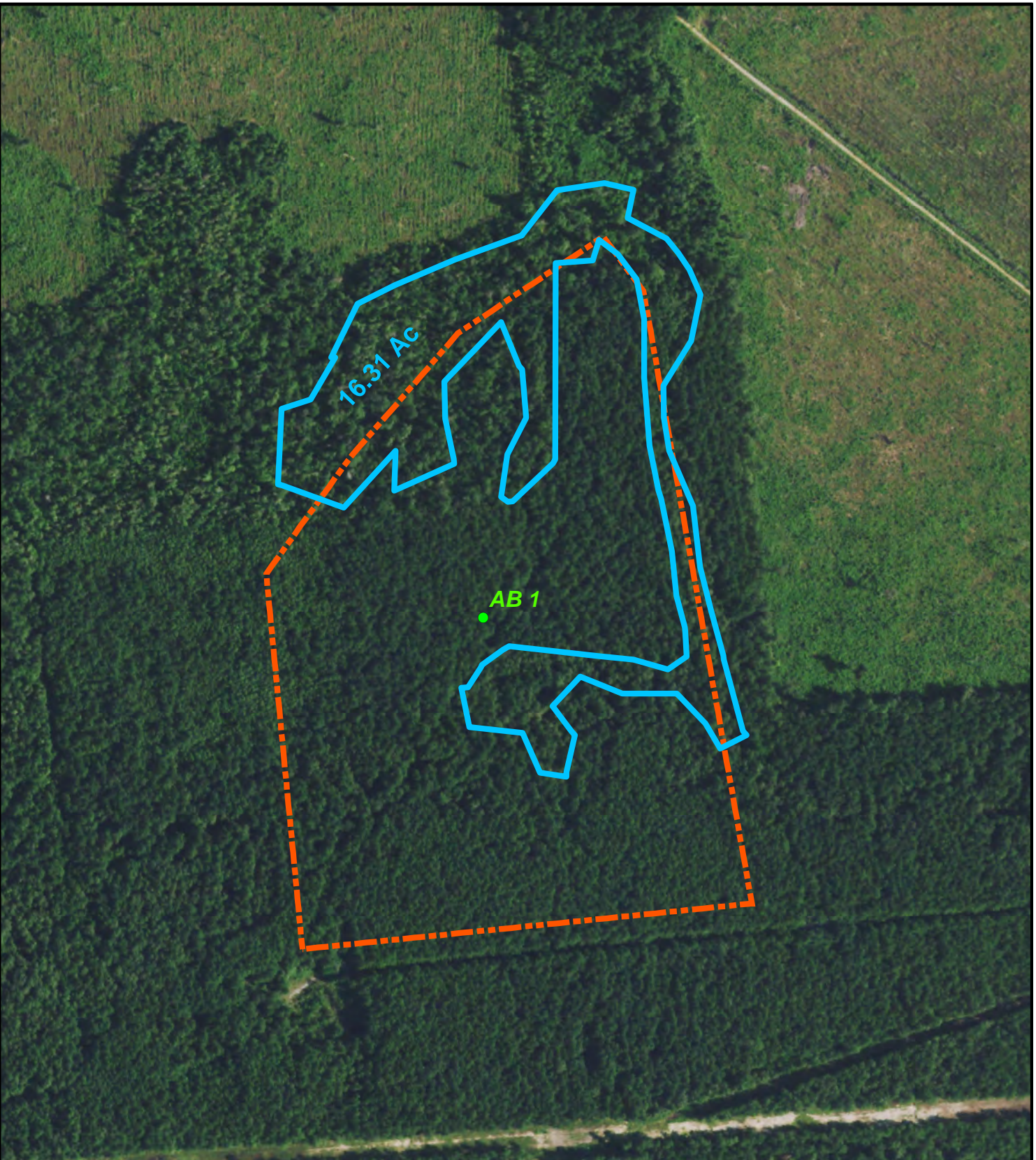


**LEGEND**

- Orange County Boundary
- 100YR Floodplain
- Proposed 100yr Floodplain
- Potential Improvement Locations

**FIGURE 1**  
VICINITY MAP  
COW AND ADAMS BAYOU  
IMPROVEMENTS  
ORANGE COUNTY, TEXAS





MAP SOURCE:  
1. NATIONAL RESOURCE CONSERVATION SERVICE  
ORANGE COUNTY, TEXAS (2014)

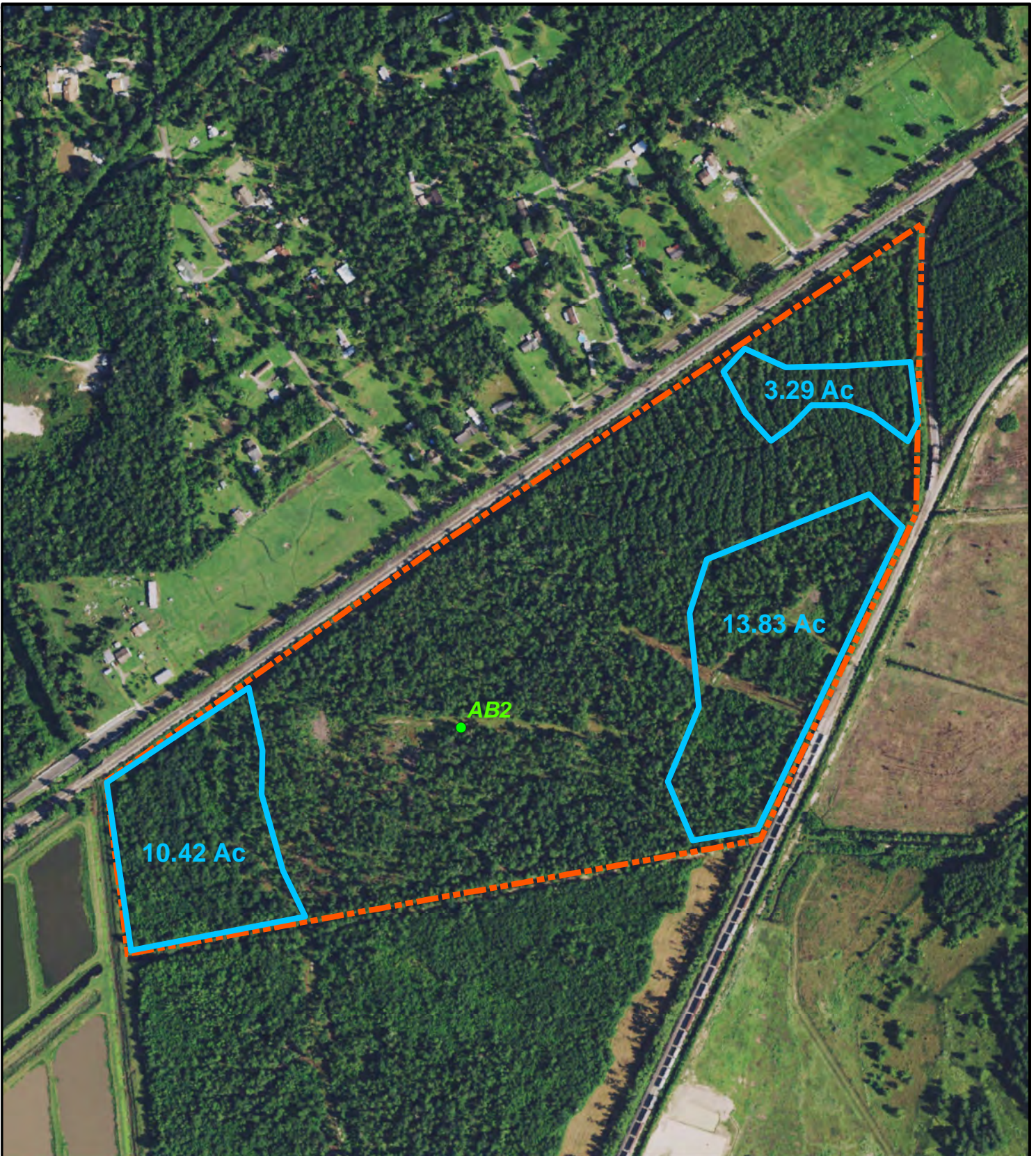
**Horizon**  
Environmental Services, Inc.

**LEGEND**

- LOCATION
- ▭ WETLANDS
- ▭ SITE BOUNDARY

**FIGURE 2**  
**AB-1 PRELIMINARY**  
**JURISDICTIONAL DETERMINATION**  
**COW AND ADAMS BAYOU**  
**IMPROVEMENTS**  
**ORANGE COUNTY, TEXAS**





MAP SOURCE:  
1. NATIONAL RESOURCE CONSERVATION SERVICE  
ORANGE COUNTY, TEXAS (2014)

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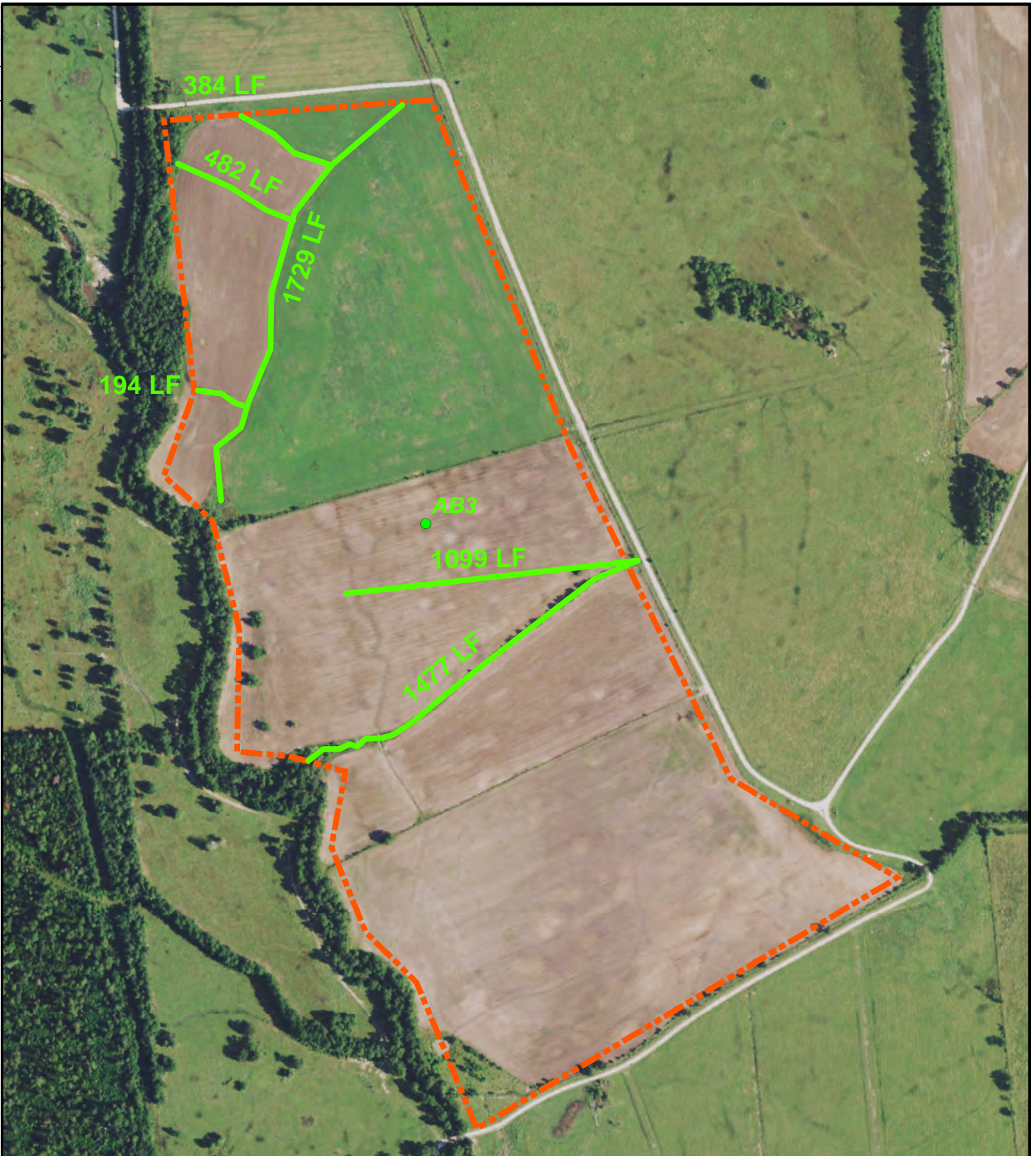
**Horizon**  
Environmental Services, Inc.

**LEGEND**

- LOCATION
- ▭ WETLANDS
- ▭ SITE BOUNDARY

**FIGURE 3**  
**AB-2 PRELIMINARY**  
**JURISDICTIONAL DETERMINATION**  
**COW AND ADAMS BAYOU**  
**IMPROVEMENTS**  
**ORANGE COUNTY, TEXAS**





MAP SOURCE:  
1. NATIONAL RESOURCE CONSERVATION SERVICE  
ORANGE COUNTY, TEXAS (2014)

**Horizon**  
Environmental Services, Inc.

**LEGEND**

- LOCATION
- CHANNELS
- SITE BOUNDARY

**FIGURE 4**  
**AB-3 PRELIMINARY**  
**JURISDICTIONAL DETERMINATION**  
**COW AND ADAMS BAYOU**  
**IMPROVEMENTS**  
**ORANGE COUNTY, TEXAS**





MAP SOURCE:  
1. NATIONAL RESOURCE CONSERVATION SERVICE  
ORANGE COUNTY, TEXAS (2014)

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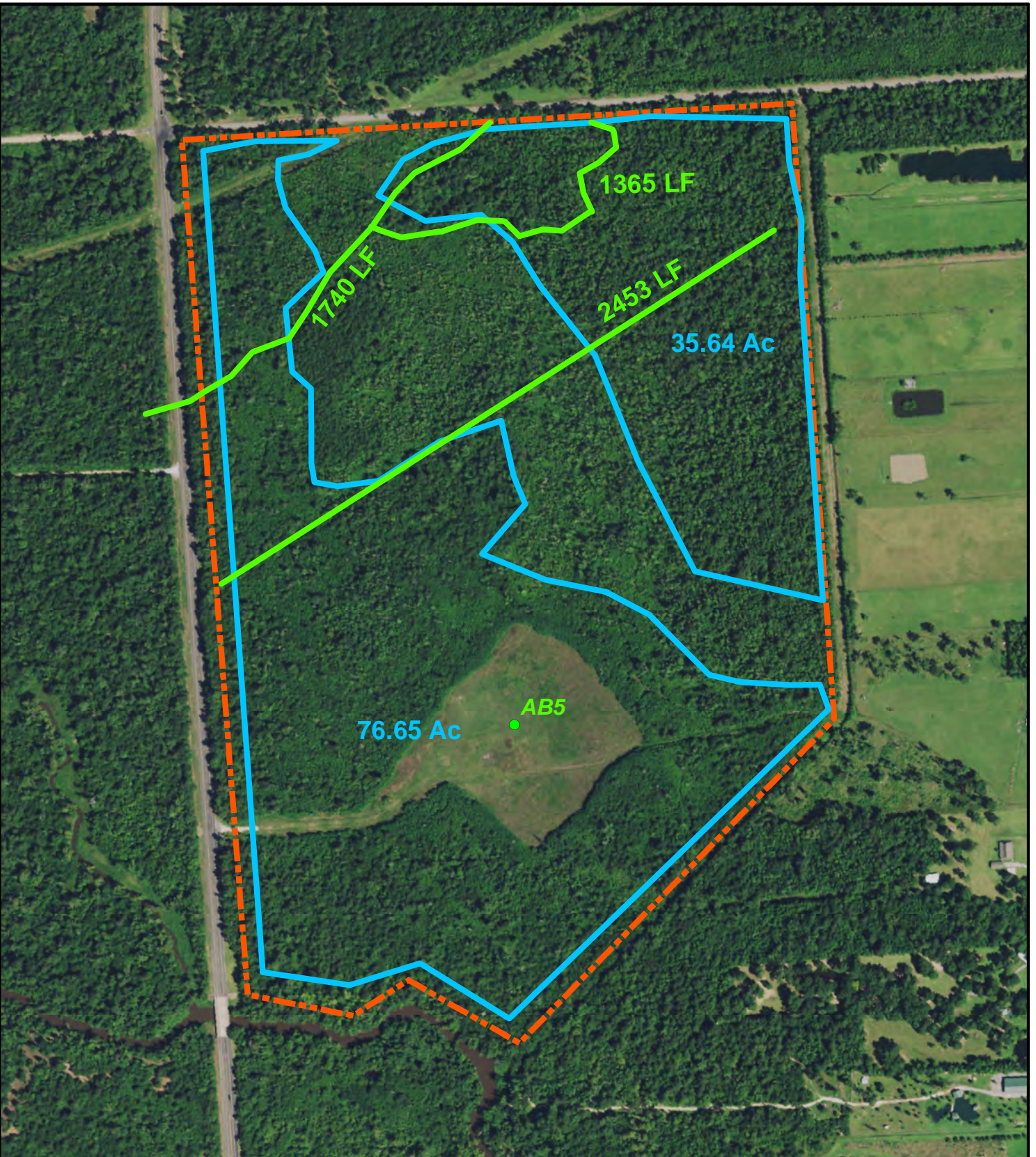
**Horizon**  
Environmental Services, Inc.

**LEGEND**

- LOCATION
- ▭ SITE BOUNDARY

**FIGURE 5**  
**AB-4 PRELIMINARY**  
**JURISDICTIONAL DETERMINATION**  
**COW AND ADAMS BAYOU**  
**IMPROVEMENTS**  
**ORANGE COUNTY, TEXAS**





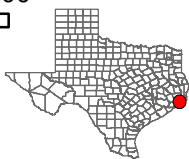
MAP SOURCE:  
 1. NATIONAL RESOURCE CONSERVATION SERVICE  
 ORANGE COUNTY, TEXAS (2014)

**LEGEND**

- LOCATION
- CHANNELS
- WETLANDS
- SITE BOUNDARY



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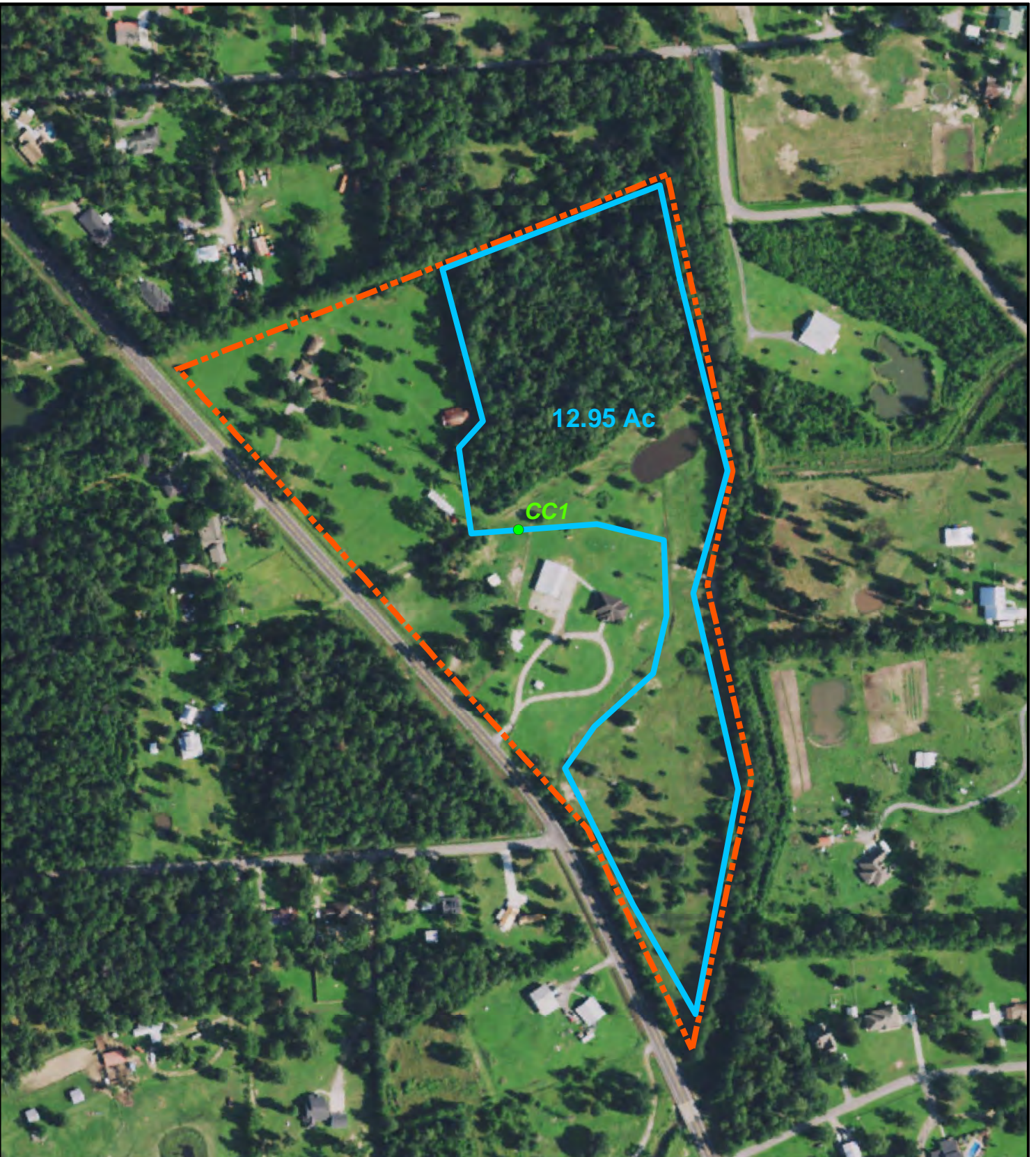


**Horizon**  
 Environmental Services, Inc.

**FIGURE 6**

**AB-5 PRELIMINARY  
 JURISDICTIONAL DETERMINATION  
 COW AND ADAMS BAYOU  
 IMPROVEMENTS  
 ORANGE COUNTY, TEXAS**





MAP SOURCE:  
1. NATIONAL RESOURCE CONSERVATION SERVICE  
ORANGE COUNTY, TEXAS (2014)

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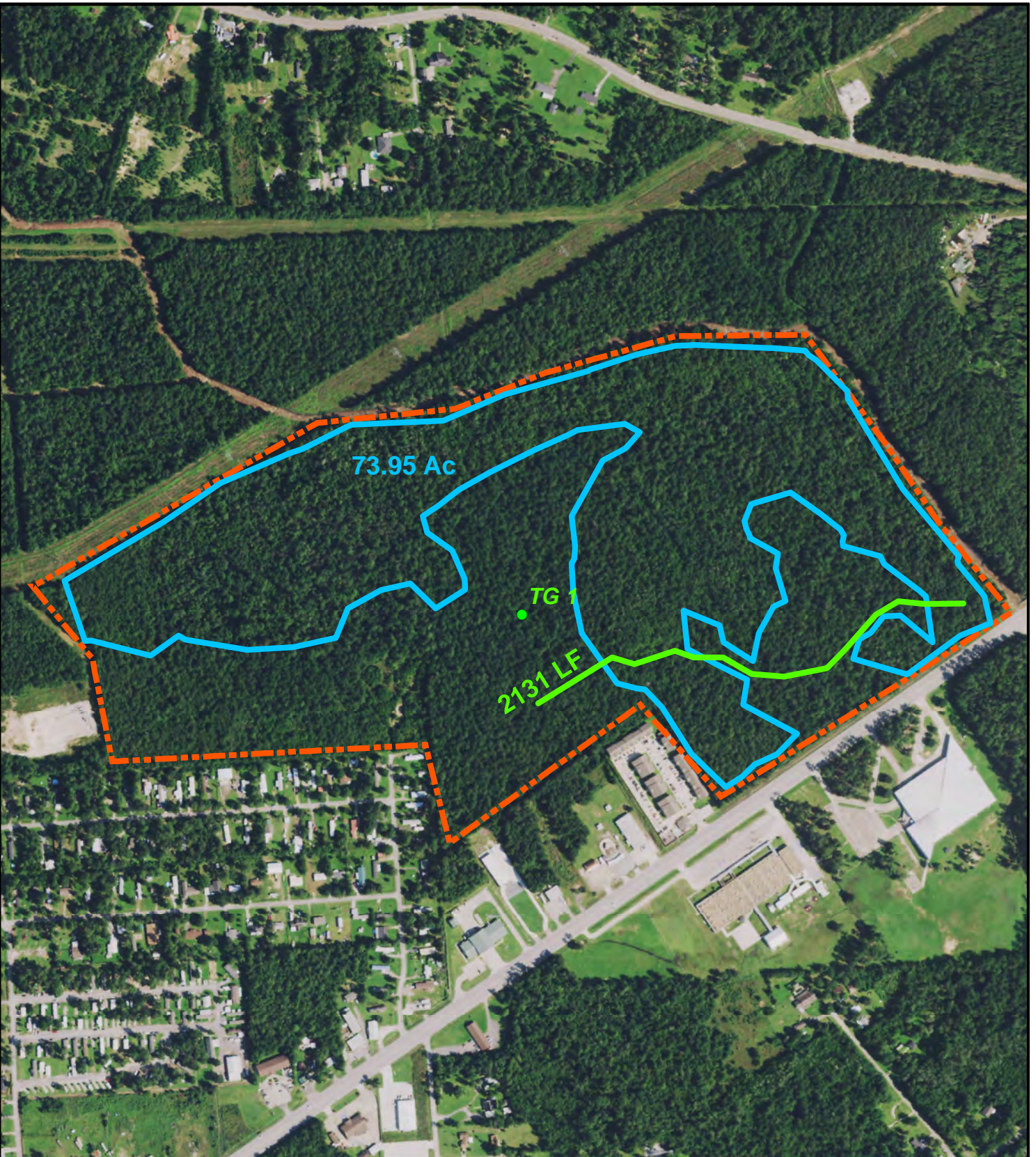
**Horizon**  
Environmental Services, Inc.

**LEGEND**

- LOCATION
- ▭ WETLANDS
- ▭ SITE BOUNDARY

**FIGURE 7**  
**CC-1 PRELIMINARY**  
**JURISDICTIONAL DETERMINATION**  
**COW AND ADAMS BAYOU**  
**IMPROVEMENTS**  
**ORANGE COUNTY, TEXAS**





MAP SOURCE:  
 1. NATIONAL RESOURCE CONSERVATION SERVICE  
 ORANGE COUNTY, TEXAS (2014)

**LEGEND**

- LOCATION
- CHANNELS
- WETLANDS
- SITE BOUNDARY



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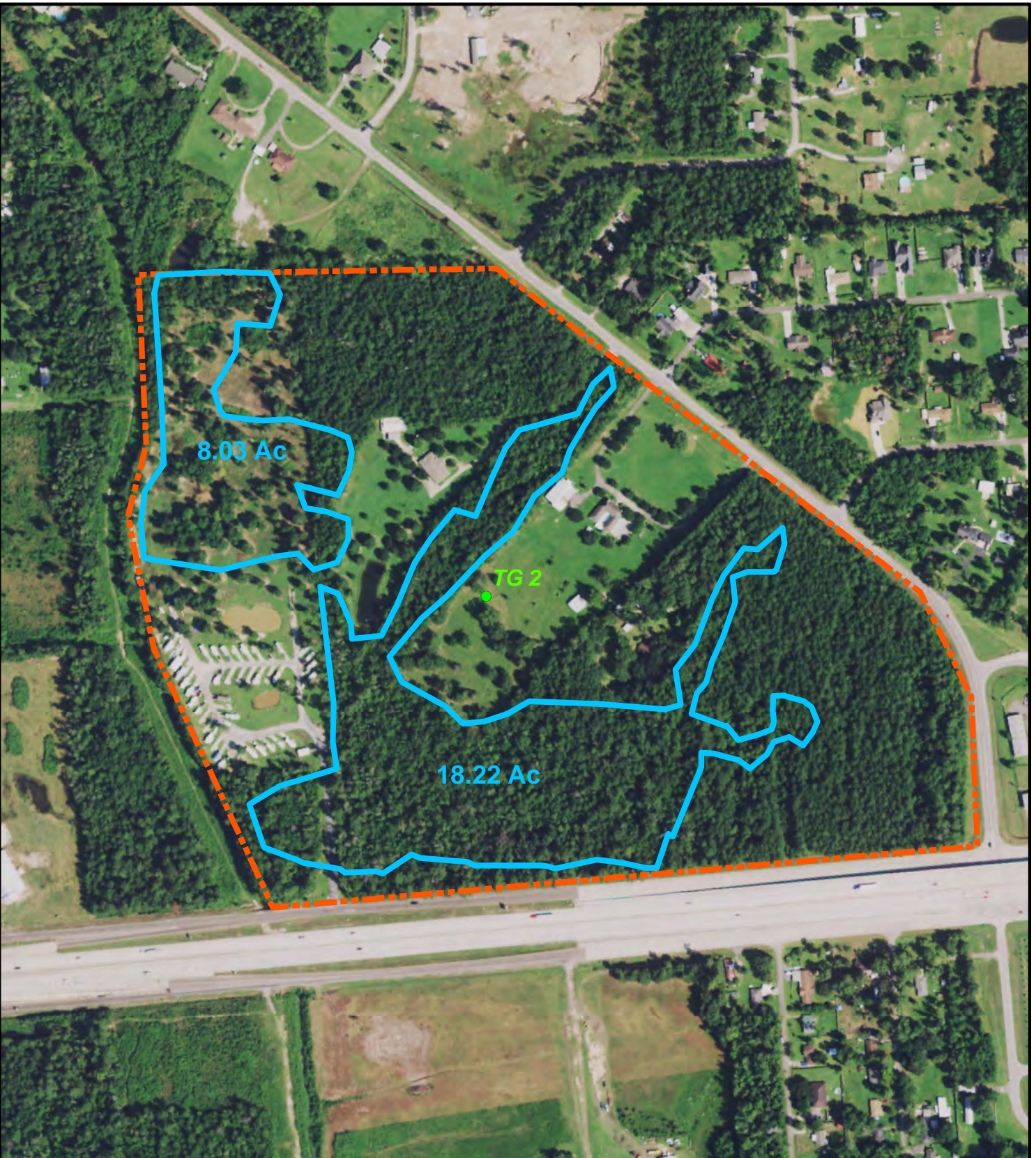


**Horizon**  
 Environmental Services, Inc.

**FIGURE 8**

**TG-1 PRELIMINARY  
 JURISDICTIONAL DETERMINATION  
 COW AND ADAMS BAYOU  
 IMPROVEMENTS  
 ORANGE COUNTY, TEXAS**





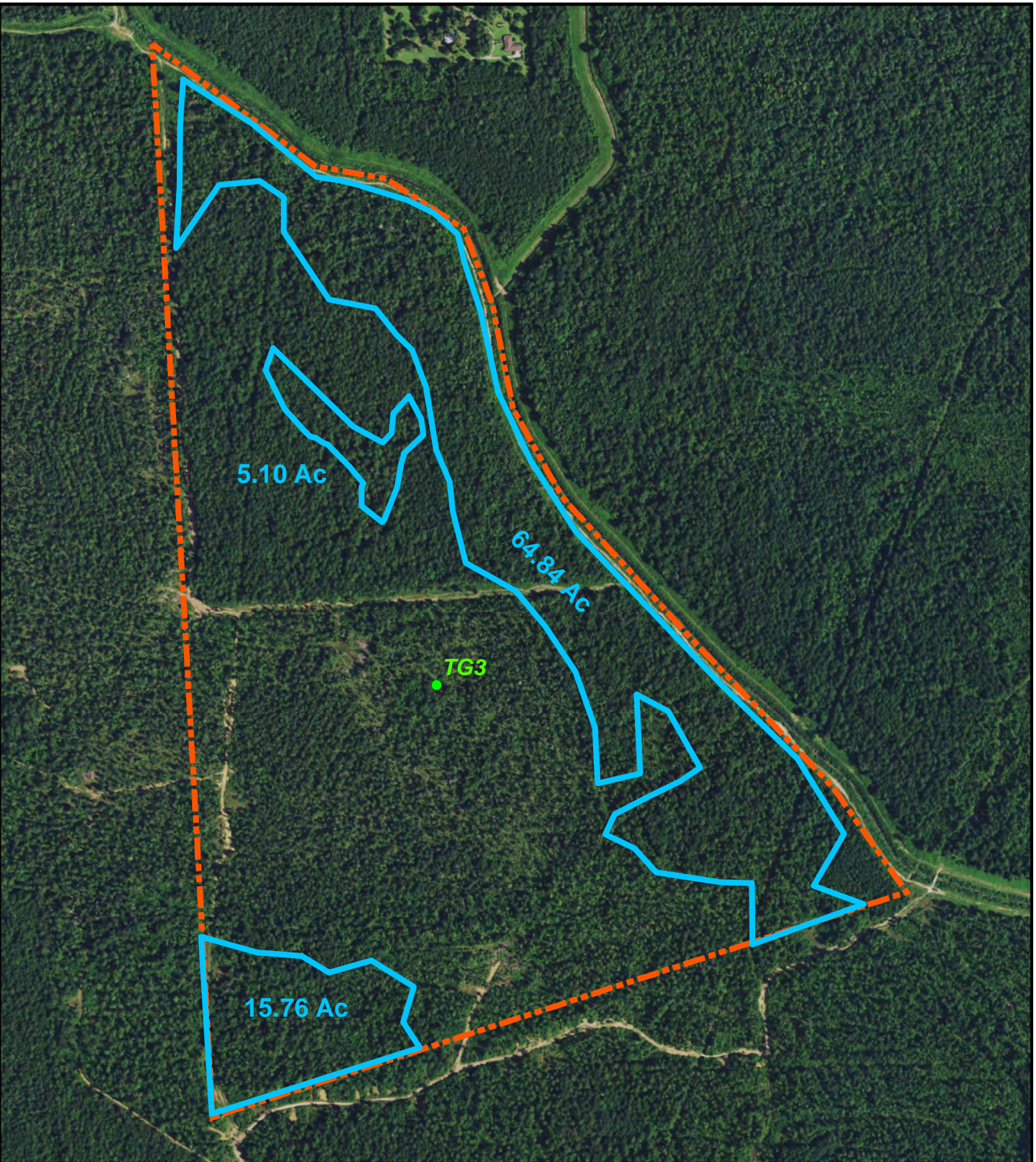
MAP SOURCE:  
1. NATIONAL RESOURCE CONSERVATION SERVICE  
ORANGE COUNTY, TEXAS (2014)

**Horizon**  
Environmental Services, Inc.

- LEGEND**
- LOCATION
  - ▭ WETLANDS
  - ▭ SITE BOUNDARY

**FIGURE 9**  
**TG-2 PRELIMINARY**  
**JURISDICTIONAL DETERMINATION**  
**COW AND ADAMS BAYOU**  
**IMPROVEMENTS**  
**ORANGE COUNTY, TEXAS**





MAP SOURCE:  
1. NATIONAL RESOURCE CONSERVATION SERVICE  
ORANGE COUNTY, TEXAS (2014)

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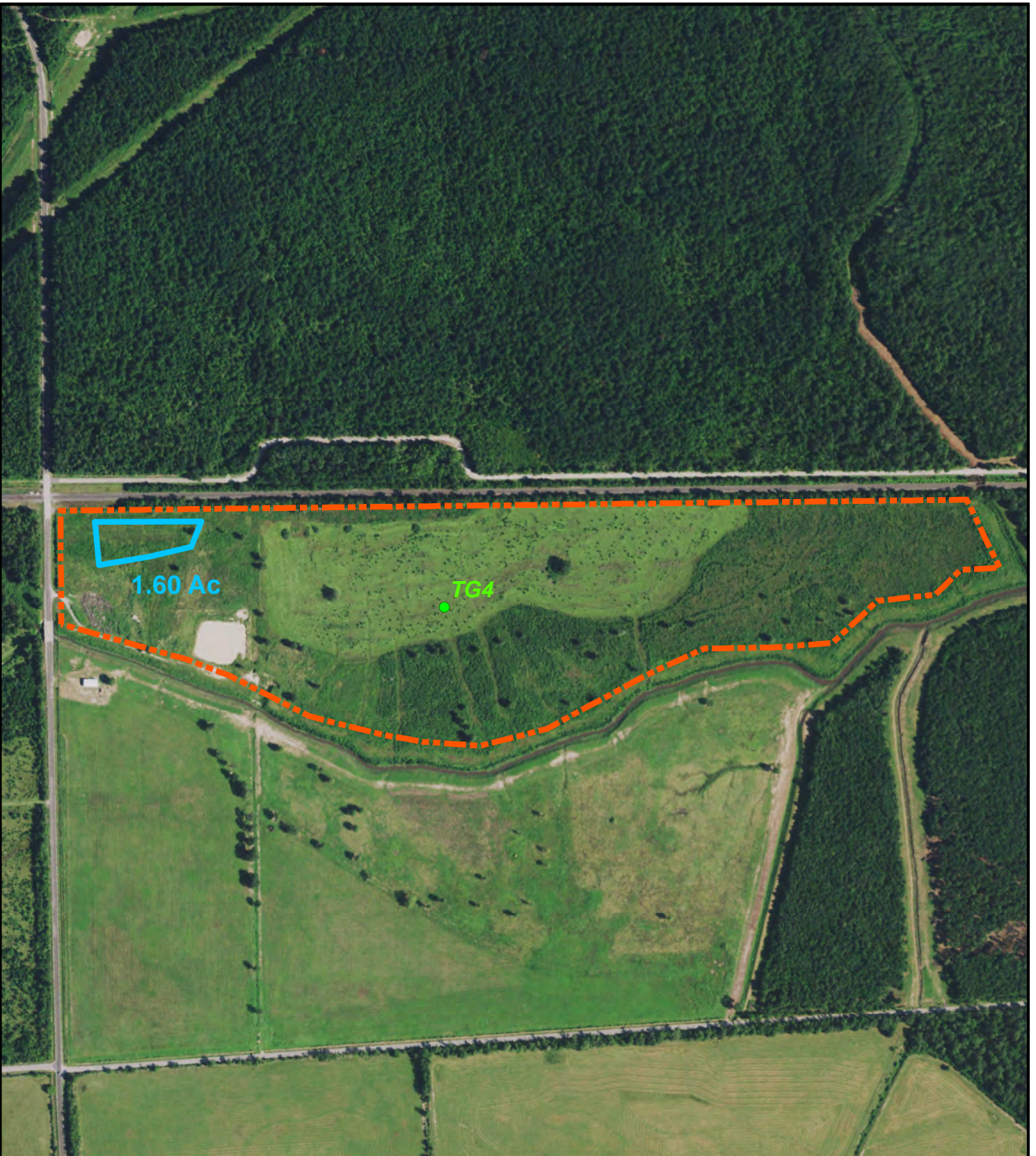
**Horizon**  
Environmental Services, Inc.

**LEGEND**

- LOCATION
- WETLANDS
- SITE BOUNDARY

**FIGURE 10**  
**TG-3 PRELIMINARY**  
**JURISDICTIONAL DETERMINATION**  
**COW AND ADAMS BAYOU**  
**IMPROVEMENTS**  
**ORANGE COUNTY, TEXAS**

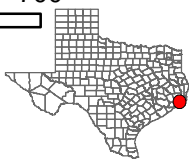




MAP SOURCE:  
1. NATIONAL RESOURCE CONSERVATION SERVICE  
ORANGE COUNTY, TEXAS (2014)






0 350 700  
FEET



**Horizon**  
Environmental Services, Inc.

**LEGEND**

-  LOCATION
-  WETLANDS
-  SITE BOUNDARY

**FIGURE 11**

**TG-4 PRELIMINARY  
JURISDICTIONAL DETERMINATION  
COW AND ADAMS BAYOU  
IMPROVEMENTS  
ORANGE COUNTY, TEXAS**

# **APPENDIX F**

# APPENDIX G



RECEIVED  
OCT 20 2015  
By: \_\_\_\_\_

# Texas Water Development Board

P.O. Box 13231, 1700 N. Congress Ave.  
Austin, TX 78711-3231, [www.twdb.texas.gov](http://www.twdb.texas.gov)  
Phone (512) 463-7847, Fax (512) 475-2053

October 9, 2015

Mr. Mark Stephenson  
Orange County Drainage District  
8081 Old Hwy 90  
Orange, Texas 77630

RE: Flood Protection Planning Grant Contract between the Texas Water Development Board (TWDB) and the Orange County Drainage District (District), TWDB Contract No. 1348321594, Draft Report Comments

Dear Mr. Stephenson:

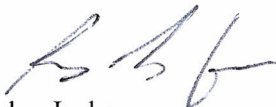
Staff members of the TWDB have completed a review of the draft report prepared under the above-referenced contract. ATTACHMENT I provides the comments resulting from this review. As stated in the TWDB contract, DISTRICT will consider revising the final report in response to comments from the Executive Administrator and other reviewers. In addition, DISTRICT 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. **Please further note, that in compliance with Texas Administrative Code Chapters 206 and 213 (related to Accessibility and Usability of State Web Sites), the digital copy of the final report must comply with the requirements and standards specified in statute. For more information, visit <http://www.sos.state.tx.us/tac/index.shtml>.** If you have any questions on accessibility, please contact David Carter with the Contract Administration Division at (512) 936-6079 or [David.Carter@twdb.texas.gov](mailto:David.Carter@twdb.texas.gov)

DISTRICT 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 this amendment, please contact Ivan Ortiz at 512-463-8184.

Sincerely,



Edna Jackson  
Deputy Executive Administrator  
Operations and Administration

Enclosure

c: Ivan Ortiz, TWDB

<b>Our Mission</b>	:	<b>Board Members</b>
To provide leadership, information, education, and support for planning, financial assistance, and outreach for the conservation and responsible development of water for Texas	:	Bech Bruun, Chairman   Kathleen Jackson, Member
	:	Kevin Patteson, Executive Administrator

Attachment I

**Review of Draft Report for Contract No. 1348321594  
Orange County, Cow Bayou and Adams Bayou Flood Protection Planning Study**

1. Please conduct a final edit for typos, grammar, abbreviations, proper references, citations, and , inconsistent usage of acronyms, examples include:
  - Indentation within the Table of Contents is not consistent, please update as necessary,
  - Appendix B, Page 6, is missing in the “Existing Conditions” section, please update, and
  - Appendix D, Adams Bayou Detention Pond 1 – “Total Estimated Cost” line item is off by \$1. Should be \$44,922,851, please update.
  
2. In general, the study follows standard methodologies and practice. Mitigation alternatives identified by the study are eligible for funding under the Board’s financial assistance programs. Application requirements and eligibility criteria are identified by Board rules specified in Section 363 of the Texas Administrative Code (TAC). 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.